Methodology

This document describes the detailed methodology for the Math Narrative Project, and has been prepared by the project research team, composed of public opinion researchers and narrative strategists from Goodwin Simon Strategic Research (GSSR) and Wonder: Strategies for Good (Wonder). The Math Narrative Project was conducted from March 2022 through February 2024. Visit www.mathnarrative.org to learn more.

The document is structured in five parts including an appendix of research assets (focus group guides, recruitment screeners, and other materials used by the research team throughout the project).

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OVERVIEW OF THE MATH NARRATIVE PROJECT

The Math Narrative Project aims to advance an evidence-based messaging and narrative change strategy to improve math instruction and outcomes for 6th to 10th grade Black and Hispanic students of all incomes and Asian American and Pacific Islander (AAPI) and white students from lower-income backgrounds. The project focuses on these students, as they are most likely to encounter systemic barriers to accessing high-quality math education and math resources.

The Math Narrative Project uses the Heartwired approach to developing evidence-based messaging to determine what cultural narratives exist, and how and who can disrupt harmful narratives and replace them with more positive narratives. Heartwired research focuses on the emotions, beliefs, values, lived experiences, identities, and influences that shape students' math learning.

From 2022 to 2024, GSSR and Wonder conducted research with 6th to 10th grade public school students, and the adults who influence students in this age group's learning experiences — math teachers and parents of 6th to 10th graders.[1]

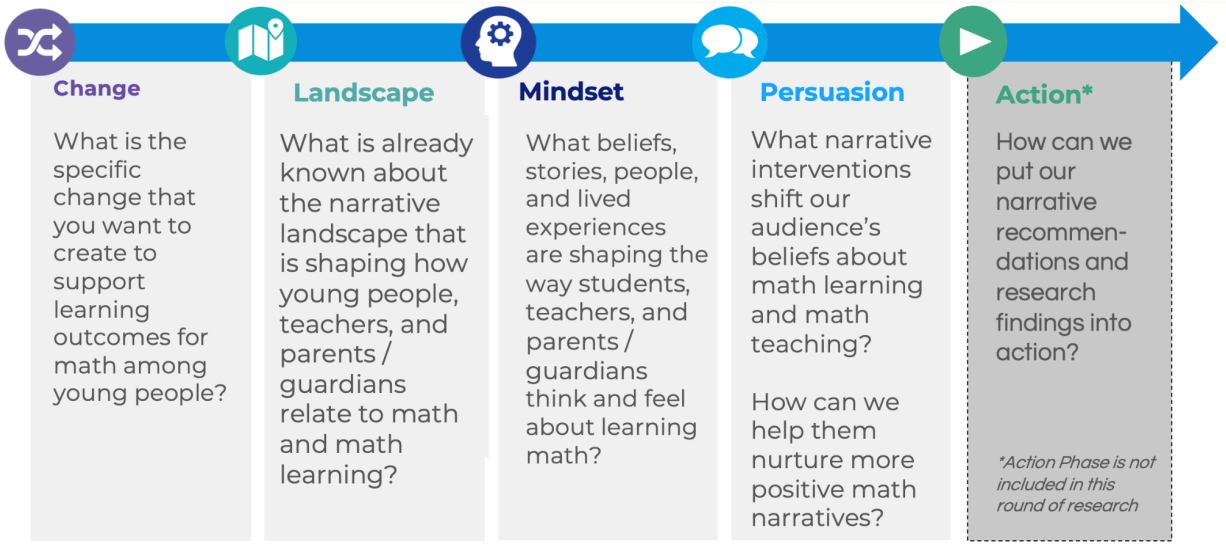
Research objectives include:

- Develop an understanding of the emotions, beliefs, values, lived experiences, identities, and influences that shape the mindsets of 6th to 10th grade students from any income who are Black or Hispanic, or AAPI or white students from lower-income households, around learning math
- Develop and test a set of messaging interventions that lead to positive math narrative shifts among Black and Hispanic students of all incomes, and AAPI and white students from lower-income households

[1]Early qualitative research supported this hypothesis that students' experiences, beliefs, and emotions around learning math are influenced by the adults in their lives–and especially youth and parents/guardians.

HEARTWIRED RESEARCH DESIGN

Heartwired research is typically structured around five research phases (Change, Landscape, Mindset, Persuasion, and Action). To date, the research team has completed the first four phases of Heartwired research, laying the foundation for the final phase — Action — when effective interventions will be field-tested by key partners. In each phase, the research team answers a different research question.



Heartwired also uses an analytical framework which focuses on how the five Heartwired factors (below) combine and often collide to shape people's attitudes and behaviors.

- *Emotions*: The feelings human beings have in response to the stimuli both within and around them.
- *Identity*: How a person sees himself or herself in relation to the world around them.
- *Lived Experiences*: The events and relationships a person experiences in their life, which combine with the meaning that they assign to those experiences and shape how they think.
- *Values*: The ideals that individuals hold about what is good or bad, right or wrong, appropriate or inappropriate. Values influence emotional reactions, attitudes, beliefs and behaviors.
- *Beliefs*: The ideas that people hold to be true.

The Heartwired research and messaging approach has been developed and refined over the course of more than 25 years of messaging development and testing through in-depth audience research — and the application of these research results to real-world attitude and behavior change. Heartwired's cutting-edge approach is built on decades of experience in qualitative and quantitative research, social and political marketing, policy analysis, and messaging and communications. The Heartwired approach is rooted in the latest research on neuroscience, emotion, psychology, cognitive linguistics, and narrative theory. This unique methodology is

used to unpack underlying attitudes and emotional reactions that impact behavior and decision- making and to develop effective message frameworks and narrative interventions that enable deep attitudinal change.

Each research phase and research instrument is designed with each of these five heartwired factors in mind. Practically speaking, this means that moderator guides and surveys include questions and activities that enable the research team to understand the emotions, identity, values, beliefs, and lived experiences of each research audience: students, parents, and teachers. This approach also means that Heartwired research places a particular emphasis on understanding the emotions of the research audience, digging deeper to understand how the five Heartwired factors come together to shape behavior.

RESEARCH TEAM & PROJECT ADVISORS

Throughout the research project, the teams from Goodwin Simon Strategic Research and Wonder: Strategies for Good worked collaboratively. GSSR and Wonder are frequent collaborators and work closely together through each phase of a project. Both firms provided extensive input and active support in all phases.

For this project, the research team also worked with a psychologist and cognitive linguist who provided input into both the design of the audience research and the analysis of the qualitative audience research in the Mindset and Persuasion phases. Their insights and expertise helped shape a range of research decisions, including audience research design, participant recruitment, structuring focus group and interview discussions, moderation of qualitative research discussions, and analysis.

The project is supported by two groups of expert advisors.

- An Advisory Group (AG) made up of adult professionals — including classroom teachers — working in the areas of math instruction, math identity formation, children's media, learning sciences, and educational psychology
- A Youth Advisory Panel (YAP), made up of young adults participating in BUILD's youth fellowship program. YAP members hailed from New York and California and were between the ages of 18 and 21

Project advisors engaged as full partners in each phase of the research, providing feedback on project design and research questions and tools (e.g., focus group moderator guides and initial messaging), and workshopping preliminary research insights. AG members also participated in a series of "watch parties" where, over the course of approximately two-and-a-half hours, they watched either an entire focus group or highlights from focus groups and shared their reactions and insights. These watch parties take place over Zoom, and the research team uses a transcript of the conversation and the written chat with observations from advisors as part of their analysis (more information is provided below).

YAP members participated in three design sprints throughout the research period. Each sprint focused on a different aspect of the methodology: YAP members learned Heartwired analysis, provided guidance on the structure of interviews and focus groups, wrote and tested research questions, and created test content (sometimes based on their personal experiences learning math). Like the AG, YAP members also participated in several watch parties to see and react to highlights from various focus groups, and the contributions from these recorded discussions and the written chat also were a component of the research team's analysis.

DETAILED METHODOLOGY BY PHASE

CHANGE PHASE

During the Change Phase, the research team facilitates a workshopping process in which the researchers, project advisors, and other project stakeholders develop preliminary hypotheses for how narrative change could be a lever to support better math learning outcomes, articulate related goals, and develop a point of view about priority audiences for the research. The research team and advisors iterate and refine these hypotheses and goals as the research progresses and early insights begin to take shape.

Change Key Question: What is the specific change that you want to create to support learning outcomes for math among young people?

Initial Hypothesis and Change Goals

- **Change Hypothesis:** The primary influencers of young people in middle school and high school are teachers, parents/guardians, and students
- **Change Goal 1**: Shift societal mindset around math skills from irrelevant, exclusive, and hard to useful, enjoyable, and attainable by all
- **Change Goal 2:** Change the narrative around math; Determine the messages and who are the messengers to drive that change

LANDSCAPE PHASE

After identifying the change goals, the research team employed a mixed-methods research approach to better understand the narrative landscape shaping how young people, teachers, and parents/guardians relate to math. The insights and learnings gained from the Landscape Phase guided and informed subsequent research phases.

Landscape Phase Key Question: What is already known about the narrative landscape that shapes how young people, teachers, and parents/guardians relate to math and math learning?

The research team analyzed an academic literature review, qualitative stakeholder in-depth interviews, a media audit and social listening, and pop culture analysis. The research team conducted a qualitative analysis using analyst team meetings and meetings with the Advisory Group to share observations, suggest hypotheses, consider implications, and make meaning of the data. *The Literature Review is available for download here. A report summarizing the Landscape Phase findings is available by request (hello@mathnarrative.org).*

Literature Review

The following questions were explored in the academic literature:

- How and when does identity formation happen? How does general identity formation relate to math identity formation?
- What are the key mindsets/beliefs that play a role in students' math identity formation?
- Who are the key socializers that influence math identity formation, and how do they impact this formation?
- What types of interventions are effective at shifting students' mindsets and subsequent outcomes?

Stakeholder In-Depth Interviews

Stakeholder interviews in the Landscape Phase were conducted online, utilizing Zoom, and lasted approximately one hour each. The interviews allowed the research team to develop a more in-depth understanding of how narratives related to math learning that young people hear and learn about from their parents, teachers, peers, and others shape how young people experience math; how they think and feel about math, including their ability to succeed in math; and who and what influences how young people think and feel about math learning. A sample of a moderator guide used for Stakeholder Landscape In-Depth Interviews is available in the appendix.

The research team conducted 12 60-minute interviews with stakeholders including education policymakers; experts in teacher preparation and assessment; teacher and parent organizers; and students. These interviewees included:

- Gender: 7 Men, 5 Women
- Race: 5 Black, 5 White, 2 Hispanic
- Geography: California, Connecticut, DC, Florida, Massachusetts, Michigan, New York, Texas

Media Audit

The research team conducted a media and social listening analysis by first determining search parameters to identify a set of articles from target publications, and then doing qualitative analysis to understand how the media is reporting on the challenges and opportunities related

to math, including the messengers, message frames, and topics that shape how audiences understand these issues. Through social listening of reader comments on news websites and social media, we analyzed how civically-engaged people in the United States respond to this coverage and talk about these issues. The research team also examined how young people experience, share, and produce these narratives through a review of youth-oriented media platforms.

These activities enabled the research team to uncover a clearer picture of the current narrative landscape and the ways in which specific language, messengers, frames, and other narrative tools are working with or against efforts to improve math outcomes for students.

The research team analyzed a sample of articles from national mainstream news sites (e.g., Washington Post, USA Today), local/regional mainstream news sites (e.g., Tampa Bay Times, Orlando Sentinel), education trade publications (e.g, Education Week, The 74), and parenting news publications (e.g., Parenting Magazine) as well as reader comments. Articles were pulled from across two time periods: July 1, 2018 - June 30, 2019 and July 1, 2021 - June 30, 2022. Search parameters screened for articles that include at least one of the following terms: “math,” “math education,” “math achievement,” “math success,” or “STEM” along with at least one of the following terms:

- Students
- High school
- Elementary school
- Preparation
- Middle school
- Young adults
- Teachers
- Parents
- Caregivers
- Guardians
- Advocacy
- Grade
- Algebra
- Race
- Income
- Ethnicity
- Black
- African American
- Latin/x/o/a
- Hispanic
- Achievement gap
- Equity
- Equality
- Systems change
- Math anxiety
- Poverty
- Low income
- Socioeconomic status

The research team analyzed 97 articles from a set of 329 math-related articles, derived from 16 publications. Additionally, the team analyzed a sample of 8,000+ reader comments from a subset of 15 articles.

Pop Culture Analysis

The research team conducted a pop culture analysis of 70 math-related videos on Tiktok and YouTube.

TikTok: Analyzed a sampling of 5 videos from the top 10 math-related hashtags, totaling 50 videos.

- #math - 16B views*
- #mathematics - 3B views
- #mathtrick - 2.3B views
- #algebra - 982M views
- #mathteacher - 821M views
- #mathhelp - 532M views
- #mathsucks - 375M views
- #mathtutor - 283M views
- #mathchallenge - 204M views
- #mathclass - 184M views

*“views” refers to total views as of July 2022

YouTube: Analyzed a sampling of 20 videos from the top videos from 12 math-related hashtags and a keyword search for “math” and “mathematics”

- #math - 430K videos
- #mathematics - 398K videos
- #algebra - 86K videos
- #mathtricks - 55K videos
- #mathtrick - 23K videos
- #mathteacher - 13K videos
- #mathclass - 7.7K videos
- #mathmagic - 6.1K videos
- #mathtutor has 4.5K videos
- #mathsucks - 2.6K videos
- #mathhelp - 2.5K videos
- #mathchallenge - 1.7K videos

MINDSET & PERSUASION PHASES

Qualitative and Quantitative methodologies were employed across Mindset and Persuasion Phases.

Mindset Phase Key Question: What beliefs, stories, people, and lived experiences are shaping the way students, parents/guardians, and teachers think and feel about learning math?

Persuasion Phase Key Question: What narrative interventions effectively shift students', parents'/guardians', and teachers' beliefs about math learning and math teaching? How can we help students, parents/guardians, and teachers nurture more positive math narratives?

Qualitative Research Methods Employed

The research team employed five different qualitative research methods in the course of the project, including in-depth interviews, dyad discussions, in-person focus group discussions, online focus group discussions with a zoom-like platform, and online asynchronous written focus group discussions. More details about each method and audiences include:

Youth: Qualitative Research Methods

- One-on-one in-depth interviews on an enhanced Zoom platform
- In-person focus group discussions among students who did not know each other and attended different schools
- In-person dyads with two students who were friends with each other

Teachers and Parents/Guardians: Qualitative Research Methods

- Online live focus group discussions
- Online asynchronous focus groups over multiple days (written replies only, no face-to-face discussion)

While each method has a unique structure (detailed below), there are some commonalities across qualitative research methods:

- Research participants self-identify as Asian American and Pacific Islander (AAPI), Black, Hispanic, or white; participants who identify as mixed race also needed to identify as AAPI, Black, Hispanic, or white to participate
- Youth participants are in 6^{th}, 7^{th}, 8^{th}, 9^{th}, or 10^{th} grade and attend a public school (including charter or magnet schools) in California, Florida, New York, or Texas
- Parents/guardians have at least one child in 6^{th}, 7^{th}, 8^{th}, or 9^{th} grade who attends a public school (including charter or magnet schools) in California, Florida, New York, or Texas
- Black and Hispanic students and parents/guardians could be of any income level; AAPI and white students and parents/guardians were from lower-income households
- Teachers are teaching math to at least one of 6^{th}, 7^{th}, 8^{th}, or 9^{th} grades in a public school in California, Florida, New York, or Texas; teachers may teach other subjects in addition to math

Additionally, whether in person or online, participants in live group discussions (e.g., dyads, live focus groups) are of the same race and gender, and each discussion is facilitated by a moderator who is the same race or ethnicity as participants. Years of research experience demonstrates participants are more comfortable expressing — and are more likely to express — experiences and identities related to their race and gender when they are in a homogenous group.

Relatedly, across all research audiences (youth, parent, teacher) focus group participants do not know each other, nor are they connected to the same school (i.e., youth and teacher participants are all from different schools, parents do not have children in the same school) in order to further reduce social desirability bias.

Unless noted otherwise, qualitative research was conducted in English only. For discussions with Hispanic participants, the moderator is a native Spanish speaker regardless of the discussion's language, as there may be Spanish-language references raised during the discussion. Native Spanish-speaker moderators are well positioned to be able to understand those ideas, and also what is important to probe around them.

Moderators are highly experienced and have also undergone Heartwired moderator briefings or training so that across research discussions, moderating is happening in a psychologically informed way (for more information, including to request the Heartwired Moderator Training Guide, please email hello@mathnarrative.org).

All discussions are conducted using a moderator's guide developed with input from a psychologist and cognitive linguist that has questions carefully designed to provide a particular order and flow to the conversation. The content of each moderator's guide is informed by prior phases of research (links to sample moderator guides for different audience discussion can be found in the appendix).

The research team worked with a cognitive linguist and a psychologist in both the development of the moderator guides and the analysis of the interviews, dyads, and focus groups. The cognitive linguist provided analysis on how participants apply cognitive structures (e.g., frames, categories, and metaphors) to their thinking about math learning, and on underlying patterns of reasoning to help identify implicit as well as explicit responses. The psychologist provided input on structuring the student qualitative research to make it more engaging for participants in that age group, as well as eliciting open and honest responses. The psychologist also provided analysis exploring the psychological and interpersonal dynamics at play for each audience, and provided insights into the impact of the particular developmental stages that youth in these grades are experiencing. The psychologist provided insights into the context of math learning for

youth at these ages, which helped the research team apply psychological and cultural lenses to analyzing participant responses and group dynamics in focus groups.

Qualitative Analysis

The research team includes a racially diverse group of analysts (AAPI, Black, Hispanic, and white members) who are deeply embedded in the project. As researchers, the analysts strive to be objective. At the same time, each analyst brings their own perspective and understanding to the analysis based on their own lived experiences. Each lead qualitative research analyst is also a research discussion moderator (though not all moderators on this project are also analysts), a role that enables each analyst to bring additional insight to the research analysis.

Each qualitative research discussion, whether it be in person or online and regardless of research audience, is observed live by at least one member of the research team (this is in addition to any researcher who may be moderating that discussion) who is noting their impressions in real time. After each discussion the research observer(s) have a debrief with the moderator about their impressions and reactions to the research discussion. The moderator is also able to provide their unique perspective and analysis based on being in the room (physical or virtual) with participants and managing the flow of the discussion, which is a valuable perspective observers cannot replicate. These debrief discussions are recorded and help inform the analysis of each research discussion.

Audio and video recordings are made of each research discussion, and discussions are also professionally transcribed. Additionally, any written materials (e.g., worksheets that have been written on as part of a discussion exercise) are scanned and saved so the research team can engage in content analysis.

When they are observing the research discussions live and in the subsequent analysis, the research team is deeply listening for ways in which the five Heartwired factors are emerging throughout the discussion. The team also worked with a psychologist and cognitive linguist to gain analytical insights from their respective areas of expertise.

The research team's qualitative analysis is rooted in individual and collaborative review and discussions. The team first begins by having each discussion reviewed by an individual analyst (almost always one of the analysts who observed that discussion) who builds on the impressions and findings lifted up during the live observation and moderator debrief. The team then has a series of team meetings during which they collectively share and talk through what they are seeing across groups. Part of this process is a shared analysis document, where all

analysts are adding and detailing their findings (with findings across discussions grouped together).

Analysis is an iterative process where subsequent analysis is informed by earlier discussions. For example, if one analyst lifts up a finding from their discussion that is seemingly absent from others, the other members of the team will again review the various transcripts with a specific eye towards ways this theme emerges — or doesn't — in those discussions. The team begins detailed analysis after the completion of the first discussion and adds and expands on that analysis throughout the rest of the process. The end result is key insights that inform the development and refinement of messaging testing in the rest of the qualitative work as well as the quantitative survey.

Qualitative Methods: Youth Audience

Across the different youth discussions, the research team strove to create a space and environment where youth participants could feel comfortable and would be willing to share their honest responses to questions. The team did not want participants to feel like they were in school or some other formal setting where certain behavior or answers may be expected, and designed protocols to address this consideration.

Steps the team took to create a comfortable environment for the in-person youth discussions included (but are not limited to):

- Allowing them to choose where they want to sit when they enter the discussion room
- Having a plate with snacks waiting at each seat for each participant as they enter the discussion room, and encouraging them to eat or drink whenever they want
- Having other food and beverage options available in the room, and encouraging participants to get up and help themselves at any time (i.e., they do not need to ask permission)
- In the introduction, which was carefully crafted with the help of a psychologist, emphasizing that every answer is a right answer, and specifically avoid making references to wrong answers or things that would elicit performance pressure or concerns for kids or a sense that they're being evaluated
- Having pens or markers of different colors on the table (rather than standard blue/black ink pens) and pads of paper at each seat so participants could take notes, draw, doodle, etc. if they wanted to during the discussion
- Being clear that they do not raise their hand to talk; they simply speak when they wish and when another student is done talking

- Encourage youth to talk with each other and not direct their replies solely to the moderator
- Moderators dressing in an informal manner (e.g., jeans, t-shirts, sneakers) and having participants address them by their first name (rather than Ms. or Mr., for example)

In the online individual interviews, moderators similarly dressed in an informal manner, used only their first names, and had the same introductory content to help participants feel comfortable in an online setting.

Throughout the discussions and subsequent analysis, the research team is listening for and tracking how each of the Heartwired factors are impacting students' math learning experience. Here are some examples of how different factors were elicited during the discussions (a sample moderator guide with specific question language and other examples is available in the appendix):

- *Emotions*: Participants engaged in a word association exercise where they wrote down the feelings and emotions they felt when they were learning math
- *Identity:* Participants were asked about how they see themselves in relation to other students at their school and in relation to learning math
- *Lived Experiences*: Participants were asked to share memories, positive and negative, they had about learning math
- *Values:* Participants were asked about how adults in their lives talk about school and learning in general, as well as learning math specifically
- *Beliefs:* Participants were asked about the role they see math playing in their lives and the lives of people around them

Online Individual Mindset In-Depth Interviews (IDIs)

These interviews were conducted online, utilizing a Zoom-like platform specifically designed for qualitative research, and lasted approximately two hours each. The interviews allowed the research team to develop a more in-depth understanding of these participants' lived experiences around school and learning, how they feel and talk about learning math, what they feel the role of learning math is in their own lives, how the adults in their lives talk about math, and how they relate learning math to their education and life. Each interview is an opportunity to dig deeply into a wide array of questions with a single student and helps elucidate what topics are prominent and relevant in terms of youths' experience with math and their math learning.

Sixteen (16) individual in-depth interviews were conducted with young people in 6th to 9th grade in October and November 2022, among the following audiences:

- AAPI youth: 4 interviews, 2 each among AAPI females and AAPI males
- Black youth: 4 interviews, 2 each among Black females and Black males
- Hispanic youth: 4 interviews, 2 each among Hispanic females and Hispanic males
- White youth: 4 interviews, 2 each among white females and white males

In-person Mindset Focus Groups

The in-person Mindset focus groups allowed the research team to better understand young people's lived experiences of learning math, how they feel and talk about learning math, how the adults in their lives talk about math, and how they relate learning math to their education and life. Due to the larger number of participants in each discussion, the research team was able to cover fewer topics in the focus groups compared to the individual in-depth interviews, so the discussion was more focused on the topics that emerged from those interviews as being especially important. The research team also tested some initial messaging interventions that were developed based on what was learned in the Landscape research phase and in the Mindset IDIs.

A sample of one of the moderator guides used for the youth Mindset focus groups, which includes examples of tested messaging interventions, is available in the appendix.

The research team conducted 12 in-person focus groups in February and March 2023 among 73 participants in 8th and 9th grades, including:

- 5 AAPI females in California
- 6 AAPI males in California
- 6 Black females in Florida
- 6 Black males in Florida
- 6 Black females in New York
- 6 Black males in New York
- 6 Hispanic females in California
- 6 Hispanic males in California
- 6 Hispanic females in Texas
- 8 Hispanic males in Texas
- 6 white females in California
- 6 white males in California

In-person Persuasion Research Discussions

For the Persuasion in-person research discussions (which included both friendship dyads and focus groups), the research team intentionally tested messaging statements in a large print format: statements were printed poster-board size and taped on the walls or flip charts. Youth participants were asked to choose any writing instrument from the table that they wanted to use (color marker, color pen, highlighter, etc.) and indicate what on each statement they had positive or negative reactions too. Participants could record their reactions in any way they wanted to (e.g., write out words or phrases, underline something good, cross out something bad, draw emojis, etc.) and were then asked to talk about what they marked up and the reasons that content was positive or negative for them personally.

The messaging interventions tested in the Persuasion phase were developed based on what the research team had learned cumulatively, including from the Mindset interviews and focus groups, and further iterated across each discussion. For example, after each discussion the team's goal was to analyze what was effective and what was ineffective about specific messages. When it was clear why a particular message or messaging component was ineffective, the team would revise that content and test it in the next discussion (e.g., messaging that was clearly ineffective for a specific identifiable reason was not tested again). At times, however, messaging that was ineffective or had mixed results was included across a few different groups so the team could dig more deeply into specific messaging components.

In-person Friendship Persuasion Dyads

These dyads took place in person and were conducted among pairs of friends who could — but did not have to be — in the same school. The goal of these dyads was to further explore learnings about math perceptions, and gauge reactions to messaging interventions and messengers intended to encourage students to persist when math gets difficult.

These dyads were structured to primarily be a conversation between the two participants; moderators asked prompting questions to generate a conversation between the two friends and continued to ask questions during natural breaks in the conversation the youths were having with each other.

The research team conducted a total of eight (8) in-person friendship dyads in August 2023 with students who were going into 8th, 9th, or 10th grade, one dyad each among the following audiences and in the following states:

- AAPI females (Texas)
- AAPI males (Texas)

- Black females (New York)
- Black males (New York)
- Hispanic females (California)
- Hispanic males (California)
- White females (California)
- White males (New York)

In-person Persuasion Focus Groups

After the Persuasion Dyads, the research team iterated and further refined the messaging interventions. This second round of in-person focus groups allowed the research team to gauge reactions to these materials, including new messages. A sample of the moderator guide used for the youth Persuasion focus groups, which includes examples of tested messaging interventions, is available in the appendix.

The research team conducted 12 in-person Persuasion focus groups in September 2023 among 68 8th, 9th, and 10th graders, including:

- 6 AAPI females in California
- 5 AAPI males in California
- 6 Black females in California
- 6 Black males in California
- 6 Black females in Texas
- 6 Black males in Texas
- 6 Hispanic females in Florida
- 6 Hispanic males in Florida
- 4 Hispanic females in New York
- 6 Hispanic males in New York
- 5 white females in Florida
- 6 white males in Florida

Qualitative Methods: Adult Audiences

The qualitative research among adult audiences was conducted online and included a mix of live and asynchronous, multi-day written online focus groups. Each methodology is explained below, followed by more information about the specific details of the respective parent and teacher groups.

Online Live Focus Groups

These online focus groups resemble in-person groups in that participants interact with each other in a real time discussion over two hours. The discussion takes place virtually using an online, Zoom-based platform designed to enable qualitative research. Each focus group discussion is conducted among discrete audiences separated by race/ethnicity and gender, and moderated by a moderator of the same race or ethnicity, to help facilitate a candid discussion and to minimize social desirability bias among participants.

Online Asynchronous Focus Groups

In an online asynchronous focus group (AFG), participants log onto a platform and respond to specific questions and test materials that are programmed in advance. Participants usually respond in writing although they may also upload a video of their response. Unlike in a live focus group, participants do not see each other in real-time.

Each AFG takes place across four days spread out over several weeks. This multi-day approach enables the research team to iteratively test materials, incorporate feedback, and revise approaches as they go. The online format also allows for testing a variety of content, such as images, text, audio, or video.

Trained moderators communicate privately with participants (thereby reducing social desirability bias) to probe their responses, and they also facilitate online group written discussions, in which participants post their comments publicly to one another and respond to one another's comments. For each written question posed, participants know whether their response is private to the moderator or is public to the other focus group discussion participants.

Qualitative Methods: Parent Research

Online Live Mindset Focus Groups — Parents/Guardians

The parent Mindset focus groups allowed the research team to better understand parents'/guardians' own lived experiences of learning math, their feelings about learning math for themselves and about their child learning math, the role math plays in their own lives, how they talk to their children about math and learning math, and how they endeavor to support their children's math learning. A sample of one of the moderator guides used for the parent Mindset focus groups, which includes examples of tested messaging interventions, is available in the appendix.

A total of 15 online Mindset focus groups were conducted in February and March 2023 among 101 parents and guardians of 6th to 9th graders in public school in the four priority states, including:

- 16 AAPI parents/guardians
- 26 Black parents/guardians
- 43 Hispanic parents/guardians (including 14 parents/guardians where the focus group was conducted in Spanish)
- 16 white parents/guardians

Online Persuasion AFG — Parents/Guardians

The Persuasion parent AFG allowed the research team to gauge reactions to messaging interventions for parents/guardians. These messaging interventions were initially informed by findings from the Mindset research and were also iterated over the course of the AFG. One version of the moderator guide for the parent Persuasion AFG, which includes examples of tested messaging interventions as well as programming instructions for the platform, is available in the appendix.

The research team conducted one Persuasion AFG in October 2023 among 32 parents/guardians of 6th to 9th graders, including:

- 8 AAPI parents/guardians
- 8 Black parents/guardians
- 8 Hispanic parents/guardians
- 8 white parents/guardians

Spanish-Language Online Live Persuasion Focus Group — Parents/Guardians

To supplement the parent Persuasion AFG, which was in writing in English, the research team also conducted two live online focus group discussions in Spanish among Hispanic parents/guardians. These focus groups had the same goal as the Persuasion AFG but focused on Spanish-language messaging. There were two groups in November 2023, one among seven Hispanic female parents/guardians and one among six Hispanic male parents/guardians. The focus group moderator is a native Spanish speaker.

Qualitative Methods: Teacher Research

Online Live Mindset Focus Groups — Teachers

The teacher Mindset focus groups allowed the research team to better understand how teachers approach teaching math, the opportunities and challenges they have teaching math, and their personal journey to becoming a math teacher. A sample of one of the moderator

guides used for the teacher Mindset focus groups, which includes examples of tested messaging interventions, is available in the appendix.

A total of eight online Mindset focus groups were conducted in March and April 2023 among 56 6th to 9th grade public school math teachers in the four priority states, including:

- 11 AAPI teachers
- 15 Black teachers
- 14 Hispanic teachers
- 16 white teachers

Online Persuasion AFG — Teachers

The research team conducted two separate Persuasion AFGs among teachers, one in August 2023 and one in October 2023. Each AFG was designed to gauge reactions to messaging interventions developed based on earlier phases of the research and were also iterated over the course of — as well as revised in between — each AFG.

The August 2023 Persuasion AFG included a total of 32 teachers, including:

- 7 AAPI teachers
- 9 Black teachers
- 8 Hispanic teachers
- 8 white teachers

The October 2023 Persuasion AFG included a total of 27 teachers, including:

- 2 AAPI teachers
- 7 Black teachers
- 8 Hispanic teachers
- 10 white teachers

Online Live Persuasion Focus Group — Teachers

The research team also conducted eight live online focus groups. The messaging interventions in these groups were further informed and revised based on the learnings from the two Persuasion AFGs. A sample of one of the moderator guides used for the teacher Persuasion focus groups, which includes examples of tested messaging interventions, is available in the appendix.

There was a total of 50 participants in these eight groups, including:

- 12 AAPI teachers

- 11 Black teachers
- 12 Hispanic teachers
- 15 white teachers

Recruiting and Screening Process for Qualitative Research Participants

The research team has extensive experience conducting in-person and online qualitative and quantitative research among youth and adult audiences throughout the nation and globally.

For the focus groups, in-depth interviews, and dyads, the research team worked with specialized recruiters to contact, screen, and recruit potential research participants. For in-person focus groups and dyads, the research team worked with recruiters located in the city where the groups are held. For online focus groups and in-depth interviews, the research team worked with recruiters with extensive experience working in the states of interest (California, Florida, New York, and Texas).

To reach potential participants, these recruiters relied on their existing participant database as well as getting referrals from people in their database if that person was not qualified or was unavailable for the study time. For in-person youth focus groups, recruiters also worked with schools and local community-based organizations to reach potential recruits, along with posting ads on social media, and distributing flyers at schools, shopping malls, or community centers.

Potential recruits were offered a financial incentive if they qualified and attended. For the in-person youth dyads, participants were offered a referral bonus when they referred a friend who was also qualified and was able to attend the dyad interview. Adult participants (parents/guardians and teachers) were paid directly. Incentives for youth participants were paid to the parent or legal guardian, who was encouraged to share the incentive with the participant.

Once recruits arrived at the focus group facility in person, or to the virtual waiting room for the synchronous online focus group, they were re-screened to reconfirm that they qualified for the group. The research team also over-recruited to ensure that a sufficient number of participants showed up and were qualified to participate. Recruits who were dismissed after re-screening received the same financial incentive as participants who were seated.

Youth participants were accompanied to the research facility by a parent or legal guardian who granted initial written consent for the young person to participate in the research before the dyad or focus group, and signed a second consent form after the dyad or focus group was completed. For the youth one-on-one in-depth interviews that were held online,

parents/guardians came onto the screen of the zoom camera at the start of the interview and gave verbal consent in addition to electronically signing a consent form both before the interview and again after it was completed. Parents/guardians had to be present with their child and give written consent for the child to participate in the research.

Samples of the screener used for the different research audiences below are available in the appendix:

- Youth in-person focus group (Mindset Phase, Black youth)
- Parent/guardians online focus group (Mindset Phase, all races)
- Teacher online focus group (Mindset Phase, all races)

Quantitative Research Methods Employed

Online Surveys

The research team has extensive experience designing, writing, conducting, and analyzing message-testing surveys, including online dial tests. For this project, the research team conducted three online surveys, one each among youth, parents/guardians, and teachers. The purpose of each survey was to further test the (iteratively developed and revised) messaging for each audience, to quantify its effectiveness (including across subgroups), and to glean more insights into the ways the messaging was effective through responses to open-ended questions in the survey.

In each survey, respondents saw a combination of print and video messaging, both of which were heavily informed and shaped by the qualitative research that has preceded it. The goal of the surveys was to take the strongest messaging from the qualitative research, including core components the research team knows the audience needs to hear in order to shift their beliefs, and adapt them for a survey format. For surveys, messaging had to be shorter and more concise than is required in the qualitative research.

Each respondent also participated in a "dial test" for each video they saw. Parent respondents saw one video, and youth and teacher respondents each saw two videos. Video content and messengers were specifically tailored to each audience. As respondents watched each video, they used their mouse, cursor, or finger on a mobile device, to move a "slider" to indicate their reaction to that specific moment of the video. This second-by-second measure produces a line graph depicting the overall trajectory of the message (i.e., whether reactions rise or fall over the course of the entire message), as well as which parts of the message evoked positive reactions (i.e., peaks) or triggered negative reactions (valleys). Respondent reaction data was aggregated

so that the research team could analyze average ratings and movement throughout the video, as well as look at average ratings and movement for subgroups of respondents to compare how different subgroups reacted to different parts of the video.

After completing the dial test for each video, a respondent also answered a series of closed-ended questions about how they felt watching the video and their reactions to it (for example: *Overall, how interesting or helpful was this video for you personally*?), as well as open-ended questions about what specifically they felt positively or negatively about in the video.

Respondents could take the survey on a computer, a tablet or a smartphone, and the survey is optimized for each option.

The surveys were conducted using online convenience sample panels that targeted respondents who are in lower-income school districts in each of the four states. The samples are not representative and the data are not weighted as there are no available parameters to weight to for these particular slices of populations. All respondents were offered an incentive if they complete the survey. Further details about each audience survey are below.

Survey Analysis

GSSR engages in detailed cross-tabulation analysis of the survey data, including looking at subgroups of interest to identify notable differences (either by comparison to other subgroups or to results overall).

To assess the impact of the messaging, the team relied primarily on three measurement approaches. One was a pre- and post- approach, which involved looking at responses to questions that are asked both before (pre) and after (post) respondents see messaging and looking at the degree and direction of change. The pre/post measures were specifically designed to capture attitudes and beliefs the messaging intends to shift in a more positive direction. Respondents who showed movement between these pre/post measures were also asked open-ended follow up questions about the reasons for their shift from the start to the end of the survey.

The second measurement approach is questions that were asked only after messaging and that asked respondents how they have been impacted by the messaging. For example, showing teachers a list of different teaching approaches discussed in the survey and asking, “For each of the following, please rate whether you are much more, somewhat more, somewhat less, or

much less likely to do it, based on what you have seen or heard in this survey. If it makes no difference, please say so." The third measurement approach is a series of open-ended questions asked throughout the survey as well as at the end of the survey, asking respondents about their reactions or changes in attitudes.

Additionally, respondents were each asked about the emotions they felt around learning math (parents and students) or teaching math (teachers), which were then coded as being positive or negative by the research team. In the survey itself, respondents were able to select as many emotions as they wanted to from a closed-ended list of approximately 25 emotions and feelings. This list was developed from the qualitative research and included the words most frequently mentioned by participants in those discussions. Note that there was nothing in the survey question to indicate to respondents whether the research team considered a specific answer choice to be positive or negative; the coding as negative or positive was separately conducted by the research team.

Youth Survey

The youth survey was conducted in January 2024 among 1091 public school 7th to 10th graders in California, Florida, New York, and Texas, including:

- 84 AAPI students
- 295 Black students
- 307 Hispanic students
- 384 white students
- 21 students of mixed race or other races who did not also identify as AAPI, Black, Hispanic, or white

Parents/guardians completed a short screening survey, including providing demographic information they were better positioned to provide than their child (e.g., household income, economic status compared to other families in their area, etc.) to determine if they and their child were qualified to take the survey. During the screening survey they also provided consent for their child to take the survey. They had the option to take the parent version of the survey themselves, have only their child take the student version of the survey, or have both they and their child take the respective surveys. In all instances a parent/guardian provided consent for their child to take the survey before the child began the survey.

The questions in the survey were designed either as messaging interventions or were included to assist the research team in their analysis. For example, youth respondents were asked to

self-assess their math ability and how much they like math because those dimensions emerged in the qualitative research as important factors in both how the student felt and thought about math and learning math. Similarly, student respondents were also asked about their math-learning experiences in the classroom, at home, and in other settings as the qualitative research and analysis identified these as factors that impact their feelings and thoughts about learning math. As an example, the quantitative results show youth from lower-income households, as well as youth who consider themselves to be weaker at math, were impacted by the messaging to a greater degree than students from higher income households or students who considered themselves better at math.

The final student survey instrument, including parental screening questions and programming instructions, can be found in the appendix. The youth survey was offered only in English.

Parent Survey

The parent survey was conducted in December 2023 and January 2024 among 2312 parents/guardians of 7th to 10th graders in public school in California, Florida, New York, and Texas, including:

- 167 AAPI parents/guardians
- 522 Black parents/guardians
- 709 Hispanic parents/guardians (including 112 who took the survey in Spanish)
- 877 white parents/guardians
- 37 parents/guardians of mixed race or other races who did not also identify as AAPI, Black, Hispanic, or white

Parents/guardians began the survey by answering the screening questions to ensure they qualified, meaning they had to have a child who attended public school in one of the four target states and was in one of the target grades. They could then choose to:

- Only complete the parent survey
- Only have their qualified child take the youth survey
- Complete the parent survey and have their child take the youth survey

The parent survey instrument, including programming instructions, can be found in the appendix. The parent/guardian survey was offered in both English and Spanish.

Teacher Survey

The teacher survey was conducted in January 2024 among 820 teachers who teach 7th to 10th grade math in a public school in California, Florida, New York, or Texas, including:

- 71 AAPI teachers
- 181 Black teachers
- 185 Hispanic teachers
- 375 white teachers
- 8 teachers of mixed race or other races who did not also identify as AAPI, Black, Hispanic, or white

Due to the specificity of the population for this survey, the research team worked with several partners who have online teacher panels available. The researchers also offered qualified teachers an additional $25 incentive to complete the survey. This $25 incentive is in addition to the standard incentive that the online panel provider already offered teacher respondents who completed the survey.

The survey included questions related to experiences and characteristics that the qualitative analysis revealed to be relevant to their feelings and thoughts about teaching math, as well as to their reactions and responses to messaging. Some examples include how long they have been a teacher, how long they have been teaching math specifically, and asking about what proportion of the student body at their school qualifies for a free or reduced lunch program.

The teacher survey instrument, including programming instructions, can be found in the appendix. The teacher survey was offered only in English.

DEVELOPING AND ITERATING TESTED MESSAGING

The research team developed the messaging that was tested throughout the audience research. As detailed in the Mindset & Persuasion Phases in the previous section, messaging was developed and iterated over the course of the research project based on cumulative and emerging findings. Throughout the process, the research team collectively brainstormed messaging ideas and frequently met to workshop specific messaging. Messaging in the research took one of two forms, each of which is discussed more below.

Embodied Messaging Narratives

Embodied messaging refers to when a message is ascribed to a specific person as the messenger. This includes both print and video messaging where the message delivered is ascribed to a specific person (who may be real in the case of a video or may be a composite messenger in the case of print messaging). The goal of embodied messaging is to help foster a sense of connection, relating, or identification between research participants and the messenger (e.g., participants relate to the messenger in some way, including that they may see some aspect of their own identity, values, or experiences in the messenger's identity, values, or experiences). The research team has learned from extensive narrative and messaging research over decades that *who* is delivering a message can be just as important as what message is being delivered. Put differently, a strong message with an ineffective messenger will not resonate as strongly as that same messaging from a different, more effective messenger. As such it is important to test a variety of different messengers delivering similar messages to assess the robustness of those messages, and to learn which messenger characteristics support or interfere with the message's effectiveness.

In each research discussion, embodied messages featured a mix of messengers by race and gender. Previous Heartwired research has shown that while race- and/or gender-matched messengers often resonate strongly with participants, only featuring race- and/or gender-matched messengers can make participants feel targeted: instead of helping to foster identification with the messengers it can make participants feel they are being viewed in a one-dimensional way. As in other work, this research showed that featuring a mix of messengers ensures the greatest persuasive impact, in part because there are multiple opportunities for participants to relate to a particular messenger.

Print Messaging Statements Without a Messenger

The research team also developed and tested message statements (print only) that are not ascribed to any individual messenger. A print statement is simply a written statement, without any reference to who may have said it. Messaging statements are often used in surveys due to some of the constraints of that methodology (e.g., print messaging has to be short and concise in order to avoid respondent fatigue while taking a survey). Including messaging statements in the qualitative research helped to identify the strengths and weaknesses of the message on its own, separate from a particular messenger. Seeing how messages impacted research participants separated from any particular messenger helps to confirm that the message is likely to be effective when delivered in a range of ways. Identifying stronger messaging elements also can help inform what content is most effective to include in embodied messaging narratives.

Messenger Videos

Wonder conducted interviews with teachers and students to create messenger videos throughout the Persuasion phase. Messenger videos were informed by the cumulative and emerging findings of the research to that point.

The Mindset research helped the research team develop and refine hypotheses about messaging elements they believed students need to hear in order to have different emotions around math and to help create a more positive math learning experience for them. For parents and teachers, the Mindset research also enabled the research team to identify both potential effective types of messengers and the messages they might effectively deliver to generate new, more helpful emotional reactions and change attitudes. The written embodied messages also helped the team develop and test hypotheses about potential effective messengers and their messages. The team worked internally and externally, including with the Advisory Group and the Youth Advisory Panel, to help identify real people who would be willing to be interviewed on video and who may be effective messengers.

The process of selecting messengers was very intentional and informed by the research. For example, when looking for teacher messengers, the research team was focusing on selecting a racially and gender diverse group of teachers who have experience working in schools with a student body that is predominantly from lower-income households. Messengers were screened to ensure they presented as being caring and compassionate — qualities youth research participants emphasized were aspects of what they personally feel makes a “good” teacher.

The team then developed an interview guide, with questions and topics specific to each messenger, and designed to help elicit the elements the team hypothesizes are core messaging components (e.g., interview guides were designed to help messengers exhibit the care and concern they have for students). Members of the research team conducted an interview with each messenger. These interviews were not scripted: messengers being interviewed gave their own, authentic responses in their own words to each question. If a reply to a specific question was too lengthy to include in the shortened, edited messenger video that would be developed from the interview, the interviewer may have asked the messenger to answer the question again in a more concise way. However, the messenger answered the questions in their own words.

Each interview lasted approximately one hour, and the research team edited it down to a roughly three-minute video that has what they believe, based on the research, to be the most impactful messaging components, organized in the order they need to be most effective. Each

video was then tested in a focus group discussion and participants were asked to react to the video (e.g., what is helpful for them to hear or what doesn't resonate or land quite right for them). The videos were then revised and edited to make them stronger, and were further tested in additional focus groups until the team believed they were as effective as they could be. The final versions were tested in the online dial test surveys.

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Sample Moderator Guide: Landscape Stakeholder In-Depth Interviews

The Math Identity Project
Landscape Stakeholder In-Depth Interview Guide
last updated 6.21.2022

TOTAL DURATION: 60 MINUTES

INTRODUCTION (:02 - :05)

- Thank you for taking the time to be here today. My name is _____.
- I will start off by sharing a bit more about the project and the interview.
- We are interested in learning the stories and messages that young people hear and learn about math from their parents, teachers, peers and others, and how those shape how they think and feel about math, including their ability to succeed in math.
- This interview is anonymous and confidential, which means we will share the ideas we discuss during this interview, but not your name or organization. We are asking for your own personal opinions — not the opinions of any organization with which you are affiliated
- I'm a researcher, which means that I'm genuinely interested in hearing your honest opinions and candid thoughts and feedback. Therefore, there are only right answers.
- As I mentioned in my email, we will be recording this call because most people speak faster than I am able to take notes. **May I record this call?**
    - [If "No" to recording: I will be taking notes during this call so that I can track our conversation, but only the research team will have access to my notes].
- Do you have any questions before we get started?

SECTION ONE: ABOUT YOU (:05 - :11)

Research objective: To explore facets of identity (how this person sees herself, himself, themselves) and their lived experiences, including their own personal relationship to math.

In a few sentences, tell me a bit about who you are and what you do.

- **Probe:** How does your work make life better for young people?
- **Probe:** How does your work impact how young people experience and learn math in school?
- **Probe:** What motivates you to do this work?

Before I ask you questions about young people and their relationship to math, I would like to learn more about your own relationship to math. What stories, people, and lived experiences shaped your attitudes toward math?

- **Probe:** Thinking back to your early adolescence, what was your own experience in the classroom learning math?
- **Probe**: In our conversations, we have heard some people say that they are "a math person"; others say they are not a math person. How would you characterize yourself? Say more about that.
- **Probe:** How, if at all, do you find yourself using math in your day-to-day life — either at work, home or both?

Before we move on, I would like to ask you to think about a young person in your life. What would you like their experience with math to be?

SECTION TWO: NATURE OF CHALLENGE (:11 - :21)

Research objective: To understand what research participants see as the nature of the challenges when it comes to supporting young people to succeed at math in school. The research questions start intentionally broad before narrowing in on math identities and narrative change.

Thank you for that. I want to transition our conversation to how math is taught and learned.

My first question for you: How do young people who go to public schools, including public charter schools, experience math?

- **Probe:** How has your own work and expertise [as a _____ principal, school leader, researcher] shaped how you think about how young people experience math?
- **Probe:** What factors do you think contribute to a positive math learning experience for young people?
    - Probe for factors aligned with their expertise or vantage point (i.e. expertise in teacher prep: How does training for teachers contribute to a positive math learning experience?; Work with parents, caregivers: How does parental involvement and attitudes toward math contribute to a positive math learning experience?) →

- **Probe:** In what ways is the math learning experience in the classroom the same for all young people in the United States, and in what ways is it different for some young people?
- **Probe:** What factors contribute to or influence those differences in experience? [Listen for systemic and individual factors]
- **Probe:** When you think about the young people for whom the way math is currently taught is not working, who are those young people?
    - **Probe and listen for:** Probe for race, income, gender, ethnicity, language, geography.

- **Probe:** What are the specific ages or grade levels where math teaching and learning is not working for all young people? [Mirror language of respondent]
- **Probe:** If not already discussed, Do you think young people who are Black and Latino [mirror language of research participants], and young people from low-income backgrounds, experience math differently than what you have just described? If so, how?

SECTION THREE: MATH IDENTITY & MATH MINDSET (:21 - :41)

As we try to understand some of the factors or things that influence how young people feel about and perform in math two concepts have come up. The first is math identity. Are you familiar with math identity?

[If yes] Great. I'm going to ask you to read a short description of math identity. It may be similar or somewhat different to how you think about it. For the purpose of today, I want us to think about it in this way. I will then have some questions for you.

[If no] Okay, no problem. I'm going to ask you to read a short description of math identity. For the purpose of today, I want us to think about it in this way. I will then have some questions for you.

[screen share slide 1] - https://docs.google.com/presentation/d/1OSCe5WuLG6QUBRMgi-yvA0o_kHKbmloeAX9C3An_L0Y/edit#slide=id.p

> *Math identity refers to an individual's sense of being a "math person," or the extent to which they feel empowered to engage in mathematics. This involves not only how people make meaning of their experiences with the subject, but also how possible experiences are structured by the learning environment.*

Based on your own experience, what, if anything, from this description of positive math identity do you agree with? What, if anything, do you disagree with?

For the purpose of today, whenever we are talking about positive math identity I'd like you to think about it in the way it is described on this slide.

Who or what do you think influences how young people feel or think about their math identity as a learner?

- **Probe**: Based on your experience, how and when do students start to develop a math identity?
- **Probe:** Who do you feel most influences how young people develop math identity?
- **Probe:** What role do parents or guardians play in nurturing young people's math identity?
- **Probe:** What role do teachers play in nurturing student's math identity?
- **Probe:** What role do peers play?
- **Probe:** What role does popular culture/content play? [What comes to mind?]

Now, we'd like you to think specifically about 'positive math identity.' Based on your own experience, how does positive math identity impact young people's math outcomes, such as their grades and their relationship with math in their adult life?

- **Probe:** What about a positive math identity is important for students who are Black or Latino or students from low-income backgrounds?
- **Probe:** What types of programs, services, content or other interventions are effective at shaping students' positive math identities and subsequent outcomes?

Now I want to turn to the second concept. The second concept is ***math mindset***. Are you familiar with math mindset?

[If yes] Great. I'm going to ask you to read a short description of math mindset. It may be similar or somewhat different to how you think about it. For the purpose of today, I want us to think about it in this way. I will then have some questions for you.

[If no] Okay, no problem. I'm going to ask you to read a short description of math mindset. For the purpose of today, I want us to think about it in this way. I will then have some questions for you.

[screen share slide 2] -
https://docs.google.com/presentation/d/1OSCe5WuLG6QUBRMgi-yvA0o_kHKbmloeAX9C3An_L0Y/edit#slide=id.p

> *Math mindset is the idea that our relationship to math exists along a continuum ranging from fixed to growth. Someone with a fixed mindset believes that their intelligence and*

abilities are finite, meaning they will not improve with effort or perseverance. In contrast, someone with a growth mindset believes that their intelligence and abilities can be improved through perseverance, despite making mistakes and struggling along the way.

Based on your own experience, what, if anything, from this description of math mindset do you agree with? What, if anything, do you disagree with?

For the purpose of today, whenever we are talking about math mindset I'd like you to think about it in the way it is described on this slide.

With this definition in mind, who or what do you think influences young people's math mindset?

- **Probe:** What role do parents or guardians play in nurturing math mindset?
- **Probe:** What role do teachers play in nurturing math mindset?

Based on your own experience, how does math mindset impact young people's math outcomes, such as their grades and their relationship with math in their adult life?

- **Probe:** What about math mindset is important for students who are Black or Latino or students from families experiencing poverty?
- **Probe:** What types of interventions are effective at shifting students' mindsets and subsequent outcomes?
- **Probe:** How does messaging play into young people's construction of their math mindset or influence their orientation to math?

SECTION FOUR: BRIGHT SPOTS AND SOLUTIONS (:41 - :49)

Throughout our conversation today, we've touched on different challenges in how math is taught and learned and the factors that contribute to math identity and influence math mindsets.

Based on your experience, what do you think some of the solutions might be to the challenges you've described today?

- **Probe:** You talked earlier about [teacher training, parental involvement, etc]. What are some ways to address what you raised earlier?
- **Probe**: Do you know of policies, programs, or pedagogical approaches that are succeeding in developing positive math identity and positive or growth mindsets around math?

I'm curious at what age you think it would be most meaningful to introduce an intervention like the one you've just described?

[If math identity or math mindset are core to their approach] At what age can we make the most meaningful difference in developing a positive math identity and math mindset for young people? Tell me more about that.

I'm curious how you would define math success?

- **Probe:** Who or what has influenced your thinking about math success?

SECTION FIVE: NARRATIVE (:49 - :57)

I would like to transition to one approach meant to address some of the challenges we have been discussing. That approach is called narrative change, or a change in the messages we hear and stories we tell. We've already touched on one example of a narrative related to math, which is that of being a "math person." Can you think of an example when a narrative influenced a facet of your identity in some way? It does not have to be related to math or education.

Based on your own experience, what are some of the narratives or stories that young people hear about math?

Based on your own experience, how might narratives, or the stories parents, teachers and students tell themselves and others, influence young people's math identities and math mindsets?

- **Probe: In what ways do teachers, parents, peers and the media connect the dots between math and the ways it can help young people live a good life?**
- **Probe:** Do you think a change in narrative could help address some of the challenges we have discussed today?
- **Probe:** Where do you see narratives or stories about math shared or amplified? What types of people feel especially important or effective for changing the narrative around math?
- **Probe:** What role do math **teachers** play in shaping the narrative around math? What about **parents or guardians**? What about **student peers**? What about the **media**?

We have heard from some that:

- Currently there is a bias towards approaches that place the onus of shifting narratives around math on students, parents and teachers instead of addressing the larger systemic barriers. For example, focusing on narrative interventions in a classroom, instead of how assessment policies impact how math is taught and learned. What are your thoughts about this?

SECTION SIX: WRAP-UP (:57 - :60)

We're almost done. I want to wrap up with a cultural reference that we've all heard, which is that math is hard. If you could rewrite or reframe that phrase, what would you change it to be? Math is what?

Thank you for sharing that. Later tonight or perhaps later this week, is there anything that will stick with you from today's conversation?

Is there anything else you would like to add, perhaps something that is important for me to know, that we didn't talk about?

I don't have any further questions. I will go ahead and end the meeting now. Thank you very much again for your time and thoughts, and have a wonderful rest of your day.

Sample Moderator Guide: Youth Mindset Focus Group

I. WELCOME/WARM-UP (15 minutes; 00:00-00:15)

Purpose: *Welcome participants, explain structure, confidentiality, importance of sharing honest opinions, begin to make them feel comfortable in the setting.*

- *Welcome, put students at ease, explain all needed disclosures. This section is not a script. Moderator will use their own wording.*
- This is the easiest thing you'll ever do. Every answer is the right answer.
- We really appreciate your being willing to share your thoughts, feelings, and experiences.
- Moderator introduction: independent researcher, neutral, not responsible for guide, lack of personal investment, role is to create comfortable place for open and honest conversation. Be implicitly clear about non-judgmental nature of discussion.
- Explain confidentiality, probing, need for further explanation at times and for new information and statements or to clarify or ask you to elaborate.
- Explain session is being recorded for research purposes, but names will never be used in reports
- Explain role of observer who is also at the facility
- Clarify roles—Job of moderator is to ask questions to get your honest opinions, ask for clarification to be sure what has been said is understood, ask for elaborations as needed. Job of participants is to share true and honest thoughts (recognizing that in the "outside" world, we often keep our thoughts to ourselves, and say things that do not reflect what we are really thinking). Here we want the unvarnished thoughts and opinions.
- Ask: Do you have any questions before we get started?

[HAVE PARTICIPANTS INTRODUCE THEMSELVES.]

PARTICIPANT INTRODUCTION – WRITE THESE UP ON THE BOARD

- Welcome!
- First name
- What school you go to?
- Who or what lives with you in your home—pets, plants, people?
- What is something you like to do for fun with your family?
- What is something you like to do for fun with your friends?

[AFTER EACH PARTICIPANT HAS INTRODUCED THEMSELVES]
Today we're going to talk about a lot of different things and a lot of times I'm going to ask you, on the one hand what about this, and on the other hand, what about that? So, the first thing I'm going to ask you is about your school, what do you like the most about your school and what do you like the least about your school?

[ASK TOGETHER AS A PAIR]

1. What are the one or two most important things you like about your school?

2. What are the one or two most important things you don't like about your school?

[Optional: probe group on negative experiences if they are raised, such as fighting or bullying at school, or bad teachers, or too many substitute teachers etc]

Now I'd like to know about the class or subject you like the most and the class you like the least. Let's start with the class you like the most.

[ASK TOGETHER AS A PAIR]

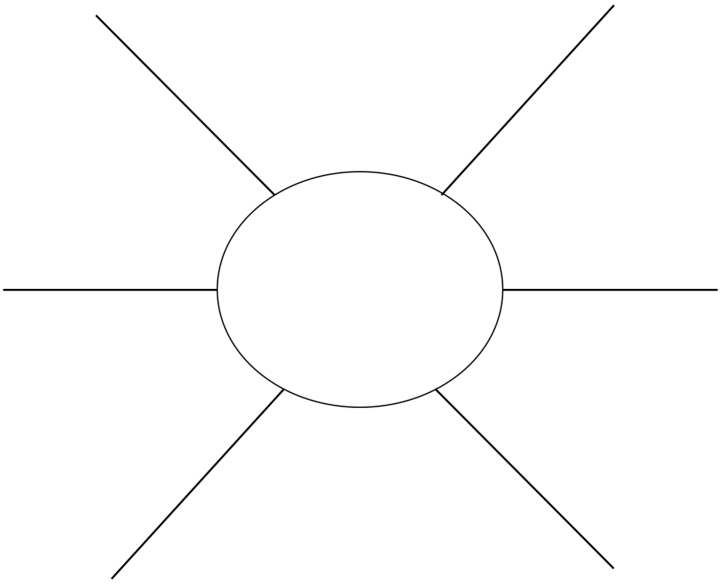
3. What is your favorite class or subject at school? What do you like about it?

4. What is your least favorite class or subject at school? What don't you like about it?

II. FEELINGS ABOUT LEARNING MATH (20 min; 00:15-00:35)

Purpose*: Understand how participants feel when they are learning math.*

[Distribute Handout #1]



Now we're going to do a quick little exercise. So, on this handout is a circle with six lines or spokes coming out of it. What I'd like you to do is reflect on how you feel when you're learning math—what emotions you experience, anything that you feel or experience when learning math—and write down those words or phrases on the lines coming out of the circle. Any emotions or feelings that pop into your mind, whatever it is, write it down. Write down something for all six lines.

[Moderator: get up and walk around, look at what they are writing]

[Give participants a few minutes to complete the handout—if they don't write something on each spoke ask them to please do so—then ask:]

1. What did you write down? Tell me more about the words you wrote down.

[Ask each participant to share their responses first out loud, so everyone can hear all the words, then go back and probe each participant on several or all words. Probe as needed for clarity]

POTENTIAL PROBE:

a. When you say you feel _____, what is happening for you? Describe that for me. Paint me a picture of what is going on when you feel _____.

[WHEN ABOVE DISCUSSION COMPLETE, ASK:]

2. So thinking about the feelings you just shared, how you feel now when you are in math class – is that the same way you have typically felt in math class over the last three or four years, back in in 5th grade, 6th grade, 7th grade – or have your feelings about math changed over the last three or four years?

    a. If anything is different, what is different? What has changed in how you feel about being taught math and learning math now compared to back then?

    b. Let me ask you about specific feelings (some may come up in the conversation)

        i. Fun, Relief, Satisfaction, Frustration, Feeling like getting left behind?

            1. When do you feel this and what is happening in math class when you feel this?

I'm going to ask you a little more about learning math, and specifically what you like about it and what you don't like about it.

3. What, if anything, do you <u>like</u> about learning math? Something about doing math and learning math that you like or feel really good about. *(if they say "graphing" or "two step equations", ask: "What is it about doing that kind of math that you like?" We want to learn what it is about what they like that they like.) [As needed, is it solving a puzzle, or figuring it out? Or something else?]*

4. What, if anything, do you <u>not like</u> about learning math? Something about doing math and learning math that you do not feel good about. *(if they say "fractions" or "algebra", ask: "What is it about doing that kind of math that you <u>don't</u> like?" We want to learn what it is that they do not like about what they do not like.)*

5. When you think about your feelings about math class and learning and doing math, about being taught math, are they the <u>same</u> feelings you have about other classes, or are they different? OR What, if anything, do you feel differently about math or when you are learning math, compared to what you feel when you are in other classes you have? Tell me more about that.

<u>III. CLASSROOM LEARNING EXPERIENCE (15 min; 00:35-00:50)</u>

Purpose: *Explore more about what participants like and don't like about their classroom experiences around learning math—what contributes to a positive experience in the classroom and what contributes to a negative experience in the classroom.*

Let's talk about what it is like for each of you being in math class. Let's start by talking about when good things are happening in math class then I'll ask you about the not-so-good stuff.

[USE GROUP DISCUSSION HERE; CONSIDER WRITING ON BOARD IN COLUMNS GOOD AND BAD:]

1. When you are having a <u>good</u> experience learning math in math class, being taught math, what is happening that is making it good for you? Paint me a picture of what is going on that makes it good for you personally.

[USE GROUP DISCUSSION HERE:]

2. When you are having a <u>bad</u> experience learning math in math class, something is just not working for you, what is happening that is making it bad for you? Paint me a picture of what is going on that makes it bad, or just not working for you personally.
3. How do you personally feel about the pace of your math class—the amount of material covered and how quickly or slowly the teacher covers it. Do you feel like it's too fast, too slow, just about right? What about it feels too fast, too slow, just about right?

[WRITE UP ON BOARD:] [CHECK IN, SEE WHAT IF ANYTHING NEW COMES UP]

4. What works best for you in the math classroom that helps you learn math? What is the teacher doing or not doing, saying or not saying? What are other kids doing or not doing, saying or not saying? Describe what works for you personally to help you learn best in math class.

[GROUP DISCUSSION/UP ON THE BOARD]

5. If you could give your math teacher advice, if you were advising your math teacher on how to do a better job of teaching math for you personally, what would you tell them to do? What do you wish they would do differently? What could they do that would help you to learn math better in your math class, compared to what they are doing now?
6. We are going to do something different -- WRITE DOWN your next answer and you don't have to share it out loud, it will be just for me to see later.
    a. What would you like your teacher to know about you?
    b. Are there things you would like your teacher to know about how you learn? What are those things?

7. Does your teacher know these things about you? If yes, how did they learn these things?
8. What are the kinds of things you want to know about your teacher?

IV. SUPPORT (15 min; 00:50-1:05)

Purpose: *Try to unpack the classroom norms/setup/tools that help students feel comfortable asking for differentiated support - not just academically but socially (e.g., feeling like you're not disrupting the flow).*

I'd like to learn a little bit more about what you do when you have questions or feel like you might need help in math class.

1. When you are in math class and you need help or have a question, what do you do?
    a. Who do you ask (teacher, classmate, etc.)?
    b. How do you ask your teacher a question – do you raise your hand and ask in front of the class, go up to the teacher's desk, something else?
    c. Who do you feel comfortable asking? Who would you most prefer to ask?
        i. What makes you feel comfortable about asking them?
2. When do you feel like it is ok for you to ask your teacher questions in your math class, in what situations or circumstances?
3. When do you feel it is <u>not</u> ok to ask your teacher questions in math class?
4. Think about asking questions or asking for help in math class <u>compared to your other classes</u>. In what ways, if any, does asking a question or asking for help in math class feel the same or different as asking questions or for help in other classes?
5. Ok, switch out of the classroom for a moment here. If you are on a sports team, or in an afterschool group with a teacher as the advisor, or in a church youth group, or anything like that, think about a time you have been in that situation and asked a question. What did that feel like for you? How did the adult respond or treat your question? How does asking your question in that situation feel different from asking a question in math class?
6. Are there times when you're in your math class and you ask a question and you don't find the answer helpful—like you still have questions to ask or need something explained in a different way? What do you do when that happens? When you can't get the help or answer you need by asking the question once, what do you do? Where do you go from there?

[Probe: if online resources come up, ask for specifics]

a. Where do you look online for help with math? How do you search, what do you type into the search? What do you find, and what is helpful or not helpful about it?

7. Do your teachers call on you in math class, do they ask you to answer a question and call on you? Or do they only call on you if you raise your hand? How do you feel about that?

    a. If the teacher asks someone a question, and they get it wrong, what does the teacher do or say? How do they handle that?

    b. How do you feel about that? How do other students react in the class?

Now I'd like to ask you some questions about times when you've really had to work hard to understand something in math, like a math problem or a math concept.

8. First, think of a time when you were in math class and really had to work hard to understand something—and you kept with it—you continued to try to figure it out, until you finally understood the problem or concept and things were clearer. Hold that time in your mind and I'm going to ask you to tell me about it.

    a. What kept you working at it? What was your motivation to continue to make an effort to understand things?

    b. How did you feel when you finally got it, when you felt that you understood it?

9. Now I'd like you to think of a time when you had to work really hard to understand something in math, and you <u>didn't</u> keep at it. When there was a point where, for whatever reason, you decided to stop and give up or move on. What happened that led you stop working at it? What were you feeling and thinking when you stopped? Tell me about that.

[SKIP IF SHORT ON TIME]

10. What about outside of classes, things you do outside of class like sports or other extra-curricular activities where you have to work at something to get better at it. How does it feel to work hard at that? How is that different, if at all, from how it feels to work hard at math?

<u>V. PEER INTERACTION & ASSESSING MATH SKILLS (10 min; 1:00-01:10)</u>

Purpose: *Understand how participants interact with their peers inside and outside the classroom, while also paying attention to social standing and assessment of math skills.*

Let's talk a little bit more about your experiences with learning math or studying math with other students.

1. How do you feel about working with other students on math, like working together on homework assignments or in groups or on group projects? Is that something you like or not really? Tell me a little about what makes you feel that way?
    a. Do you feel like your teacher encourages students to work together—to see each other as a resource—or not really? Tell me a little more about that.
    b. What kinds of kids do you like doing math homework or working with on math? What is it about those kids that makes you want to work with them?
    c. Do you prefer to work with boys, girls, or does that not matter to you?
    d. Are there certain kinds of kids you <u>don't</u> really like doing math projects with? Tell me about them and some of the main reasons you don't like working with them.
    e. Do you ever study or work on math with other students who are not in your actual math class? Tell me about that.

2. [WRITE DOWN – a few words or phrases on a piece of paper and then I'll ask you to share what you wrote -- What does it mean for you, personally, for someone to be good at math? What are the types of things that would make you say, "that person is good at math"?

    a. How do you know, or how can you tell, that you are better at math than someone else, or that they are better than you?

    [Probe into idea that someone can get math quickly and that it is a sign of being good at math.]

    b. What does it mean when someone "gets it" quickly in math? Describe that for me.

    c. What do you feel like it tells you about other kids if they get it quickly?

    d. What are some other subjects or classes where someone can understand or "get" something quickly? Is getting it quickly something that happens in other classes too, or is that really mostly about math?

[QUICK CHECK IN]

3. When you see someone who is working hard at math, is really working to understand it, what do you think about that person? What does it tell you about that person when they are working hard at math?

VI. TEACHERS AND PURPOSES OF LEARNING MATH (10 min; 01:10-01:20)

Purpose: *Learn more about what participants are hearing from teachers about the utility/necessity of math, how participants feel about what they hear, and also how they see studying math fitting into their life more broadly.*

[BOARD] I'd like to hear you talk more about your math teachers.

1. What, if anything, do your math teachers say to you about the purpose of learning math?
    a. Do you or other kids ever ask your math teacher why you have to learn math, what the point is? What do they say, how do they answer?
2. Do they describe learning math as being important for you in your own life, either now or in your future? Or do they not really talk about that?
    a. *[If yes, talk about it]* What do they say?
    b. What do you think about what they are saying? Do you generally agree with them or disagree with them? Tell me more about that
3. Looking at what we wrote down, do these feel true for you?

[Probe as necessary on reasons what teachers are saying is credible or not to participants.]

4. For you personally, what do you feel is the purpose or point of studying math and learning math in your own life? What role does knowing math have in your own life? [*DISCUSS FIRST, THEN ASK PROBES BELOW]*
    a. Is it something you are doing because you have to—because it's necessary to graduate or maybe get into college?
    b. Is it something that you feel will be helpful later in life? How so and in what way?
    c. How is that different than the way you feel about other subjects, things like English or science or history?

[Probe as needed, especially around idea of "checking a box" as a task as opposed to learning a skill.]

5. Let's step back from math specifically and just think about school more generally. For you personally, what do you feel is the purpose or point of school and getting an education in your own life?
    a. How do you see your middle school and high school education shaping or impacting your life and your future?

VII. IDENTITY AND THE CLASSROOM (7-8 min; 01:20-01:28)

Purpose: *Understand more about how students see themselves vis-à-vis math and math class—the extent to which they feel like they belong in the classroom, feel connected to the materials, etc.*

I'd like to come back and ask you a few more questions about what it feels like to be learning math in the math classroom.

1. In math class, do you feel like your math teacher gets you, that they understand what you need to learn math and that they try to provide that to you? Or not really? Tell me about that.

2. Are there things your math teacher does or has done that make you feel comfortable in the classroom, like to let you know that your teacher is glad that you are there and wants you to have a good experience in class? Tell me about that.

3. Are there things your math teacher does or has done that make you feel uncomfortable in the classroom? Tell me about that.

4. What are the ways in which you feel like you fit in, in your math class?

5. What are the ways in which you feel like you don't fit in, in your math class?

6. Do you ever feel like you are being treated differently in math class because of something about who you are, any aspect of who you are as a person or how you show up in class?

7. Do you ever feel like you are being treated differently in math class because you are **[race of youth]** or because you are a **[boy/girl]**? Or have you seen other kids who are **[race of youth]** being treated differently, in ways you think

are because they are **[race of youth]**? Or because of their gender, because they are a boy or a girl? Or have you not really seen that in class?

VIII. SUPPORT OUTSIDE SCHOOL (Parent Section) (7-8 min; 01:28-01:35)

Purpose: *Learn more about how parents and adults are supporting participants in learning math, including what parents and others say about the utility of math and its purpose in general.*

Let me ask you some questions about learning math outside the classroom, so learning math when you're not in school.

1. When you are outside of the math classroom, doing homework or studying math, what helps you learn math? What is helpful about that?
    a. Who are the people you turn to for help?
    b. What do they do that feels helpful?
    c. How does it feel to turn to these people for help?

[IF ONLINE RESOURCES ORGANICALLY ARISE HERE AND HAVE NOT PREVIOUSLY BEEN DISCUSSED, PROBE ON WHAT SPECIFIC TOOLS/RESOURCES STUDENTS ARE USING AND WHAT SPECIFICALLY THEY FIND HELPFUL OR EFFECTIVE]

2. Do your parents help you with learning math, for example helping you with math homework or helping you study?
    a. Did they used to help you but there came a point where they were not able to help you anymore? Tell me about that.

3. What if anything do your parents say about studying math/learning math and what might be important about learning math? Is that different than what you hear them say about learning any other subject in school?
    a. What do you think about what they say? How do you feel about what they say?

4. What about your friends? What do they say about learning math and what might be important about it?
    a. How is this different or the same from what they say about other classes or subjects?

5. Do you feel like your parents have certain expectations for you around learning math?
    a. What are those expectations, and how do you know about them?
    b. How does it feel knowing they have those expectations?
    c. How do you know whether or not you have met those expectations? How does that feel?
    d. Do you feel like your parents' expectations for you around learning math are pretty much the same as for other classes, or is there something specific about their expectations about math?

IX. MESSAGING (20 min; 01:35-01:55)

Purpose: *Learn more about what types of messaging around math's utility/importance are credible to participants and the reasons why.*

We are going to switch gears and look at some different people's perspectives about math and learning math.

HANDOUT #1 PERSISTENCE:

1. With math, it can feel like if you don't get it right away, it means you're not good at math. But people learn in different ways, and it's natural that some students get to the correct answer quickly, while it takes others a little longer to get there. What matters isn't if you "get it" right away– what matters is that you stick with math and ask for help when you need it so that you eventually learn the math skills that you might need for the career you want to have.

2. You might find some math concepts easier than others to understand, but when you need more time or different explanations, you may feel like you aren't good at math. Sometimes you may be quick at getting math right away and other times you may need help and have to put more work into it. At the end of the day, sticking with math helps you learn the value of persisting even when things are challenging.

3. You've probably heard that when you stick with something, it will pay off later. This lesson also applies to math. Just like learning music or playing a sport, you need coaching and lots of chances to practice with math, and there may be times you need more help with some parts of math—like you might need extra help with free throws or learning a new song. When you stick with it and ask for help with the parts that are tougher for you, you can build the confidence to get help when you need it, which is an important skill for life.

4. Math can often feel black and white—the answer is right or wrong, and you may get frustrated if you don't get the right answer right away. It's important to remember that learning math isn't about getting the right answer fast, it's about building your understanding at whatever pace feels comfortable for you. When you focus on the process of learning rather than just getting the right answer, math can turn from a problem to a puzzle.

First, let's read this. As you are reading, just go ahead and circle anything that stands out to you because you like it or you agree with it.

[Moderator walk and talk for this exercise]

1. What are you overall reactions to what you just read? What stands out to you about it? How do you feel as you are reading this? *(Discuss)*
2. Now tell me what you circled, what do you like or agree with in this? Tell me about that.
3. Are there parts you disagree with, or don't like? Tell me about those.

HANDOUT #2 JOBS

Expanding future job and career opportunities for yourself

When many middle school and high school students think about the kind of work they may do when they are an adult, they think that their job will not require them to know math. So it can be surprising to learn how many different kinds of jobs and careers require math as one very important part of your skill set. That's why – if you want to have the most options for your future career – you will find it is really valuable to work hard at math in school. If you persist with math, even in those moments you may feel confused or frustrated, you'll have the most choices in your future for jobs. With help, persistence, and practice, almost anyone can master math skills. There's such a huge variety of jobs that lean on mathematics skills to some extent—too many to list in one place. Here are just a few examples of the kinds of careers that use math:

- **Business –** Entrepreneurs, business owners and managers all need math to build and run their companies. Whether it's a restaurant, a clothing company, or anything else, you need math to figure out how much product you are going to make or stock and how much you need to charge for it to make enough money to cover your costs and also earn a profit.
- **Electricians and engineers –** Skilled technical jobs, like working with electrical systems, need math. For example, electricians need math to figure out how much power a house or office building needs to keep all of the systems operating, including everything from heat and lights to appliances and computers.
- **Music producers –** Music producers use trigonometry to balance sound waves so listeners can hear every aspect of the music and have the best listening experience possible.
- **Doctors/Nurses/Pharmacists –** Almost every health professional uses math in their job in some way, including for things like figuring out the correct amount of medicine that a patient needs based on the strength of medicine versus the patient's size.
- **Sales –** Whether you are a realtor selling houses, a manufacturer selling shoes, or work at a store selling consumer products, sales careers use math to figure out things like sales goals and percentage of profit. Real estate brokers need math to calculate mortgage and other costs, and buyers need math to determine how much product to purchase for their store.
- **Technology –** Many of the jobs in technology companies like Microsoft, Google, and Facebook use math in coding, programming apps and the systems that run the apps. Programmers and designers

use math in computer-aided design and special effects for movies and other digital platforms, like coding and programming video games.

- **Military –** Many specialized jobs across the different branches of the miliary use math, like engineers, flight specialists, pilots, and mechanical/maintenance experts.
- **Creative and Design –** Clothing, fashion, costume, and set designers use math to measure and understand proportions and how varied measurements impact their designs.
- **Scientists –** All scientists use math in their work. Forensic scientists, for example, use math to analyze evidence from a crime scene, and chemists use math to calculate the correct proportions of chemicals to mix together.

A lot of people with these careers may not have thought of themselves as great math students–but because they kept at it, they were able to pursue careers that interested and excited them. If you're unsure what kind of work you want to do, or if you are interested in any field that uses math, sticking with math through high school will help you keep doors open for yourself.

[Repeat questions above]

X. CONCLUSION/WRAP-UP (5 min; 01:55-02:00)

Purpose: *Thank participant for their engagement, learn what questions they still have and what parts of the discussion stand out to them.*

We've covered quite a few topics today. I have a few final questions.

1. When you are done with our conversation, what will you be thinking about? What will be on your mind, what will you be wondering about?

2. If you talk to a friend tomorrow about this conversation, how will you describe it? What will you say we talked about?

Thank you so much for your time and thoughts. I really appreciate your openness and sharing, and I want to assure you again that everything we discussed tonight is confidential. Thank you.

Sample Moderator Guide: Youth Persuasion Focus Group

I. WELCOME/INTRODUCTION 10 minutes (:00-:10)

Purpose: *Welcome participants, explain structure, confidentiality, importance of sharing honest opinions, begin to make them feel comfortable in the setting. Create "safe space," explain confidentiality and that discussions are strictly for research purposes. Note: avoid "wrong", "answer," "tell me more"*

Note to moderator: Keep this informal in tone

- This is the easiest thing you'll ever do. Everything you say is right, this is not school, no tests. This is just about your experiences and feelings and thoughts.
- We really appreciate your being willing to share your thoughts, feelings, and experiences with us.
- Moderator introduction: independent researcher, neutral, not responsible for guide, lack of personal investment, role is to create comfortable place for open and honest conversation. Be implicitly clear about non-judgmental nature of discussion.
- For some things I ask about, you may feel the same way as each other, for other things, you may see things differently or have different experiences. That is great, I want to hear from all of you and it's completely fine if you see things differently from each other.
- Explain confidentiality.
- Explain moderator's role as a facilitator: probing, need for further explanation at times and for new information and statements or to clarify or ask you to elaborate (e.g., *It's been a long time since I was in 8th grade so I'm not up to date with all the trends and slang*); emphasize moderator is NOT a teacher, just want them to have a conversation with each other.
- Clarify roles—Job of moderator is to ask questions to get your honest opinions, ask for clarification to be sure what has been said is understood, ask for elaborations as needed. Job of participants is to share open and honest feelings and thoughts (recognizing that in the "outside" world, we often keep our thoughts to ourselves, and say things that do not reflect what we are really thinking). Here we want the true, uncensored feelings and thoughts.
- Explain session is being recorded for research purposes, but names will never be used in reports.
- Explain role of observer who is also at the facility.
- Ask: Do you have any questions before we get started?

PARTICIPANT INTRODUCTION – WRITE THESE QUESTIONS UP ON THE BOARD BEFORE YOUTH ARRIVE, SO THEY CAN SEE THEM WHEN ANSWERING

- Welcome!
- First name, your grade and what school you go to?
- Who or what lives with you in your home—pets, plants, people?
- What is something you like to do for fun with your friends? With your family?

II. INSTRUMENT TESTING 25 minutes (:10-:30)

Purpose: Initial feelings about learning math plus testing potential survey questions.

Today, we're going to have a conversation about school, math and learning math. I'm going to ask all of you questions and we'll have a conversation about it.

1. So think about your math class, how you feel when you are in your math class? Grab one of the magic markers from the table and go up to the board and write down three or four words or phrases that you would use to describe your math class, anything that comes to mind, things you do and don't like about it?

-LEAD DISCUSSION ASKING THEM TO TALK ABOUT EACH OF THEIR WORDS
-EVERYONE CAN SIT OR STAND, YOU CAN STAND OR SIT TOO
-MAKE SURE EACH STUDENT HAS A DIFFERENT COLOR MAGIC MARKER. HAVE THEM HOLD ONTO THEIR MAGIC MARKER – THEY WILL USE THE SAME COLOR THROUGHOUT. AT LEAST ONCE EARLY IN THE RECORDING, SAY THEIR NAME WITH THEIR MAGIC MARKER COLOR.

[NEXT EXERCISE: COGNITIVE INTERVIEWING – GOAL IS TO UNDERSTAND HOW THEY INTERPRET THE QUESTION]
[HANDOUT A SHEET WITH AGREE/DISAGREE QUESTIONS ON IT. HAVE STUDENTS ANSWER IN WRITING, THEN DISCUSS]

a. If I get frustrated when I am trying to learn math, I feel like I can get the help I need.

☐ Strongly agree ☐ Somewhat agree ☐ Somewhat disagree ☐ Strongly disagree

b. When I'm doing practice problems, homework or group work, I think making mistakes can actually be helpful in learning math, because it helps me figure out what I do understand, and also where I need more help.

☐ Strongly agree ☐ Somewhat agree ☐ Somewhat disagree ☐ Strongly disagree

c. I don't feel I need to really learn higher level math skills, because when I am an adult, I plan to choose jobs that do not require me to use higher level math.

☐ Strongly agree ☐ Somewhat agree ☐ Somewhat disagree ☐ Strongly disagree

d. I feel like my teacher understands me.

☐ Strongly agree ☐ Somewhat agree ☐ Somewhat disagree ☐ Strongly disagree

e. I can learn and get better at higher level math, even if it takes some effort and support.

☐ Strongly agree ☐ Somewhat agree ☐ Somewhat disagree ☐ Strongly disagree

f. I feel like my math teacher cares about whether or not I am learning math.

☐ Strongly agree ☐ Somewhat agree ☐ Somewhat disagree ☐ Strongly disagree

2. So here is a sheet with questions for you to answer. They are about you and how you feel and your experiences about math. Take a moment to read them, write down your answer, then we are going to talk about what you write down. If there is any question that you are not really sure how you would answer it, put a star next to that one.

[DISCUSS ONE AT A TIME; CANVASS TO FIND OUT HOW THEY ANSWERED THE QUESTION, THEN PROBE IN GROUPS – SOMEWHAT DISAGREE AT ONCE, ETC.]

3. What were you thinking about when did you wrote down your answer? What led you to answer the way you did? Tell me what was on your mind.

[If they answer "somewhat", get their reasoning – then probe for – what led you to choose "somewhat [agree/disagree]" instead of "strongly"? Capture reasoning that leads them to choose "somewhat" to qualify their response.]

[PROBE ON WHAT THE STATEMENT MEANS TO THEM, WHAT COMES TO MIND FOR KEY WORDS – PROBE "HIGHER LEVEL MATH SKILLS" AND "HIGHER LEVEL MATH" – WHAT DOES THAT MEAN TO THEM?

III. EMBODIED TEACHER MESSAGE 25 *minutes* (00:35-01:00)

Purpose: Gauge reactions to embodied messages from teachers and assess what messaging from teachers feels credible to youth.

[STAND UP EXERCISE: As moderator transitions to this section, flip open to the paper that has large print embodied statements on the wall.]

Alex Brown, Math Teacher

In sixth grade, I was really good at math and I liked it. But every time I finished my class work early, my teacher just gave me more math to work on. So I stopped trying and lost interest.

Then when I was in college, I had a really great math teacher who reminded me how much I had liked math. I decided that I wanted students to have a better math experience than I had as a kid, so I became a math teacher.

I share my own experiences with math, both the positive and the negative, with my students, and ask them to share their experiences with math over time. Some students have never liked math, others like math a lot, and some find it just okay, or used to like it but got confused and lost interest when it started getting more difficult.

I think that hearing about all these different experiences helps them understand that learning math doesn't look the same for everyone, and can change over time. By sharing experiences, paired with focusing on the "why" of teaching, like *why* math matters, I can help my students see that they really can succeed at math, and find their reason for putting in effort even when they've had bad experiences with math classes in the past.

Jordan Davis, Math Teacher

Growing up, I really enjoyed math – solving problems felt like a puzzle to me. So when I was deciding what kind of subject I wanted to teach, I chose math. I wanted share this passion for math with students – and show them that it can be fun and interesting.

I think one of the things that can make math learning really stressful for students and prevent them from seeing the interesting parts of math is a fear of making mistakes. So from day one, I work to get across the idea to my students that mistakes are a part of learning – I'm a math teacher and even I make mistakes!

To me, the process is important, not just the answer. When I see a mistake, what I see is an opportunity to find out where you went off track, and figure out where you might need more support or practice.

I want my students to know that you can't get better if you don't make mistakes. It's like exercise – if you get sore muscles or get out of breath, it just means you're doing something that's more challenging than what your body is used to. And you can't get stronger without trying something more challenging.

Taylor Johnson, Math Teacher

When I was in middle school, I really struggled with math. By the time I got to high-school I was so far behind I felt like I would never catch up. I was overwhelmed, confused, and frustrated – and I was afraid that if I asked questions in class I would sound dumb and my classmates would make fun of me.

Then in tenth grade I had a teacher who saw that I was struggling, and helped me to get back on track by meeting with me after class and breaking down problems step-by-step. She used to say "A closed mouth doesn't get fed." Sometimes we just need a tiny push to get through a confusing idea or concept and into understanding it, but if you don't ask for help, you'll never know if you could have solved the problem. That stuck with me.

I wish I had started asking for help sooner, and now as a math teacher I try to create a safe environment for my students so that they feel comfortable asking questions and asking for help when they need it – especially now as we're all trying to get caught up from the pandemic. I encourage them to ask me questions in class, or to come to tutorials before school. Some students would rather ask their classmates or family members for help when they're struggling, or even look up videos online when they get home, and that's ok too. The important thing is that they don't struggle in silence like I did – that they know when to reach out for some extra help.

Now we're going to talk more about math and learning math. On the wall I've taped up what some teachers have said about their experiences learning and teaching math. Grab your magic marker.

Great! Now, I'm going to ask you to walk around and read each of the statements one at a time. Let's have two people at each statement to start, then just move around the room to make sure you write on all three. Please decorate them, write up emojis or words or phrases, write down whatever stands out to you or how you feel or think about what you are reading.

DISCUSS ONE AT A TIME, ASKING EACH STUDENT ABOUT WHAT THEY WROTE, WHAT THEY THOUGHT AND FELT ABOUT THE STATEMENT

1. How would you feel if your math teacher shared something like this in math class?

[PROBE AS NEEDED ABOUT HOW CREDIBLE THE STATEMENT FEELS AND THE REASONS WHY OR WHY NOT]

2. Is there anything in any of these that a teacher has said to you before? Tell me about that.
3. Have you ever had a math teacher who you really liked, who was just a great math teacher? What did they do or not do, say or not say, that makes them such a great math teacher?

IV. PEER MESSENGER VIDEO 1, 2 30 *minutes* (01:00-01:30)

Purpose: Gauge reactions to embodied near-peer video messengers.

Ok, now were going to watch a couple of videos of students, like yourselves, sharing some of their experiences about learning math. As you're watching the first video, write down whatever is coming to mind as you're watching—words, images, feelings, reactions, whatever is coming to mind. Or you can watch the video and then write down whatever came to mind after it is done. Either way is fine. After we're done watching we're going to talk about the video together.

Please know these are not professionally made, they were made on Zoom. I'd like you to focus on how you feel about the person who is talking and what that person is staying- NOT the lighting or video quality or anything like that. I really want to know what comes into your mind about the person and what they are saying.

[PLAY VIDEO #1] (15 minutes per video)

TRANSCRIPT OF VIDEO:

My name is [*redacted*] and I live in Oakland, California. When I think about math, I feel anxious, nervous, and honestly I don't really like it and I think this is because it's just always in the math classroom. From a young age I just felt like dumb or just super slow compared to the rest of my classmates. There's just so many steps and so many things to remember and I feel like there's even just this pressure where it's like math is so useful, you need to learn it, you need to learn these equations, you're going to use it. And later on in life, that type of pressure you put on yourself and it just makes it that much more difficult to learn. I always felt like I just wanted to cry. In middle school I had a lot of substitutes and anytime that I needed just help, I wasn't able to get it.

And when moving on to high school, it just made it that much more difficult because I didn't have the basic math. When math got difficult, I didn't really go to my parents just because they didn't really know much about math. So I would go with my siblings. My brother was in college and it was really nice because he would be able to break down the steps and really help me and be like, oh no, you need to understand this part. In order to continue on, I just needed that clarification and make sure that I was doing things correctly. Sometimes I would just doubt myself and that doubt made it so that I would get that answer wrong. My best resource was Google because there's a lot of applications or websites that you can download and I would use them just to check my work because sometimes it's just a little tiny thing that you get wrong and it makes the rest of the problem incorrect.

For me, mistakes were helpful because once I made that mistake it stuck with me. I was like, I'm never going to commit this ever again. So I would always recheck the problem and be like, let me make sure that the mistake that I made last time isn't happening again. But when I finally get a math problem that I've been struggling with, correct, I feel like I've conquered the world. If I don't pass the class, I am not going to be able to graduate high school. That was my mentality well motivated me to ask for help was because I knew nobody else was going to help me. A lot of people have told me it's like I have this really calm face or I don't know how to read me. So just knowing that I knew that people weren't going to know if I was confused or not, so I had to seek it out.

Nobody else was going to do it for me, even though I don't really like math, it did come in handy once my senior year knowing how to read my financial package and what the numbers meant. I'm not super rich so I need to make sure that the amount that I would have to pay wasn't too high. Math taught me to be very self-reliant and persistent, very, very persistent. I would say that I set higher standards for myself just because knowing where my parents came from and all the struggles that they had to pass by, so I kind of set that up for myself so that I can make them proud and in the way it also makes me proud because I know that I come along way.

Ok, let's go ahead and discuss the video together.

1. How did you feel when watching the video? What feelings came up for you?
2. What, if anything, from what she was saying is helpful for you, you like hearing it or knowing it?
3. Are there ways in which this person's experiences feel relevant for you, that you kind of relate to?
   [IF NOT RAISED:]
4. What if anything did you not relate to, or did you feel like wasn't quite right or doesn't reflect your own experiences?

[PLAY VIDEO #2] (15 minutes per video) repeat questions above

TRANSCRIPT OF VIDEO:

My name's [*redacted*], my friends call me [*redacted*]. I'm from Boston, Massachusetts, and I go to school in Connecticut. I like math because I like the problem-solving aspect of it and having one answer. When I was little, it used to be something that I considered fun just doing timetables and seeing who did it the fastest. Math got harder when I was in high school and more numbers and symbols was being added to math, and I started to struggle with it. When I couldn't figure out a problem, I felt very frustrated and just uncomfortable with struggling. I was kind of nervous to ask my teacher for help, mainly because other students in my class were at a higher level than me and I felt like I didn't have the skills that they had in this math course, and it really was something that I was embarrassed about to ask questions.

I feel like, why do I have these questions? Why am I continuously not getting the right answer? And it also feels like I'm disappointed in myself a little bit. I had to make the decision between being frustrated and actually doing something about it, so I decided to ask my teacher for help. My teacher was able to give me resources such as tutoring and note taking, and also was able to give me a plan so that I would be able to pass the class. When I asked my teachers for help, they were actually excited at the fact that I was asking questions because their student was actually engaged in what they were teaching. How I feel when I figure out the answer to something I've been struggling with is relieved, and I definitely feel a sense of accomplishment now that I'm getting the answer right. I not only stick with it because I wanted to pass the class, but also because I wanted to get through it and prove to myself I could do it.

I used to think that being good at math was about being fast, but now being a college student, I know it's about working hard When you need help, I would ask the teacher, can you explain it to me in a different way? Is there another problem that I can do? Online videos can definitely show you different ways to do a problem if you're struggling with the original way, and also I would go to my peers because they're going through the same experience as you. Math helps you in life because you can learn a lot about motivating yourself through struggling.

V. FINANCIAL LITERACY STATEMENTS 20 *minutes* (01:30-01:50)

Purpose: Gauge reactions to updated statements about the relevancy of math for financial life, including reactions to updated examples meant to be more relevant for middle schoolers.

[STAND UP EXERCISE: As moderator transitions to this section, walk around the room taping the large print embodied statements on the wall. There should be three copies of the message posted.]

A. With algebra, many students ask "when am I ever going to use this?" It may be surprising, but lots of math concepts really do connect to important things in life. For example, linear functions describe how two different things are related – and that can help with lots of real-world situations. You can use an equation to figure how many hours you would need to work to make a certain amount of money, or to decide whether it would cost more to pay to rent a video game each time you play or to buy it for a larger amount if you play it a lot. You can also use linear functions to make other financial decisions, like deciding whether it makes more sense to buy a phone with cash or pay a fee each month to buy the phone over time.

B. People use basic math skills, like adding and subtracting or multiplying and dividing, for everyday tasks like buying things or paying bills. But it turns out that what you learn in algebra is also relevant for dealing with money. Once you understand all of the different steps to solving problems using algebra, you have a better understanding of how financial things work. For example, if you want to save up for something, understanding exponential growth and percentage rates can help you figure out how much money you can earn by putting your money in a savings account compared to another kind of account with higher interest rates. To buy a car or a house, you'll have to figure out how much money you need to borrow, how much in interest the different banks would charge you, and how much time it will take you to pay off the loan. If you need to understand how college loans work, you'll need to use the formula for how to calculate compound interest. Understanding all of the steps that involve algebra can help you save and manage your money.

C. People say that knowledge is power. That's true when it comes to math. For example, having higher-level math skills can help you protect yourself from being scammed more than just having common sense alone. Sometimes people need to borrow money in order to afford something more expensive like a phone, a TV, or eventually a car or a house. Linear equations help you to calculate how much you will owe, based on the interest rate that is charged and how long it takes you to pay back the loan. This is especially important because some companies target communities where people don't have a lot of money and try to charge really high interest rates — you may have heard about these payday loans. But if you understand higher-level math, you can make sure you and your family are not getting cheated or taken advantage of.

Ok, now we're going to do something like we did before. Around the room I've taped up some different things people have said about math, so go around the room and mark up each one. Please make sure you bring the same marker you used before.

PROBE WHAT THEY WROTE FOR EACH ONE

AFTER THEY HAVE TALKED ABOUT EACH ONE, THEN:

1. Which statement do you like the <u>most</u> or feel the best about? Tell me more about the reasons that one stands out.

2. Which statement do you like the <u>least</u> or just didn't speak to you?

VII. CONCLUSION 10 minutes (1:50-2:00)

1. If you were talking to another student who was struggling in math, what would you say to them, what advice would you give them?

    a. I*f they say "do your best" or "keep trying", follow up by asking:* "What if they say 'I am trying, I just don't get it' – what would you say to them then? What advice would you give them then?"

2. If you were going to give advice to a math teacher on how to do a better job of teaching you math, you personally, what advice would you give them?

3. We've covered quite a few topics today, and I'd like to know, what's on your mind about today's discussion? What is standing out to you from everything you've seen, heard, and discussed today?

[FINAL WRAP]
Thank you so much for your time and thoughts. I really appreciate your openness and sharing, and I want to assure you again that everything we discussed tonight is confidential. Thank you.

Sample Moderator Guide: Parent/Guardian Mindset Focus Group

I. WELCOME/WARM-UP (10 minutes; 00:00-00:10)

Purpose: *Welcome participants, explain structure, confidentiality, importance of sharing honest opinions, begin to make them feel comfortable in the setting.*

- *Standard welcome and disclosures.*

[HAVE PARTICIPANTS INTRODUCE THEMSELVES.]

- First name
- Where do you live?
- Who or what lives with you in your home—pets, plants, people?
- How old are your kids, and what grade are they in? Boys or girls?
- What is something your family enjoys doing together?

[AFTER EACH PARTICIPANT HAS INTRODUCED THEMSELVES]

Welcome, thank you. Today we're going to talk about you, your kids, and your experiences around school, math and learning and using math.

Some of you have kids in different grades. Today, when we are talking, I'm going to ask you to tell me specifically about your child who is 6th, 7th, 8th or 9th grade. It's that middle school and high school experience that we really want to hear about today.

II. CHILDREN'S SCHOOL SETTING (10 minutes; 00:10-00:20)

Purpose: *Explore the types of school settings that participants' children are in, as well as positive and less positive things about those settings.*

So thinking about your kids in those grades 6 through 9, let's start.

1. Is your child's school a regular public school, a charter school, or a magnet school?
    a. [If magnet/charter] What led you and your family to choose a charter or magnet school for your child?

[ASK EACH PARENT BOTH QUESTIONS AT ONCE:]
So today we'll be talking about – on the one hand, on the other hand.

2. So what are the one or two important things you <u>like the most</u> about your kid's school?

3. And what are the one or two most important things that you don't like about your kid's school? Tell me first about what you like, then about what you don't like.

[IF PARENT REFERENCES ASKING SCHOOL FOR HELP FOR THEIR CHILD AND EITHER GETTING OR NOT GETTING IT, ASK FOR A QUICK CHECK IN:]

4. Has anyone else had this experience of asking your child's school for something for your student? If yes, tell me about how that went.

III. FEELINGS ABOUT MATH (20 min; 00:20-00:40)

[FIRST EXERCISE – THEY ENTER THEIR RESPONSES INTO THE CHAT]

Now we're going to do a quick little exercise. What I'd like you to do is reflect on how you personally feel about math and learning math. When you think about learning math, reflecting back on your experiences growing up or now, what emotions do you experience, how you feel physically, anything that you feel or experience when learning math—and write down those words or phrases in the chat. Any emotions or feelings that pop into your mind, whatever it is, write it down. Write down at least 3 to 4 words. Go ahead and put them into the chat all at once, and then hit enter, so I can see all your words in one chat entry.

1. Okay, tell me about the words you wrote down.

[Ask each participant to share their responses, probing as needed for clarity]

[ASK Q2, a, b all together]

2. Now keep thinking about learning math as you were growing up, and I'm going to ask you two questions at once. How good at math do you feel you were, and how much did you like it?
    a. Growing up, were you very good, good, or just OK at math?
    b. And did you love it, liked it a little bit, or liked it sometimes, didn't like it, or hated it?
3. How about for your child? Thinking about your kids in 6^{th}, 7^{th}, 8^{th}, and 9^{th} grade, how do they feel about math, do they feel they are good at it or not really, and do they like it or not? Tell me about that.
4. Now as an adult, are there ways in which you use math in your life and work, beyond everyday things like paying bills? Tell me about that. *(briefly)*

5. What do you think more advanced math and higher-level math is used for or needed for?
6. When you think of advanced math or higher-level math, what is on your mind when you think about that?

IV. CHILD EXPERIENCES WITH MATH (20 min; 00:40-01:00)

Now let's talk a little more about your child's experiences with math.

(all)

1. When your child doesn't know how to do a math problem or is having trouble with a new math concept, what are the ways and places that they ask for help or look for help?

(all)

2. Does your student ever ask you for help with math homework or in studying for a math test?
    a. Did they used to ask you for help but don't anymore? Is that something that changed over time? If yes, what changed and when did it change?
3. What kinds of things do you think would help your kid do better at math, or learn math better?
4. Are there certain things they tell you about, that help them learn math, that they find helpful? If so, what are they?
5. What role do you see math, and learning math, being good at math, playing in your child's life as they grow up?
    a. Are there ways in which it feels important for them to learn math? *[if yes:]* In what ways might it be important for their lives?
6. Do you feel like you have certain expectations for your child around learning math?
        a. How are any expectations you have similar or different from your expectations for your child about other subjects they're studying in school? Do you have different expectations for them about learning math, compared say to history, science, or English?

V. MESSAGING #1 – PERSIST (15 min; 01:00-01:15)

Purpose: *Learn more about what type of messaging around math's utility/importance is credible to participants and the reasons they see this type as credible.*

We are going to switch gears and look at some different people's perspectives about math and learning math. First, let's read this. After you've read all the statements, go ahead and enter into the chat which one stands out most to you because you like it or agree with it – Number 1,2,3, or 4.

[TECH: Share "Handout 1" PDF on the screen]

1. With math, our kids can feel like if they don't get it right away it means they're not good at math. But we know kids learn in different ways, and it's natural that some kids get to the correct answer quickly, while it takes others a little longer to get there. What matters isn't if our kids "get it" right away– what matters is that they stick with math and ask for help when they need it so that they eventually learn the math skills that could end up being needed for the career they want to have.

2. Kids might find some math concepts easier than others to understand, but when they need more time or different explanations, they may feel they aren't good at math. You can help boost their confidence by letting them know that sometimes people are quick at getting math right away and other times they need help and have to put more work into it. At the end of the day, we're teaching our kids the value of persisting even when things are challenging.

3. As parents, we've probably told our kids that when you stick with something, it will pay off later. This lesson also applies to math. Just like learning music or playing a sport, our kids need coaching and lots of chances to practice with math, and there may be times they need more help with some parts of math—like they may need extra help with free throws or learning a new song. When we encourage them to stick with it and to ask for help with the parts that are tougher for them, we're helping them have the confidence to get help when they need it, which is an important skill for life.

4. Math can often feel black and white—the answer is right or wrong, and many kids get frustrated if they don't get the right answer right away. We can help encourage our kids to stick with math when it gets hard by letting them know that learning math isn't about getting the right answer fast, it's about building their understanding at whatever pace feels comfortable for them. When we encourage our kids to focus on the process of learning rather than just getting the right answer, math can turn from a problem to a puzzle.

1. What are your overall reactions to what you just read? What stands out to you about it? How do you feel as you are reading this? *(Discuss)*

2. Tell me about what led you to choose the statement that you did, what parts of it are particularly compelling for you?

3. Do any of these statements rub you the wrong way, is there something in any of them that you disagree with or don't like something about it?

4. What, if anything, do these statements make you wonder about? Do they leave you with any questions?

VI. MESSAGING #2 – TYPES OF SUPPORT (20 min; 01:15-01:35)

Purpose: *Learn more about how parents and adults are supporting participants in learning math, including what parents and others say about the utility of math and its purpose in general.*

We have another statement for you to read. For this one, please enter into the chat anything that stands out to you about this, just a few words or phrases about what stands out to you. So read it, then we'll discuss it together.

[TECH: Share "Handout 2" PDF on the screen]

Here's how parents can support your kids in math

Regardless of whether you personally feel like you can help your middle school or high school student with their math homework or help them if they feel stuck or confused in math, as a parent, there's a lot of other ways you can help your kids learn math.

Kids sometimes feel confused or get frustrated with learning math when they have questions that they can't get answered in math class in a way that makes sense for them. Sometimes they need to ask a question over and over again until someone explains it in a way that they understand, or shows them different ways to solve a math problem. Lots of research has shown that any child can be successful in math with the right support – but kids need to be able to get answers to the questions they have when they have them, in a way that makes sense for them.

Often, kids don't know where or how they can get help with figuring out math problems or concepts that they find confusing or challenging.

As a parent, you can reassure your student that they **can** find the help they need and guide them to different resources, support, and help available to students working to learn math.

You can also help them by reassuring them they **should** look for help or ask for help when they need it, and that if they keep at it with the right help, they will be able to get it. Here are just some of the different types of support for learning math you can encourage your kid to seek out:

- **Teacher coaching**: Many teachers offer office hours—time during their free periods for students to drop by with questions. Your kid can also ask about seeing the teacher at lunchtime or after school for help in private if they're worried about asking for help in front of other students.
- **In-school tutoring programs**: Your kid's school may have a free tutoring center or a peer tutoring program for many subjects, including math.

- **Support from other students**: Your kid may have a friend or a classmate who is not only good at doing math, but who also likes to help others. Some kids also use text messages to work together on homework or ask each other questions after school.
- **Khan Academy**: It offers free, online tutorials for students learning different types of math—from counting in kindergarten to advanced algebra and trigonometry in high school.
- **YouTube**: On YouTube, kids can access how-to videos that explain challenging math ideas and allow students to work at their own pace. Kids can also find different examples of how to solve a problem which can be helpful if the way in one video doesn't make sense to them.
- **Photomath/Mathway:** These are apps that scan and recognize math content (like algebraic equations) and provide step-by-step tutorials on how a particular math idea works. Your kid just takes a photo of the problem, puts it into the app, and they're shown how to solve it step by step.
- **Desmos and Symbolab:** These are subscription-based websites that offer tools and resources for kids to help them learn math (and also offers resources for teachers on how to teach math).
- **Brainly:** This is a website that provides an online open forum for students to post questions about math problems and have experts provide answers and suggestions in response.

As a parent, you can encourage your kids to let you know if they're feeling confused or stuck about what they're learning in their math class. You can also help them understand and appreciate the value of learning math and the ways it will give them more options on potential future jobs and careers.

1. What are your overall reactions to what you just read? What stands out to you about it? How do you feel as you are reading this?

2. Are there any parts of this statement that you find compelling in some way?

3. Would you talk to your kids about something like this? If so, what would that conversation be like? Walk me through it, describe to me what it would be like.

VII. MESSAGING #3 – MATH JOBS (15 min; 01:35-01:50)

Purpose: *Learn more about what types of messaging around math's utility/importance are credible to participants and the reasons they see them as such.*

We have a final sheet for you to read. Just as before, please enter into the chat anything that stands out to you about this, just a few words or phrases about what stands out to you. So read it, then we'll discuss it together.

[TECH: Share "Handout 3" PDF on the screen]

Expanding future job and career opportunities for our kids

As our kids grow up and think about their lives after high school, they start to consider what kinds of jobs or careers they might want to have someday. Many think about how their interests and the kinds of classes they feel good about might be part of the jobs they choose as adults.

What many of our kids do not realize, however, is that a lot of jobs and careers they may be considering require them to use math and have developed math skills. It can be surprising for them to learn how many different jobs and careers need math—especially if they do not like math, or don't feel like they're very good at it.

When we provide support for our kids and encourage them to stick with it and keep trying in math—even in those moments when they find it confusing or frustrating—we're helping them keep as many doors as possible open for their future careers. Here are just a few examples of the how math is used in some different jobs and careers:

- **Business owners and managers** - Some of our kids want to be entrepreneurs and own their own business. Whether it's a restaurant, a clothing company, or anything else, business owners and managers need math to figure out how much cash flow they need to pay their bills and how much profit they can expect and plan for.
- **Electricians and engineers –** Skilled technical jobs, like working with electrical systems, need math. For example, electricians need math to figure out how much power a house or office building needs to keep all of the systems operating, including everything from heat and lights to appliances and computers.
- **Music producers –** Music producers use trigonometry to balance sound waves so listeners can hear every aspect of the music and have the best listening experience possible.
- **Doctors/Nurses/Pharmacists –** Almost every health professional uses math in their job in some way, including for things like figuring out the correct amount of medicine that a patient needs based on the strength of medicine versus the patient's size.
- **Sales jobs –** Whether our kids are interested in selling houses, shoes, or beauty products, sales jobs use math to figure out things like markdowns and the percentage of profit you get to keep if you meet your sales goals.
- **Technology jobs –** Many of the jobs in technology companies like Microsoft, Google, and Facebook use math in programming apps and the systems that run the apps.
- **Military –** For our kids who are interested in a career in the military, there are many specialized jobs across the different branches that use math, like engineers, flight specialists, and mechanical/maintenance experts.
- **Creative and Design jobs –** Clothing, fashion, costume, and set designers use math to measure and understand proportions and how varied measurements impact their designs.

A lot of people with these careers may not have thought of themselves as great math students–but because they kept at it, they were able to pursue careers that interested and excited them. When our kids are unsure about what kind of work they want to do, or if they're interested in any field that uses

math, sticking with math through high school will help them keep as many doors open on the careers they could pursue.

1. What are your overall reactions to what you just read? What stands out to you about it? How do you feel as you are reading this? *(Discuss)*

2. Are there any parts of this statement that you find compelling in some way?

[IF IT DOESN'T COME UP NATURALLY]**:**

   a. Are there any jobs on here that you're surprised to see use math?

   b. Or are there any kinds of jobs that you are surprised are NOT on this list?

[Quick check-in]

3. Are there any parts of this statement that rub you the wrong way, that you disagree with?

4. What, if anything, does this statement make you wonder about? Does it leave you with any questions?

VIII. CONCLUSION/WRAP-UP (10 min; 01:50-02:00)

Purpose: *Thank participant for their engagement, learn what questions they still have and what parts of the discussion stand out to them.*

We've covered quite a few topics today. I have a few final questions.
[TECH: Share "Handout 2" PDF on the screen] again

1. Let's take a look at this sheet of resources again. Earlier, you mentioned that your kid was very good/good/just okay at math. Thinking about your student, do you feel like that is just the way it is, that it is unlikely they would get better at learning math and math skills, or do you feel like if they had more of what they needed, they could develop much stronger math skills, do better at learning math?

2. Do you think any of these things might actually make a difference for them? Or would it just kind of help around the edges?

[ASK TECH TO STOP SHARING]

3. Earlier I asked you, what kinds of things do you think would help your kid do better at math, or learn math better? Now that we have talked more, is there anything else you haven't mentioned that you think would be important for them, that would make a difference to help them better learn math and gain math skills?

4. Thinking about your child – what would be helpful for them in being willing to stick with math through high school even if it is hard or starts to get hard?
    a. What do you feel like they would need?
    b. What would motivate them?

5. Thinking about everything we have talked about tonight, if you could give advice or change something to better support you and your students in learning math, in genuinely developing strong math skills, what would it be?

6. When you are done with our conversation, what will you be thinking about? What will be on your mind, what will you be wondering about?

Thank you so much for your time and thoughts. I really appreciate your openness and sharing, and I want to assure you again that everything we discussed tonight is confidential. Thank you.

Moderator Guide: Parent/Guardian Persuasion Asynchronous Focus Group

Math Parents/Guardians Persuasion AFG, Day 1 Guide

1.1 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Setting Expectations

Thanks for joining us today! Before we get started, let me say a little about how this discussion will work over the next few days.

- I will be posting questions each morning on Thursday (10/12), Friday (10/13), Wednesday (10/18), and Thursday (10/19). Please note, there will be no new activities posted on the days in between: Monday (10/16) or Tuesday (10/17), but we may have follow-up questions we would like you to answer during that time.
- You can answer questions all at once or divide them up throughout the day—whatever works best for you! Though please remember that if you complete all of your activities in one sitting, you will need to log back in later to respond to follow-up questions and take part in the group discussions.
- Throughout each day we will read your responses and will sometimes respond with our own follow-up questions. Occasionally we may also send a reminder or follow-up question directly to you via email.
- Some questions have multiple parts. You must answer each item to get full credit for participation.
- Our job is to make sure we accurately understand your thoughts and perspectives. Being detailed in your initial responses will help us be sure we understand, and will minimize the number of clarifying follow-up questions you'll be asked to respond to.
- Plan to complete all activities on the day they are assigned.
- <u>You must complete all assigned activities and respond to moderator follow-up questions in order to get full credit for your participation</u>.
- At the end of the discussion, you will qualify to receive your "thank you" payment once you have answered all of the questions and submitted them to me, the moderator.
- While we want your honest responses—and we do—we also need to ask that all answers and responses are on topic and are respectful of other participants in group discussion activities. We reserve the right to remove any inappropriate messages posted by a participant or participants who are disrespectful to others.

We're looking forward to a rich discussion and are so glad to have you be a part of it!

To get started, type 'I have read this and am ready to get started!' in the text box below and post your reply.

1.2 Activity Type: Blog
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Open
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Getting to Know You
Activity Summary: Now we'd like to know a bit more about each of you and have you introduce yourself to other participants in this study.

Now please introduce yourself! If you'd like, you can upload a photo of yourself or a short video (1-2 minutes only), using your computer camera or smartphone. Even if you don't post a photo or video, please answer the questions below.

Please write (or tell us if video):
[PRE-POPULATE 1-4 IN RESPONSE BOX]

1. Your first name
2. What you do (or did) for a living
3. A little about your family, pets—whomever or whatever is living with you in your home! For any kids, what grade are they in? Boys or girls?
4. And what is something your family enjoys doing together?

For the best quality video, please make sure there is good lighting on your face, that there are no distracting background sounds (TV, radio, stereo, etc.), and you are not recording in a room with an echo (like a bathroom). Also, please check the volume controls on your computer or recording device to ensure good sound quality. Please do not record your video in a bathroom, as it affects the sound quality. *Uploading a video is optional.*

To reply to this and all future questions, simply type into the text box below this question and hit the ADD POST button when you are done.

To reply with your webcam, choose Record Webcam and press the red record button, stopping when you are done and re-recording, as needed, and hit ADD POST when done.

To reply to others, click the REPLY button below their post. Once again, type into the text box that appears and click POST REPLY when you are done.

1.3 Activity Type: Survey

Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Your Child's School
Activity Summary: We'd like to learn a little bit about your experiences and perspectives on your child's school. Please answer the questions that follow. This discussion is private, and any responses you share will only be visible to the moderator.

1) This online community is exclusively for parents with at least one child in 6th, 7th, 8th, or 9th grade. Throughout this community, when we ask a question about your child or their school please think specifically of your 6th, 7th, 8th, and/or 9th grader—not any other children you may have. You may click "next" to move to the next question.
   a) [text box] OPTIONAL

   [PAGE BREAK]

2) Please tell us a little about your child's school. For example, is it a public, private, or charter school? Approximately how large is the student body? What would you say is the approximate racial makeup of the student body? Are most of the teachers of a specific race or ethnicity?
   a) [text box] REQUIRED

   [PAGE BREAK]

3) What are one or two important things that you <u>like</u> about your child's school? On the other hand, please also tell us about one or two important things that you <u>don't like</u> about your child's school.
   a) [text box] REQUIRED

   [PAGE BREAK]

4) Have you ever asked your child's school for something, like an accommodation for your child? If yes, please tell us about how that went. If not, what are the main one or two reasons you haven't asked for something?
   a) [text box] REQUIRED

   [PAGE BREAK]

1.4 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased

Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Feelings About Math
Activity Summary: Now we'd like to learn about your own personal feelings towards math and learning math. Please answer the questions that follow. This discussion is private, and any responses you share will only be visible to the moderator.

1) Reflecting back on your own experiences learning math growing up, how good would you say you were at math?
   a) Very good
   b) Good
   c) Just ok

   In the box below: Please tell us the reasons for your response above. **[OPEN END TEXT BOX]**

   [PAGE BREAK]

2) And again, thinking about your own experiences learning math growing up, how much did you like it?
   a) Liked it a lot
   b) Liked it somewhat
   c) It was just OK
   d) Didn't like it very much
   e) Hated it

   In the box below: Please tell us the reasons for your response above. **[OPEN END TEXT BOX]**

   [PAGE BREAK]

3) Now thinking now about your child, how good would you say they are at math? Also, how much would you say they like it?
   a) [text box] REQUIRED

   [PAGE BREAK]

4) Back to thinking about your <u>own</u> personal experiences – what emotions do you experience, or how do you feel when you think about learning math?
   a) [text box] REQUIRED

   [PAGE BREAK]

5) We've been talking to parents across the country, and most agree that basic math—like addition, subtraction, percentages, etc.—is important for life. There is much less agreement about the importance of higher-level math like algebra. How important do you personally think higher-level

math like algebra is for life? What do you personally think higher-level math like algebra is useful or needed for?

a) [text box] REQUIRED

1.5 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Perspective On Your Child's Experience Learning Math
Activity Summary: We'd like to learn more about your child's experiences learning math. Please answer the questions that follow. This discussion is private, and any responses you share will only be visible to the moderator.

1) When your child doesn't know how to do a math problem or is having trouble with a new math concept, what are the ways and places that they ask for help or look for help? Are you aware of any of those resources or people they get help from that are particularly helpful? If so, please tell us about who or what they find helpful, and what makes that help effective for your child.
   a) [text box] REQUIRED

   [PAGE BREAK]

2) What expectations do you have for your child when it comes to learning math? And how do you communicate those expectations to them?
   a) [text box] REQUIRED

   [PAGE BREAK]

3) How much do you agree or disagree with this statement?
   When it comes to my child's future, either in school or in their career, it is important that they know higher level math like algebra.
   a) Strongly disagree
   b) Somewhat disagree
   c) Somewhat agree
   d) Strongly agree

   In the box below: Please tell us the reasons for your response above. **[OPEN END TEXT BOX]**

   [PAGE BREAK]

4) How much do you agree or disagree with this statement?

With all the technology and apps that are out there that can do complex equations for you, knowing higher level math like algebra is <u>not</u> important for most people.

a) Strongly disagree
b) Somewhat disagree
c) Somewhat agree
d) Strongly agree

In the box below: Please tell us the reasons for your response above. **[OPEN END TEXT BOX]**

[PAGE BREAK]

5) How much do you agree or disagree with this statement?
When my child is struggling to learn math, I plan to find resources to help them even if I'm not able to help directly.

a) Strongly disagree
b) Somewhat disagree
c) Somewhat agree
d) Strongly agree

In the box below: Please tell us the reasons for your response above. **[OPEN END TEXT BOX]**

[PAGE BREAK]

6) How much do you agree or disagree with this statement?
I plan to check in with my child soon about whether they're feeling frustrated or stuck in math.

a) Strongly disagree
b) Somewhat disagree
c) Somewhat agree
d) Strongly agree

In the box below: Please tell us the reasons for your response above. **[OPEN END TEXT BOX]**

[PAGE BREAK]

7) How much do you agree or disagree with this statement?
I plan to talk to my child soon about why it's important to keep trying to learn math even when it gets hard.

a) Strongly disagree
b) Somewhat disagree
c) Somewhat agree
d) Strongly agree

In the box below: Please tell us the reasons for your response above. **[OPEN END TEXT BOX]**

[PAGE BREAK]

1.6 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private

Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Wrap Up
Activity Summary: Reflections of Day 1.

1) Thinking about everything we have discussed so far today, what stands out most for you? What questions, if any, are lingering in your mind? **[OPEN END TEXT BOX]**

   [PAGE BREAK]

2) Thank you for all your hard work so far. You have completed your individual assigned activities for today. However, we may ask you to clarify or build on your answers, or we may pose additional questions for discussion. If you have any questions or concerns as we wrap up Day 1, please enter them below. Thank you! **[OPEN END TEXT BOX]**

Math Parents/Guardians Persuasion AFG, Day 2 Guide

2.1 Activity Type: Block
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Welcome Back!

Yesterday you provided some very thoughtful answers and we're looking forward to learning more from you today. But first, we have just a few discussion questions to get us started.

NOTE: This is an open conversation and can be seen by the entire community. Feel free to react and comment on any post you find interesting!

In the textbox below, please tell us: What have you been thinking about since the last time you logged in? Have any questions about math or math learning come to mind? [OPEN END TEXT BOX]

2.2 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Advice Column #1
Activity Summary: Now we would like to get your thoughts and reactions to a snippet from a parenting advice column. This discussion is private, and any responses you share will only be shown to the moderator.

The following is a letter and response from the advice column, "How to (Sort of) Succeed at Parenting," where parents ask questions of columnists who, in addition to being parents themselves, have written columns and books on parenting tips and strategies for all ages of parents and kids. This letter is from a week when the column was focusing on parents' questions about helping their child learn math. Please read the letter and response and answer the questions that follow.

[DISPLAY PDF: ACTIVITY 2_2]
Dear Sort of:

I'm the mom of a 13-year-old girl who just started the 8th grade. Up until now, she's loved almost everything about school. But this year, she's started algebra and I can tell she's

struggling and getting very stressed out. I wanted to help, so I asked her to show me what she's trying to figure out and where she is getting stuck with algebra. That was a mistake—it brought back all of these terrible memories from when I was her age, because that's when I started struggling with math too. I was afraid to admit it to my teacher or my parents, so the good news is that at least she is asking for help—I didn't! By 9th grade, learning math felt like an uphill struggle I could never win so I just gave up and managed to pass my math classes but never really learned math skills. I really don't want my kid to be as stressed as I was about math and I don't want her to give up like I did. I'm feeling frustrated that I don't know how to help her. What can I do to help?

Signed,
Bad at Math Mom

Dear BMM:

It sounds like you had a really stressful experience trying to learn math when you were your daughter's age. So, here's what I would say. 1) You sound like a caring mom who wants to support her daughter's learning. 2) It's natural to be concerned about your child learning math, but there are lots of ways you can support your daughter without actually doing her homework with her. As you know from your own experiences, a student's emotions—like frustration and stress—can really affect their motivation to keep trying to learn math and their willingness to stick with it when it feels challenging. You may want to be honest about your struggles learning math and your hopes that her experience is less stressful than yours was. This can help your daughter feel like her emotions are valid, and also help her see she is not alone. Point out that her actually asking for help is a great sign—and you want to help her get that help, even if you are not the best person to directly help her. I consulted with some math education experts on your question and they had several additional ideas including: talk with her about the values of persistence and that mistakes are learning opportunities; reach out to your daughter's teacher to learn about resources and extra support you or your daughter may not be aware of, such as peer tutoring or before or after school support at the school; encourage your daughter to ask for help, including asking questions in class or, if she feels too self-conscious to do that, finding a time when the teacher may be offering extra help; ask your daughter if there are any kids taking algebra that she feels comfortable asking for help, too. You can also look up teacher-approved online resources—many of them are free and can be found using a Google search, or your daughter's school may have a subscription to share—and introduce these resources to your daughter to see if one or more of them might be helpful.

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1) What is your reaction overall? How do you personally feel about what you just read? **[OPEN END TEXTBOX**]

[PAGE BREAK]

2) What, if anything, resonates with you personally or do you have a positive reaction to? What about that resonates with you or makes you feel positively about it? **[OPEN END TEXTBOX**]

[DISPLAY PDF: ACTIVITY 2_2]

[PAGE BREAK]

3) What, if anything, does not resonate with you personally or do you have a negative reaction to? What about that falls flat or makes you feel negatively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_2]

[PAGE BREAK]

4) How do you personally feel about the parent who asked the question? To what extent, if any, can you identify with them, or have you had an experience that is similar to their experience? Please tell us about that. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_2]

[PAGE BREAK]

5) And how do you personally feel about the response the parent received? How helpful do you personally feel that advice is? Please tell us the one or two main reasons for your response. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_2]

[PAGE BREAK]

6) Does anything feel like it's missing? What questions, if any, do you have about what you read? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_2]

2.3 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Advice Column #2

Activity Summary: Now we would like to get your thoughts and reactions to another snippet from that same parenting advice column. This discussion is private, and any responses you share will only be shown to the moderator.

Here is another letter and response from "How to (Sort of) Succeed at Parenting." Please read the following and answer the questions that follow:

[DISPLAY PDF: ACTIVITY 2_3]
Dear Sort of:

I have a 14-year-old son. This school year, he's really been struggling with algebra. He's never liked math, and while my husband is really strict with him about his grades (we're hoping he gets a scholarship to help pay for college), I didn't see the point of trying to make him like something he doesn't. Up until now, he's scraped by with ok grades in math. But this year, he's really not getting it at all. I'm not sure what to do to help him. I know my son needs enough math to graduate high school and go to college, but I just don't see the point of algebra—neither my husband nor I can remember using a single thing we learned in algebra, and we're getting by just fine in our jobs without it and are living a good life. So how do I support my son to learn just enough math to get by?

Signed,
Math-Skeptical Mom

Dear MSM,

When kids tell us they hate math, sometimes they're also expressing frustration about not being able to get the help they need to learn. I don't think you want your kid to write off math for now and forever—gaining solid math skills can give your child a lot more career options later in life, especially in our increasingly tech-reliant world. While you can certainly acknowledge his negative feelings, you may also be able to surface other, more positive feelings—like curiosity in learning, or the feeling of satisfaction after persisting through something hard and eventually succeeding. My suggestion would be to make space for your son to talk with you about his current struggles with algebra. See if you can be a good listener, and then maybe you can help your son in accessing more support, like extra-help sessions from his teacher, or finding out the drop-in hours at the school tutoring center. Also, even though your husband and you might not have to use algebra in your jobs, your son may choose a very different career to pursue—one that does use math, or a job that might not even exist yet. Your role, in that case, is to help him have as many choices as possible when he grows up, and you can let him know that learning math will help him do that.

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1) What is your reaction overall? How do you personally feel about what you just read? **[OPEN END TEXTBOX]**

[PAGE BREAK]

2) What, if anything, resonates with you personally or do you have a positive reaction to? What about that resonates with you or makes you feel positively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_3]

[PAGE BREAK]

3) What, if anything, does not resonate with you personally or do you have a negative reaction to? What about that falls flat or makes you feel negatively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_3]

[PAGE BREAK]

4) How do you personally feel about the parent who asked the question? To what extent, if any, can you identify with them, or have you had an experience similar to their experience? Please tell us about that. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_3]

[PAGE BREAK]

5) And how do you personally feel about the response the parent received? How helpful do you personally feel that advice is? Please tell us the one or two main reasons for your response. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_3]

[PAGE BREAK]

6) Does anything feel like it's missing? What questions, if any, do you have about what you read? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_3]

2.4 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES

Activity Allocation: All

Activity Title: Math Relevance

Activity Summary: Now we would like to get your thoughts and reactions to some statements about higher level math like algebra, and math learning. This discussion is private, and any responses you share will only be shown to the moderator.

Please read the following statements and answer the questions that follow:

[DISPLAY PDF: ACTIVITY 2_4]

1) Years ago, it was common for someone to have one job their entire career, but more and more people have a few or even several different jobs over the course of their life. There are lots of reasons why people want to change jobs: maybe they want to make more money, or maybe they want to find a career that better matches their interests or skills.

   Understanding higher-level math, like algebra and beyond, is one of those skills that can make it easier to change jobs or careers. Right now, the workforce is changing fast, and skills that were highly desirable a decade ago, like coding, are changing with developments like AI. Who knows what skills will be needed next? If your kid understands higher-level math, like algebra and statistics, there is a better chance that they'll be able to have more flexibility and be able to adapt to different types of careers in their future too.

2) In middle school and high school, kids have to take math classes that may not feel relevant to their lives. However, the truth is these math classes help your kid in different ways. First, higher-level math like algebra is a requirement to graduate high school, which is the minimum required for most jobs. Second, the math your kid learns will help them figure out how to do things that they need to do as an adult, like get a mortgage to buy a house, or determine the best ways to save for retirement or manage their money.

3) From paying bills to buying groceries, everybody knows that basic math helps you as an adult. But math can help your kid with the transition to becoming an adult by giving them some of the tools they will need to become self-reliant adults. Higher-level math like algebra will help them understand how to use credit cards responsibly, and for some kids, how to figure out financial aid packages for college–for example, by helping them calculate monthly payments for a loan or credit card balance based on the interest rate charged by the bank.

4) As an adult, things can happen unexpectedly–like accidents, or an illness in the family. All families want to achieve some level of financial security so they have a nest egg to cushion them against hard times. While kids like to live in the moment, learning higher-level math skills like algebra will help them do things like develop a budget, know how much they need to save, and plan for both their current needs and their future needs. This can help protect them against the tough things that may happen to them when they are adults.

---

1) Which, if any, of these statements are compelling for you personally? Please select all that apply. [MULTICHOICE]
   a) Statement #1
   b) Statement #2
   c) Statement #3
   d) Statement #4
   e) None [EXCLUSIVE]

   In the box below: Please tell us the reasons for your response. What makes these statements compelling for you, personally? **[OPEN END TEXT BOX]**

   [PAGE BREAK]

2) Which, if any, of these statements do you have a negative reaction to, or do not align with your perspective? Please select all that apply. [MULTICHOICE]
   a) Statement #1
   b) Statement #2
   c) Statement #3
   d) Statement #4
   e) None [EXCLUSIVE]

   In the box below: Please tell us the reasons for your response. What makes you feel negative, or what about the statement(s) does not align with your perspective? **[OPEN END TEXT BOX]**

[DISPLAY PDF: ACTIVITY 2_4]

[PAGE BREAK]

3) What, if anything, in these statements do you personally find to be informative or helpful to read about? What feels helpful about that information? **[OPEN END TEXTBOX**]

[DISPLAY PDF: ACTIVITY 2_4]

[PAGE BREAK]

4) What questions, if any, do you have after reading these statements? What do you want to know more about? **[OPEN END TEXTBOX**]

[DISPLAY PDF: ACTIVITY 2_4]

[PAGE BREAK]

5) How do you think your child would react to statements like these? Which, if any, of these ideas do you feel would resonate with them, or would they have positive reactions to? What impact do you

think statements like these would have on them when it comes to learning math? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 2_4]

[PAGE BREAK]

2.5 Activity Type: Blog
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Open
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

SHOW TEXT ALL ON SAME SCREEN

Activity Title: Reflections
Activity Summary: Please answer the questions below. When you are done answering, see what others are saying and join the discussion! You can reply to others using the "reply" button below someone else's response.

1) Thinking about everything you've read today, what stands out the most to you?
2) Is there anything that you're thinking about in a new way when it comes to math or math learning?
3) After everything you've seen and read today, is there anything that you would want to make sure your child sees or hears?

[1 OPEN END TEXT RESPONSE FOR THE 3 QUESTIONS ABOVE, PRE-POPULATED WITH NUMBERS 1-3]

2.6 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Wrap Up
This discussion is private, and any responses you share will only be shown to the moderator.

3) Thank you for all your hard work so far. You have completed your individual assigned activities for today. However, we may ask you to clarify or build on your answers or pose additional questions for discussion. We also have a short homework assignment for you.

Between now and when you log in to answer Day 3 assignments (Wednesday, October 18), please have a conversation with your child about either something you read in this group today, or how they're feeling about learning math. We'll ask you to report back on that conversation next time, okay? Type yes below to complete today's assignments.
[OPEN END TEXT BOX]

Math Parents/Guardians Persuasion AFG, Day 3 Guide

3.1 Activity Type: Block
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Public
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Welcome Back!

Last week you provided some very thoughtful answers and we're looking forward to learning more from you today. But first, we have just a few discussion questions to get us started.

NOTE: This is an open conversation and can be seen by the entire community. Feel free to react and comment on any post you find interesting!

In the textbox below, please tell us: What have you been thinking about since the last time you logged in? Have any questions about math or math learning come to mind? [OPEN END TEXT BOX]

3.2 Activity Type: Block
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Homework From Last Week

When you were last logged in, we asked you to have a conversation with your child about something you had read, or about how they're feeling about math. How did that conversation go? How did your child respond to what you told them about, or what did they say about learning math?

This discussion is private, and any responses you share will only be shown to the moderator.

[OPEN END TEXT BOX]

3.3 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private

Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Advice Column #3
Activity Summary: Now we would like to get your thoughts and reactions to a snippet from a parenting advice column. This discussion is private, and any responses you share will only be shown to the moderator.

Here is another letter and response from the advice column you read a few snippets from last week: "How to (Sort of) Succeed at Parenting." As a reminder, this advice column is for parents to ask questions of columnists who, in addition to being parents themselves, have written columns and books on parenting tips and strategies for all ages of parents and kids. This letter is also from a week when the column was focusing on parents' questions about helping their child learn math. Please read the letter and response, and answer the questions that follow.

[DISPLAY PDF: ACTIVITY 3_3]
Dear Sort of:

I'm the dad of a 13-year-old boy. He's an easy-going kid, and hasn't struggled much at school so we've never worried about him much. He's done okay in his classes so far, and is pretty interested in sports. This year, he is in eighth grade and started algebra. His teacher just emailed us because, apparently, he's failing the class; the teacher told us he seems checked out. He rarely writes any notes down when she is at the board explaining things and he sits there with blank worksheets in front of him. This was a big shock to his mom and me! I don't know why his teacher didn't reach out to us sooner, and when we asked our son about it, he just shut down and told us that he would try harder. I did okay at math growing up. I thought I could help him with some parts of algebra, like linear equations, but when I looked at his homework, I couldn't make sense of it: I could figure out how to get to the answer based on the way I learned math, but I couldn't understand the process the teacher wanted my son to use. How can I help my kid when I don't understand what he's learning anymore?

Signed,
Blind Spots Dad

Dear Blind Spots:

You're not alone in finding the way your son is being taught math to be confusing! Even though the math concepts you learned are essentially the same, there have been lots of changes to how and when different math concepts are taught, especially in the last 10-15 years since states implemented Common Core.

Second, you describe your kid as easy-going, and someone who doesn't struggle when it comes to school and activities. However, kids often change when they become teenagers, and subjects like math can become harder than when they were in elementary school. So when kids aren't communicating, sometimes that means things are fine, and sometimes it could be that they need help but don't know how to ask for it or are embarrassed to ask.

One of the things you might want to try is letting your kid know that struggle is a part of learning everyone experiences at some point. It's really frustrating for a kid to feel like they are the only one struggling, but if parents can communicate to their kids that they're not alone in their feelings, it can

help them open up and be more willing to ask for help. One of the ways you can do this is to share examples of when you struggled and how you kept at it, got the help you needed, and got through it successfully. Another way is to join forces with your kid to figure out where he can get more help in an environment where he feels safe asking for it. This may or may not involve the teacher; sometimes, teachers, especially these days, are simply overwhelmed with everything on their plates. Since his teacher reached out, she may be willing to help. There are also lots of other options, including free online resources like Khan Academy videos, YouTube videos, Photomath app tutorials, or the Brainly online forum, low-cost tutoring services, peer support networks, or tutorials before or after school.

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1) What is your reaction overall? How do you personally feel about what you just read? **[OPEN END TEXTBOX]**

[PAGE BREAK]

2) What, if anything, resonates with you personally or do you have a positive reaction to? What about that resonates with you or makes you feel positively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_3]

[PAGE BREAK]

3) What, if anything, does <u>not</u> resonate with you personally or do you have a <u>negative</u> reaction to? What about that falls flat or makes you feel negatively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_3]

[PAGE BREAK]

4) How do you personally feel about the parent who asked the question? To what extent, if any, can you identify with them, or have you had an experience that is similar to their experience? Please tell us about that. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_3]

[PAGE BREAK]

5) And how do you personally feel about the response the parent received? How helpful do you personally feel that advice is? Please tell us the one or two main reasons for your response. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_3]

[PAGE BREAK]

6) Does anything feel like it's missing? What questions, if any, do you have about what you read? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_3]

3.4 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Advice Column #4
Activity Summary: Now we would like to get your thoughts and reactions to another snippet from that same parenting advice column. This discussion is private, and any responses you share will only be shown to the moderator.

Here is another letter and response from "How to (Sort of) Succeed at Parenting." Please read the following and answer the questions that follow:

[DISPLAY PDF: ACTIVITY 3_4]
Dear Sort of,

My daughter is 13 years old. I'm a computer programmer, and my wife is a lab technician, so both of us assumed that our kids would also be strong in math and science. But we just checked my daughter's grades online through the system and I was surprised to see she is getting a C in algebra. I confronted her about this at dinner last night and she burst out crying and ran from the table. My wife went to talk to her later (she opens up a lot more to my wife than me), and my wife said that my daughter just isn't getting algebra, she hates it, and she hates her teacher, too. What should we do?

Signed,
Apple Far from the Tree?

Dear Apple,

It's understandable you might be surprised your child is struggling in something you and your wife are both good at, and that your daughter didn't tell either of you about it.

At the same time, though, you need to move past your disappointment that your daughter is not behaving like you or your wife when it comes to learning math. For one thing, she may be learning math in a very different environment than the one in which you learned math. And two, pressuring her about this could make the problem worse. Your daughter may need an environment where she feels safe making mistakes and can learn how to work her way

through things she finds hard, with support at first, so she can eventually do it with support from friends, trusted adults, or other resources.

Many teachers are really good at creating classroom environments where kids feel supported in asking questions and making mistakes as part of learning. If your daughter does not have a teacher like that, don't let that derail your daughter's math learning. You and your wife can work to create that environment for her at home and find other ways she can access support.

Above all else, don't judge your daughter harshly for her struggle. You want your daughter to feel like she's less alone in her feelings of frustration and struggle with math class. I know you and your wife can do this.

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1) What is your reaction overall? How do you personally feel about what you just read? **[OPEN END TEXTBOX]**

[PAGE BREAK]

2) What, if anything, resonates with you personally or do you have a positive reaction to? What about that resonates with you or makes you feel positively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_4]

[PAGE BREAK]

3) What, if anything, does not resonate with you personally or do you have a negative reaction to? What about that falls flat or makes you feel negatively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_4]

[PAGE BREAK]

4) How do you personally feel about the parent who asked the question? To what extent, if any, can you identify with them, or have you had an experience similar to their experience? Please tell us about that. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_4]

[PAGE BREAK]

5) And how do you personally feel about the response the parent received? How helpful do you personally feel that advice is? Please tell us the one or two main reasons for your response. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_4]

[PAGE BREAK]

6) Does anything feel like it's missing? What questions, if any, do you have about what you read? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_4]

3.5 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Parenting Website
Activity Summary: Now we would like to get your thoughts and reactions to some content from a parenting advice website. This discussion is private, and any responses you share will only be shown to the moderator.

Please read the following content from a parenting advice website. On this page of the site, experts weigh in on what parents can say to help their kids stop doubting their math skills.

[DISPLAY PDF: ACTIVITY 3_5]
When it comes to math, research shows that attitude matters. So when you hear your child say, "I'm bad at math," you want to nip that self-defeating attitude in the bud. We asked experts what parents should say to help their kids stop doubting their math skills and instead learn to embrace math as a subject they can succeed at. Here's what they said.

1. "Just because it's hard doesn't mean you're not good at it."

Many kids (and adults, and even some teachers) associate being "good at math" with "getting it" quickly. But math is a skill that's acquired over time. Everyone can learn math. And everyone can get better at math. It's important that kids understand this, because research shows that kids who think they can get better at something with effort are more likely to succeed than kids who think their skills are fixed.

Parent coach and psychologist Erica Reischer says parents should focus on noticing how you talk to your kids about learning math. "What kind of things are we paying attention to and acknowledging them for? Is it the thing that they get really fast? Or is it the thing that they strove to master and achieve?" she says. While praising your child for "being smart" or "being good at math" may seem like positive reinforcement, it can (inadvertently) discourage your children from taking on challenging or hard work.

The goal, Reischer says, is "to emphasize the importance of skill development and the importance of process, as opposed to some kind of innate ability."

To encourage your child to be comfortable making mistakes and take on difficult challenges, praise their effort, work process, and perseverance when they master a task that didn't come easily. And when they say they can't do a math problem, remind them that they can't do it *yet*.

2. "Math is more than drills and abstract problems."

According to Kalid Azad, the author of *Math, Better Explained*, it's important to connect math to a child's everyday life, and, ideally, passions. "I would play games with them so they'd see math as a way to look at the world. Instead of abstract problems, I'd relate math to real-world things they were interested in — sports, arts and crafts, candy, or poker. I'd say, 'Okay, that's fine, let's skip the math, but let's walk across this field or let's go shopping,' and then I'd try to make math something that relates to their life."

Chances are, your child probably enjoys lots of things that involve math concepts. Sheila Tobias, author of *Overcoming Math Anxiety*, suggests parents show their child how something they think they're good at relates to math, whether it's cooking or sports or planning a road trip. "'You can't be bad at math because you're good at tennis, and you can calculate when the ball is going to be on your side of the court. You cook and help me halve the recipe, and we do the calculations together. You're good at math because last year you figured out how much our vacation travel cost using the cost of gas per gallon and the mileage we drove.' Whatever your child does well, I would find a link to math. You're showing that your child does use math all the time, and knows how to do it."

3. "Let's look at it together."

When a child complains about math, it's often a sign of frustration and confusion, says Frances R. Spielhagen, author of *The Algebra Solution to Mathematics Reform*. "It is important to validate what the child is saying, with encouragement like, 'Yes, math can sometimes be difficult, but let's see what, in particular, is giving you trouble.' This tells the child that the feelings of frustration are real but can be overcome." Spielhagen suggests that when a child is struggling, parents can help their child become more math-confident by making sure they have the support they need to succeed.

"Talk to your child's teacher to determine the dynamics that are happening in the classroom. If your child needs additional help, determine how to provide that help at home, through local school resources, professional tutors, and even a bright high school student looking to earn some extra cash or service hours," she says.

Don't say: "I'm not good at math, either."

It's common for adults to proclaim, "I'm not a math person." But research shows that kids pick up math anxiety from their parents, and it affects kids' ability to perform in math.

When you tell your child you're not good at math, you're implying that the ability to succeed in math is fixed and innate. You're also implying that it's okay if your child doesn't have it,

either. Instead, do your best to express confidence, calm, and curiosity around math, so that you're modeling a positive (or at least neutral) attitude toward math for your child.

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1) What is your reaction overall? How do you personally feel about what you just read? **[OPEN END TEXTBOX]**

[PAGE BREAK]

2) What, if anything, resonates with you personally or do you have a positive reaction to? What about that resonates with you or makes you feel positively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_5]

[PAGE BREAK]

3) What, if anything, does not resonate with you personally or do you have a negative reaction to? What about that falls flat or makes you feel negatively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_5]

[PAGE BREAK]

4) How do you feel about the advice you read from this website? How helpful do you personally feel it is? Please tell us the one or two main reasons for your response. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_5]

[PAGE BREAK]

5) What questions, if any, do you have after reading this advice? What do you want to know more about? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_5]

[PAGE BREAK]

6) What do you think would happen if you started using the advice from this website? What impact do you think it would have on your child when it comes to learning math? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 3_5]

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3.6 Activity Type: Blog
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Open
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

SHOW TEXT ALL ON SAME SCREEN

Activity Title: Reflections
Activity Summary: Please answer the questions below. When you are done answering, see what others are saying and join the discussion! You can reply to others using the "reply" button below someone else's response.

1) Thinking about everything you've read today, what stands out the most to you?
2) Is there anything that you're thinking about in a new way when it comes to math or math learning?
3) After everything you've seen and read today, is there anything that you would want to make sure your child sees or hears?

[1 OPEN END TEXT RESPONSE FOR THE 3 QUESTIONS ABOVE, PRE-POPULATED WITH NUMBERS 1-3]

3.7 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Wrap Up
This discussion is private, and any responses you share will only be shown to the moderator.

Thank you for all your hard work so far. You have completed your individual assigned activities for today. However, we may ask you to clarify or build on your answers, or we may pose additional questions for discussion.

Math Parents/Guardians Persuasion AFG, Day 4 Guide

4.1 Activity Type: Blog
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Public
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Welcome Back!

Yesterday you provided some very thoughtful answers, and we're looking forward to learning more from you today. But first, we have just a few discussion questions to get us started.

NOTE: This is an open conversation and can be seen by the entire community. Feel free to react and comment on any post you find interesting!

In the textbox below, please tell us: What have you been thinking about since the last time you logged in? Have any questions about math or math learning come to mind? [OPEN END TEXT BOX]

4.2 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Facebook Group for Parents

Activity Summary: Now we would like to get your thoughts and reactions to a Facebook post from a parent group. This discussion is private, and any responses you share will only be shown to the moderator.

Below you'll see the text from a post in a parent Facebook group (Riverside Middle School Parents). Please read it and respond to the questions that follow.

[DISPLAY PDF: ACTIVITY 4_2]
Hi everyone, I usually just lurk here (and appreciate all of the great advice I've picked up over the years) but I wanted to share information about an afterschool program my daughter joined when she was in 7th grade last year. She was a straight-A student until she started learning algebra and then she started to hate math class with a passion. Anyway, my daughter's teacher recommended this enrichment program at our local YMCA, 10 sessions total during the semester, and

pretty cheap if you're already a member of the Y. There are also scholarships available. The program has peer tutors, trained and supervised by an experienced math tutor or retired math teacher, to help students learn algebra and other concepts in middle-school math, and gives them a safe environment to ask questions and work through hard stuff. (You know how busy Riverside's teachers are....this is a great way to get your kids some extra help.) Sessions are only 45 minutes but it really made a difference for my daughter–she went from a C- to a B+! DM me offline if you've got any questions.

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1) What is your reaction overall? How do you personally feel about what you just read? **[OPEN END TEXTBOX]**

[PAGE BREAK]

2) What, if anything, resonates with you personally, or do you have a positive reaction to? What about that resonates with you or makes you feel positively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_2]

[PAGE BREAK]

3) What, if anything, does <u>not</u> resonate with you personally or do you have a <u>negative</u> reaction to? What about that falls flat or makes you feel negatively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_2]

[PAGE BREAK]

4) How do you personally feel about the parent who made this post? To what extent, if any, can you identify with them, or have you had an experience that is similar to their experience? Please tell us about that. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_2]

[PAGE BREAK]

5) And how do you personally feel about the advice in this post? Is this resource something you would look into for your own child if they offered it in your neighborhood? Please tell us the one or two main reasons for your response. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_2]

[PAGE BREAK]

4.3 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Article

Activity Summary: Now we would like to get your thoughts and reactions to an article with a few tips for parents when it comes to math learning.

Here is a news article that includes some tips from a child psychologist related to math learning. Please read the article and answer the questions that follow:

[DISPLAY PDF: ACTIVITY 4_3]

How to Talk to Your Kid About Math

Maria Hernandez is, by most measures, a hands-on mom. The mother of three children–Alex (16), Mateo (13), and Gabriela (11)–Maria works full-time as a finance manager at a local food bank but says that being a mom is one of her greatest accomplishments. “My kids’ games, piano recitals–you name it, I’m there,” she says. She is petite and soft-spoken in person, but her kids say that when it comes to fighting for them, she’s pretty fierce. “Once I got hit pretty hard when I was playing football,” said Alex, “and when the ref didn’t call a penalty, I could hear my mom yelling from the bleachers.”

Recently, however, Maria has encountered a challenge that’s sorely testing her parenting skills: Mateo, 13, is struggling in math class. The quietest of her three kids, Mateo didn’t give any indication he was struggling until Maria checked his midterm grades online. She was accustomed to Mateo getting A’s and B’s, so it was a shock when she saw, several weeks into the semester, that Mateo was barely earning a passing grade in 8th-grade algebra.

“When Mateo came home that day, I made time to talk to him right away,” said Maria. “I said to him, ‘What is going on in math class? I checked your grades today and you’re barely passing! Why didn’t you tell me?’”

Mateo, a tall lanky boy with an engaging smile, said “My mom, she does everything for us,” says Mateo. “She packs my lunch, comes to watch me play clarinet in the jazz band concerts, goes to watch my brother play sports. She’s also super strict about grades and stuff, that’s why I felt so bad. I didn’t want to tell her about my math grades and how nothing was making sense to me anymore.” Maria’s outburst just added fuel to the fire, making him feel even worse about struggling with math. “I mean, it’s not like I’m trying to disappoint her – I’m just completely confused,” he said.

Amanda Harris, a child psychologist and education researcher who specializes in adolescent development, says that parents often make the mistake of reacting the same way as Maria – feeling a sense of shock and outrage when their kids struggle. But it's not always easy for teenagers to admit to parents when they're struggling. "There are lots of generational and cultural aspects to how parents interact with their kids, especially around academic challenges," she says. "And there's also a fundamental desire for parents to want to support their children, even when they don't know how. Today's math curriculum often looks very different to parents from what they studied growing up. Either it's presented in a new structure, like Common Core standards, or parents have simply forgotten what they've learned and don't want to admit that they can't understand what their kids are learning. It can be really stressful for parents and their children alike."

For this article, Maria and Mateo agreed to meet Dr. Harris and talk with her, together, about what was going on with Mateo and math, while this reporter listened in. After introductions, Dr. Harris asked open-ended questions of both, like, "Describe yourself as a parent," and, "Describe how math class has been making you feel." After both Maria and Mateo responded to these questions, Dr. Harris gave Maria time on her own to discuss how she might include some of these tips in her parenting – for all three of her kids.

1) **Parents need to listen to their child**. Although it's natural for parents to feel impatient or lose their tempers, try to avoid sounding confrontational. Find out what's going on through gentle prompts, like, "What is most confusing to you about math?" "Do you feel like you can ask questions?" "Does your teacher offer extra hours for you to stop by and ask for help?" When Maria and Mateo practiced this part, Maria discovered that Mateo had struggled with long division and fractions in elementary school, but had somehow powered through until he got to algebraic concepts and equations. This time around, nothing he did seemed to help and he just ended up feeling more and more lost.

2) **Parents need to be careful about how they pass on their own math experiences to their children.** Some parents excelled at math, others struggled for years, and still others were just okay. No matter what parents' own experiences were, they will likely impact how they talk about math with their kids. "I was a good math student, but I had a really tough time with calculus," admits Maria. "But I realized that it wasn't helpful for Mateo to hear that I sailed through algebra and then hit a brick wall with calculus. What was helpful was for me to convey to Mateo that both success and struggle are normal and sometimes even helpful." Mateo nodded in agreement when Maria said this, saying, "It was such a relief to hear that my mom had struggled with math, too, even though it wasn't the same struggle I was having. It made me realize that maybe struggle is just a part of life, even though it feels really stressful in the moment."

3) **Parents can find different ways to support their kids to learn math**. "We're not a wealthy family, although we do all right," says Maria. "I know that a lot of

moms are like, 'just hire a tutor!' because that's what they do for their kids. And I will, but Mateo and I talked about what else he might try first. Like, he said the teacher did offer extra help sessions and he had been a little bit shy about going, but I encouraged him to check it out. When he went for the first time, he brought home a list of online resources the teacher recommended, and one of them, Khan Academy, was free. He checked out the videos and was amazed at how simple and clear the explanations were of different concepts."

Both Maria and Mateo felt that the guided conversation with Dr. Harris was helpful. Maria felt like she had a better idea of what Mateo was feeling, and how to support him navigating a hard time in his education with empathy and care. Since that time, Mateo's grades have improved, although he still finds algebra hard at times. However, now when those moments happen, he both has more resources to check out, and most importantly, he and Maria can talk about what to do. "I wish I could have a do-over on that first conversation we had about this," says Maria, "But at least now, we can do better." She adds, with a laugh, "Isn't that the main lesson of all of this? Just figure out ways to do better."

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1) What is your reaction overall? How do you personally feel about what you just read? **[OPEN END TEXTBOX]**

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2) What, if anything, resonates with you personally or do you have a positive reaction to? What about that resonates with you or makes you feel positively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_3]

[PAGE BREAK]

3) What, if anything, does <u>not</u> resonate with you personally or do you have a <u>negative</u> reaction to? What about that falls flat or makes you feel negatively about it? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_3]

[PAGE BREAK]

4) And how do you personally feel about the advice in this article? How helpful do you personally feel that advice is? Please tell us the one or two main reasons for your response. **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_3]

[PAGE BREAK]

5) Does anything feel like it's missing? What questions, if any, do you have about what you read? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_3]

6) How do you think your child would react if you used the advice from this article? What impact do you think it would have on your child when it comes to learning math? **[OPEN END TEXTBOX]**

[DISPLAY PDF: ACTIVITY 4_3]

4.4 Activity Type: Blog
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Open
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

SHOW TEXT ALL ON SAME SCREEN

Activity Title: Reflections

Activity Summary: Please answer the questions below. When you are done answering, see what others are saying and join the discussion! You can reply to others using the "reply" button below someone else's response.

1) Thinking about everything you've seen over the course of this group, what stands out the most to you?
2) What, if anything, are you thinking about in a new way when it comes to math or math learning?
3) What, if anything, would you want to make sure your child sees or hears?

[1 OPEN END TEXT RESPONSE FOR THE 3 QUESTIONS ABOVE, PRE-POPULATED WITH NUMBERS 1-3]

4.5 Activity Type: Survey
Start Date: October 12, 2023
End Date: October 19, 2023
Social setting: Private
Bias: Unbiased
Sequenced: YES
Stimulus: None
Pre-populate response: YES
Activity Allocation: All

Activity Title: Thank you!

Thank you for all your thoughtful comments and feedback throughout this discussion! We have learned a lot from you and hope that you have learned from others in the group as well.

Please log in later today to see any posts that you may have missed while away, and please add to what others have to say in the discussion.

We may ask you to clarify or build on your answers as well. Please look for our replies to your posts, as well, and follow up when I ask these additional questions.

Once your activities are completed, you will be eligible to receive payment as a thank you for your participation. As your moderators, we are not responsible for processing payments and cannot answer questions about the payment process. If you have questions about payment, please contact your recruiter.

If you have any final questions or comments about this study or the things we have discussed this week, please feel free to leave them here (this is just between us and won't be shared with other participants). If you don't have any comments or questions, you can just close the window.

Thank you again! **[OPTIONAL OPEN END TEXT BOX]**

Sample Moderator Guide: Teacher Mindset Focus Group

I. WELCOME/WARM-UP (10 minutes; 00:00-00:10)

Purpose: *Welcome participants, explain structure, confidentiality, importance of sharing honest opinions, begin to make them feel comfortable in the setting.*

- *Standard welcome and disclosures.*

[HAVE PARTICIPANTS INTRODUCE THEMSELVES.]

PARTICIPANT INTRODUCTION

- First name
- Where do you live?
- Who or what lives with you in your home—pets, plants, people?
- What grade(s) and subject(s) do you teach? What kind of math?

[AFTER EACH PARTICIPANT HAS INTRODUCED THEMSELVES]

Welcome, thank you. Today we're going to talk about you, your classrooms, your students, and your experiences teaching math.

Some of you may teach multiple subjects or grades, but today when we're talking, I'm going to ask you to specifically think about the math classes that you teach to 6^{th}, 7^{th}, 8^{th}, or 9^{th} graders.

Today I'm interested in hearing about your personal experiences teaching math. Today we're going to talk about a lot of different things and a lot of times I'm going to ask you, on the one hand what about this, and on the other hand, what about that?

II. SCHOOL AND CLASSROOM SETTING (15 min; 00:10-00:25)

Purpose*: Explore the types of school settings that the participants operate in, as well as the makeup of each classroom and overall school.*

[FOR THIS SECTION MAKE SURE EACH PARTICIPANT RESPONDS TO EACH QUESTION]
ASK TOGETHER:

1. So let's jump right in. Thinking about the school where you teach math, what are:
   - the one or two most important things that you like the most about it, things you think are a strength of the school that you teach at?

- and what are one or two most important challenges, or things that you wish your school did differently or were different at your school?

[If this does not come up organically, ask:]

2. Tell me a little bit about the kids at your school, the ones you are teaching math to. Do the kids in your math classroom reflect the student body as a whole, or are they different in some ways? If different, how are they different?

[PROBE ON RACIAL AND SOCIO-ECONOMIC STATUS AND MIX AT SCHOOL, IF TOPIC DOES NOT ARISE ORGANICALLY]

III. CREATING A MATH LEARNING ENVIORNMENT (25 min; 00:25-00:50)

Purpose: *Explore the different ways participants set expectations for their own classrooms and what they're prioritizing in creating a learning environment.*

Let's talk more about some of your experiences teaching math.

1. In your experience teaching math, what have you found makes a good learning environment in the math classroom? What do kids need to be able to learn math well?
    a. Thinking about your classroom, are there specific things that you do or do not do, say or do not say, to try and create a good learning environment? Tell me about those.

2. What is different about math from other subjects – how do you see students experiencing math and math learning differently than other subjects? [*if needed:]* What is unique about teaching and learning math compared to other subjects?

3. Thinking about your classroom – how do you know that learning is happening? What is happening or not happening, going on or not, that helps you know your students are learning math versus when you can see that they're not?

4. What have you found is important, or not, about establishing a personal relationship with your students?
    a. What are the things that you do to try and establish that relationship with the kids in your classes?
    b. What are the lines you draw about what you might share from your own life and what you don't share with your students? What kinds of

information do you personally feel comfortable sharing, and what don't you want to share?

5. In your experience, how important is it for a student to feel like they belong in your classroom, or that they matter? How does their feeling like they belong or matter affect their learning? *[If needed:* That they feel like they fit in, in the classroom, or not.*]*
    a. Are there ways you try to help students feel like they belong or that they matter in the classroom? Tell me about those.

6. Tell me about discipline—how do you handle discipline in your classroom? What does discipline look like in your class?
    a. What are the reasons or circumstances that a student in your classroom would be disciplined? How do you decide when something has to be addressed versus something you can just let go?
    b. What are the ways in which you do, or do not, feel supported by your school administrators when it comes to classroom discipline?

[CURRICULUM]

7. Tell me about how you feel about your math curriculum. *[Get reply before asking follow up below]*
    a. Do you feel like you have the flexibility you need to teach math in the way that you think is most effective, or not really? Do you have some options or choices about how you teach the curriculum, or not really?

    [Ask about pace of teaching curriculum – too fast, too slow, just right, other? If it does not come up organically]

[GROUP WORK]

8. What role, if any, does group work have in your classroom? How, if at all, do you have students work together, and what's valuable about that?
    a. Tell me about how groups work in your classroom—do the students choose their own groups or do you assign groups? How do you decide who is going to be working with whom? What are the main reasons you assign students into groups in the ways you do?

[HOMEWORK/PARENTS]

9. Tell me about homework. Do you assign math homework? What are the main reasons you do, or do not?

IV. SUPPORTING STUDENTS (20 min; 00:50-1:10)

Purpose: *Explore how participants assess and respond to varying student needs, and different levels of confidence and motivation in the classroom.*

I'd like to learn more about some of your experiences with students.

[EXPECTATIONS]

1. How do you set expectations for the kids in your classroom in terms of what they're supposed to be learning and their math skills development? What do you say to them about that?

[KIDS LIKE/GOOD AT MATH/VARYING ABILITIES]

2. Tell me a little bit about the differences in your students' math ability. How do you think about the different math levels and needs of kids in your class? How do you teach to the different levels in your class?
    a. Tell me about how you meet the needs of kids who are more advanced with math.
    b. And the same question for kids who are struggling or kids who you see are close to giving up?
    c. How do you know what type of help or support a student needs?

[STRUGGLING]

3. In your experience, what, if anything, helps keep students motivated to keep trying to learn math when they are struggling? What helps keep them going instead of giving up?
    a. What strategies, if any, do you use to try to get a student reengaged with math when they're inclined to give up? What have you found over the years that's been helpful or worked well when it comes to math specifically?

    [MOTIVATION/ENGAGEMENT]

4. How do you keep kids motivated and engaged in your math classroom?
    a. How does that vary based on the type of math student?

[If needed:]

    b. How do you keep kids who are really good at math motivated? How do you try to motivate kids who maybe struggle more with math?

[IMPACT OF STEREOTYPES]

5. Sometimes there are stereotypes of which kinds of people are good at math or like math versus those who aren't good at math or aren't supposed to like it. In what ways, if any, do you see these stereotypes influencing your students?
6. Do you observe differences in your class between girls and boys? Are girls or boys more or less likely to act in certain ways, do certain things?

7. Do you observe differences in your class based on the race or ethnicity of the students? What if any differences do you observe?

V. JOURNEY TO BECOMING A MATH TEACHER (15 min; 01:10-01:25)

Purpose: *Learn about the personal connections participants have with math and what about math they think is uniquely important – different from other subjects.*

[Hear from everyone]

1. Now I want you to think back to when you first decided to be a math teacher. What made you want to teach math?
2. What feels important to you, personally, about teaching math to the kids you teach it to?

[MAKE SURE EACH PARTICIPANT ANSWERS, EVEN IF JUST IN THE CHAT]

   a. Do you share these experiences, or your math journey with any of your students? In what ways, if any, do you talk to them about your experiences with math and what made you decide to become a math teacher?

[REGARDLESS OF RESPONSE PROBE FOR REASONS THEY EITHER DO OR DO NOT SHARE THIS INFORMATION WITH STUDENTS]

VI. COMMUNICATING MATH UTILITY (15 min; 1:25-1:40)

Purpose: *Understand what participants are communicating to students about the utility of math, both in the school setting and in their lives more broadly, and the importance of persisting at it.*

We've been interviewing students across the country, and in every discussion some students say they think they won't ever use the math they're learning now in real life.

1. How often do students ask you why they have to learn math, for example, why they have to take your class or learn algebra or geometry?
   a. Have you found ways to respond to that question in a way that clicks with kids or have you helped them see the purpose of learning math? What are the ways of responding?

b. Have you talked to students about how math would be useful for their future life or career, beyond just getting through to graduate high school?

2. Who here teaches algebra, either now or in the past? [*Ask of everyone with experience teaching algebra:*] What do you say to your students specifically about algebra, about why they need to learn algebra? What do you tell them algebra is good for or what is important for them about learning it?

VII. BEST PRACTICES AND TEACHER RESOURCES (15 min; 01:40-01:55)

Purpose: *Learn about the participants' view of best practices for math teachers, and which practices they feel equipped to implement or where they feel they need additional support.*

[KIDS THIS AGE]

1. What, if anything, do you feel is unique or special about teaching students at this age, kids in 6th to 9th grade?
    a. What, if anything, about students in this grade/age range makes teaching them math easier or more difficult than teaching students of other ages?

[IF NOT RAISED PREVOUSLY, ASK RE: CULTURALLY RESPONSIVE MATH TEACHING]

2. To what degree do you feel like it is, or is not, part of your job as a math teacher to create an environment where your students can see themselves in the math? Are there ways in which you feel it is important that students can see themselves in the math content that you teach, or not really?

3. Are there ways you specifically try to support or foster your students' racial or ethnic identity in math class? *[If yes:]* What are some ways in which you do that for your students in math class?

4. In other discussions with teachers around the country, we've heard this idea of a fixed mindset or a growth mindset come up when it comes to math. How do you feel about that concept, and how if at all does it come up in your classroom? *(discuss first, before asking follow up below)*
    a. How do you put that together with the idea that some people are math people and some people aren't?

5. Let's talk about tests. What are the ways in which state tests, and the state standards you have to teach to, are useful in helping kids master math skills?
    a. Are there ways you feel it's interfering with kids mastering math skills?

VIII. CONCLUSION/WRAP-UP (5 min; 01:55-02:00)

Purpose: *Thank participant for their engagement, learn what questions they still have and what parts of the discussion stand out to them.*

We've covered quite a few topics today. I have a final question.

1. Is there anything we haven't talked about yet that you would want someone to know about teaching math to 6th through 9th graders, and how to better help them learn math?

Thank you so much for your time and thoughts. I really appreciate your openness and sharing, and I want to assure you again that everything we discussed tonight is confidential. Thank you.

Sample Moderator Guide: Teacher Persuasion Focus Group

I. WELCOME/WARM-UP (10 minutes; 00:00-00:10)

Purpose: *Welcome participants, explain structure, confidentiality, importance of sharing honest opinions, begin to make them feel comfortable in the setting.*

[TECH: Ensure participants are hiding "non-video" in Zoom if not already.]

- *Standard welcome and disclosures.*

[HAVE PARTICIPANTS INTRODUCE THEMSELVES.]

PARTICIPANT INTRODUCTION

1) First name
2) Where do you live?
3) Who or what lives with you in your home—pets, plants, people?
4) What grade(s) and what kind of math do you teach?
5) Please tell us a little about the school you teach in, specifically what the student body is like, what kinds of kids go to the school where you teach math.

[AFTER EACH PARTICIPANT HAS INTRODUCED THEMSELVES]

Welcome, thank you. Today we're going to talk about you, your classrooms, your students, and your experiences teaching math.

Some of you may teach multiple subjects or grades, but today when we're talking, I'm going to ask you to specifically think about the math classes that you teach to 6^{th}, 7^{th}, 8^{th}, or 9^{th} graders.

Today I'm interested in hearing about your personal experiences teaching math and how you feel and think about your work and your students.

A note – while we are talking here, please stay off mute so we can just have a conversation and don't have to play that "you are muted" game. Thank you.

II. EMOTIONS AROUND TEACHING & LEARNING MATH (15 minutes; 0:10-0:25)

Purpose: *Learn what teachers' emotional experience is teaching math*.

I'd like to ask you some questions about your experiences teaching math.

1. For this first one I'm going to ask you to use the chat to tell me, how do you personally feel when you are teaching math? Think about when you are in the math classroom, what kind of emotions and feelings do you typically experience? Type into the chat five words or phrases that you would use to describe what it feels like for you personally to teach math, what emotions you experience.

[PROBE EVERYONE IN THIS SECTION, EVERYONE SHOULD TALK ABOUT THEIR WORDS/PHRASES. If needed:]

   a. What is happening when you feel that emotion? What experiences bring that emotion up for you?

After initial discussion of emotions:

[TEACHER IDENTITY]

2. Are there moments when you feel – I got this, I am doing a good job of teaching math, I am a good math teacher? What are those moments? Tell me what is happening in those moments.
   a. And what emotions do you experience in those moments, what emotions are you feeling when you feel like you are being a good math teacher?
3. And on the other hand – are there moments when you feel – I am NOT doing as good of a job of teaching math as I would want to be doing, my kids are not learning in the ways I think they can and should, I should be doing something different to improve the situation? What are those moments?
   a. And what emotions do you experience in those moments, what emotions are you feeling then? What are the things that are happening when you feel this way?

III. PERSONAL TEACHING PERSPECTIVES (15 min; 00:25-00:40)

Purpose*: Explore teachers' experiences with change.*

Now, I'd like you to think of a time when you decided to change something about the way you teach math, or do something different about the way you manage your math classroom. Think of a time when you decided to do something differently than you had typically done in the past.

Quick show of hands – who has made some significant change in the way you were teaching?

1. What change did you make? What did you decide to do differently? What led you to make that change? What were the main reasons you decided to do something different, to approach some aspect of teaching math in a new way?

[PROBE ON SUPPORT OR OBSTACLES TO MAKING THIS CHANGE]

2. What kind of support or assistance, if any, did you need to have to make this change? How did you find it or get it?
3. Did you talk to other teachers about the changes you were making? If so, please tell us about those conversations.
    a. What did you tell them about?
    b. What did you ask them about?
    c. What did they ask you about?

(If needed:)

4. Generally, who do you turn to or trust for information about best practices for teaching math?
5. If something is not going well in your classroom, who do you talk to about that? Who do you go to for ideas, resources, support?

    (For teachers who have not made any significant changes:)
6. Whether or not you have made changes in the past in how you teach math, thinking about things now in the present - are there currently things you would like to do differently or are considering changing about how you teach math or how you run your classroom?
    a. [IF YES] Even if you haven't figured out how to change it, what is it that you want to change and what about it makes you want to change it?

IV. SAFE AND COMFORTABLE LEARNING ENVIRONMENTS (20 min; 00:40-01:00)

Purpose: *Learn how participants try to create a classroom environment conducive to learning. Gauge reactions to different ways of describing the teaching environment we want teachers to create*.

Now we're going to look at some ways different teachers have described the learning environment they try to create in their math classroom. I'm going to ask you to read the statements and then we're going to have a discussion about them. After you've read all the statements, go ahead and enter into the chat which one stands out most to you in a positive way, the one that you agree with the most or that resonates with you the most. And if there is anything in any of these statements that you don't like or feel is unrealistic for you as a math teacher, tell me about that too.

[TECH: Share "Handout #1" PDF on the screen]

A. It is easier for students to overcome their frustration and struggles with learning math when they feel like they are supported – when they can get the kind of help they need, when they need it. A successful classroom environment for math learning is one in which the teacher is genuinely interested in helping every student learn the process of doing math, not just getting to the answer quickly. Rather than only praising the students who get the right answer the fastest, the teacher will also highlight students who ask thoughtful questions and emphasize the importance of seeking help when you are stuck. Math teachers will check in with students for one-on-one help if they are too shy to ask questions in front of their peers.

B. Students can tell which math teachers really care about their students' success. Teachers who create caring and respectful math classrooms take time to learn about their students' interests and help them relate math to those interests. For example, even though students might not know what they want to do for a career someday, math teachers can talk about all sorts of careers and jobs that use math, such as how designers use geometry and trigonometry to animate backgrounds and characters in video games, or use AI to create special effects for the latest Marvel movie. These engagement strategies help students feel more motivated to learn math — and in turn, that makes them more willing to ask for help when they might need support to learn.

C. Math teachers can foster successful learning environments in their math classrooms by normalizing how mistakes and struggle can lead to progress and success. They can share examples from their own lives or from famous people (like athletes or musicians), and talk about moments when mistakes and struggles helped lead to better results overall. Teachers can treat mistakes as learning opportunities and praise students when they examine and learn from their mistakes. Also, math teachers can acknowledge the fact that people learn in many different ways, and at different paces. Even though many of us admire people who seem to learn something really quickly, we can also admire people who accomplished big things through patience and curiosity.

1. What are you overall reactions to what you just read? What stands out to you about it? How do you feel as you are reading this?

2. Tell me about what led you to choose the statement that you did. What parts of it are particularly compelling for you? What did you like, or what did you agree with?

3. Does anything in any of these statements rub you the wrong way, is there something in any of them that you disagree with or you feel is unrealistic for you as a math teacher?

V. YOUTH MONTAGE VIDEO (20 min; 01:00-01:20)

Purpose: *Gauge reactions to hearing and seeing students talk about their experience learning math, including the emotions they experience*.

Ok, we're going to switch gears now and watch a short video. You're going to hear from students about their own experiences learning math.

As you watch the video, please write down whatever pops into your mind, whatever words, images, associations come to mind – go ahead and write them down in the chat. Some people like to write them down on a piece of paper as they are watching. Other people find that distracting and they like to just watch, and then once the video is done, then they write it all down at once. Either way is fine. When the video is done, go ahead and enter into the chat at least five words or phrases that came to mind for you during the video.

[JUST BEFORE PLAYING VIDEO, SAY:] Please know this is not professionally made, it was made on Zoom. As you are watching, please focus on how you feel about what the students in the video are saying—NOT the lighting or video quality or anything like that. We are only interested in your personal reactions to what the students are saying.

Remember, as you are watching or right after you are done, please write down at least five words or phrases or ideas that come to mind as you watch, and enter them into the chat.

[PLAY VIDEO]

TRANSCRIPT OF VIDEO:

CHYRON - Students describe how they feel learning math

Student #1:

In fifth and sixth grade. The math, it was really, really simple. It wasn't even pre-algebra yet. It was just multiplication and addition division. There's not really many ways to solve it. You get it wrong, you get it wrong. There's no way to work your way around it or anything, and I just got really bored and I wasn't bad at it, but it wasn't fun for me. But now, starting in eighth grade, I started liking it more when we started Algebra. It's definitely more of a challenge than it was before. Algebra is a lot harder, but I just like the way it works better.

There's different ways to solve it…

Student #2:

Math, it's okay. I had trouble with it last time because I didn't go to school a lot. I had a lot of appointments for my teeth, my dentist appointments. It was difficult because when I didn't go to school a lot and I came back, we would learn some new strategies. I felt lost and I didn't know what to do and I was nervous to ask questions about it at that time, so I was just confused on what to do and I forgot everything. I had to retake math from last year, which I'm currently doing, and it's getting easier because I'm starting to remember stuff that I did in that class.

Student #3:

For me, math is sort of about remembering things. I feel happy and I feel like properly challenged because it's pushing my brain to make sure I remember all these formulas, strategies and making sure what plus what equals this, or in multiplication or division, whatever the equation's going on. Sometimes it's really confusing just to make sure I understand what's going on, but once I finally get it, I'm really happy and proud of myself. Sometimes I may ask one of my classmates if they understand or if I miss a tiny step or if we're checking over something. If I really don't understand, I will ask the teacher for help. When I ask the teacher a question I'm kind of nervous and I'm worried. It might sound like, like I wasn't paying attention or I wasn't interested in it, which isn't correct.

CHYRON - Students describe how different math teachers have impacted their learning

Student #4:

He needs to do one example of it, and he has to. For the rest of the chapter of the book. My partner didn't really know what to do either. I started getting mad, I get upset, but I'm like, I don't want to do math. I don't want to do any of this. I'm like, why did I got to do this? I start questioning math itself. Most of the time, my teachers, they don't really say anything. Well, sometimes they say something like, do you need help with the question? We can see I don't have a question written in or sometimes just look at it and walk away.

Student #1:

My Algebra two teacher, she tells us to do some questions. She just shows you the questions and she's like, solve these, and then when the two minutes are over, you're onto the next questions and it's hard to learn that way. I can't look away for a second because I'll lose. I'll lose focus and I won't know what's going on. It's just really fast paced and not a lot of learning. I feel like she doesn't teach, actually. I'm kind of learning on my own in that class.

My geometry teacher, I really like her. She makes sure to explain everything, so she makes sure that everyone is comfortable to ask questions. She says, you could even ask me privately for the people that are shy to talk in front of the class, and I like that. The teachers who just give you answers, those teachers really bother me. I'm asking you for help. Not the answer. If I needed the answer, I could use a calculator or something, but sometimes knowing how to solve it, the process of it needs to be broken down a lot deeper than it was taught in class.

Student #4:

I'm in eighth grade, I like my math teacher a lot. He supported me in questions and supported me to help other students too. I think a good teacher would focus on take time for each student to realize what they need help with, not the same, that lesson to all the students. I remember one time I got one little part wrong of the step that messed me up on one point, so a teacher, he took it step by step and told me, circled what I got wrong, and told me to reflect on that, which I think he understood me. I am like, oh, I thought I was completely off track. I just felt like I was released, so I know I wasn't really off. I just messed up on one part.

Student #3:

My math teachers have always been really nice to me.

They're not afraid to go over it once or twice. I feel like a good math teacher would have to be willing to help. There are some students who are kind of afraid to ask for help, but I feel like they should also walk around and if they look like someone's struggling, they should probably help out.

[AFTER VIDEO] Okay, enter into the chat box the five words or phrases that came to mind as you watched. Whatever popped into your mind, go ahead, type it into the chat. Hit enter when you are ready.

1. Let's take a look at the words you entered into the chat. [MODERATOR CALLS ON CERTAIN PEOPLE TO START; HEARS FROM EVERYONE.]. Okay, what led you to write that? What does that mean for you?

[PROBE FOR EACH WORD, WHAT BROUGHT IT TO MIND, WHAT IT MEANS, WHAT THEY SAW OR HEARD THAT LEADS THEM TO FEEL AS THEY DO.]

[IF NEEDED BASED ON PARTICIPANTS' RESPONSES IN THE CHAT, SPECIFICALLY ASK ABOUT THEIR FEELING/EMOTIONS AS THEY WATCHED THE VIDEO]

2. What stands out the most to you in what you just watched? What are the reasons that stands out?
    a. What, if anything, do you feel positively about?
    b. What, if anything, do you feel negatively about, or was personally hard for you to hear?

[AFTER DISCUSSION]

3. In what ways do you feel like the students in this video reflect your own students or not? Tell me about that.

4. Is there anything else from the video that is sticking with you, or that you are thinking about more? Tell me about that.

VI. (NEGATIVE) EMOTIONS LEARNING MATH (10 min; 01:20-01:30)

Purpose: *Learn how, if at all, participants navigate and manage their students' emotional experiences in the classroom.*

I'd like to hear more about your students' experience learning math.

1. What kinds of emotions do your students have that you think interfere or get in the way of kids learning math? In what ways do those emotions get in the way?

2. When you see students having these negative emotions, what, if anything, do you do or say to help them? What kinds of things have you done that you personally feel have been effective?

    a. In one of these groups, we heard a teacher say she has students write down how they feel about learning math at the beginning of the year. They write down a lot of things like "frustrated", "feel stupid", etc. Then she talks about how they're training their brains to be frustrated and have a hard time with math, and if they keep saying those things to themselves they'll believe it. Instead they should try approaching math problems with the mindset that they will be able to solve the problem – they might just have to ask a few questions or learn a new concept first. How do you all feel about this activity? Have you done anything similar in your classroom? Do you think it would work?

[STUDENT EFFORT: NOTE THIS IS IMPORTANT, DO NOT SKIP]

3. How do you tell that a student is trying, that they are making an effort? And how can you tell when they are not trying, not making an effort?
4. How do you feel when you see a student is trying, is working at it compared to when you feel they are NOT trying?
5. What do you do, how do you respond to that student when you feel like they are not even trying?

VII. STATEMENTS ABOUT CULTURAL RELEVANCE (15 min; 01:30-01:45)

Purpose: *Learn more about how participants think and talk about the concept of cultural relevance.*

Now you're going to see some statements different people have made about their experiences teaching math. Just like before, I'm going to ask you to read the statements and then enter into the chat which one stands out most to you in a positive way, the one that you agree with the most or that resonates with you the most, and then we'll have a discussion about them.

[TECH: Share "Handout #2" PDF on the screen]

A. I have a wide range of students in terms of math skills and interest in math. I used to tell my students that learning algebra will help them solve problems now and in their futures – but they didn't buy it. So as a getting-to-know-you activity, I asked them to tell me what questions they have about the world or current events. Then I looked online and found algebra lessons based on their interests, and tailored them as needed, to help my students see how algebra can be relevant to their lives. My students learned how to use: exponential growth to understand how videos go viral; linear equations to find out why some people are richer than others; absolute value functions to understand the impact of extreme weather; and logarithms to figure out if money can buy you happiness. Creating algebra learning opportunities inspired by my students' interests seems to motivate kids at all different levels. It also helps make other concepts in algebra feel less abstract.

B. My class is made up of students from all different backgrounds. Many of them speak languages other than English at home. I realized the diversity in my classroom was an opportunity for me to show the ways that algebra connects to different cultures and traditions across the globe. I shared these examples and my students said they appreciated learning about the various roots of today's math: the ancient Egyptians invented the first numerical systems; Mayans created the first symbol for zero; the Chinese were the first to use decimals and develop algebraic geometry. This inspired me to get even more creative and find other ways to show them how algebra connects us as human beings, no matter where we come from.

C. Many students in my school would be the first in their family to go to college or have professional careers. Students who struggle in my algebra class often tell me it doesn't matter because they don't want a job that uses anything beyond basic math. I know that you can't be what you can't see, and most of my kids don't realize all the different ways that math could help them in their future work. So I work with our Career Day planners to make sure our students are exposed to a wide mix of local professionals, whom we ask to talk specifically about how important math is to their career path. We've had data analysts, engineers, small business owners, nurses, and also people who use math in unexpected careers, like social media managers, sound engineers, choreographers, and pilots. Meeting professionals who look like them or share their backgrounds has helped my students to value the algebra they're learning now. Some even see algebra as a building block for the statistics, computer science, calculus and other types of higher-level math they may need for careers they now envision having.

1. What are you overall reactions to what you just read? What stands out to you about it? How do you feel as you are reading this? (Discuss)
2. What led you to choose the statement that you did? What parts of it are particularly compelling for you? What did you like, or what did you agree with?
3. Does anything in these statements rub you the wrong way, is there something in any of them that you disagree with or don't like something about it?
4. Are there any particular words, phrases, or expressions from the statements that stand out to you—either in a good or not so good way?

5. Do these statements reflect the way you talk about this topic with your colleagues? How about with your students, if at all?
6. What are other ways you talk about this topic? What words or phrases do you use that are not in these statements?

[AFTER DISCUSSING STATEMENTS]

7. We've heard kids say that they need to feel "safe" and comfortable to ask questions in their class, that they are worried other kids will make fun of them, laugh, think they are stupid, or otherwise embarrass them. They also say they are worried that other kids or the teacher will get annoyed if they still don't get it when the teacher answers their question, so they don't keep asking. How do you address these dynamics in your classroom?

8. We've heard from kids that part of this sense of feeling safe and comfortable is also related to whether they feel like they belong or matter in their math class, like they fit in and the teacher cares about them as a person as well as whether or not they are learning math. For yourself as a math teacher, do you feel like it is important to try to create a sense of *belonging* or mattering for your students in the classroom?
    a. If so, what is important about that and how do you try to create or foster a sense of belonging? What do you do to help students feel like they "belong" in your classroom?
    b. And how do you talk about this concept with your peers and colleagues? The kids don't use belonging, so we are curious to know what you call it/ Do you call it "belonging" or are there other words or phrases you use?

VIII. SHORT NARRATIVE (5 min; 1:45-1:50)

Purpose: *Get overall reactions to the short narrative about a teacher making small changes in their teaching habits to encourage questions in class.*

I'm going to show you one last paper to read. As you're going, please call out if there's anything you relate to personally – or really don't relate to.

[TECH: Share "Handout #3" PDF on the screen]

Arjun Patel, age 48
As teachers we always think on our feet. I have gotten really good at explaining things in 3 or 4 different ways because I want to make sure as many of my kids as possible can connect to the content and understand the lesson. But I still need students to speak up and ask questions when they need something explained a different way. It's hard to know where everyone is at when we only have 50-minute classes and so much material to get through – especially since so many students are missing some core math skills from previous years.

Recently I happened to see a YouTube video of a teacher in Atlanta who does this thing where she praises kids for asking questions. So, for example, when someone asks a question, she tells the student, “It’s really courageous of you to speak up. When you speak up you are helping your classmates to learn too.” I decided to try it with my kids when the new semester started.
Now that I’ve started praising kids for asking questions, even more of my students are asking questions when they are getting stuck or have made a mistake on a problem they are trying to solve. I feel like in my small way, I’m helping kids in my class to feel more confident in the classroom. This will serve them in my class and also in their education to come.

IX. CONCLUSION/WRAP-UP (10 min; 01:50-02:00)

Purpose: *Thank participant for their engagement, learn what questions they still have and what parts of the discussion stand out to them.*

Ok, we’re almost done and these are my last questions for the night.

1. We’ve covered quite a few topics today, and I’d like to know what’s sticking with you. What’s on your mind about today’s discussion? What’s standing out to you from everything you’ve seen today?

   [If time:]
2. As the school year is starting up again, are you thinking about taking any new approaches with your math classes based on anything we’ve discussed today?

Thank you so much for your time and thoughts. I really appreciate your openness and sharing, and I want to assure you again that everything we discussed tonight is confidential. Thank you.

Sample Recruitment Screener: Youth In-Person Focus Group (Mindset Phase, Black Youth)

IN-PERSON YOUTH FOCUS GROUPS

FOR EACH GROUP, RECRUIT 9 TO SEAT 6-8 PARTICIPANTS

Hello, I'm _____ from _____, a market research firm. This is not a sales call. We are conducting a brief survey on public issues. May I speak to **[ADULT NAME ON LIST]**?

First, let me assure you that this is a professional research study and not sales related in any way. Your name was chosen at random from a list. All of your responses are kept strictly confidential.

[IF AT ANY TIME PARTICIPANT DOES NOT QUALIFY, SAY: THANK YOU. THAT IS ALL THE INFORMATION I NEED. AT THIS POINT YOU DO NOT QUALIFY FOR PARTICIPATION IN THIS STUDY. THANK YOU FOR YOUR TIME.]

PART ONE OR PARENT/GUARDIAN: PARENTAL CONSENT AND PARENTAL BACKGROUND QUESTIONS

Today we are talking with parents and guardians of young people in 8th, and 9th grades about their possible participation in a paid research project about young people's opinions regarding school. I need to ask you some questions to see if they qualify to participate in this research discussion, which will take place in-person on [date and time]. If they qualify, you and your student would be paid $XXX for two hours of your time, plus $XX additional if you arrive AS REQUIRED 15 minutes or more before the interview begins. Please note, you will be required to come into the research facility to sign a consent form for participation for your student both at the beginning and at the end of the study to receive your incentive.

1. SEX OF PARENT/GUARDIAN **[OBSERVATION ONLY: DO NOT ASK]**

MALE	-1
FEMALE	-2

2. Are you the parent or guardian of one or more children in 8th or 9th grade?

Yes, parent or guardian of 8th grader	-1
Yes, parent or guardian of 9th grader	-2
Yes, other	**TERMINATE**
No, not a parent, guardian of an 8th or 9th grader	**TERMINATE**
Unsure	**TERMINATE**

3. How many children do you have who are in 8th, or 9th grade? _____

[IF THEY HAVE MORE THAN ONE CHILD IN 8TH OR 9TH GRADE, ONLY ONE CHILD CAN PARTICIPATE IN THE RESEARCH. RECRUITER SHOULD FIND OUT GRADE AND GENDER OF THE CHILDREN, AND WHICH ONE(S) ATTEND A PUBLIC, MAGNET OR CHARTER SCHOOL (Q8) THEN RECRUIT THE ONE WE NEED MORE TO FILL RECRUITMENT QUOTAS/SCHEDULING. SELECT THAT CHILD STARTING WITH Q6]

[IF GUARDIAN, ASK Q4]

4. What is your relationship with [IF ONE: this child] [IF MORE THAN ONE: each of those children in 8th, or 9th grade]?

Grandparent	-1
Aunt/Uncle	-2
Cousin	-3
Other family member (specify)	-4
Non-relative foster parent	-5
OTHER	**TERMINATE**
Unsure	**TERMINATE**

[RESUME ASKING ALL]

5. What is/are the first name(s) of [IF ONE: your student] /[IF MORE THAN ONE: these children in 8th, or 9th grade]? _____

6. And what is the race or ethnicity of [CHILD'S NAME]? **[ONLY IF NEEDED:]** Well, many people consider themselves to be white, African-American or Black, Hispanic or Latino, Asian, Pacific Islander, or Native American Indian. What about [CHILD'S NAME]? **[CHECK ALL THAT APPLY.]**

White/Caucasian	-1	**TERMINATE**
African-American/Black	-2	**CONTINUE**
Hispanic/Latino	-3	**TERMINATE**
East Asian (Chinese, Japanese, Korean, Taiwanese, etc.	-4	**TERMINATE**
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, etc.)	-5	**TERMINATE**
Filipino	-6	**TERMINATE**
Other Asian (Vietnamese, Thai, Cambodian, Laotian, etc.)	-7	**TERMINATE**
Pacific Islander	-8	**TERMINATE**
Middle Eastern	-9	**TERMINATE**
Native American (Apache, Cherokee, Lakota, Navajo, etc.)	-10	**TERMINATE**
[Other]	-11	**TERMINATE**
[Refused]	-99	**TERMINATE**

[ASK Q7 ONLY IF Q6 = more than 1 response selected]

7. Which race or ethnicity does [CHILD's NAME] identify with the MOST? If [CHILD's NAME] identifies with different races and ethnicities equally, please just say so.

White/Caucasian	-1	**TERMINATE**
African American/Black	-2	**CONTINUE**
Hispanic/Latino/Latina	-3	**TERMINATE**
East Asian (Chinese, Japanese, Vietnamese, Korean, Taiwanese, etc.)	-4	
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, Sri Lankan, etc.)	-5	
Filipino	-6	
Other Asian (Thai, Cambodian, Laotian, etc.)	-7	
Pacific Islander	-8	
Middle Eastern	-9	
Native American (Apache, Cherokee, Lakota, Navajo, etc.)	-10	
Other: specify _____	-11	
I identify with my different races/ethnicities equally	-12	
Unsure	-99	

TERMINATE IF CHILD IDENTIFIES WITH DIFFERENT RACES EQUALLY OR MORE WITH WHITE/CAUCASIAN, HISPANIC/LATINO/LATINA, EAST ASIAN, SOUTH ASIAN, FILIPINO, OTHER ASIAN, PACIFIC ISLANDER, MIDDLE EASTERN, NATIVE AMERICAN, OTHER, OR IS UNSURE

8. What is the gender of [child's name]? [Ask for all children in 8th-9th grade who may qualify]

Male	-1	RECRUIT FOR MALE GROUPS ONLY
Female	-2	RECRUIT FOR FEMALE GROUPS ONLY
[OTHER]	**TERMINATE**	**ASK A FEW MORE QUESTIONS THEN TERMINATE**

9. Does your student attend a… ?

Public school	-1	**RECRUIT MIN 4**
Charter school	-2	
Magnet school	-3	
Private school	-4	**TERM**
Homeschool	-5	**TERM**
OTHER	-6	**TERM**
Unsure	-9	**TERM**

10. And is your student's school attending classes in person, online, or a mix of both?

In person only	-1	
Online only	-2	**RECRUIT MAX 2**
Mix of in person and online	-3	
Unsure	-9	**TERM**

[RECRUITER: IF MORE THAN ONE CHILD IN THE HOUSEHOLD QUALIFIES, SELECT WHICH CHILD TO RECRUIT AT THIS POINT, AND CONTINUE SCREENER FOR THAT CHILD.

RECRUITER NOTES ONLY; RECORD FROM PREVIOUS QUESTIONS
NAME OF CHILD SELECTED: _____

GENDER OF CHILD SELECTED:

GRADE OF CHILD SELECTED:

[CONTINUE FOR ALL QUALIFIED STUDENTS]

Now I need to ask you some additional questions about your background and your family, then I will ask to speak to [NAME OF CHILD] to ask them some research questions, too.

11. For statistical purposes only, is your total annual household income before taxes: *[if needed:]* Your best guess is fine.

Under $25,000	-1	**RECRUIT MIN 6 PER GROUP**
$25,000 to under $50,000	-2	
$50,000 to under $75,000	-3	
$75,000 to under $100,000	-4	**RECRUIT MAX 3 PER GROUP**
$100,000 or more	-5	
Unsure	**TERM**	

12. Thinking now about your household—the people who live in your home—how would you describe your income level? Would you describe your income level as very low income, low income, middle income, high income, or very high income?

Very low income	-1
Low income	-2
Middle income	-3
High income	-4

Very high income	-5

13. What is your race or ethnicity? **[ONLY IF NEEDED:]** Well, many people consider themselves to be white, African-American or Black, Hispanic or Latino, Asian, Pacific Islander, or Native American Indian. What about you? **[CHECK ALL THAT APPLY.]**

White/Caucasian	-1	**TERMINATE**
African-American/Black	-2	**CONTINUE**
Hispanic/Latino	-3	**TERMINATE**
East Asian (Chinese, Japanese, Korean, Taiwanese, etc.	-4	**TERMINATE**
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, etc.)	-5	**TERMINATE**
Filipino	-6	**TERMINATE**
Other Asian (Vietnamese, Thai, Cambodian, Laotian, etc.)	-7	**TERMINATE**
Pacific Islander	-8	**TERMINATE**
Middle Eastern	-9	**TERMINATE**
Native American (Apache, Cherokee, Lakota, Navajo, etc.)	-10	**TERMINATE**
[Other]	-11	**TERMINATE**
[Refused]	-99	**TERMINATE**

14. Were you born in the United States, or were you born in another country?

United States	-1
Another country: Specify: What country?	-2
[DON'T KNOW/REFUSED]	-9

15. And what about your student, were they born in the United States, or were they born in another country?

United States	-1
Another country: Specify: What country? _____	-2
[DON'T KNOW/REFUSED]	-9

[ASK Q16, Q17 ONLY IF ANOTHER COUNTRY]

16. How old was your child when they moved to the U.S.? _____

17. What grade were they in when they started attending school in the U.S.? _____

TERMINATE IF THEY STARTED ATTENDING U.S. SCHOOL IN 2ND GRADE OR LATER; MUST HAVE BEEN IN U.S. SCHOOL BEGINNING IN 1ST GRADE OR KINDERGARTEN, NOT LATER]

18. *CONSENT LANGUAGE:* Thank you, now I need to ask for you consent to have your student participate in this research. Do you consent to have [NAME OF CHILD] participate in this opinion research study on math? Let me assure you that this is a professional research study and not sales-related in any way. All of your responses and your child's responses are kept strictly confidential.

YES	-1
NO	**TERMINATE**
Unsure	**TERMINATE**

19. Thank you so much. Now I have a few more questions for you. Besides you and your student, is there anyone else living in your household with you?

YES	-1	ASK Q20
NO	-2	SKIP TO Q21

[ASK Q20 IF THERE ARE OTHER PEOPLE IN HOUSEHOLD BESIDES PARENT/GUARDIAN AND STUDENT]

20. Please tell me how they are related to your student. For example, does your student's father or mother live in the household? Siblings? Step-parents? Step-siblings? Grandparents? Cousins? Others? Just list them out for me. [CHECK ALL THAT APPLY]

Mother	-1
Father	-2
Siblings	-3
Step-father	-4
Step-mother	-5
Step-siblings	-6
Half-siblings	-7
Grandparent	-8
Aunt/Uncle	-9
Cousin	-10
Other family member (specify)	-11
Other foster youth	-12
Non-relative foster parent	-13
Other: (specify:)	-14

[RESUME ASKING ALL]

21. Now I have a question about your student's school. Thinking about the school [CHILD'S NAME] attends, would say your family's annual household income is:

More than most other families at the school	-1
About the same as most other families at the school	-2
Less than most other families at the school	-3
Unsure	-9

22. What is your age? **RECORD EXACT AGE _____ [IF REFUSE, SAY:]** Which of the following categories does your age fall in?

Under 18	**TERMINATE**
18-24	-1
25-29	-2
30-39	-3
40-49	-4
50-59	-5
60-65	-6
66-70	-7

71 or older	-8
[REFUSED]	-9

23. What is the highest level of education you have completed? Please select one response.

Grade school or some high school	-1
High school diploma (finished grade 12)	-2
Some college (includes junior/community college no bachelor's degree)	-3
Technical, vocational or trade school	-4
Graduated college	-5
Graduate school (master's or Ph.D.)	-6
[Don't know/refused]	-9

24. What language or languages are typically spoken in your home? English only, English plus another language, or only another language? [IF ANOTHER LANGUAGE, ASK: And what language or languages are spoken in your home]?

Only English	-1
English plus another language (specify:)	-2
Only a language or languages other than English (specify:)	-3
Unsure	-9

Thank you, now I have a few questions for your student. May I speak to them?

PART TWO: SCREENING QUESTIONS FOR YOUTH IN 8TH OR 9TH GRADE

INTRO FOR YOUTH IN 8TH OR 9TH GRADE

Thank you for taking the time to talk with me. I asked your [parent/guardian] some questions for this research study about math. It is a public opinion study and if you meet the research criteria to participate, we will pay you and your parent an incentive of $xx for participating. Now, I need to ask you some questions to see if you meet the research criteria. Please know that all of your answers are confidential and anonymous; that means I will not share your answers connected to your name. Do you have any questions for me before we begin?

25. What is the name of the school you attend? _____

PARTICIPANTS IN EACH GROUP MUST ATTEND DIFFERENT SCHOOLS—DO NOT RECRUIT MORE THAN ONE PARTICIPANT FROM A GIVEN SCHOOL FOR EACH GROUP

26. How much would you say you like school? Would you say you really love school, that you like it a lot, that it is just ok, that you don't like it very much, or that you pretty much hate it?

Love school	-1
Like it a lot	-2
It is just ok	-3

Don't like it very much	-4
Pretty much hate it	-5
[Don't know/refuse]	-9

27. Thinking about the different subjects that you study at school, how much do you like each of these? Please tell me whether you really like it a lot, like it somewhat, or don't like it very much at all:

		LIKE A LOT	LIKE SOMEWHAT	DON'T LIKE	UNSURE
a.	English	-1	-2	-3	-9
b.	Science	-1	-2	-3	-9
c.	Math	**RECRUIT 4-5 PER GROUP**		**RECRUIT 4-5 PER GROUP**	
d.	Social studies	-1	-2	-3	-9

28. And thinking about these same subjects, how good do you personally feel that you are at each one? Please tell me whether you think you are very good, good, or just ok.

		VERY GOOD	GOOD	JUST OK	UNSURE
a.	English	-1	-2	-3	-9
b.	Science	-1	-2	-3	-9
c.	Math	**RECRUIT 4-5 PER GROUP**		**RECRUIT 4-5 PER GROUP**	
d.	Social studies	-1	-2	-3	-9

29. What grades do you typically get in your <u>math classes</u>?

Mostly As	-1	**RECRUIT 3-5 PER GROUP**
As and Bs	-2	
Mostly Bs	-3	
Bs and Cs	-4	**RECRUIT 3-5 PER GROUP**
Mostly Cs	-5	
Cs and Ds	-6	
Mostly Ds	-7	**RECRUIT 0-2 PER GROUP**
Ds and Fs	-8	
[Don't know/refuse]	-9	

30. What grades do you typically get in school?

Mostly As	-1
As and Bs	-2
Mostly Bs	-3
Bs and Cs	-4
Mostly Cs	-5
Cs and Ds	-6
Mostly Ds	-7

Ds and Fs	-8
[Don't know/refuse]	-9

31. Are you taking, or have you already taken, algebra/Algebra 1 in school?

Yes, taking it now	-1
Yes, already took it (specify when/what grade____)	-2
No, have not taken it yet	-3
[Don't know/refuse]	-9

32. Now, please tell me what you think and feel about math and learning math. What has it been like for you to study math? What do you like about it? What don't you like about it? [**OPEN-END, RECORD VERBATIM RESPONSE, PROBE FOR CLARITY, ACCEPT UP TO TWO RESPONSES**]

THIS QUESTION IS VERY IMPORTANT FOR DETERMINING IF THE RESPONDENT CAN FULLY PARTICIPATE IN THE INTERVIEW. THANK & TERMINATE IF RESPONDENT:

- **IS UNABLE TO EXPRESS THEIR IDEAS CLEARLY.**
- **HAS ANY TROUBLE ANSWERING THIS QUESTION.**
- **GIVES A STRANGE OR "OFF THE WALL" RESPONSE.**
- **DOES NOT SPEAK CLEARLY, OR SPEAKS ENGLISH WITH A VERY HEAVY ACCENT, THAT MAKES THEM HARD TO UNDERSTAND**
- **IS VERY SLOW TO RESPOND OR GIVES LONG DRAWN OUT ANSWERS**
- **HAS TROUBLE HEARING OR UNDERSTANDING THE QUESTIONS**

IF THERE IS ANY DOUBT ABOUT THE RESPONDENT'S ABILITY TO CLEARLY EXPRESS HIM OR HERSELF, DO NOT RECRUIT.

RECRUITER NOTE: DO NOT TERMINATE THE STUDENT. IF THE STUDENT IS NOT QUALIFIED, THANK THEM, ASK TO SPEAK TO PARENT/GUARDIAN AGAIN, THEN EXPLAIN TO PARENT/GUARDIAN STUDENT DOES NOT MEET CRITERIA FOR THIS PARTICULAR STUDY AND THANK THEM FOR THEIR TIME.

[INVITE TO PARTICIPATE IN INTERVIEW.]
Thank you for taking the time to talk with me. At this point, it looks like you meet the research criteria to participate in this important research study. If you agree to participate, you and your parent will be paid $XXX for two hours of your time, plus $XX additional if you arrive AS REQUIRED 15 minutes or more before the interview begins. Are you interested in joining the study if you qualify?

[IF YES] Thank you, please let me speak to your [parent/guardian] again so I can share a little more information.

To parent/guardian:
Your student seems to meet the research criteria for this study. Before I can confirm your student's participation, I will need to have my supervisor review your survey responses and then we will follow up with you by phone or email to schedule the exact day and time of your student's research interview. Please note, you will be required to come into the research facility to sign a consent form for participation for your student both at the beginning and at the end of the study to receive your incentive. Before I let you go, I just need to confirm a few details. [COLLECT CONTACT INFORMATION/AVAILABILITY BELOW]

Thank you for your time.

FOR CONFIRMATION, RECORD THE FOLLOWING INFORMATION:

NAME: _____ PHONE: (_____) _____

STREET ADDRESS: _____

CITY, STATE, COUNTY, ZIP _____

EMAIL ADDRESS _____

BEST TIME OF DAY/BEST WAY TO CONTACT (phone, email, text, etc.) _____

Sample Recruitment Screener: Parent/Guardian Online Focus Group (Mindset Phase, All Races)

FOR EACH GROUP RECRUIT 12 TO SEAT 6-8 PARTICIPANTS.

ALL QUOTAS LISTED ARE PER EACH GROUP

Hello, I'm _____ from _____, a market research firm. This is not a sales call. We are conducting a brief survey on public issues. May I speak to _____
[ASK FOR NAME ON LIST]?

[IF AT ANY TIME PARTICIPANT DOES NOT QUALIFY, SAY: THANK YOU. THAT IS ALL THE INFORMATION I NEED. AT THIS POINT YOU DO NOT QUALIFY FOR PARTICIPATION IN THIS STUDY. THANK YOU FOR YOUR TIME.]

Today we are talking with parents and guardians of young people in 6th through 9th grade about their possible participation in a paid research project about young people's opinions regarding education. Your name was chosen at random from a list. If you qualify and complete the discussion, you will receive $XXX for your participation. This is a professional research study and not sales related in any way. We need to ask you some questions to see if you qualify for the research study. All of your responses are strictly confidential.

Do you have any questions for me before we begin?

1. GENDER [CODE FROM OBSERVATION]

MALE	-1	Only recruit for male groups
FEMALE	-2	Only recruit for female groups

2. Are you the parent or guardian of one or more children in 6th, 7th, 8th, or 9th grade?

Yes, parent/guardian of 6th grader	-1	**RECRUIT MAX 4**	**FOR EACH GROUP RECRUIT MIN 2 WITH AT LEAST ONE CHILD IN 6TH OR 7TH GRADE AND AT LEAST ONE CHILD IN 8TH OR 9TH GRADE**
Yes, parent/guardian of 7th grader	-2		
Yes, parent/guardian of 8th grader	-3	**RECRUIT MIN 6**	
Yes, parent/guardian of 9th grader	-4		
No, not a parent, guardian of a 6th, 7th, 8th, or 9th grader	**TERMINATE**		
Unsure	**TERMINATE**		

3. Do you currently own and/or use a personal computer (laptop or desktop) that has reliable high-speed access to the Internet (broadband, cable, satellite, 4G/5G cellular hotspot) AND a webcam?

Yes	-1	CONTINUE
No	-2	**TERMINATE**
Unsure	-9	**TERMINATE**

[PARTICIPANTS MUST BE ABLE TO JOIN THE FOCUS GROUP FROM A COMPUTER, <u>NOT A PHONE OR TABLET</u>]

4. Have you ever used the Zoom online platform? [IF NO/UNSURE, FLAG FOR EXTRA TECH PREP]

Yes, I have used Zoom many times.	-1
Yes, I have used Zoom once or twice.	-2
No, I have never used Zoom.	-3
Unsure	-9

5. Do you have Zoom online platform installed on your home computer? How often do you use Zoom? **[RECORD RESPONSES; IF ZOOM NOT INSTALLED, FLAG FOR EXTRA TECH PREP]**

6. Could you participate in an online research discussion on your computer for two hours without being interrupted?

YES	-1	CONTINUE
NO	-2	**TERMINATE**
UNSURE	-9	**TERMINATE**

7. What state do you live in? **[DO NOT READ LIST OF STATES]**

California	-1	**RECRUIT 2-4 PER STATE**
Florida	-2	
New York	-3	
Texas	-4	
Another state	-5	**TERMINATE**
Unsure	-99	**TERMINATE**

8. For statistical purposes only, is your total annual household income before taxes:

Under $25,000	-1	**RECRUIT FOR LOWER HHI GROUPS ONLY**	**FOR MIXED INCOME GROUPS RECRUIT MIN 6**
$25,000 to under $50,000	-2		
$50,000 to under $75,000	-3		
$75,000 to under $100,000	-4	**RECRUIT FOR HIGHER HHI GROUPS ONLY**	**FOR MIXED INCOME GROUPS RECRUIT MIN 3**
$100,000 or more	-5		
Unsure	-9	**TERM**	

9. And just for statistical purposes, what is your race or ethnicity? **[ONLY IF NEEDED:]** Well, many people consider themselves to be white, African-American or Black, Hispanic or Latino, Asian, Pacific Islander, or Native American Indian. What about you? **[CHECK ALL THAT APPLY.]**

White/Caucasian	-1	**RECRUIT FOR WHITE GROUPS ONLY; MUST BE WHITE ONLY TO QUALIFY**
African-American/Black	-2	**ASK Q10**
Hispanic/Latino	-3	**ASK Q11**
East Asian (Chinese, Japanese, Korean, Taiwanese, etc.	-4	**RECRUIT FOR API GROUPS ONLY**
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, etc.)	-5	
Filipino	-6	
Other Asian (Vietnamese, Thai, Cambodian, Laotian, etc.)	-7	
Pacific Islander	-8	
Middle Eastern	-9	**TERMINATE**
Native American (Apache, Cherokee, Lakota, Navajo, etc.)	-10	**TERMINATE UNLESS ALSO HISPANIC/LATINO (AC3)**
[Other]	-11	**TERMINATE**
[Refused]	-99	**TERMINATE**

FOR WHITE GROUPS PARTICIPANTS MUST IDENTIFY ONLY AS WHITE IN Q9; TERMINATE RESPONDENTS WHO IDENTIFY AS WHITE AND ANOTHER RACE/ETHNICITY UNLESS IT IS HISPANIC/LATINO (AC 3)—PARTICIPANTS WHO ARE WHITE AND LATINO ONLY QUALIFY FOR HISPANIC GROUPS, THEY ARE NOT ELIGIBLE FOR WHITE GROUPS

FOR API GROUPS PARTICIPANTS MUST IDENTIFY ONLY AS ONE OR MORE OF AC 4-8 IN Q9; TERMINATE PARTICIPANTS WHO IDENTIFY AS API AND ANOTHER (NON-API) RACE/ETHNICITY

[IF Q9=BLACK/AFRICAN AMERICAN ASK Q10]

10. Are you Afro-Caribbean, or do you have direct heritage from Haiti, the Dominican, or some other Caribbean country?

Yes	-1	**MAX 3**
No	-2	
Unsure	-9	**TERMINATE**

[IF Q9=HISPANIC/LATINO ASK Q11]

11. Are you Hispanic/Latino only, or are you a mix of Hispanic/Latino and something else? **[IF PARTICIPANT SAYS THEY ARE A MIX ASK:]** And what are the different races or ethnicities you identify with?

Hispanic/Latino/Latina ONLY	-1	**CONTINUE**
Hispanic and white	-2	**CONTINUE**
Hispanic and Native American	-3	**CONTINUE**
Hispanic and Asian	-4	**TERMINATE**
Hispanic and Black	-5	**ELIGIBLE FOR BLACK GROUPS ONLY**
Hispanic and something else (specify:_____)	-6	**CONTINUE; IF PARTICIPANT OTHERWISE QUALIFIES, PLACE ON HOLD FOR GSSR REVIEW**
Any other mix of races/ethnicities	-7	**TERMINATE**
Unsure	-99	**TERMINATE**

[RESUME ASKING ALL]

12. How many children do you have who are in 6th, 7th, 8th, or 9th grade? _____

13. And what type of school [IF ONE CHILD: does your child/IF MORE THAN ONE CHILD: do your children] attend?

Public school	-1	**RECRUIT MIN 6**
Charter school	-2	
Magnet school	-3	
Private school	-4	**MAX 2**
Homeschool	-5	**TERM**
OTHER	-6	**TERM**
Unsure	-9	**TERM**

14. Thinking about the [IF ONE CHILD: school your child attends/IF MORE THAN ONE CHILD: schools your children attend], would you say the students are:

Mostly Asian	-1
Mostly Black	-2
Mostly Hispanic	-3
Mostly white	-4
A mix of different races and ethnicities	-5
Unsure	-9

IF Q14 = A MIX/AC (5) ASK Q15

15. And what is your best guess about what percent each of the following are at that school:

FOR EACH RACE/ETHNICITY LISTED BELOW RECORD A NUMERIC PERCENTAGE; THE TOTAL OF ALL RACES/ETHNICITIES SHOULD ADD UP TO 100%

	RACE/ETHNICITY	PERCENT OF STUDENT BODY (RECORD NUMERIC RESPONSE)
a.	White/Caucasian	
b.	Black/African American	
c.	Hispanic/Latino/Latina/Latinx	
d.	Asian American Pacific Islander	
e.	Other races or ethnicities	

RESUME ASKING ALL

16. And would you say most of the students at [IF ONE CHILD: your child's school /IF MORE THAN ONE CHILD: your children's schools] are: [IF UNSURE: Your best guess is fine.]

		LOWER INCOME GROUPS	HIGHER INCOME GROUPS
Very low income	-1	**RECRUIT MIN 6**	**RECRUIT A MIX**
Low income	-2		
Middle income	-3		
Higher income	-4		
Unsure	-9		

17. What is the gender of [IF ONE: the young person/IF MORE THAN ONE: these children in 6th, 7th, 8th, or 9th grade]? **[DO NOT READ RESPONSE OPTIONS]**

Male	-1	**RECRUIT A MIX FOR EACH GROUP**
Female	-2	
Mix of males and females **(participants with more than one child in 6th-9th grade only)**	-3	
Non-binary/identifies differently	-4	**RECRUIT 0-3**
[Don't know/refused]	-9	**TERMINATE**

18. What is <u>your</u> age? **RECORD EXACT AGE** ____ ___ [**IF REFUSE, SAY:** Which of the following categories does your age fall in]?

18-24	-1	**TERMINATE**
25-29	-2	**RECRUIT 0-1**
30-39	-3	**RECRUIT A MIX**
40-49	-4	
50-59	-6	**RECRUIT 0-2**
60-69	-7	**RECRUIT 0-1**
70 or older	-8	**TERMINATE**
[REFUSED]	-9	**TERMINATE**

19. We are interested in talking to people who do certain types of work. Either currently or in the past, have you or has any person living in your household worked: **[READ ALL LISTED:]**

In an advertising agency	**TERMINATE**
In public relations	**TERMINATE**
For a market research firm	**TERMINATE**
As part of the news media	**TERMINATE**
In politics	**TERMINATE**
For an elected official	**TERMINATE**
As a teacher	**TERMINATE**
In banking or finance	**TERMINATE**
[REFUSED]	**TERMINATE**

20. In your own words, please tell me how you personally feel about math and the way that math is taught in your child's high school/middle school.

THIS QUESTION IS VERY IMPORTANT FOR DETERMINING IF THE RESPONDENT CAN FULLY PARTICIPATE IN THE INTERVIEW. THANK & TERMINATE IF RESPONDENT:

- **IS INARTICULATE OR HAS ANY TROUBLE ANSWERING THIS QUESTION.**
- **GIVES A STRANGE OR "OFF THE WALL" RESPONSE.**
- **DOES NOT SPEAK OR WRITE CLEARLY IN ENGLISH OR SPEAKS ENGLISH WITH A HEAVY ACCENT.**
- **IS VERY SLOW TO RESPOND OR GIVES LONG DRAWN OUT ANSWERS**
- **HAS TROUBLE HEARING OR UNDERSTANDING THE QUESTIONS.**

IF THERE IS ANY DOUBT ABOUT THE RESPONDENT'S ABILITY TO CLEARLY EXPRESS HIM OR HERSELF, DO NOT RECRUIT.

21. Were you born in the United States, or were you born in another country?

		BLACK & WHITE GROUPS	API & HISPANIC GROUPS
United States	-1	**CONTINUE**	**CONTINUE**
Another country: (Specify: What country?)	-2	**RECRUIT MAX 2**	**CONTINUE**
[DON'T KNOW/REFUSED]	-9	**TERMINATE**	**TERMINATE**

22. And at what grade level did your child start attending school in the United States? [DO NOT READ RESPONSES]

1st grade or earlier	-1	**CONTINUE**
2nd grade or later	-2	**TERMINATE**
[DON'T KNOW/REFUSED]	-9	**TERMINATE**

23. What languages are typically spoken at home?

Only English	-1
Mostly English, with some other language(s) [please specify language(s)]:	-2
A mix of English and other language(s) [please specify language(s)]:	-3
Mostly other language(s), with some English [please specify language(s)]:	-4
Only language(s) other than English [please specify language(s)]:	-5
Unsure	-9

24. What is the ***highest level*** of education you have completed? Please select one response.

Grade School or Some High School Education	-1
High School Diploma / GED	-2
Technical / Vocational / Trade School	-3
Some University / College Education	-4
University / College Degree	-5
Some post-graduate work, no degree	-6
Postgraduate degree (e.g., MA, JD, MD, PhD)	-7
Unsure	**TERMINATE**

25. In terms of your own job status, are you: **[IF PARTICIPANT IS A PART TIME STUDENT RECORD IF THEY ARE WORKING FULL TIME, PART TIME, OR UNEMPLOYED]**

Employed Full Time	-1	**RECRUIT MIN 6 PER GROUP**
Employed Part Time	-2	
Retired	-3	**RECRUIT MAX OF 1**
Student, Full Time	-4	**TERMINATE**
Student, Part Time	-5	
Homemaker	-6	
[Disabled]	-7	**TERMINATE**
[Unemployed]	**-9**	**RECRUIT MAX 1**

IF PREVIOUS =AC 1, 2, 3, OR 9, ASK Q26 AND Q27

26. And what [IF EMPLOYED: is your] [IF RETIRED OR UNEMPLOYED: was your most recent] job or occupation? **GET DETAILED RESPONSE AND SPECIFIC OCCUPATION RECORD VERBATIM. IF RESPONDENT IS A SALES PERSON, CONSULTANT, MANAGER, ETC., FIND OUT WHAT THEY SELL, WHERE THEY CONSULT, OR WHAT THEY MANAGE. [IF RETIRED OR HOMEMAKER, ASK FOR PREVIOUS OCCUPATION.]**

_____

_____

(NOTE: If their occupation is related to any of the fields in Q19, thank them and terminate interview. IF THEY ARE DISABLED, TERMINATE.)

27. And what is the specific name of your employer? **(NO ABBREVIATIONS. SPELL OUT NAME)**

_____

RESUME ASKING ALL

28. Are you married, separated, divorced, widowed, living with a partner, or single and never married?

Married	-1	**ASK Q29 AND Q30**
Separated	-2	**SKIP TO ENDING**
Divorced	-3	**SKIP TO ENDING**
Widowed	-4	**SKIP TO ENDING**
Living With A Partner	-5	**ASK Q29 AND Q30**
Single And Never Married	-6	**SKIP TO ENDING**
[Don't Know/Refused]	-9	**TERMINATE**

29. (If married or living with partner:) What is your (spouse's/partner's) occupation? **GET DETAILED RESPONSE AND SPECIFIC OCCUPATION. RECORD VERBATIM. IF SPOUSE IS A SALES PERSON, CONSULTANT, MANAGER, ETC., FIND OUT WHAT THEY SELL, WHERE THEY CONSULT, OR WHAT THEY MANAGE. [IF RETIRED OR HOMEMAKER, ASK FOR PREVIOUS OCCUPATION]**

_____

Record. Do not recruit anyone whose spouse or partner works in **any of the fields in Q19.**

30. And what is the specific name of your (spouse's/partner's) employer? **(NO ABBREVIATIONS. SPELL OUT COMPLETE NAME)**

_____

[ENDING]

[INVITE TO PARTICIPATE IN FOCUS GROUP.]

No one in the group should know each other, either be friends or relatives or co-workers etc. All participants must be strangers. Participants should not have participated in ANY GSSR focus group in the past two years. Give participants all of the information they need to participate. Explain incentives.

Based on your responses to these questions, we are inviting you to join an exclusive online research community. This community will include other civically engaged people like you.

This project will require you to participate in a 2-hour online focus group on [DATE AND TIME].
For your participation, at the completion of the study you will be rewarded $XXX—plus an extra $XX if you arrive as required 15 minutes or more before the discussion begins to test your connection, check your lighting, etc. Would you be interested in joining the online focus group?

[Inform participants that they may be asked to read a brief handout during the focus group, and ask them to please bring their reading glasses, if they are needed.]

Thank you for your time.

FOR CONFIRMATION, RECORD THE FOLLOWING INFORMATION:

NAME: _____
PHONE: (_____) _____
STREET ADDRESS: _____
CITY, STATE, ZIP: _____
EMAIL ADDRESS: _____

Sample Recruitment Screener: Teacher Online Focus Group (Mindset Phase, All Races)

RECRUIT 10 TO SEAT 6-8 PARTICIPANTS.

Hello, I'm _____ from _____, a market research firm. This is not a sales call. We are conducting a brief survey among people who work in the education field. May I speak to **[NAME ON LIST]?**

First, let me assure you that this is a professional research study and not sales related in any way. Your name was chosen at random from a list. All of your responses are kept strictly confidential.

[IF AT ANY TIME PARTICIPANT DOES NOT QUALIFY, SAY: THANK YOU. THAT IS ALL THE INFORMATION I NEED. AT THIS POINT YOU DO NOT QUALIFY FOR PARTICIPATION IN THIS STUDY. THANK YOU FOR YOUR TIME.]

Today we are talking with people like yourself about possible participation in an opinion research project. If you qualify, you would be paid $XXX for 2 hours of your time. I need to ask you some questions to see if you qualify for the research project.

1. SEX **[OBSERVATION ONLY: DO NOT ASK]**

Male	-1	**RECRUIT FOR MALE GROUPS ONLY**
Female	-2	**RECRUIT FOR FEMALE GROUPS ONLY**

2. Do you currently own and/or use a personal computer (laptop or desktop) that has reliable high-speed access to the Internet (broadband, cable, satellite, 4G/5G cellular hotspot) AND a webcam?

Yes	-1	CONTINUE
No	-2	
Unsure	-9	**TERMINATE**

IF Q2 =NO/AC2 ASK Q3

3. Do you have an iPad or tablet that has reliable high-speed access to the Internet (broadband, cable, satellite, 4G/5G cellular hotspot) AND a webcam?

Yes	-1	IF PARTICIPANT OTHERWISE QUALIFIES PLACE ON HOLD FOR GSSR REVIEW
No	-2	**TERMINATE**
Unsure	-9	**TERMINATE**

[RECRUITS <u>CANNOT</u> PARTICIPANT IN THE FOCUS GROUP VIA SMARTPHONE]

RESUME ASKING ALL

4. Have you ever used the Zoom online platform? [IF NO/UNSURE, FLAG FOR EXTRA TECH PREP]

Yes, I have used Zoom many times.	-1	CONTINUE
Yes, I have used Zoom once or twice.	-2	CONTINUE
No, I have never used Zoom.	-3	CONTINUE

Unsure	-9	CONTINUE

5. Do you have Zoom online platform installed on your [**IF Q2 =AC1:** computer] [**IF Q3=AC1:** tablet]? How often do you use Zoom? **[RECORD RESPONSES; IF ZOOM NOT INSTALLED, FLAG FOR EXTRA TECH PREP]**

6. Could you participate in an online research discussion on your computer for two hours without being interrupted?

Yes	-1	CONTINUE
No	-2	**TERMINATE**
Unsure	-9	**TERMINATE**

7. What state do you live in? [**DO NOT READ LIST]**

California	-1	Recruit minimum 1
Florida	-2	Recruit minimum 1
New York	-3	Recruit minimum 1
Texas	-4	Recruit minimum 1
Other	-8	**TERMINATE**
Unsure	-9	**TERMINATE**

8. We are interested in talking to people who do certain types of work. Either currently or in the past, have you or has any person living in your household worked: **[READ ALL LISTED:]**

At an advertising agency	**TERMINATE**
In public relations	**TERMINATE**
At a market research firm	**TERMINATE**
In the news media	**TERMINATE**
In politics	**TERMINATE**
For an elected official	**TERMINATE**
In education	**Continue**
[UNSURE/REFUSED]	**TERMINATE**

9. Are you currently working as a teacher in a K through 12 public school, charter school, or magnet school? (IF NO ASK: Is someone in your household currently a working as a teacher or principal at a K through 12 public school, charter school, or magnet school?)

Yes, as a teacher	-1	**Continue**
No, but someone in household is	-2	Ask to speak to that person/run through screener
No, no one in household currently a K-12 teacher	**TERMINATE**	
[UNSURE/REFUSED]	**TERMINATE**	

10. Do you teach full-time or part-time?

Full-time	-1	**Continue**

Part-time	**TERMINATE**	
[UNSURE/REFUSED]	**TERMINATE**	

11. What is the name of the school you teach at? _____

PARTICIPANTS IN EACH GROUP MUST TEACH AT DIFFERENT SCHOOLS—DO NOT RECRUIT MORE THAN ONE PARTICIPANT FROM A GIVEN SCHOOL FOR EACH GROUP

12. And how long overall have you been a teacher?

Less than a year	**TERM**
Between 1 year and 3 years	-2
Between 3 and 5 years	-3
Between 5 and 10 years	-4
More than 10 years	-5
[UNSURE/REFUSED]	-9

13. About what proportion of students at your school would you say qualify for free or reduced lunch programs? Your best guess is fine. [READ OPTIONS IF THEY ARE UNSURE]

Less than 25%	-1	**TERMINATE**
At least 25% but less than 50%	-2	**RECRUIT 2-3 PER GROUP**
At least 50% but less than 75%	-3	**RECRUIT 3-4 PER GROUP**
75% or more	-4	**RECRUIT 3-4 PER GROUP**
Don't know	-9	**TERMINATE**

14. And do you teach only in a mainstream, or general education classroom, only in a special education classroom, a mix of the two, or some other setting?

Mainstream, or general education classroom only	-1	**CONTINUE**
Special ed classroom only	-2	**TERMINATE**
A mix of mainstream/general education and special ed classrooms	-3	**PLACE ON HOLD IF OTHERWISE QUALIFIED FOR GSSR REVIEW**
Some other setting (please specify)	-4	**PLACE ON HOLD IF OTHERWISE QUALIFIED FOR GSSR REVIEW**
Don't know	-9	**TERMINATE**

15. And which of the following subjects do you currently teach? Please select all that apply.

Art	-1	
English/Language Arts	-2	
Foreign Language (Spanish, French, etc.)	-3	
Geography	-4	

Health/Health and Life Skills	-5	
History	-6	
Math	-7	**MUST TEACH MATH TO QUALIFY**
Music	-8	
Physical Education	-9	
Science	-10	
Social Studies	-11	
Other (please specify:_____)	-12	
[UNSURE/REFUSED]	-99	

TO QUALIFY PARTICIPANTS MUST CURRENTLY TEACH MATH; OK IF THEY TEACH OTHER SUBJECTS TOO, BUT TERMINATE IF THEY DO NOT TEACH MATH

16. What grade or grades do you currently teach <u>math</u> to? [Check all that apply.]

Kindergarten	-1	
First	-2	
Second	-3	
Third	-4	
Fourth	-5	
Fifth	-6	
Sixth	-7	**MUST CURRENTLY TEACH 6TH, 7TH, 8TH OR 9TH GRADE MATH TO QUALIFY**
Seventh	-8	
Eighth	-9	
Ninth/Freshmen	-10	
Tenth/Sophomores	-11	
Eleventh/Juniors	-12	
Twelfth/Seniors	-13	
Other: (SPECIFY) _____	-88	
[UNSURE/REFUSED]	-99	

TO QUALIFY PARTICIPANTS MUST CURRENTLY TEACH 6TH, 7TH, 8TH, OR 9TH GRADE MATH; OK IF THEY TEACH OTHER GRADES TOO, BUT TERMINATE IF THEY DO NOT TEACH MATH TO AT LEAST ONE OF THOSE GRADE LEVELS.

17. And how long overall have you been teaching <u>math</u>? [ONLY IF NECESSARY:] Please tell me the total number of years, even if they have not been consecutive.

Less than a year	-1	**TERMINATE**
Between 1 year and 3 years	-2	**RECRUIT A MIX FOR EACH GROUP**
Between 3 and 5 years	-3	
Between 5 and 10 years	-4	
More than 10 years	-5	

[UNSURE/REFUSED]	-9	

18. And which of the following math courses do you teach or have you taught in the past? Please select all that apply.

Algebra/Integrated Math	-1
Geometry	-2
Pre-Algebra	-3
Pre-Calculus	-4
Calculus	-5
Other (please specify:_____)	-8
[UNSURE/REFUSED]	-9

19. How long have you been working at your current school?

Less than a year	-1
Between 1 year and 3 years	-2
Between 3 and 5 years	-3
Between 5 and 10 years	-4
More than 10 years	-5
[UNSURE/REFUSED]	-9

20. Thinking about the racial and ethnic composition of the student body at your school, what is your best guess about what percent each of the following are at your school:

FOR EACH RACE/ETHNICITY LISTED BELOW RECORD A NUMERIC PERCENTAGE; THE TOTAL OF ALL RACES/ETHNICITIES SHOULD ADD UP TO 100%

	RACE/ETHNICITY	PERCENT OF STUDENT BODY (RECORD NUMERIC RESPONSE)
a.	White/Caucasian	
b.	Black/African American	
c.	Hispanic/Latino/Latina/Latinx	
d.	Asian-Pacific Islander	
e.	Other races or ethnicities	

21. And thinking about the racial composition of the mix of students you personally teach as a whole, what is your best guess about what percent each of the following are across the classes you teach?

FOR EACH RACE/ETHNICITY LISTED BELOW RECORD A NUMERIC PERCENTAGE; THE TOTAL OF ALL RACES/ETHNICITIES SHOULD ADD UP TO 100%

	RACE/ETHNICITY	PERCENT OF STUDENTS TAUGHT (RECORD NUMERIC RESPONSE)

a.	White/Caucasian	
b.	Black/African American	
c.	Hispanic/Latino/Latina/Latinx	
d.	Asian-Pacific Islander	
e.	Other races or ethnicities	

FOR EACH GROUP RECRUIT PARTICIPANTS WITH A MIX OF RESPONSES IN Q21

22. What is your age? **RECORD EXACT AGE ____ ___ (IF REFUSE, SAY:)** Which of the following categories does your age fall in?

18-22	**TERMINATE**
23-29	-1
30-39	-2
40-49	-3
50-59	-4
60-69	-5
70 or older	**TERMINATE**
[REFUSED]	**TERMINATE**

23. And what is your race or ethnicity? **[ONLY IF NEEDED:]** Well, most people consider themselves to be white, African-American or Black, Hispanic or Latino, Asian, Pacific Islander, or Native American Indian. What about you? **[CHECK ALL THAT APPLY.]**

White/Caucasian	-1	IF WHITE ONLY, RECRUIT FOR WHITE GROUPS
African-American/Black	-2	IF BLACK ONLY, RECRUIT FOR BLACK GROUPS. IF BLACK PLUS ANOTHER, ASK Q22 AND ASSIGN BASED ON THAT REPLY.
Hispanic/Latino	-3	IF HISPANIC ONLY, RECRUIT FOR HISPANIC GROUPS. IF HISPANIC PLUS ANOTHER, ASK Q22 AND ASSIGN BASED ON THAT REPLY.
East Asian (Chinese, Japanese, Korean, Taiwanese, etc.	-4	IF API, RECRUIT FOR API GROUPS. IF API PLUS ANOTHER, ASK Q22 AND ASSIGN BASED ON THAT REPLY.
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, etc.)	-5	
Filipino	-6	
Other Asian (Vietnamese, Thai, Cambodian, Laotian, etc.	-7	
Pacific Islander	-8	
Middle Eastern	-9	

Native American (Apache, Cherokee, Lakota, Navajo, etc.)	-10	
[Other: Specify:]	-12	
[Refused]	-99	

ASK NEXT IF RESPONDENT SELECTS MORE THAN ONE RESPONSE OPTION IN PREVIOUS

24. Which race or ethnicity do you identify with most?

White/Caucasian	-1
African American/Black	-2
Hispanic/Latino/Latina	-3
East Asian (Chinese, Japanese, Vietnamese, Korean, Taiwanese, etc.)	-4
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, Sri Lankan, etc.)	-5
Filipino	-6
Other Asian (Thai, Cambodian, Laotian, etc.)	-7
Pacific Islander	-8
Middle Eastern	-9
Native American (Apache, Cherokee, Lakota, Navajo, etc.)	-10
Other: specify _____	-11
I identify with my different races/ethnicities equally	-12
Unsure	-99

IF PARTICIPANT CHOOSES AC (1:9) IN Q22 ASSIGN GROUP BASED ON THAT RESPONSE

IF PARTICIPANT IDENTIFIES EQUALLY WITH WHITE + BLACK, WHITE + HISPANIC, OR WHITE AND API, PUT THEM INTO THE BLACK, HISPANIC OR API GROUP—DO NOT PUT THEM INTO THE WHITE GROUP.

IF PARTICIPANTS IDENTIFIES AS BLACK + HISPANIC OR BLACK + API, PUT THEM INTO THE API OR BLACK, WHEREVER MORE PARTICIPANTS ARE NEEDED

[RESUME ASKING ALL]

25. What is the ***highest level*** of education you have completed? Please select one response.

Grade School or Some High School Education	**TERMINATE**
High School Diploma / GED	
Technical / Vocational / Trade School	
Some University / College Education	
University / College Degree	-5
Some post-graduate work, no degree	-6
Postgraduate degree (Master, Ed. D, etc.)	-7

Unsure	**TERM**

26. In your own words, please tell me what you see as the biggest challenges students in your school face learning math?

THIS QUESTION IS VERY IMPORTANT FOR DETERMINING IF THE RESPONDENT CAN FULLY PARTICIPATE IN THE INTERVIEW. THANK & TERMINATE IF RESPONDENT:

- **IS INARTICULATE OR HAS ANY TROUBLE ANSWERING THIS QUESTION.**
- **GIVES A STRANGE OR "OFF THE WALL" RESPONSE.**
- **DOES NOT SPEAK OR WRITE CLEARLY IN ENGLISH OR SPEAKS ENGLISH WITH A HEAVY ACCENT.**
- **IS VERY SLOW TO RESPOND OR GIVES LONG DRAWN OUT ANSWERS**
- **HAS TROUBLE HEARING OR UNDERSTANDING THE QUESTIONS.**

IF THERE IS ANY DOUBT ABOUT THE RESPONDENT'S ABILITY TO CLEARLY EXPRESS HIM OR HERSELF, DO NOT RECRUIT.

27. What is the name of the school district that you currently teach math in?

_____

28. Do you have at least one child at home under the age of 18? [**IF YES**] And are they attending public school, private school, a mix of both—or are they too young to go to school?

Public school	-1
Private school	-2
Mix of public and private school	-3
Too young to go to school	-4
No child under 18 at home	-5
[Unsure/Refused]	**TERM**

29. Would you like to be contacted about opportunities to participate in future research studies?

Yes	-1
No	-2
Unsure	-9

[INVITE TO PARTICIPATE IN FOCUS GROUP.]
No one in the group should know each other, either be friends or relatives or co-workers etc. All participants must be strangers. Give participants all of the information they need to attend. Explain that they will be paid $XXX for their time plus $XX if they arrive 15 minutes or more before their group begins <u>as required</u>.

[Inform participants that they may be asked to read a brief handout during the focus group, and ask them to please bring their reading glasses, if they are needed.]

Thank you for your time.

FOR CONFIRMATION, RECORD THE FOLLOWING INFORMATION:

NAME: _____
PHONE: (_____) _____
STREET ADDRESS: _____
CITY, STATE, ZIP: _____
EMAIL ADDRESS: _____

Survey: Youth Online Survey

Screening Questions

PART ONE: PARENTS OF 7TH-10TH GRADERS

SHOW IF QC_LINK = SPANISH

1A. Do you prefer to take this survey in English or Spanish?

English	-1
Spanish	-2

Thank you for agreeing to take our survey. This is a professional research study and not sales-related in any way. All of your responses are anonymous and are kept strictly confidential. We are looking for your honest reactions and answers.

To participate, simply answer the question(s) on each page and click the "Next" button to move to the next question. Your responses will be submitted as you move through the survey.

Click the "Next" button below to begin.

1. What state do you live in? **[Drop down menu with all 50 states plus Washington, DC]**
   TERMINATE IF NOT CA, FL, NY, TX

2. Are you the parent or guardian of one or more children who are currently in 7th, 8th, 9th or 10th grade?

Yes, parent	-1
Yes, guardian	-2
No, not a parent or guardian of a child in 7th-10th grade	**TERMINATE**
Unsure	**TERMINATE**

3. What is your race or ethnicity? Please select all that apply. **MULTIPUNCH**

White/Caucasian (German, Irish, English, etc.)	-1
Black/African-American (Haitian, Nigerian, etc.)	-2
Hispanic/Latino (Mexican, Cuban, Dominican, Puerto Rican, etc.)	-3
East Asian (Chinese, Japanese, Vietnamese, Korean, Taiwanese, etc.)	-4
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, Sri Lankan, etc.)	-5
Other Asian (Thai, Cambodian, Laotian, Filipino, etc.)	-6
Native Hawaiian or Pacific Islander	-7
Middle Eastern or North African (Lebanese, Iranian, Egyptian, etc.)	-8
Native American (Cherokee, Navajo, Choctaw, etc.)	-9
[Other: please specify _____] **OPEN END**	-10
Unsure **EXCLUSIVE**	-99

IF Q3 INCLUDES BLACK/AC 2, ASK Q4

4. Which of the following best represents your family's area of origin or heritage? Please select all that apply. **MULTISELECT**

African-American	-1
African (e.g., Ethiopian, Kenyan, Nigerian, etc.)	-2
Afro-Caribbean (e.g., Cuban, Dominican, Haitian, etc.)	-3
Afro-Latin American (e.g., Mexican, Brazilian, Colombian, Venezuelan, etc.)	-4
None/not applicable **[EXCLUSIVE]**	-5
[Other: please specify] **OPEN END**	-6
Unsure **EXCLUSIVE**	-9

IF Q3 INCLUDES HISPANIC/AC 3 ASK Q5

5. Which of the following best represents your family's area of origin or heritage? Please select all that apply. **MULTISELECT**

Mexican	-1
Puerto Rican	-2
Cuban	-3
Dominican	-4
Another Caribbean island	-5
Central American (e.g., Guatemalan, Nicaraguan, Salvadoran, etc.)	-6
South American (e.g., Brazilian, Colombian, Venezuelan, etc.)	-7
None/not applicable **[EXCLUSIVE]**	-8
[Other: please specify] **OPEN END**	-9
Unsure **EXCLUSIVE**	-99

6. Please enter the number of children who are currently in 7th, 8th, 9th or 10th grade for whom you are the parent or guardian.. **OPEN END NUMERICAL; ALLOW 1-6 WITH CHECKBOX FOR UNSURE**

7. Please select the grade and type of school for [**IF 1 IN PREVIOUS:** your child] [**IF 2-6 IN PREVIOUS:** each of your children]. **DISPLAY ROWS TO MATCH THE NUMBER ENTERED IN PREVIOUS**

DROPDOWN #1: GRADE

		7th grade	8th grade	9th grade	10th grade	Unsure
a.	Child 1	-1	-2	-3	-4	-9
b.	Child 2	-1	-2	-3	-4	-9
c.	Child 3	-1	-2	-3	-4	-9
d.	Child 4	-1	-2	-3	-4	-9
e.	Child 5	-1	-2	-3	-4	-9
f.	Child 6	-1	-2	-3	-4	-9

DROPDOWN #2: TYPE OF SCHOOL

		Public school	Private school	Charter school (public)	Magnet school (public)	Home school	Unsure
a.	Child 1	-1	-2	-3	-4	-5	-9
b.	Child 2	-1	-2	-3	-4	-5	-9
c.	Child 3	-1	-2	-3	-4	-5	-9
d.	Child 4	-1	-2	-3	-4	-5	-9
e.	Child 5	-1	-2	-3	-4	-5	-9
f.	Child 6	-1	-2	-3	-4	-5	-9

IF Q6=1 DO NOT DISPLAY Q8

8. Thank you! Please choose just one of your children in 7th-10th grade to think about as you answer the rest of the questions in this survey.

Child 1, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 2, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 3, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 4, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 5, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 6, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**

DISPLAY NEXT BUTTON

CONSENT LANGUAGE

9. We are conducting an online research survey among public school students who are in 7th, 8th, 9th or 10th grade, and their parents, about their educational experiences. This is a professional research study and not sales-related in any way. All of your responses and your child's responses are anonymous and are kept strictly confidential. We have a survey for you, and a survey for your child. Please select which option you would like to continue with.

I would like to take the survey for parents AND I would like my child to take the survey for students	-1
I would like to take the survey for parents ONLY	-2
I would like my child to take the survey for students ONLY	-3
I would NOT like to continue with either survey	**TERMINATE**
Unsure	**TERMINATE**

SHOW TEXT SCREEN: Thank you! Now we have a few more questions about you and your child.

10. Is your child…

Male	-1
Female	-2
They identify differently **SPECIFY**	-3
Unsure/prefer not to answer	-9

CODE QC_GENDER_STUDENT

[ASK Q11 ONLY IF RESPONDENT CONSENTED TO STUDENT SURVEY]

11. What is the race or ethnicity of your child? Please select all that apply.
MULTIPUNCH

White/Caucasian (German, Irish, English, etc.)	-1
Black/African-American (Haitian, Nigerian, etc.)	-2
Hispanic/Latino (Mexican, Cuban, Dominican, Puerto Rican, etc.)	-3
East Asian (Chinese, Japanese, Vietnamese, Korean, Taiwanese, etc.)	-4
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, Sri Lankan, etc.)	-5
Other Asian (Thai, Cambodian, Laotian, Filipino, etc.)	-6
Native Hawaiian or Pacific Islander	-7
Middle Eastern or North African (Lebanese, Iranian, Egyptian, etc.)	-8
Native American (Cherokee, Navajo, Choctaw, etc.)	-9
[Other: please specify] **OPEN END**	-10
Unsure **EXCLUSIVE**	-99

IF Q11 INCLUDES BLACK/AC 2, ASK Q12

12. Which of the following best represents your family's area of origin or heritage? Please select all that apply.
MULTISELECT

African-American	-1
African (e.g., Ethiopian, Kenyan, Nigerian, etc.)	-2
Afro-Caribbean (e.g., Cuban, Dominican, Haitian, etc.)	-3
Afro-Latin American (e.g., Mexican, Brazilian, Colombian, Venezuelan, etc.)	-4
None/not applicable **[EXCLUSIVE]**	-5
[Other: please specify] **OPEN END**	-6
Unsure **EXCLUSIVE**	-9

IF Q11 INCLUDES HISPANIC/AC 3 ASK Q13

13. Which of the following best represents your family's area of origin or heritage? Please select all that apply. **MULTISELECT**

Mexican	-1
Puerto Rican	-2
Cuban	-3
Dominican	-4
Another Caribbean island	-5
Central American (e.g., Guatemalan, Nicaraguan, Salvadoran, etc.)	-6
South American (e.g., Brazilian, Colombian, Venezuelan, etc.)	-7
None/not applicable **[EXCLUSIVE]**	-8
[Other: please specify] **OPEN END**	-9
Unsure **EXCLUSIVE**	-99

RESUME ASKING ALL

14. What languages are typically spoken at home?

Only English	-1
English and another language(s) [please specify language(s)]:	-2
Only another language(s) and not English [please specify language(s)]:	-3
Unsure	-9

ASK Q15 IF Q14=2,3,9

15. How well does your child speak English?

Fully fluent	-1
Mostly fluent	-2
Limited fluency	-3
Other **SPECIFY**	-4
Unsure	-9

RESUME ASKING ALL

16. To better understand the educational experiences and diverse needs of students, please say whether any of the following apply to your child. Please select all that apply. **MULTISELECT; RANDOMIZE**

Has known food allergies	-1
Has skipped a grade	-2
Has an Individualized Education Plan (IEP)	-3
Is enrolled in special education classes that are separate from general education classes	-4
None of the above **EXCLUSIVE PUNCH, ANCHOR**	-5
Not sure **EXCLUSIVE PUNCH, ANCHOR**	-9

17. Thinking now about your current household—including all the people who live in your home—how would you describe your household's income level?

Very low income	-1
Low income	-2
Middle income	-3
High income	-4
Very high income	-5
Unsure	-9

18. Would you say that you are…

Living comfortably and able to put money into savings	-1
Living comfortably but not increasing savings	-2
Just getting by financially	-3
Really struggling financially	-4
Unsure	-9

19. What is your total annual household income before taxes? In other words, the total combined income for everyone who is currently contributing to your total household income. Your best guess is fine.

Under $25,000	-1
$25,000 to under $50,000	-2
$50,000 to under $75,000	-3
$75,000 to under $100,000	-4
$100,000 to under $125,000	-5
$125,000 to under $150,000	-6
$150,000 or more	-7
Unsure	-9

20. Are you currently: **MULTIPUNCH**

Employed full-time	-1
Employed part-time	-2
Student	-3
Retired	-4
Stay at home parent	-5
Unemployed but seeking work	-6
Unemployed and not seeking work	-7
Not working due to a permanent disability	-8
Unsure	-9

21. What type of work do you do (or did you used to do, if you are not currently working)? Check all that apply.
MULTI PUNCH

[RANDOMIZE]	
Scientist/Researcher (e.g., biologist, chemist, etc.)	-1
Architecture/Engineering	-2
Education/Teaching	-3
Healthcare (e.g., doctor or nurse)	-4
Arts and Design (e.g., artist, designer, musician)	-5
Public safety (e.g., police officer, firefighter)	-6
Sports (e.g., athlete, coach, sports analyst, agent)	-7
Technology, Computing (e.g., data scientist, coder)	-8
Service industry (e.g., customer service, retail)	-9
Manufacturing (e.g., making things like car parts, clothes, air conditioners, furniture, etc.)	-10
Finance, Accounting (e.g., accounting, banking, financial advising)	-11
Military (e.g., Air Force, Army, Navy, Marines, Coast Guard)	-12
Business Owner/Entrepreneur	-13
Construction/Building Trades (i.e., carpenter, electrician, plumber)	-14
Food/Restaurant/Agriculture (e.g., chef, farmer, restaurant owner)	-15
Media/Social Media-related (reporter, YouTuber, influencer)	-16
Government/Legal (e.g., lawyer, elected official, diplomat)	-17
Caregiver or homemaker	-19
Other **SPECIFY, ANCHOR**	-18
Unsure **ANCHOR**	-99

22. Are you…

Male	-1
Female	-2
I identify differently **SPECIFY**	-3
Unsure/prefer not to answer	-9

23. What is your age? **[NUMERIC OPEN END WITH 2 DIGIT LIMIT, INCLUDE CHECKBOX FOR UNSURE]**

24. What is the *highest level* of education you have completed (not currently attending)?

Grade School or Some High School Education	-1
High School Diploma / GED	-2
Technical / Vocational / Trade / Career School degree or certificate	-3
Attended some University / College, did not get degree	-4
2-year community or junior college degree	-5
4-year college or university degree	-6
Attended some graduate school, did not get degree	-7
Postgraduate degree	-8
Unsure	-9

25. Thinking about when you were growing up, how much did you like learning math? Did you…

Love learning math	-1
Like learning math a lot	-2
Think learning math was just ok	-3
Not like learning math very much	-4
Pretty much hate learning math	-5
Unsure	-9

26. How good would you say you were at math?

Excellent	-1
Very good	-2
Good	-3
Just ok	-4
Not that good	-5
Unsure	-9

27. In which county do you live?
DROPDOWN OF CA COUNTIES FOR RESPONDENTS IN CA, TX COUNTIES FOR RESPONDENTS IN TX, NY COUNTIES FOR RESPONDENTS IN NY, FL COUNTIES FOR RESPONDENTS IN FL; MULTISELECT, INCLUDE ROW FOR UNSURE]

If your child is prepared to take the survey now, please click on the survey link provided below and enter the access code provided.

Should your child not be ready to take the survey at this moment, you can copy the survey link and access code and send it to them to complete their survey at another time.

Screening Questions

PART TWO: YOUTH RESPONDENTS IN 7TH-10TH GRADE

[STUDENT INTRO]
Welcome to our survey on education! And thank you for agreeing to take this confidential research survey. Earlier, your parent or guardian gave their consent for you to take this survey. Now we'd like to ask you some questions about your experiences with education. We really want to hear from you.

Please know that all of your answers are confidential and anonymous, which means we will not connect any answers to your name. We will ask you some questions and are looking for your honest reactions and answers to each one. To participate, simply answer the question(s) on each page and click the "Next" button to move on to the next question. Your responses will be submitted as you answer each question. Overall, the survey will take you about 20 to 25 minutes.

[DISPLAY "NEXT" BUTTON]

1. To start, please check what grade you are in below.

7th grade	-1
8th grade	-2
9th grade/high school freshman	-3
10th grade/high school sophomore	-4
Other grade	**TERMINATE**
Unsure	**TERMINATE**

Perspectives on Math and Education

2. How do you feel about school? Do you…

Love school	-1
Like school a lot	-2
Think school is just ok	-3
Don't like school very much	-4
Pretty much hate school	-5
Unsure	-9

3. From the list below, please mark which math subjects you are currently taking or have taken in the past. Please select all that apply. **MULTIPUNCH**

	Currently taking	Taken in the past
Pre-Algebra	-1	-1
Algebra 1	-2	-2
Algebra 2	-3	-3

Geometry	-4	-4
Trigonometry	-5	-5
Pre-Calculus	-6	-6
Calculus	-7	-7
Other (please specify: _____) **SPECIFY**	-8	-8
Unsure **EXCLUSIVE**	-9	-9

4. Has one or more of your math classes been an advanced, accelerated, honors, or AP class?

Yes	-1
No	-2
Unsure	-9

5. Which of the following best describes how you feel about **learning math**?

Love learning math	-1
Like learning math a lot	-2
Think learning math is just ok	-3
Don't like learning math very much	-4
Pretty much hate learning math	-5
Unsure	-9

6. How good would you say you are at math?

Excellent	-1
Very good	-2
Good	-3
Just ok	-4
Not that good	-5
Unsure	-9

7. What grades do you usually get in math?

Mostly As	-1
As and Bs	-2
Mostly Bs	-3
Bs and Cs	-4
Mostly Cs	-5
Cs and Ds	-6
Mostly Ds	-7
Ds and Fs	-8
Unsure	-9

8. Here is a list of feelings. Please select the ones that you feel when you are learning math. **[MULTIPUNCH]**

RANDOMIZE ***[note: keep both "CHALLENGED" items next to each other]***	
Excited	-1
Love	-2
Happy	-3
Fun	-4
Challenged (in a bad way)	-5
Challenged (in a good way)	-6
Proud	-7
Satisfied	-8
Interested	-9
Confident	-10
Engaged	-11
Relaxed	-12
Relieved	-13
Drained	-14
Tired	-15
Bored	-16
Angry	-17
Exhausted	-18
Scared	-19
Confused	-20
Annoyed	-21
Frustrated	-22
Hated	-23
Stressed	-24
Anxious	-25
Overwhelmed	-26
Other: Please write any other feelings you have learning math **SPECIFY**	-97
None of these **EXCLUSIVE PUNCH; ANCHOR**	-98
Unsure **EXCLUSIVE PUNCH; ANCHOR**	-99

9. Would you say that for you personally, learning math is…**ROTATE ACS 1:5,9 /5:1,9**

Much harder than learning other subjects	-1
Somewhat harder than learning other subjects	-2
About the same as learning other subjects	-3
Somewhat easier than learning other subjects	-4
Much easier than learning other subjects	-5
Unsure **ANCHOR**	-9

10. Thinking about **basic math like addition, subtraction, multiplication, and division** – how useful and helpful do you feel it will be in your future as an adult for you to have learned how to do that kind of math? **ROTATE ACS 1:4,9/4:1,9**

Very useful and helpful	-1
Somewhat useful and helpful	-2
Just a little useful or helpful	-3
Not useful or helpful	-4
Unsure **ANCHOR**	-9

[PRE-MESSAGING ASK]

11. Thinking about **higher-level math like algebra** – how useful and helpful do you feel it will be in your future as an adult for you to have learned how to do that kind of math? **ROTATE ACS 1:4,9/4:1,9**

Very useful and helpful	-1
Somewhat useful and helpful	-2
Just a little useful or helpful	-3
Not useful or helpful	-4
Unsure **ANCHOR**	-9

[IF Q11=1,2,3, ASK:]

12. In what ways does it feel like it might be useful or helpful in your future as an adult for you to have learned how to do **higher-level math like algebra**? **[OPEN END]**

RESUME ASKING ALL

13. Thinking ahead to the future, what do you think you are most likely to do right after high school? Please check all that apply. **MULTIPUNCH**

Get a part-time job	-1
Get a full-time job	-2
Join the military	-3
Attend a 2-year community or junior college	-4
Attend a 4-year college or university	-5
Attend a technical, vocational, trade, or career school	-6
Other, please specify:_____ **OPEN END**	-7
Unsure **EXCLUSIVE**	-9

14. Which of the following best describes the kind of job or career you might want to do in the future? You may select multiple jobs or careers. **MULTIPUNCH**

[RANDOMIZE]	
Scientist/Researcher (e.g., biologist, chemist, etc.)	-1
Architecture/Engineering	-2
Education/Teaching	-3
Healthcare (e.g., doctor or nurse)	-4
Arts and Design (e.g., artist, designer, musician)	-5
Public safety (e.g., police officer, firefighter)	-6

Sports (e.g., athlete, coach, sports analyst, agent)	-7
Technology, Computing (e.g., data scientist, coder)	-8
Service industry (e.g., customer service, retail)	-9
Manufacturing (e.g., making things like car parts, clothes, air conditioners, furniture, etc.)	-10
Finance, Accounting (e.g., accounting, banking, financial advising)	-11
Military (e.g., Air Force, Army, Navy, Marines, Coast Guard)	-12
Business Owner/Entrepreneur	-13
Construction/Building Trades (i.e., carpenter, electrician, plumber)	-14
Food/Restaurant/Agriculture (e.g., chef, farmer, restaurant owner)	-15
Media/Social Media-related (reporter, YouTuber, influencer)	-16
Government/Legal (e.g., lawyer, elected official, diplomat)	-17
Caregiver or homemaker	-19
Other **SPECIFY, ANCHOR**	-18
I'm not sure **ANCHOR, EXCLUSIVE**	-99

Pre-Messaging Metrics

15. Please tell us how much you personally agree or disagree with each of the following statements on a scale of 1 to 7, with 1 meaning you strongly **disagree**, and 7 meaning you strongly **agree**. You can use the slider below to choose any number from 1 to 7 to say how strongly you feel. **SHOW AS LABELED SLIDERS WITH CHECKBOX UNDER EACH FOR UNSURE – CODE 9**

	RANDOMIZE	1 – Strongly disagree	2	3	4	5	6	7 – Strongly agree	Unsure
a.	Higher-level math like algebra is only useful for people who plan on being in specific careers, like an engineer, scientist, or something similar	-1	-2	-3	-4	-5	-6	-7	-9
b.	I believe that I can learn and get better at math, including higher-level math like algebra	-1	-2	-3	-4	-5	-6	-7	-9
c.	I feel that I can get help and support to learn higher-level math when I need it	-1	-2	-3	-4	-5	-6	-7	-9
d.	Making mistakes on homework or in group work helps me figure out where I need more help with learning math	-1	-2	-3	-4	-5	-6	-7	-9
e.	It's important to keep trying in higher-level math when it gets hard because it's normal to have to work at it when you are learning new kinds of math	-1	-2	-3	-4	-5	-6	-7	-9

16. Many students sometimes need help learning math. Using a scale of 1 to 7—with 1 meaning you are very UNLIKELY to do it, and 7 meaning you are very LIKELY to do it—please use the slider below to tell us how likely you are to do each of the following things the next time you personally feel like you need help learning math. **SHOW AS LABELED SLIDERS WITH CHECKBOX UNDER EACH FOR UNSURE – CODE 9**

	RANDOMIZE	1 – Very unlikely to do this	2	3	4	5	6	7 – Very likely to do this	Unsure
a.	Ask a parent or another family member for help with math	-1	-2	-3	-4	-5	-6	-7	-9
b.	Ask my math teacher for help	-1	-2	-3	-4	-5	-6	-7	-9
c.	Look for math help online, like from videos or apps	-1	-2	-3	-4	-5	-6	-7	-9
d.	Ask a friend for help with math	-1	-2	-3	-4	-5	-6	-7	-9
e.	Ask a classmate for help with math	-1	-2	-3	-4	-5	-6	-7	-9

Math Narratives

17. For each statement, please tell us *how good a reason it is to keep trying at math when it gets difficult.* **SET UP CAROUSEL ON DESKTOP; DROP DOWNS ON MOBILE**

	RANDOMIZE ROWS	Very good reason	Somewhat good reason	Not a very good reason	Not a good reason at all	Unsure
a.	Learning higher-level math like algebra will help you get a higher paying and more interesting career	-1	-2	-3	-4	-9
b.	Higher-level math like algebra is useful in many common careers **beyond** the obvious ones like a scientist or engineer	-1	-2	-3	-4	-9
c.	Higher-level math like algebra is necessary to successfully manage money as an adult and make sure you don't get taken advantage of	-1	-2	-3	-4	-9
d.	Higher-level math like algebra teaches you a way to think about solving problems that will be useful in your life generally, not just in solving math problems	-1	-2	-3	-4	-9

Mapping the Learning Ecosystem

18. Is your math teacher this year…

A man	-1
A woman	-2
Someone who identifies differently	-3

Unsure	-9

19. Is your math teacher this year the same race/ethnicity as you or not?

Yes, same race/ethnicity as me	-1
No, different race/ethnicity than me	-2
Unsure	-9

20. Are most of the students in your math class…

The same race/ethnicity as you	-1
A different race/ethnicity than you	-2
A mix of different races/ethnicities	-3
Unsure	-9

21. Which of the following statements best describes your math homework?

[RANDOMIZE]

I only have math homework if I don't finish my work in math class	-1
I regularly have math homework assigned to do outside class	-2
I am not required to do math work outside of school hours	-3
Unsure **ANCHOR**	-9

22. Thinking about your math class this year, how often do each of the following happen?

	RANDOMIZE ROWS	Often	Sometimes	Rarely	Never	Unsure
a.	My math teacher gets input from the class on what topics we want to learn about, or what examples we would find interesting	-1	-2	-3	-4	-9
b.	My math teacher uses word problems and examples that I can relate to	-1	-2	-3	-4	-9
c.	I see positive examples of people like me in the things we learn in math class	-1	-2	-3	-4	-9
d.	My math teacher lets me know they believe I can learn and get better at math	-1	-2	-3	-4	-9
e.	My math teacher is available to give me one-on-one help	-1	-2	-3	-4	-9
f.	I raise my hand to ask questions in math class	-1	-2	-3	-4	-9

23. Still thinking about your current math class, please tell us how much you agree or disagree with each of the following statements. **SET UP CAROUSEL ON DESKTOP; DROP DOWNS ON MOBILE**

	RANDOMIZE ROWS	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure
a.	I feel embarrassed when I make mistakes in math class in front of others	-1	-2	-3	-4	-9
b.	My math teacher encourages everyone to ask questions in class	-1	-2	-3	-4	-9
c.	My math teacher knows when I need help and tries to help me	-1	-2	-3	-4	-9
d.	I feel like my math teacher cares about me	-1	-2	-3	-4	-9

Messaging

[NEAR PEER VIDEOS: MO & ALE in SPLIT SAMPLES (SPLIT A OR SPLIT B); EACH RESPONDENT SEES ONE]

SHOW TEXT SCREEN: Now you will watch a short video of another student sharing their experiences and views about math and math learning.

As you're watching, you'll be able to rate every moment of the video, raising your rating or lowering your rating whenever the video makes you feel more positively or negatively about what's being said.

Don't worry—it's easy!

Let's begin by showing you how it works. After that, you'll be ready to watch and rate the videos. Please don't forget to make sure that the speakers on your computer are turned on and up!

When you're ready to proceed, click or touch the "Next" button below.

Please note: These are **not** professional videos; they are informal videos that people have put on the Internet. Please do **not** focus on the editing, video resolution, or production quality. We are **only** interested in your reactions and responses to the people talking and to what they are saying.

{PAGE BREAK}

[PLAY M2M INSTRUCTION VIDEO]

{PAGE BREAK}

SHOW TEXT SCREEN: As you watch the video, we want you to tell us how much you relate to each moment of what you are seeing and hearing.
[INSERT SLIDER ANIMATION]

The MORE YOU RELATE to what you are seeing and hearing, the more to the right you should move the slider towards "STRONGLY RELATE."

The LESS YOU RELATE to what you are seeing and hearing, the more to the left you should move the slider towards "DO NOT RELATE AT ALL."

When you're ready to begin, click or touch the "Next" button.

{PAGE BREAK}

SPLIT A [PLAY VIDEO: MO] 7005_GS_MO
SPLIT B [PLAY VIDEO: ALE] 7005_GS_ALE

{PAGE BREAK}

[CODE Q24_XXX - Q27B _XXX WHERE XXX IS THE NAME OF THE VIDEO WATCHED]

24. Overall, how interesting or helpful was this video for you personally?

Extremely interesting or helpful	-1
Very interesting or helpful	-2
Somewhat interesting or helpful	-3
Not very interesting or helpful	-4
Not interesting or helpful at all	-5
Unsure	-9

FOR Q25 RANDOMLY SELECT n=25 RESPONDENTS IN EACH SPLIT FROM EACH RACE/GENDER SUBGROUP WHO ANSWERED AC 1-3 IN Q24

25. What, if anything, stands out to you personally in a helpful or positive way about what you heard or saw in this video? [**OPEN END RESPONSE]**

FOR Q26 RANDOMLY SELECT n=25 RESPONDENTS IN EACH SPLIT FROM EACH RACE/GENDER SUBGROUP WHO ANSWERED AC 4,5,9 IN Q24

26. What, if anything, did you see or hear in this video that you did not like or did not agree with? **[OPEN END RESPONSE]**

RESUME ASKING EVERYONE

27. A. Please indicate how strongly you felt each of the following while you were watching the video, using a scale of 1 to 7, where 1 represents "Not at all Felt" and 7 represents "Very Strongly Felt"

	RANDOMIZE ROWS	1 – Not at all felt	2	3	4	5	6	7 – Very strongly felt	Unsure
a.	Hopeful	-1	-2	-3	-4	-5	-6	-7	-9
b.	Relieved	-1	-2	-3	-4	-5	-6	-7	-9
c.	Conflicted	-1	-2	-3	-4	-5	-6	-7	-9

d.	Stressed	-1	-2	-3	-4	-5	-6	-7	-9

27B. Based on what you saw and heard in this video, please indicate your level of agreement or disagreement with each of the following statements. Please use a scale of 1 to 7, where 1 means "Strongly Disagree" and 7 means "Strongly Agree."

	RANDOMIZE ROWS	1 – Strongly Disagree	2	3	4	5	6	7 – Strongly Agree	Unsure
a.	I feel more comfortable asking for help with math after watching this video	-1	-2	-3	-4	-5	-6	-7	-9
b.	I could relate to the person in the video	-1	-2	-3	-4	-5	-6	-7	-9
c.	This video was helpful for me	-1	-2	-3	-4	-5	-6	-7	-9
d.	I am thinking differently about learning math after this video	-1	-2	-3	-4	-5	-6	-7	-9

28. Next you'll see some things people say about what is important about learning higher-level math like algebra. For each, please tell us how good a reason it is to keep trying to learn math, even if it gets hard. **SET UP CAROUSEL ON DESKTOP; DROP DOWNS ON MOBILE**

	RANDOMIZE	Excellent reason	Good reason	Not a very good reason	Not a good reason at all	Unsure
a.	In school, you might try out something new like an elective or a club. When you're an adult, a 'pivot' into a new job can be a little harder. Having higher-level math skills like algebra will open the door to more types of careers, making it easier to change jobs or enter a new career if and when you need to.	-1	-2	-3	-4	-9
b.	Knowledge is power, and knowing higher-level math like algebra can help you protect yourself and your family from being scammed, more than just common sense alone. Some companies target Black or Hispanic communities, or communities without a lot of money, and try to charge really high-interest rates (like with payday loans). But if you understand higher-level math, you can make sure you and your family are not getting cheated or taken advantage of.	-1	-2	-3	-4	-9
c.	In the future, you might need to take out a loan to get what you want. This might be to pay for	-1	-2	-3	-4	-9

	college, or later, to buy a car or a house. In algebra, you learn how compound interest works, and you will need this to understand how much money you need to borrow, and how much in interest different banks would charge over different time periods.					
d.	You can use algebra to help make financial decisions, for example, whether it's better to buy a phone with cash or pay a fee each month to buy it over time. Or figure out if it is worth paying to rent a video game each time you play it or buy it. Plus you can calculate how many hours you'd need to work to afford it.	-1	-2	-3	-4	-9

SHOW TEXT SCREEN: Next you'll see one more video. When you're ready to begin, click or touch the "Next" button.

{PAGE BREAK}

As you watch the video, we want you to tell us how compelling each moment of what you are seeing and hearing is to you personally.

[INSERT SLIDER ANIMATION]

The MORE COMPELLING you find what you are seeing and hearing, the more to the right you should move the slider towards "**EXTREMELY COMPELLING**."

The LESS COMPELLING you find what you are seeing and hearing, the more to the left you should move the slider towards "**NOT AT ALL COMPELLING**."

When you're ready to begin, click or touch the "Next" button.

[PLAY VIDEO: TEACHERS] – 7005_GS_TEACHERS_STUDENTS

{PAGE BREAK}

29. Overall, how interesting or helpful was this video for you personally?

Extremely interesting or helpful	-1
Very interesting or helpful	-2
Somewhat interesting or helpful	-3
Not very interesting or helpful	-4
Not interesting or helpful at all	-5
Unsure	-9

FOR Q30 RANDOMLY n=25 RESPONDENTS IN EACH SPLIT FROM EACH RACE/GENDER SUBGROUP WHO ANSWERED AC 1-3 IN Q29. DO NOT SELECT ANY RESPONDENT WHO PREVIOUSLY ANSWERED Q25 OR Q26

30. What, if anything, stands out to you personally in a helpful or positive way about what you heard or saw in this video? **[OPEN END RESPONSE]**

FOR Q31 RANDOMLY SELECT n=25 RESPONDENTS IN EACH SPLIT FROM EACH RACE/GENDER SUBGROUP WHO ANSWERED AC 4,5,9 IN Q29. DO NOT SELECT ANY RESPONDENT WHO PREVIOUSLY ANSWERED Q25 OR Q26

31. What, if anything, did you see or hear in this video that you did not like or did not agree with? **[OPEN END RESPONSE]**

RESUME ASKING EVERYONE

32. A. Please indicate how strongly you felt each of the following while you were watching the video, using a scale of 1 to 7, where 1 represents "Not at all Felt" and 7 represents "Very Strongly Felt."

	RANDOMIZE ROWS	1 – Not at all felt	2	3	4	5	6	7 – Very strongly felt	Unsure
a.	Relieved	-1	-2	-3	-4	-5	-6	-7	-9
b.	Encouraged	-1	-2	-3	-4	-5	-6	-7	-9
c.	Surprised	-1	-2	-3	-4	-5	-6	-7	-9
d.	Stressed	-1	-2	-3	-4	-5	-6	-7	-9

32B. Based on what you saw and heard in this video, please indicate your level of agreement or disagreement with each of the following statements. Please use a scale of 1 to 7, where 1 means "Strongly Disagree" and 7 means "Strongly Agree."

	RANDOMIZE ROWS	1 – Strongly Disagree	2	3	4	5	6	7 – Strongly Agree	Unsure
a.	I feel more comfortable asking for help with math after watching this video	-1	-2	-3	-4	-5	-6	-7	-9
b.	I feel more confident that I can learn higher-level math after watching this video	-1	-2	-3	-4	-5	-6	-7	-9
c.	This video was helpful for me	-1	-2	-3	-4	-5	-6	-7	-9
d.	I am thinking differently about learning math after this video	-1	-2	-3	-4	-5	-6	-7	-9

33. Next you'll see some reasons someone might give for why you should keep trying at math when it gets hard. For each, please tell us how good a reason it is to keep trying to learn math, even if it gets hard. **SET UP CAROUSEL ON DESKTOP; DROP DOWNS ON MOBILE**

	RANDOMIZE	Excellent reason	Good reason	Not a very good reason	Not a good reason at all	Unsure
a.	With math, it can feel like if you don't get it right away, it means you're not good at math. But what matters isn't if you "get it" right away– what matters is that you stick with math and ask for help when you need it, so that you learn the math skills that you might need for the different careers or jobs you want to have in the future.	-1	-2	-3	-4	-9
b.	If you're unsure what kind of work you want to do, sticking with math through high school will help you keep doors open for yourself. More jobs than you might think use math, like electricians and engineers, doctors and nurses, pilots, designers, and realtors. A lot of people with these careers may not have thought of themselves as great math students–but because they kept at it, they were able to pursue careers that interested and excited them.	-1	-2	-3	-4	-9
c.	It's important to remember that learning math isn't about getting the right answer fast, it's about building your understanding at whatever pace feels comfortable for you. When you focus on the process of learning rather than just getting the right answer, math can turn from a problem to a puzzle.	-1	-2	-3	-4	-9
d.	Just like learning music or playing a sport, you need coaching and lots of chances to practice with math, and there may be times you need more help with a specific part of math. But when you stick with it and ask for help with the parts that are tougher for you, you can build the confidence to get help when you need it, which is an important skill for life.	-1	-2	-3	-4	-9
e.	You may get frustrated with math if you don't get the right answer right away. But you can't get better if you don't make mistakes. It's like exercise – if you get sore muscles or get out of breath, it just means you're doing something more challenging than what your body is used to. And you can't get stronger without trying something more challenging.	-1	-2	-3	-4	-9

f.	Math can sometimes feel frustrating and confusing, but with help, persistence, and practice, almost anyone can master math skills. It's about finding the help that works for you. If you don't understand the explanations from your teacher or parents, some websites and apps or someone like a peer tutor can walk you through problems and show you different ways to think about math concepts.	-1	-2	-3	-4	-9

Post-Messaging Metrics

SHOW TEXT SCREEN: Thinking about everything you've seen and heard in this survey, please answer the following questions.

34. Having seen, heard, and read more, please tell us how much you **now** personally agree or disagree with each of the following statements on a scale of 1 to 7, with 1 meaning you strongly **disagree**, and 7 meaning you strongly **agree**. You can choose any number on the slider below from 1 to 7, and it can be the same or a different number from what you chose earlier in the survey. **SHOW AS LABELED SLIDERS WITH CHECKBOX UNDER EACH FOR UNSURE – CODE 9**

	RANDOMIZE IN THE SAME ORDER AS Q15	1 – Strongly disagree	2	3	4	5	6	7 – Strongly agree	Unsure
a.	Higher-level math like algebra is only useful for people who plan on being in specific careers, like an engineer, scientist, or something similar	-1	-2	-3	-4	-5	-6	-7	-9
b.	I believe that I can learn and get better at math, including higher-level math like algebra	-1	-2	-3	-4	-5	-6	-7	-9
c.	I feel that I can get help and support to learn higher-level math when I need it	-1	-2	-3	-4	-5	-6	-7	-9
d.	Making mistakes on homework or in group work helps me figure out where I need more help with learning math	-1	-2	-3	-4	-5	-6	-7	-9
e.	It's important to keep trying in higher-level math when it gets hard because it's normal to have to work at it when you are learning new kinds of math	-1	-2	-3	-4	-5	-6	-7	-9

ASK Q35A IF RESPONDENT ANSWERED DIFFERENTLY FOR Q15A AND Q34A
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

35A. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q15 ITEM A, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q34A = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q34A" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q35B IF RESPONDENT ANSWERED DIFFERENTLY FOR Q15B AND Q34B
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

35B. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q15 ITEM B, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q34B = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q34B" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q35C IF RESPONDENT ANSWERED DIFFERENTLY FOR Q15C AND Q34C
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

35C. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q15 ITEM C, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q34C = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q34C" IN BOLD]**.

ASK Q35D IF RESPONDENT ANSWERED DIFFERENTLY FOR Q15D AND Q34D
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

35D. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q15 ITEM D, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q34D = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q34D" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q35G IF RESPONDENT ANSWERED DIFFERENTLY FOR Q15E AND Q34E
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

35E. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q15 ITEM E, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q34E = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q34E" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

[RESUME ASKING EVERYONE]

36. Having seen, heard, and read more, please tell us how much you **now** personally are likely to do each of the following things the next time you feel like you need help learning math using a scale of 1 to 7—with 1 meaning you are very UNLIKELY to do it, and 7 meaning you are very LIKELY to do it. You can choose any number from 1 to 7, and it can be the same or a different number from what you chose earlier in the survey.
SHOW AS LABELED SLIDERS WITH CHECKBOX UNDERNEATH EACH FOR UNSURE – CODE 9

	RANDOMIZE IN THE SAME ORDER AS Q22	1 – Very unlikely to do this	2	3	4	5	6	7 – Very likely to do this	Unsure
a.	Ask a parent or another family member for help with math	-1	-2	-3	-4	-5	-6	-7	-9
b.	Ask my math teacher for help	-1	-2	-3	-4	-5	-6	-7	-9
c.	Look for math help online, like from videos or apps	-1	-2	-3	-4	-5	-6	-7	-9
d.	Ask a friend for help with math	-1	-2	-3	-4	-5	-6	-7	-9
e.	Ask a classmate for help with math	-1	-2	-3	-4	-5	-6	-7	-9

ASK Q37A IF RESPONDENT ANSWERED DIFFERENTLY FOR Q16A AND Q36A
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

37A. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q16 ITEM A, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q36A = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q36A" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q37B IF RESPONDENT ANSWERED DIFFERENTLY FOR Q16B AND Q36B
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

37B. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q16 ITEM B, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q36B = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q36B" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q37C IF RESPONDENT ANSWERED DIFFERENTLY FOR Q16C AND Q36C
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

37C. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q16 ITEM C, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q36C = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q36C" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q37D IF RESPONDENT ANSWERED DIFFERENTLY FOR Q16D AND Q36D
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

37D. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q16 ITEM D, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q36D = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q36D" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q37E IF RESPONDENT ANSWERED DIFFERENTLY FOR Q16E AND Q36E
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

37E. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q16 ITEM E, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[IF Q37E = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q37E" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

RESUME ASK OF ALL

38. Thinking about **higher-level math like algebra** – how useful and helpful do you feel it will be in your future as an adult for you to have learned how to do that kind of math? **ROTATE ACS 1:4,9/4:1,9**

Very useful and helpful	-1
Somewhat useful and helpful	-2
Just a little useful or helpful	-3
Not useful or helpful	-4
Unsure	-9

ASK Q39 IF (Q11=2 AND Q38=1) OR (Q11=3 AND Q38=1,2) OR (Q11=4,9 AND Q38=1,2,3)

39. Thinking again, in what ways does it feel like it might be useful or helpful in your future as an adult for you to have learned how to do that kind of math? **[OPEN END]**

Final Demographics

SHOW TEXT SCREEN: Thank you for your participation in this survey. These final questions are for statistical purposes only.

40. Growing up, have you lived with… *check all that apply* **MULTIPUNCH**

One parent	-1
Two parents	-2
Grandparent	-3
Another family member	-4
Guardian who is not a family member	-5
Unsure **EXCLUSIVE**	-9

41. What is your age?

11	-1
12	-2
13	-3
14	-4
15	-5
16	-6
17	-7
Unsure	-9

Thank you for taking the time to complete our survey!

[CODE RESPONDENT AS COMPLETE]

Survey: Parent Online Survey

SHOW IF QC_LINK = SPANISH

1A. Do you prefer to take this survey in English or Spanish?

English	-1
Spanish	-2

Thank you for agreeing to take our survey. This is a professional research study and not sales-related in any way. All of your responses are anonymous and are kept strictly confidential. We are looking for your honest reactions and answers.

To participate, simply answer the question(s) on each page and click the "Next" button to move to the next question. Your responses will be submitted as you move through the survey.

Click the "Next" button below to begin.

1. What state do you live in? **[Drop down menu with all 50 states plus Washington, DC]**
   TERMINATE IF NOT CA, FL, NY, TX

2. Are you the parent or guardian of one or more children who are currently in 7th, 8th, 9th or 10th grade?

Yes, parent	-1
Yes, guardian	-2
No, not a parent or guardian of a child in 7th-10th grade	**TERMINATE**
Unsure	**TERMINATE**

3. What is your race or ethnicity? Please select all that apply. **MULTIPUNCH**

White/Caucasian (German, Irish, English, etc.)	-1
Black/African-American (Haitian, Nigerian, etc.)	-2
Hispanic/Latino (Mexican, Cuban, Dominican, Puerto Rican, etc.)	-3
East Asian (Chinese, Japanese, Vietnamese, Korean, Taiwanese, etc.)	-4
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, Sri Lankan, etc.)	-5
Other Asian (Thai, Cambodian, Laotian, Filipino, etc.)	-6
Native Hawaiian or Pacific Islander	-7
Middle Eastern or North African (Lebanese, Iranian, Egyptian, etc.)	-8
Native American (Cherokee, Navajo, Choctaw, etc.)	-9
[Other: please specify] **OPEN END**	-10
Unsure **EXCLUSIVE**	-99

IF Q3 INCLUDES BLACK/AC 2, ASK Q4

4. Which of the following best represents your family's area of origin or heritage? Please select all that apply.
   MULTISELECT

African-American	-1
African (e.g., Ethiopian, Kenyan, Nigerian, etc.)	-2
Afro-Caribbean (e.g., Cuban, Dominican, Haitian, etc.)	-3
Afro-Latin American (e.g., Mexican, Brazilian, Colombian, Venezuelan, etc.)	-4
None/not applicable **[EXCLUSIVE]**	-5
[Other: please specify _____] **OPEN END**	-6
Unsure **EXCLUSIVE**	-9

IF Q3 INCLUDES HISPANIC/AC 3 ASK Q5

5. Which of the following best represents your family's area of origin or heritage? Please select all that apply. **MULTISELECT**

Mexican	-1
Puerto Rican	-2
Cuban	-3
Dominican	-4
Another Caribbean island	-5
Central American (e.g., Guatemalan, Nicaraguan, Salvadoran, etc.)	-6
South American (e.g., Brazilian, Colombian, Venezuelan, etc.)	-7
None/not applicable **[EXCLUSIVE]**	-8
[Other: please specify] **OPEN END**	-9
Unsure **EXCLUSIVE**	-99

6. Please enter the number of children who are currently in 7th, 8th, 9th or 10th grade for whom you are the parent or guardian.. **OPEN END NUMERICAL; ALLOW 1-6 WITH CHECKBOX FOR UNSURE**

7. Please select the grade and type of school for [**IF 1 IN PREVIOUS:** your child] [**IF 2-6 IN PREVIOUS:** each of your children]. **DISPLAY ROWS TO MATCH THE NUMBER ENTERED IN PREVIOUS**

DROPDOWN #1: GRADE

		7th grade	8th grade	9th grade	10th grade	Unsure
a.	Child 1	-1	-2	-3	-4	-9
b.	Child 2	-1	-2	-3	-4	-9
c.	Child 3	-1	-2	-3	-4	-9
d.	Child 4	-1	-2	-3	-4	-9
e.	Child 5	-1	-2	-3	-4	-9
f.	Child 6	-1	-2	-3	-4	-9

DROPDOWN #2: TYPE OF SCHOOL

		Public school	Private school	Charter school (public)	Magnet school (public)	Home school	Unsure
a.	Child 1	-1	-2	-3	-4	-5	-9
b.	Child 2	-1	-2	-3	-4	-5	-9
c.	Child 3	-1	-2	-3	-4	-5	-9
d.	Child 4	-1	-2	-3	-4	-5	-9
e.	Child 5	-1	-2	-3	-4	-5	-9
f.	Child 6	-1	-2	-3	-4	-5	-9

IF Q6=1 DO NOT DISPLAY Q8

8. Thank you! Please choose just one of your children in 7th-10th grade to think about as you answer the rest of the questions in this survey.

Child 1, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 2, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 3, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 4, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 5, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**
Child 6, **[PIPE GRADE FROM DROWNDOWN #1], [PIPE SCHOOL TYPE FROM DROWNDOWN #2]**

DISPLAY NEXT BUTTON

CONSENT LANGUAGE

9. We are conducting an online research survey among public school students who are in 7th, 8th, 9th or 10th grade, and their parents, about their educational experiences. This is a professional research study and not sales-related in any way. All of your responses and your child's responses are anonymous and are kept strictly confidential. We have a survey for you, and a survey for your child. Please select which option you would like to continue with.

I would like to take the survey for parents AND I would like my child to take the survey for students	-1
I would like to take the survey for parents ONLY	-2
I would like my child to take the survey for students ONLY	-3
I would NOT like to continue with either survey	**TERMINATE**
Unsure	**TERMINATE**

SHOW TEXT SCREEN: Thank you! Now we have a few more questions about you and your child.

10. Is your child…

Male	-1
Female	-2
They identify differently **SPECIFY**	-3
Unsure/prefer not to answer	-9

CODE QC_GENDER_STUDENT

[ASK Q11 ONLY IF RESPONDENT CONSENTED TO STUDENT SURVEY]

11. What is the race or ethnicity of your child? Please select all that apply.
MULTIPUNCH

White/Caucasian (German, Irish, English, etc.)	-1
Black/African-American (Haitian, Nigerian, etc.)	-2
Hispanic/Latino (Mexican, Cuban, Dominican, Puerto Rican, etc.)	-3
East Asian (Chinese, Japanese, Vietnamese, Korean, Taiwanese, etc.)	-4
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, Sri Lankan, etc.)	-5
Other Asian (Thai, Cambodian, Laotian, Filipino, etc.)	-6
Native Hawaiian or Pacific Islander	-7
Middle Eastern or North African (Lebanese, Iranian, Egyptian, etc.)	-8
Native American (Cherokee, Navajo, Choctaw, etc.)	-9
[Other: please specify] **OPEN END**	-10
Unsure **EXCLUSIVE**	-99

IF Q11 INCLUDES BLACK/AC 2, ASK Q12

12. Which of the following best represents your family's area of origin or heritage? Please select all that apply.
MULTISELECT

African-American	-1
African (e.g., Ethiopian, Kenyan, Nigerian, etc.)	-2
Afro-Caribbean (e.g., Cuban, Dominican, Haitian, etc.)	-3
Afro-Latin American (e.g., Mexican, Brazilian, Colombian, Venezuelan, etc.)	-4
None/not applicable **[EXCLUSIVE]**	-5
[Other: please specify] **OPEN END**	-6
Unsure **EXCLUSIVE**	-9

IF Q11 INCLUDES HISPANIC/AC 3 ASK Q13

13. Which of the following best represents your family's area of origin or heritage? Please select all that apply. **MULTISELECT**

Mexican	-1
Puerto Rican	-2
Cuban	-3
Dominican	-4
Another Caribbean island	-5
Central American (e.g., Guatemalan, Nicaraguan, Salvadoran, etc.)	-6
South American (e.g., Brazilian, Colombian, Venezuelan, etc.)	-7
None/not applicable **[EXCLUSIVE]**	-8
[Other: please specify] **OPEN END**	-9
Unsure **EXCLUSIVE**	-99

RESUME ASKING ALL

14. What languages are typically spoken at home?

Only English	-1
English and another language(s) [please specify language(s)]:	-2
Only another language(s) and not English [please specify language(s)]:	-3
Unsure	-9

ASK Q15 IF Q14=2,3,9

15. How well does your child speak English?

Fully fluent	-1
Mostly fluent	-2
Limited fluency	-3
Other **SPECIFY**	-4
Unsure	-9

RESUME ASKING ALL

16. To better understand the educational experiences and diverse needs of students, please say whether any of the following apply to your child. Please select all that apply. **MULTISELECT; RANDOMIZE**

Has known food allergies	-1
Has skipped a grade	-2
Has an Individualized Education Plan (IEP)	-3
Is enrolled in special education classes that are separate from general education classes	-4
None of the above **EXCLUSIVE PUNCH, ANCHOR**	-5
Not sure **EXCLUSIVE PUNCH, ANCHOR**	-9

17. Thinking now about your current household—including all the people who live in your home—how would you describe your household's income level?

Very low income	-1
Low income	-2
Middle income	-3
High income	-4
Very high income	-5
Unsure	-9

18. Would you say that you are…

Living comfortably and able to put money into savings	-1
Living comfortably but not increasing savings	-2
Just getting by financially	-3
Really struggling financially	-4
Unsure	-9

19. What is your total annual household income before taxes? In other words, the total combined income for everyone who is currently contributing to your total household income. Your best guess is fine.

Under $25,000	-1
$25,000 to under $50,000	-2
$50,000 to under $75,000	-3
$75,000 to under $100,000	-4
$100,000 to under $125,000	-5
$125,000 to under $150,000	-6
$150,000 or more	-7
Unsure	-9

20. Are you currently: **MULTIPUNCH**

Employed full-time	-1
Employed part-time	-2
Student	-3
Retired	-4
Stay at home parent	-5
Unemployed but seeking work	-6
Unemployed and not seeking work	-7
Not working due to a permanent disability	-8
Unsure	-9

21. What type of work do you do (or did you used to do, if you are not currently working)? Check all that apply. **MULTPUNCH**

[RANDOMIZE]	
Scientist/Researcher (e.g., biologist, chemist, etc.)	-1
Architecture/Engineering	-2
Education/Teaching	-3
Healthcare (e.g., doctor or nurse)	-4
Arts and Design (e.g., artist, designer, musician)	-5
Public safety (e.g., police officer, firefighter)	-6
Sports (e.g., athlete, coach, sports analyst, agent)	-7
Technology, Computing (e.g., data scientist, coder)	-8
Service industry (e.g., customer service, retail)	-9
Manufacturing (e.g., making things like car parts, clothes, air conditioners, furniture, etc.)	-10
Finance, Accounting (e.g., accounting, banking, financial advising)	-11
Military (e.g., Air Force, Army, Navy, Marines, Coast Guard)	-12
Business Owner/Entrepreneur	-13
Construction/Building Trades (i.e., carpenter, electrician, plumber)	-14
Food/Restaurant/Agriculture (e.g., chef, farmer, restaurant owner)	-15
Media/Social Media-related (reporter, YouTuber, influencer)	-16
Government/Legal (e.g., lawyer, elected official, diplomat)	-17
Caregiver or homemaker	-19
Other **SPECIFY, ANCHOR**	-18
Unsure **ANCHOR**	-99

22. Are you…

Male	-1
Female	-2
I identify differently **SPECIFY**	-3
Unsure/prefer not to answer	-9

23. What is your age? **[NUMERIC OPEN END WITH 2 DIGIT LIMIT, INCLUDE CHECKBOX FOR UNSURE]**

24. What is the *highest level* of education you have completed (not currently attending)?

Grade School or Some High School Education	-1
High School Diploma / GED	-2
Technical / Vocational / Trade / Career School degree or certificate	-3
Attended some University / College, did not get degree	-4
2-year community or junior college degree	-5
4-year college or university degree	-6
Attended some graduate school, did not get degree	-7

Postgraduate degree	-8
Unsure	-9

25. Thinking about when you were growing up, how much did you like learning math? Did you…

Love learning math	-1
Like learning math a lot	-2
Think learning math was just ok	-3
Not like learning math very much	-4
Pretty much hate learning math	-5
Unsure	-9

26. How good would you say you were at math?

Excellent	-1
Very good	-2
Good	-3
Just ok	-4
Not that good	-5
Unsure	-9

27. In which county do you live?
DROPDOWN OF CA COUNTIES FOR RESPONDENTS IN CA, TX COUNTIES FOR RESPONDENTS IN TX, NY COUNTIES FOR RESPONDENTS IN NY, FL COUNTIES FOR RESPONDENTS IN FL; MULTISELECT, INCLUDE ROW FOR UNSURE]

PART_TWO_CONSENT_PARENT.

28. Thank you for your time so far. You are fully qualified to take the remainder of the parent survey. As a reminder, this is a professional research study and not sales-related in any way. All of your responses are anonymous and are kept strictly confidential. Do you consent to participating in the remainder of the survey for parents about education?

Yes	-1
No	**TERMINATE**
Unsure	**TERMINATE**

Emotions and Proxy Assessments

29. Here is a list of words. Please check any that describe the feelings you had when you were learning math. You can check as many feelings as you had when you were learning math. Please select all that apply.
MULTIPUNCH

RANDOMIZE ***[note: keep both "CHALLENGED" items next to each other]***	
Excited	-1
Love	-2
Happy	-3

Fun	-4
Challenged (in a bad way)	-5
Challenged (in a good way)	-6
Proud	-7
Satisfied	-8
Interested	-9
Confident	-10
Engaged	-11
Relaxed	-12
Relieved	-13
Drained	-14
Tired	-15
Bored	-16
Angry	-17
Exhausted	-18
Scared	-19
Confused	-20
Annoyed	-21
Frustrated	-22
Hated	-23
Stressed	-24
Anxious	-25
Overwhelmed	-26
Other **SPECIFY, ANCHOR**	-88
None of these **EXCLUSIVE PUNCH; ANCHOR**	-98
Unsure **EXCLUSIVE PUNCH; ANCHOR**	-99

30. Thinking about your child, how would you say they feel about learning math? Do they…

Love learning math	-1
Like learning math a lot	-2
Think learning math is just ok	-3
Don't like learning math very much	-4
Pretty much hate learning math	-5
Not sure	-9

31. And how good would you say your child is at math?

Excellent	-1
Very good	-2
Good	-3
Just ok	-4
Not that good	-5
Unsure	-9

Perceptions of Math

32. Thinking about **basic math like addition, subtraction, multiplication, and division**—how useful and helpful do you feel it will be for your child to have learned how to do that kind of math?

Very useful and helpful	-1
Somewhat useful and helpful	-2
Just a little useful or helpful	-3
Not useful or helpful	-4
Unsure	-9

Pre-Message Metrics

33. And thinking about **higher-level math like algebra**— how useful and helpful do you feel it will be for your child to have learned how to do that kind of math?

Very useful and helpful	-1
Somewhat useful and helpful	-2
Just a little useful or helpful	-3
Not useful or helpful	-4
Unsure	-9

34. Please tell us how important you personally think learning **higher-level math like algebra** is for each of the following:

	RANDOMIZE ROWS	Essential	Very important	Somewhat important	Not important at all	Unsure
a.	Opening doors to more careers in the future, including careers that might not exist yet	-1	-2	-3	-4	-9
b.	Protecting yourself and your family from financial scams	-1	-2	-3	-4	-9
c.	Managing money, including financial planning and decision making	-1	-2	-3	-4	-9
d.	Developing critical thinking and problem-solving skills	-1	-2	-3	-4	-9

35. Please tell us how much you personally agree or disagree with each of the following statements on a scale of 1 to 7, with 1 meaning you strongly **disagree**, and 7 meaning you strongly **agree**. You can choose any number from 1 to 7 to say how strongly you agree or disagree.

	RANDOMIZE ROWS	1 – strongly disagree	2	3	4	5	6	7 – strongly agree	Unsure
a.	When it comes to my child's future, it is important that they know higher-level math like algebra	-1	-2	-3	-4	-5	-6	-7	-9
b.	I don't know how to help my child with higher-level math like algebra if they get stuck	-1	-2	-3	-4	-5	-6	-7	-9
c.	If my child needs help to learn higher-level math like algebra, I feel confident I can find them the help they need	-1	-2	-3	-4	-5	-6	-7	-9
d.	If I see my child struggling to learn higher-level math like algebra, it means that they are probably not that good at it	-1	-2	-3	-4	-5	-6	-7	-9
e.	Making mistakes while learning higher-level math like algebra is a normal part of my child's learning process	-1	-2	-3	-4	-5	-6	-7	-9
f.	My child can get better at higher-level math like algebra with the right support	-1	-2	-3	-4	-5	-6	-7	-9

Math Narratives

36. Next you'll see some statements that some adults have made about math and learning math. Please rate how much you agree or disagree with each of the following statements.

	RANDOMIZE ROWS	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure
a.	I rarely, if ever, have used higher-level math like algebra as an adult	-1	-2	-3	-4	-9
b.	I am a 'math person'	-1	-2	-3	-4	-9
c.	My child is a 'math person'	-1	-2	-3	-4	-9
d.	Math is more difficult to learn than other subjects	-1	-2	-3	-4	-9

Learning Ecosystem

37. If my child needs help learning higher-level math like algebra, they can get help from…
Select all that apply **MULTIPUNCH**

A family member	-1
A friend	-2
A classmate	-3
Their math teacher	-4
A paid tutor	-5
A peer tutor	-6
An afterschool program	-7
Other **SPECIFY**	-8
Unsure **EXCLUSIVE**	-9

38. How often does your child have math homework—that is, math assignments that need to be completed at home after school? Your best guess is fine.

Rarely or never	-1
Sometimes	-2
Fairly often	-3
Most days	-4
Not sure	-9

39. Below you'll see a few statements. Please choose the one that you most agree with, even if none of them feel exactly right. For my child, I think that…

ROTATE 1-3,8,99/3-1,8,99	
It is more important to get good grades in math than in other subjects	-1
It is just as important to get good grades in math as it is in other subjects	-2
It is less important to get good grades in math than in other subjects	-3
Something else **SPECIFY**	-8
Unsure **EXCLUSIVE PUNCH**	-9

40. Which, if any, of the following would you say are your expectations for your child in <u>math</u> class? Please select all that apply. **MULTISELECT**

Really understand and master the material	-1
Ask questions and get help when they are struggling	-2
Keep working at it when they start to struggle	-3
No specific expectations **EXCLUSIVE PUNCH**	-4
Something else **SPECIFY**	-8
Unsure **EXCLUSIVE PUNCH**	-9

41. When it comes to your child's mental health, how concerned would you say you are about stress or pressure to do well in math negatively affecting them?

ROTATE 1-4,9 / 4-1,9	
Very concerned	-1
Somewhat concerned	-2
Not very concerned	-3
Not at all concerned	-4
Unsure **ANCHOR**	-9

Messaging

SHOW TEXT SCREEN: Now you will watch a short video of someone sharing their experiences and views about these topics.

As you're watching, you'll be able to rate every moment of the video, raising your rating or lowering your rating whenever the video makes you feel more positively or negatively about what's being said.

Don't worry—it's easy!

Let's begin by showing you how it works. After that, you'll be ready to watch and rate the videos. Please don't forget to make sure that the speakers on your computer are turned on and up!

When you're ready to proceed, click or touch the "Next" button below.

Please note: These are **not** professional videos; they are informal videos that people have put on the Internet. Please do **not** focus on the editing, video resolution, or production quality. We are **only** interested in your reactions and responses to the people talking and to what they are saying.

{PAGE BREAK}

[PLAY M2M INSTRUCTION VIDEO]

{PAGE BREAK}

SHOW TEXT SCREEN: As you watch the video, we want you to tell us how compelling each moment of what you are seeing and hearing is to you personally.
[INSERT SLIDER ANIMATION]

The MORE COMPELLING you find what you are seeing and hearing, the more to the right you should move the slider towards "**EXTREMELY COMPELLING**."

The LESS COMPELLING you find what you are seeing and hearing, the more to the left you should move the slider towards "**NOT AT ALL COMPELLING**."

When you're ready to begin, click or touch the "Next" button.

{PAGE BREAK}

PLAY VIDEO: 7003_GS_TEACHERS_PARENTS

{PAGE BREAK}

42. A. Please indicate how strongly you felt each of the following while you were watching the video, using a scale of 1 to 7, where 1 represents "Not at all Felt" and 7 represents "Very Strongly Felt"

	RANDOMIZE ROWS	1 – Not at all felt	2	3	4	5	6	7 – Very strongly felt	Unsure
a.	Reassured	-1	-2	-3	-4	-5	-6	-7	-9
b.	Hopeful	-1	-2	-3	-4	-5	-6	-7	-9
c.	Interested	-1	-2	-3	-4	-5	-6	-7	-9
d.	Skeptical	-1	-2	-3	-4	-5	-6	-7	-9

43. Please indicate how well each of the following words describes how you feel about what you just saw and heard, using a scale of 1 to 7 where 1 means it "Does not describe it at all" and 7 means it "Describes it extremely well"

	RANDOMIZE ROWS	1 – Does not describe it at all	2	3	4	5	6	7 – Describes it extremely well	Unsure
a.	Compelling	-1	-2	-3	-4	-5	-6	-7	-9
b.	Believable	-1	-2	-3	-4	-5	-6	-7	-9
c.	Helpful	-1	-2	-3	-4	-5	-6	-7	-9
d.	Not Relevant	-1	-2	-3	-4	-5	-6	-7	-9

FOR Q44 RANDOMLY SELECT n=50 RESPONDENTS FROM EACH RACE/GENDER SUBGROUP

44. What, if anything, stands out to you personally in a helpful or positive way about what you heard or saw in this video? **[OPEN END RESPONSE]**

FOR Q45 RANDOMLY SELECT n=50 RESPONDENTS FROM EACH RACE/GENDER SUBGROUP WHO DID NOT ANSWER Q44

45. What, if anything, do you not like or not agree with, in what you heard or saw in this video? **[OPEN END RESPONSE]**

RESUME ASK OF ALL

46. As a parent, you may or may not feel like you personally can help your child with math when they feel stuck or confused. However, there may be other ways you can support them in learning math.

For each one below, please say how likely you are to encourage your child to use it.

	RANDOMIZE ROWS	Very likely	Somewhat likely	Not very likely	Not at all likely	Not available	Not sure
a.	Extra help from their math teacher: You can encourage your child to ask their teacher for help at lunchtime or after school if they're worried about asking for help during class in front of other students. Many teachers also offer office hours—time during their free periods for students to drop by with questions.	-1	-2	-3	-4	-8	-9
b.	In-school tutoring programs: Your child's school may have a free tutoring center or a peer tutoring program for many subjects, including math.	-1	-2	-3	-4	-8	-9
c.	Help from other students: Your child may have a friend or a classmate who is not only good at doing math, but who also likes to help others. Some kids also use text messages to work together on homework or ask each other questions after school.	-1	-2	-3	-4	-8	-9
d.	Free, online tutorial websites (like Khan Academy) for kids to learn different types of math—from counting in kindergarten to advanced algebra and trigonometry in high school.	-1	-2	-3	-4	-8	-9
e.	Online how-to videos (like on YouTube) that explain challenging math ideas and allow kids to work at their own pace. Kids can also find different examples of how to solve a problem which can be helpful if the way shown in one video doesn't make sense to them.	-1	-2	-3	-4	-8	-9
f.	Math apps (like Photomath or Mathway) that can scan and recognize math content (like algebraic equations) and provide step-by-step tutorials on how a particular math idea works.	-1	-2	-3	-4	-8	-9
g.	Subscription-based websites (like Desmos and Symbolab) that offer tools and resources for kids to help them learn math.	-1	-2	-3	-4	-8	-9
h.	Forum websites (like Brainly) that provide a place for kids to post questions about math problems and have experts provide answers and suggestions in response.	-1	-2	-3	-4	-8	-9

47. Next you'll see some things that adults might say to students about reasons to learn higher-level math. For each one, please rate how credible you find it personally.

	RANDOMIZE ROWS	Extremely credible	Very credible	Somewhat credible	Not very credible	Not credible at all	Unsure
a.	In school, you might try out something new like an elective or a club. When you're an adult, a 'pivot' into a new job can be a little harder. Having higher-level math skills like algebra will open the door to more types of careers, making it easier to change jobs or enter a new career if and when you need to.	-1	-2	-3	-4	-5	-9
b.	Knowledge is power, and knowing higher-level math like algebra can help you protect yourself and your family from being scammed, more than just common sense alone. Some companies target Black or Hispanic communities, or communities without a lot of money, and try to charge really high-interest rates (like with payday loans). But if you understand higher-level math, you can make sure you and your family are not getting cheated or taken advantage of.	-1	-2	-3	-4	-5	-9
c.	In the future, you might need to take out a loan to get what you want. This might be to pay for college, or later, to buy a car or a house. In algebra, you learn how compound interest works, and you will need this to understand how much money you need to borrow, and how much in interest different banks would charge over different time periods.	-1	-2	-3	-4	-5	-9
d.	You can use algebra to help make financial decisions, for example, whether it's better to buy a phone with cash or pay a fee each month to buy it over time. Or figure out if it is worth paying to rent a video game each time you play it or buy it. Plus you can calculate how many hours you'd need to work to afford it.	-1	-2	-3	-4	-5	-9

48. Next, you'll see some things that education experts say parents can do to set kids up to succeed at learning math.

For each piece of advice, please rate how helpful you find it personally.

	RANDOMIZE ROWS	Extremely helpful	Very helpful	Somewhat helpful	Not very helpful	Not helpful at all	Unsure
a.	Be curious - check in with your child about how they're feeling. When it comes to math, research shows that attitude matters, so you want to know if your child is doubting their math skills so you can nip that self-defeating attitude in the bud. If they're struggling, you could let them know that they're not alone in what they're feeling, and share a situation where you struggled with something, kept at it, got the help you needed, and got through it successfully.	-1	-2	-3	-4	-5	-9
b.	Show your child you are there to support them. Your child needs to know that you're there for them both academically and emotionally. You can help them find resources when they get stuck or are struggling. You can also check in with them about how they're feeling in math class, and support them if they have negative emotions that are interfering with their learning.	-1	-2	-3	-4	-5	-9
c.	Encourage trying. Many kids (and adults) associate being "good at math" with "getting it" quickly. But math is a skill that's acquired over time, and research has shown that any child can get better at math with effort and the right support. When you're praising your child, think about whether you're acknowledging the thing they get really fast, or the thing they tried really hard to achieve. Praising your child for "being smart" or getting things quickly may seem like positive reinforcement, but it can discourage them from taking on challenging work and persevering.	-1	-2	-3	-4	-5	-9
d.	Talk with your child about the value of persistence, and the idea that mistakes are learning opportunities. You can acknowledge negative feelings that your child may be feeling, like frustration, but also try to surface other more	-1	-2	-3	-4	-5	-9

	positive feelings, like curiosity in learning, or the feeling of persisting through something hard and eventually succeeding. This can build confidence for kids, and encourage them not to give up when facing challenges.						
e.	Encourage your child to ask for help when they feel stuck or frustrated. Kids can ask for help in class, but even if they don't feel comfortable doing that, there are still ways to support them in learning math whether or not you're helping them directly -- for example YouTube videos or websites like Khan Academy.	-1	-2	-3	-4	-5	-9
f.	Show your child that math is more than drills and abstract problems. It's important to connect math to a child's everyday life and passions. Try to find ways they can use math doing things they enjoy, like halving the recipe when cooking, figuring out the cost of gas for a road trip, or figuring out the angle to kick a ball in soccer.	-1	-2	-3	-4	-5	-9
g.	Be careful about how you pass on your own experiences to your child. Kids can pick up math anxiety from their parents, and it affects their ability to perform in math. Do your best to express confidence, calm, and curiosity around math, even if you have had bad experiences with it, so that you're modeling a positive (or at least neutral) attitude toward math for your child.	-1	-2	-3	-4	-5	-9

49. Next you'll see some things a parent might talk about with their child when their child is feeling discouraged or frustrated with learning math. How likely are you to share each of the following with your child if you see them feeling discouraged or frustrated with learning math?

	RANDOMIZE	Very likely	Somewhat likely	Not very likely	Not at all likely	Unsure
a.	With math, it can feel like if you don't get it right away, it means you're not good at math. But what matters isn't if you "get it" right away– what matters is that you stick with math and ask for help when you need it, so that you learn the math skills that you might need for the different careers or jobs you want to have in the future.	-1	-2	-3	-4	-9
b.	You may get frustrated with math if you don't get the right answer right away. But you can't get better if you don't make mistakes. It's like exercise – if you get sore muscles or get out of breath, it just means you're doing something more challenging than what your body is used to. And	-1	-2	-3	-4	-9

	you can't get stronger without trying something more challenging.					
c.	Math can sometimes feel frustrating and confusing, but with help, persistence, and practice, almost anyone can master math skills. It's about finding the help that works for you. If you don't understand the explanations from your teacher or parents, some websites and apps or someone like a peer tutor can walk you through problems and show you different ways to think about math concepts.	-1	-2	-3	-4	-9

Post-Messaging Metrics

SHOW TEXT SCREEN: Thinking about everything you've seen and heard in this survey, please answer the following questions.

50. Thinking about **higher-level math like algebra**— how useful and helpful do you feel it will be for your child to have learned how to do that kind of math?

Very useful and helpful	-1
Somewhat useful and helpful	-2
Just a little useful or helpful	-3
Not useful or helpful	-4
Unsure	-9

ASK Q51 IF (Q33=2 AND Q50=1) OR (Q33=3 AND Q50=1,2) OR (Q33=4,9 AND Q50=1,2,3)

51. Thinking again, in what ways does it feel like it might be useful or helpful for your child to have learned how to do **higher-level math like algebra**? **[OPEN END]**

52. Please tell us how important you personally think learning higher-level math like algebra is for each of the following:

	SHOW ROWS IN THE SAME ORDER AS DISPLAYED FOR Q34	Essential	Very important	Somewhat important	Not important at all	Unsure
a.	Opening doors to more careers in the future, including careers that might not exist yet	-1	-2	-3	-4	-9
b.	Protecting yourself and your family from financial scams	-1	-2	-3	-4	-9
c.	Managing money, including financial planning and decision making	-1	-2	-3	-4	-9

ASK Q53A IF RESPONDENT MOVED CLOSER TO 'STRONGLY AGREE' FROM Q34A TO Q52A
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

53. A. For the above statement, earlier in this survey you said **[IF UNSRE IN Q34A "**you were **unsure** about how important higher-level math like algebra is**", ELSE "**that learning higher-level math like algebra is **[PIPE IN RESPONSE OPTION FROM Q34 ITEM A, BOLDED]]**. Just now you said it is **[PIPE IN RESPONSE OPTION FROM Q52 ITEM A, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q53B IF RESPONDENT MOVED CLOSER TO 'STRONGLY AGREE' FROM Q34B TO Q52B
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

53B. For the above statement, earlier in this survey you said **[IF UNSRE IN Q34B "**you were **unsure** about how important higher-level math like algebra is**", ELSE "**that learning higher-level math like algebra is **[PIPE IN RESPONSE OPTION FROM Q34 ITEM B, BOLDED]]**. Just now you said it is **[PIPE IN RESPONSE OPTION FROM Q52 ITEM B, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q53C IF RESPONDENT MOVED CLOSER TO 'STRONGLY AGREE' FROM Q34C TO Q52C
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

53C. For the above statement, earlier in this survey you said **[IF UNSRE IN Q34C "**you were **unsure** about how important higher-level math like algebra is**", ELSE "**that learning higher-level math like algebra is **[PIPE IN RESPONSE OPTION FROM Q34 ITEM C, BOLDED]]**. Just now you said it is **[PIPE IN RESPONSE OPTION FROM Q52 ITEM C, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

54. Please tell us how much you personally agree or disagree with each of the following statements on a scale of 1 to 7, with 1 meaning you strongly disagree, and 7 meaning you strongly agree. You can choose any number from 1 to 7 to say how strongly you agree or disagree.

SHOW THE SAME ORDER AS IN Q35 FOR AC1-AC6, ELSE RANDOMIZE.

	RANDOMIZE ROWS	1 – strongly disagree	2	3	4	5	6	7 – strongly agree	Unsure
a.	When it comes to my child's future, it is important that they know higher-level math like algebra	-1	-2	-3	-4	-5	-6	-7	-9
b.	I don't know how to help my child with higher-level math like algebra if they get stuck	-1	-2	-3	-4	-5	-6	-7	-9
c.	If my child needs help to learn higher-level math like algebra, I feel	-1	-2	-3	-4	-5	-6	-7	-9

	confident I can find them the help they need								
d.	If I see my child struggling to learn higher-level math like algebra, it means that they are probably not that good at it	-1	-2	-3	-4	-5	-6	-7	-9
e.	Making mistakes while learning higher-level math like algebra is a normal part of my child's learning process	-1	-2	-3	-4	-5	-6	-7	-9
f.	My child can get better at higher-level math like algebra with the right support	-1	-2	-3	-4	-5	-6	-7	-9
g.	I am thinking differently about how to support my child in learning higher-level math after this survey	-1	-2	-3	-4	-5	-6	-7	-9
h.	I am thinking differently about how to talk to my child about higher-level math after this survey	-1	-2	-3	-4	-5	-6	-7	-9
i.	What I've seen and read in this survey is helpful for me as a parent	-1	-2	-3	-4	-5	-6	-7	-9

ASK Q55A IF RESPONDENT MOVED CLOSER TO 'STRONGLY AGREE' FROM Q35A TO Q54A
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

55. A. For the above statement, earlier in this survey you **[IF UNSURE IN Q35A "**were **unsure", ELSE "**placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q35 ITEM A, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[PIPE IN RESPONSE OPTION FROM Q54 ITEM A, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q55B IF RESPONDENT MOVED CLOSER TO 'STRONGLY DISAGREE FROM Q35B TO Q54B
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

55B. For the above statement, earlier in this survey you **[IF UNSURE IN Q35B "**were **unsure", ELSE "**placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q35 ITEM B, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[PIPE IN RESPONSE OPTION FROM Q54 ITEM B, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q55C IF RESPONDENT MOVED CLOSER TO 'STRONGLY AGREE' FROM Q35C TO Q54C
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

55C. For the above statement, earlier in this survey you **[IF UNSURE IN Q35C "**were **unsure", ELSE "**placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q35 ITEM C, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[PIPE IN RESPONSE OPTION FROM Q54 ITEM C, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q55D IF RESPONDENT MOVED CLOSER TO 'STRONGLY DISAGREE' FROM Q35D TO Q54D
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

55D. For the above statement, earlier in this survey you **[IF UNSURE IN Q35D "**were **unsure", ELSE "**placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q35 ITEM D, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[PIPE IN RESPONSE OPTION FROM Q54 ITEM D, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q55E IF RESPONDENT MOVED CLOSER TO 'STRONGLY AGREE' FROM Q35E TO Q54E
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

55E. For the above statement, earlier in this survey you **[IF UNSURE IN Q35E "**were **unsure", ELSE "**placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q35 ITEM E, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[PIPE IN RESPONSE OPTION FROM Q54 ITEM E, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

ASK Q55F IF RESPONDENT MOVED CLOSER TO 'STRONGLY AGREE' FROM Q35F TO Q54F
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

55F. For the above statement, earlier in this survey you **[IF UNSURE IN Q35F "**were **unsure", ELSE "**placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q35 ITEM F, BOLDED]** on a scale from 1 to 7. Just now you placed yourself at **[PIPE IN RESPONSE OPTION FROM Q54 ITEM F, BOLDED]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

56. For each of the following, please rate whether you are MORE or LESS likely to do it, based on what you have seen or heard in this survey. If it makes no difference, please say so.

	RANDOMIZE ROWS	MUCH MORE LIKELY	SOMEWHAT MORE LIKELY	SOMEWHAT LESS LIKELY	MUCH LESS LIKELY	MAKES NO DIFFERENCE	Unsure
a.	Check in with my child about how they are feeling about learning math	-1	-2	-3	-4	-5	-9
b.	Talk to my child about the importance of sticking with it and continuing to try even when learning math gets hard	-1	-2	-3	-4	-5	-9
c.	Talk to my child about the ways that learning higher-level math like algebra is relevant to their life in the future	-1	-2	-3	-4	-5	-9
d.	Tell my child that they can succeed in higher-level math	-1	-2	-3	-4	-5	-9
e.	Encourage my child to ask questions in their math class	-1	-2	-3	-4	-5	-9
f.	Encourage my child to look online for help learning math if they need it	-1	-2	-3	-4	-5	-9
g.	Encourage my child to get help when they need it by asking a friend or someone they know from their math class	-1	-2	-3	-4	-5	-9

57. Thank you, you're almost done with this survey.

If there is anything you're thinking about differently when it comes to supporting your child in learning higher-level math, please describe that here. **OPEN END**

Final Demographics

SHOW TEXT SCREEN: Thank you for your participation in this survey. These final questions are for statistical purposes only.

58. Do you or have you used higher-level math like algebra in your work?

Yes	-1
No, but I used to for a previous job	-2
No	-3
Not sure	-9

59. Were you born in the United States, or were you born in another country?

United States	-1
Another country **SPECIFY**	-2
Unsure/Would rather not say	-9

60. Would you be willing to be contacted to participate in additional research on your experiences with math? If so, please provide your name and email address below. If you are not willing to be contacted, please click "next". **INCLUDE OPEN END TEXTBOX FOR NAME, AND TWO OPEN END TEXTBOXES FOR EMAIL ADDRESSES, VALIDATED**
OPTIONAL QUESTION; ALLOW RESPONDENT TO CLICK NEXT WITHOUT SUBMITTING

[ASK ONLY IF PARENT CHOSE PARENT-ONLY SURVEY (Q9=2)]

61. Thank you again for completing this parent survey. Now that you have taken it, we wanted to ask you one last time if you would have your child also take the student survey. It is very similar to the survey you have just completed in terms of asking about their experiences with learning math, except that it is specifically designed for young people. Again, this is a professional research study and not sales-related in any way. All of your responses and your child's responses are anonymous and are kept strictly confidential. Would you be interested in having your child take their own survey?

Yes	-1
No	-2
Unsure	-9

[CODE RESPONDENT AS COMPLETE IF (Q9=2) AND (Q61=2,9)
IF [(Q9=2) AND (Q61=1)] OR Q9=1, CONTINUE

PART_TWO_INTRO
[DISPLAY]

Thank you for participating in our survey. This is the final screen of the parent survey.

If your child is prepared to take the survey now, please click on the survey link provided below and enter the access code provided.

Should your child not be ready to take the survey at this moment, you can copy the survey link and access code and send it to them to complete their survey at another time.

For safekeeping, you may choose to jot down or electronically save the access code and the link shown below:

[LINK]
[ACCESS CODE]

We are excited to invite your child to the student survey, and we value your continued participation.

Survey: Teacher Online Survey

Screener

Thank you for agreeing to take our survey. This is a professional research study and not sales-related in any way. All of your responses are anonymous and are kept strictly confidential. We are looking for your honest reactions and answers.

To participate, simply answer the question(s) on each page and click the "Next" button to move to the next question. Your responses will be submitted as you move through the survey.

There are some initial questions to determine if you qualify for the study. If you do, the survey should take you about 20 to 25 minutes to complete, and you will have the option to receive a $XX gift card as a thank you for completing the survey at the end.

Click the "Next" button below to begin.

{PAGE BREAK}

1. Do you work full-time, part-time, or are you not currently working?

Work full-time	-1	
Work part-time	-2	**TERMINATE**
Not currently working	-3	**TERMINATE**
Unsure	-9	**TERMINATE**

{PAGE BREAK}

2. In what state do you work? **[Drop down menu with all 50 states plus Washington, DC]**
   TERMINATE IF NOT CA, FL, NY, TX

{PAGE BREAK}

3. Do you currently teach in a school either full-time or part-time?

Yes, teach full time	-1	
Yes, teach part time	-2	**TERMINATE**
Not a teacher	-3	**TERMINATE**
Unsure	-9	**TERMINATE**

{PAGE BREAK}

4. Do you teach full-time in a… **SINGLEPUNCH**

Public school	-1
Private school	**TERM**
Charter school (public)	-3
Magnet school (public)	-4
None of the above	**TERM**
Unsure	**TERM**

{PAGE BREAK}

5. What grade(s) do you teach? Please select all that apply. **MULTIPUNCH**

Kindergarten through Fifth grade	-1
Sixth	-2
Seventh	-3
Eighth	-4
Ninth/Freshmen	-5
Tenth/Sophomores	-6
Eleventh/Juniors	-7
Twelfth/Seniors	-8
Other: **SPECIFY** _____	-9
Unsure **EXCLUSIVE**	-99

TERMINATE IF RESPONDENT DOES NOT SELECT AT LEAST ONE OF AC 3, 4, 5, OR 6

{PAGE BREAK}

6. Do you teach only in a mainstream or general education classroom, only in a special education classroom, a mix of the two, or some other setting?

Only mainstream or general education classroom	-1	
Only special ed classroom	-2	**TERMINATE**
A mix of mainstream/general education and special ed classrooms	-3	
Some other setting **SPECIFY**	-4	
Unsure	-9	

{PAGE BREAK}

7. What subject(s) are you primarily responsible for teaching? **MULTIPUNCH; RANDOMIZE 1-8**

Art/Visual Arts/Performing Arts/Music	-1
Computer Science	-2
English/Reading/Language Arts	-3
World/Foreign language (e.g., French, Spanish, etc.)	-4
Math	-5
Physical Education	-6
Science	-7
History/Social Studies	-8
Other: **SPECIFY** _____	-9
Unsure **EXCLUSIVE**	-99

TERMINATE IF RESPONDENT DOES NOT SELECT MATH/AC 5

{PAGE BREAK}

IF RESPONDENT SELECTS MORE THAN ONE AC IN Q7 ASK Q8

8. What subject do you spend the majority of your time teaching?
DISPLAY ONLY RESPONSE OPTIONS SELECTED IN Q7; TERMINATE IF RESPONDENT DOES NOT SELECT MATH IN Q8

{PAGE BREAK}

ASK Q9 IF MORE THAN ONE GRADE/RESPONSE OPTION SELECTED IN Q5

9. What grade(s) do you teach math to? Please select all that apply.
DISPLAY ONLY RESPONSE OPTIONS SELECTED IN Q5; TERMINATE IF RESPONDENT DOES NOT SELECT AT LEAST ONE OF 7TH, 8TH, 9TH, OR 10TH GRADE

{PAGE BREAK}

10. About what proportion of students at your school qualify for free or reduced lunch programs? Your best guess is fine.

Less than 25%	-1
At least 25% but less than 50%	-2
At least 50% but less than 75%	-3
75% or more	-4
Unsure	-9

{PAGE BREAK}

11. What grade or grades do you currently teach MATH to? Please select all that apply. **MULTISELECT**

Kindergarten through Sixth grade	-1
Seventh	-2
Eighth	-3
Ninth/Freshmen	-4
Tenth/Sophomores	-5
Eleventh/Juniors	-6
Twelfth/Seniors	-7
Other: **SPECIFY** _____	-8
Unsure **EXCLUSIVE**	-9

TERMINATE IF Q11 <> AC2-5

{PAGE BREAK}

CONSENT

12. Thank you for your interest in this survey. This is a professional research study on education and is not sales-related in any way. All of your responses are anonymous and are kept strictly confidential. Do you consent to participating in the remainder of the survey on education?

Yes	-1
No	**TERMINATE**
Unsure	**TERMINATE**

{PAGE BREAK}

13. Overall, how long have you been a teacher?

Less than a year	-1
1-3 years	-2
4-5 years	-3
6-10 years	-4
11-20 years	-5
21+ years	-6
Unsure	-9

{PAGE BREAK}

14. Are you…

Male	-1
Female	-2
I identify differently: please specify _____	-3

{PAGE BREAK}

15. And what is your race or ethnicity? Please select all that apply.
MULTIPUNCH

White/Caucasian (German, Irish, English, etc.)	-1
Black/African-American (Haitian, Nigerian, etc.)	-2
Hispanic/Latino (Mexican, Cuban, Dominican, Puerto Rican, etc.)	-3
East Asian (Chinese, Japanese, Vietnamese, Korean, Taiwanese, etc.)	-4
South Asian (Indian, Bangladeshi, Pakistani, Nepalese, Sri Lankan, etc.)	-5
Other Asian (Thai, Cambodian, Laotian, Filipino, etc.)	-6
Native Hawaiian or Pacific Islander	-7
Middle Eastern or North African (Lebanese, Iranian, Egyptian, etc.)	-8
Native American (Cherokee, Navajo, Choctaw, etc.)	-9
[Other: please specify _____] **OPEN END**	-10
Unsure **EXCLUSIVE**	-99

{PAGE BREAK}

Classroom Environment

16. What is the mix of race and ethnicity of the students you teach math to? Your best guess is fine.
OPEN END NUMERIC RESPONSE FOR EACH ROW WITH "%" TO THE RIGHT; TOTALS MUST ADD TO 100; ADD AN EXCLUSIVE CHECKBOX BELOW FOR UNSURE OR NOT APPLICABLE

	Percent of students you teach (must add to 100%)
White/Caucasian	
Black/African-American	
Hispanic/Latino/Latina/Latinx	
Asian-Pacific Islander	
Other races or ethnicities	
Unsure **EXCLUSIVE**	-9

{PAGE BREAK}

17. About what percentage of the students you teach math to are currently English-language learners/ESL (English as a Second Language) learners? **OPEN ENDED NUMERICAL TEXT BOX WITH PERCENTAGE SIGN TO THE RIGHT; ACCEPT WHOLE NUMBERS BETWEEN 0-100; ADD EXCLUSIVE CHECKBOX BELOW FOR UNSURE**

{PAGE BREAK}

18. What is your best guess about what proportion of your math students are planning to go to college?

Less than 25%	-1
At least 25% but less than 50%	-2
At least 50% but less than 75%	-3
75% or more	-4
Unsure	-9

{PAGE BREAK}

19. Does your school have classes or coursework opportunities that focus on career preparation and exploration, like a focus on vocational, career technical education, or career pathways programs?

Yes	-1
No	-2
Unsure	-9

{PAGE BREAK}

20. Please rate how important you feel each of the following are to math learning in your classroom on a scale of 1 to 7, with 1 meaning not important at all, and 7 meaning extremely important.

	RANDOMIZE ROWS	1 – Not important at all	2	3	4	5	6	7 – Extremely important	Unsure
a.	Knowing how students are feeling when they walk into my math class each day	-1	-2	-3	-4	-5	-6	-7	-9
b.	Encouraging my students to keep trying when they feel like giving up on a difficult math task	-1	-2	-3	-4	-5	-6	-7	-9
c.	Helping my students understand that mistakes are part of the learning process	-1	-2	-3	-4	-5	-6	-7	-9
d.	Creating an environment where my students feel comfortable asking questions when they need help	-1	-2	-3	-4	-5	-6	-7	-9
e.	Showing my students that anyone can be good at math	-1	-2	-3	-4	-5	-6	-7	-9
f.	Making sure my students know that mistakes provide important learning opportunities in math	-1	-2	-3	-4	-5	-6	-7	-9

{PAGE BREAK}

Challenges

21. Here is a list of challenges some math teachers say they face. Please tell us how much of a challenge each one is for you personally as a math teacher.

	RANDOMIZE ROWS	Extremely challenging	Very challenging	Moderately challenging	Slightly challenging	Not challenging at all	Not applicable
a.	Not enough time outside of class for things like planning lessons or offering students extra help	-1	-2	-3	-4	-5	-9
b.	Students with vastly different levels of math knowledge in the same class	-1	-2	-3	-4	-5	-9
c.	Students who primarily speak languages that I don't speak	-1	-2	-3	-4	-5	-9
d.	Too many students in each class	-1	-2	-3	-4	-5	-9
e.	Curriculum and testing requirements from the school administration, district, or state	-1	-2	-3	-4	-5	-9
f.	The requirement to maintain a certain pace, regardless of whether students are learning the material	-1	-2	-3	-4	-5	-9
g.	Students' lives outside of school interfering with their math learning	-1	-2	-3	-4	-5	-9
h.	Students acting out or behaving disruptively in class	-1	-2	-3	-4	-5	-9
i.	Finding math curriculum and math teaching materials that are relevant for my students	-1	-2	-3	-4	-5	-9
j.	Finding professional development courses or training that really helps me teach my math students	-1	-2	-3	-4	-5	-9
k.	Finding ways to get students engaged with the material	-1	-2	-3	-4	-5	-9

{PAGE BREAK}

Pre-Message Metrics

SHOW TEXT SCREEN: For the purposes of this survey, we're going to be talking about "higher-level math" – and by that we mean algebra and above. When you see the phrase "higher-level math," please think about algebra and above. You can click "next" to continue.

{PAGE BREAK}

22. Please rate how much you agree or disagree with each of the following statements about teaching math, on a scale of 1 to 7, with 1 meaning strongly disagree, and 7 meaning strongly agree. You can choose any number.

	RANDOMIZE ROWS	1 – Strongly disagree	2	3	4	5	6	7 – Strongly agree	Unsure
a.	Getting to know my students personally early in the school year is important for creating the classroom environment they need to learn math	-1	-2	-3	-4	-5	-6	-7	-9
b.	I feel well equipped to help reduce my students' stress and potential embarrassment around asking questions and making mistakes	-1	-2	-3	-4	-5	-6	-7	-9
c.	When students ask, "Why do I have to learn this?" about higher-level math, I have answers that are credible and motivating to them	-1	-2	-3	-4	-5	-6	-7	-9
d.	Some students just don't seem to get higher-level math, no matter how many different ways its taught or explained	-1	-2	-3	-4	-5	-6	-7	-9
e.	All students can learn higher-level math, with the right support	-1	-2	-3	-4	-5	-6	-7	-9

{PAGE BREAK}

Perceptions of Math

23. Below you'll see some statements that some teachers have made about math and math learning in middle and high school. Please rate how much you agree or disagree with each of the following statements.

	RANDOMIZE ROWS	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Unsure
a.	Most students do not need higher-level math skills after high school or college	-1	-2	-3	-4	-9
b.	Learning higher-level math like algebra builds critical thinking skills in ways other subjects cannot	-1	-2	-3	-4	-9
c.	Students need to take responsibility for asking for the help they need if they are struggling in math	-1	-2	-3	-4	-9
d.	For students in higher-level math like algebra, it is more important to their learning that they keep trying than that they get the right answer quickly	-1	-2	-3	-4	-9

{PAGE BREAK}

Journey Story + Emotions

24. Which, if any, of the following words describe emotions or feelings you have when you are teaching math? Please choose all that apply. **MULTICHOICE**

RANDOMIZE	
Excited	-1
Happy	-2
Joy	-3
Fun	-4
Fulfilled	-5
Satisfied	-6
Motivated	-7
Hopeful	-8
Determined	-9
Eager	-10
Curious	-11
Challenged (in a bad way) **ALWAYS SHOW WITH AC13**	-12
Challenged (in a good way) **ALWAYS SHOW WITH AC12**	-13
Frustrated	-14
Anxious	-15
Sad	-16
Exhausted	-17
Concerned	-18
Overwhelmed	-19
Other **SPECIFY, ANCHOR**	-20
None of these **EXCLUSIVE PUNCH; ANCHOR**	-98
Unsure **EXCLUSIVE PUNCH; ANCHOR**	-99

{PAGE BREAK}

25. In a few sentences or less, how would you describe the reason you decided to become a math teacher? **OPEN END**

{PAGE BREAK}

Messaging

SHOW TEXT SCREEN: Now you will watch a short video of someone sharing their experiences and views about these topics.

As you're watching, you'll be able to rate every moment of the video, raising your rating or lowering your rating whenever the video makes you feel more positively or negatively about what's being said.

Don't worry—it's easy!

Let's begin by showing you how it works. After that, you'll be ready to watch and rate the videos. Please don't forget to make sure that the speakers on your computer are turned on and up!

When you're ready to proceed, click or touch the "Next" button below.

Please note: These are **not** professional videos; they are informal videos that people have put on the Internet. Please do **not** focus on the editing, video resolution, or production quality. We are **only** interested in your reactions and responses to the people talking and to what they are saying.

{PAGE BREAK}

[PLAY M2M INSTRUCTION VIDEO]

{PAGE BREAK}

SHOW TEXT SCREEN: As you watch the video, we want you to tell us how compelling each moment of what you are seeing and hearing is to you personally.
[INSERT SLIDER ANIMATION]

The MORE COMPELLING you find what you are seeing and hearing, the more to the right you should move the slider towards "**EXTREMELY COMPELLING**."

The LESS COMPELLING you find what you are seeing and hearing, the more to the left you should move the slider towards "**NOT AT ALL COMPELLING**."

When you're ready to begin, click or touch the "Next" button.

{PAGE BREAK}

SHOW VIDEO: 7004_GS_YOUTH

{PAGE BREAK}

26. A Please indicate how strongly you felt each of the following while you were watching, using a scale of 1 to 7, where 1 represents "Not at all Felt" and 7 represents "Very Strongly Felt"

	RANDOMIZE ROWS	1 – Not at all felt	2	3	4	5	6	7 – Very strongly felt	Unsure
a.	Reflective	-1	-2	-3	-4	-5	-6	-7	-9
b.	Hopeful	-1	-2	-3	-4	-5	-6	-7	-9
c.	Skeptical	-1	-2	-3	-4	-5	-6	-7	-9
d.	Conflicted	-1	-2	-3	-4	-5	-6	-7	-9

27. Please indicate how well each of the following words describes how you feel about what you just saw and heard, using a scale of 1 to 7 where 1 means it "Does not describe it at all" and 7 means it "Describes it extremely well"

	RANDOMIZE ROWS	1 – Does not describe it at all	2	3	4	5	6	7 – Describes it extremely well	Unsure
a.	Compelling	-1	-2	-3	-4	-5	-6	-7	-9
b.	Relevant	-1	-2	-3	-4	-5	-6	-7	-9
c.	Frustrating	-1	-2	-3	-4	-5	-6	-7	-9
d.	Thought provoking	-1	-2	-3	-4	-5	-6	-7	-9

{PAGE BREAK}

FOR Q28 RANDOMLY SELECT n=300 respondents

28. What, if anything, stands out to you personally in a helpful way about what you heard or saw in this video? **[OPEN END RESPONSE]**

{PAGE BREAK}

FOR Q29 RANDOMLY SELECT n=300 respondents

29. What, if anything, do you not like or not agree with, in what you heard or saw in this video? **[OPEN END RESPONSE]**

{PAGE BREAK}

OVERALL POSITIONING

RESUME ASK OF ALL

SHOW TEXT SCREEN: In the next section of the survey, you will see some tools and recommendations for math teachers. But first, you will see some introductions to those tools and recommendations. You may click "next" to continue.

{PAGE BREAK}

30. Below are some different descriptions or ways of introducing a set of tools and recommendations for math teachers. For each description, please rate how interested you would be in learning more about the tools and recommendations described. **[DISPLAY IF ON DESKTOP]** Please make sure to click the arrow in order to view the next statement once you are finished rating.

	RANDOMIZE ROWS	Extremely interested	Very interested	Somewhat interested	Not very interested	Not interested at all	Unsure
a.	**HELP TEACHERS**: Teachers are incredibly busy, and incorporating the newest methodologies is often not possible with how much is already on their plates. These are small, easy-to-implement changes that can make a big impact in helping teachers engage more students in math learning and helping teachers manage the classroom effectively.	-1	-2	-3	-4	-5	-9
b.	**HELP STUDENTS**: Students often enter the classroom with very different knowledge and skills, and it can be difficult for teachers to find time to support each student's individual math learning needs. These small, easy-to-implement changes can help teachers to engage and support more students across different learning levels.	-1	-2	-3	-4	-5	-9
c.	**RESPOND TO EMOTIONS**: It can be difficult for teachers to always know how to respond when students are struggling with learning math. These quick reflections and practices can help teachers to meet students where they are. When teachers understand how kids are feeling and what challenges they are experiencing, they can respond in ways that support their math learning.	-1	-2	-3	-4	-5	-9
d.	**RESEARCH-BASED**: As the people who know best what the day-to-day function of a classroom looks like, teachers are often each other's best resources. These simple but	-1	-2	-3	-4	-5	-9

	effective tools are informed by research with teachers and students about what is most effective for supporting students' math learning.						

{PAGE BREAK}

RECOMMENDATION SUMMARIES

31. Now you'll see a summary of some of the tools and recommendations described in the last exercise. For each one, please rate how interested you would be in learning more about how to implement that specific recommendation. **[DISPLAY IF ON DESKTOP]** Please make sure to click the arrow in order to view the next statement once you are finished rating**.**

	RANDOMIZE ROWS	Extremely interested	Very interested	Somewhat interested	Not very interested	Not interested at all	Unsure
a.	**BUILDING RELATIONSHIPS:** Teachers know they need to build connections with students; however, there is often limited time to connect with each student individually. Teachers can build relationships with students in ways that are meaningful and built on mutual respect by sharing stories with the class about their own math learning experiences, or a story that connects those experiences with the decision to become a math teacher. These types of honest personal stories, which include challenges along the way, help to build trust with students.	-1	-2	-3	-4	-5	-9
b.	**REASSESSING ASSUMPTIONS:** When students feel overwhelmed, they may exhibit behaviors like doodling, looking down or away, or staring at a blank worksheet. Implementing reflective practices can help teachers understand the connection between students' emotions while learning math and how these emotions impact and drive student behavior in the classroom. For example, teachers can ask themselves questions when they see behaviors that make students seem like they're 'checked out':	-1	-2	-3	-4	-5	-9

	What does confusion and frustration look like for me? Is the student lost or stuck on a problem? Is something else going on?						
c.	**MISTAKES AND QUESTIONS:** Students' anxiety can be heightened when a mistake is made – especially if it is in front of peers. This makes them less likely to ask questions, and reinforces their belief that making a mistake and needing to ask questions means they are not good at learning math. Teachers can create a learning environment where asking questions and using mistakes to improve are important parts of learning. For example, teachers can help reframe mistakes as learning opportunities by incorporating error analysis into lessons.	-1	-2	-3	-4	-5	-9
d.	**RELEVANCE AND UTILITY:** Students often want to know why higher-level math like algebra is relevant to them, and research has found that some answers like "math is a universal language" are not credible to many students. Teachers can use responses to the question "Why do I have to learn this?" that have been tested with students – like "It helps keep your future career options open," "It can help prevent you or your family from getting scammed or cheated," and "It can help you better understand and choose between loans and interest rates."	-1	-2	-3	-4	-5	-9
e.	**REFRAMING EMOTIONS:** Students' emotional experiences impact their capacity to learn and their interest in, and motivation to, persist when they struggle to learn math. When teachers affirm and normalize the emotional nature of learning math for students, it helps students feel empowered to ask for help when they feel stuck, confused, or overwhelmed.	-1	-2	-3	-4	-5	-9

{PAGE BREAK}

SHOW TEXT SCREEN: In the next part of the survey, you will see more about some of the tools and recommendations mentioned in the previous exercise.

{PAGE BREAK}

SPLIT A

32. Math teacher tool: Student Behaviors Checklist

In research conducted with math teachers, many say that sometimes students behave in ways that make them feel like the kids don't respect them, or are checked out. This can look like disruptive or disengaged behavior. Below you will see some examples of the behaviors teachers have observed that make students look like they're "checked out".

Please rank the following behaviors by how often you see students engaging in them in your classroom – with number one being the MOST common behavior, and number seven being the LEAST common behavior.

[IF NOT MOBILE]

Start by clicking and dragging the behavior you believe to be the most common to the area marked "MOST common", then proceed with the 2nd most common behavior, followed by the 3rd, and so on, until you have identified what you believe to be the 7th least common behavior. If you make a mistake, you can deselect it by double-clicking the term a second time. If you are unsure, click on the checkbox provided below.

[IF MOBILE]

Start by clicking the behavior that you believe to be the most common, then clicking the behavior that is 2nd most common, followed by the 3rd, and so on You can click a behavior again to unselect if you make a mistake.

- Doodling
- Talking to peers
- Not filling out a worksheet
- Head on desk
- Repeatedly not turning in homework
- Missing class frequently
- Sleeping during class

{PAGE BREAK}

SPLIT A

33. In research conducted with students, some say they behave in some of the ways you saw on the previous screen because they feel frustrated and overwhelmed when they get stuck while trying to learn math. While it is true that some students are just checked out, many students are trying to learn and need support to do that.

    Below you'll see some examples of questions teachers can ask themselves to revisit assumptions about what students might be feeling when they appear to be checked out. For each, please indicate how likely you would be to ask yourself that question next time you see a "checked out" behavior. **[DISPLAY IF ON DESKTOP]** Please make sure to click the arrow in order to view the next question.

	RANDOMIZE ROWS	Extremely likely	Very likely	Somewhat likely	Not very likely	Not likely at all	Unsure
a.	Are they lost? If a student is consistently not filling out worksheets or not turning in homework, it may be a sign they're totally overwhelmed and don't even know where to start. Some students are intimidated or too embarrassed to ask questions. Maybe there's a way you as a teacher can try to pull out some of those questions.	-1	-2	-3	-4	-5	-9
b.	Is something else going on? When you have a student who never seems to be paying attention — head down on their desk, or never participating in class — they may not be a "lost cause" who would require too much time to help. Maybe there's some other issue that you're unaware of, and you could try checking in with them one-on-one.	-1	-2	-3	-4	-5	-9
c.	Are they stuck on a problem? If a student asks you to repeat something you already went over several times, try asking them to be more specific about what parts they *do* understand. Ask them to build on what they already know, and then walk them through where they're getting stuck.	-1	-2	-3	-4	-5	-9
d.	Are they turning to peers for help? If you notice students are talking during a lesson, take a moment to listen in and see if they might be asking each other questions about the problem. Some students feel less intimidated asking a peer for help than asking a teacher in	-1	-2	-3	-4	-5	-9

	front of the whole class. Look for opportunities to encourage students to work through a problem in pairs or small groups, and to ask for teacher assistance when they need it.						
e.	Did they miss key lessons? Sometimes students might be totally confused in class not because they aren't paying attention, but because they are missing some foundational skills that they didn't learn in previous math classes. They may feel so ashamed they don't even want to ask for help. In that case, you may need to go over some of the foundational skills in math class, or help them find some outside resources like math apps, support online, or tutoring if that's offered at your school.	-1	-2	-3	-4	-5	-9
f.	What does confusion look like for me? Reflect on experiences you've had when you were a math student or participating as a teacher in professional development sessions. Was there a time you were confused about something? How did you feel in those moments? Whom did you reach out to? How might your response to confusion be misinterpreted as disengagement?	-1	-2	-3	-4	-5	-9

{PAGE BREAK}

SPLIT B:

34. Math teacher tool: Making Math Relevant
    It can be hard for students to connect algebra to their everyday lives, and math teachers are often asked the question "Why do I have to learn algebra?" Below you'll see some examples of responses that teachers can give to students. For each response, please rate how likely you would be to try it out next time a student asks you "why do I have to learn algebra?". **[DISPLAY IF ON DESKTOP]** Please make sure to click the arrow in order to view the next response.

	RANDOMIZE ROWS	Extremely likely	Very likely	Somewhat likely	Not very likely	Not likely at all	Unsure
a.	In school, you might try out something new like an elective or a club. When you're an adult, a 'pivot' into a new job can be a little harder. Having higher-level math skills like algebra will open the door to more types of careers, making it easier to change jobs or enter a new career if and when you need to.	-1	-2	-3	-4	-5	-9
b.	Knowledge is power, and knowing higher-level math like algebra can help you protect yourself and your family from being scammed, more than just common sense alone. Some companies target Black or Hispanic communities, or communities without a lot of money, and try to charge really high-interest rates (payday loans). But if you understand higher-level math, you can make sure you and your family are not getting cheated or taken advantage of.	-1	-2	-3	-4	-5	-9
c.	In the future, you might need to take out a loan to get what you want. This might be to pay for college, or later, to buy a car or a house. In algebra, you learn how compound interest works, and you will need this to understand how much money you need to borrow, and how much interest different banks would charge over different time periods.	-1	-2	-3	-4	-5	-9
d.	You can use algebra to help make financial decisions, for example, whether it's better to buy a phone with cash or pay a fee each month to buy it over time. Or figure out if it is worth paying to rent a video game each time you play it or buy it. Plus you can calculate	-1	-2	-3	-4	-5	-9

	how many hours you'd need to work to afford it.						

{PAGE BREAK}

SPLIT C:
SHOW TEXT SCREEN:

Math teacher tool: Lessening Mistake Anxiety and Encouraging Help-Seeking Behavior

Students often think that if they make a mistake in math or struggle with new concepts, then they are just bad at math. It can lead them to feel frustrated or discouraged or to want to give up entirely. Math teachers can help students change the way they think about mistakes and struggle by changing how they respond to mistakes in the classroom.

Of course, the context in which students make the mistake matters: When a student makes a mistake on a worksheet in class or on homework, the stakes are much lower than when they make a mistake on a test. Acknowledging this is important, and helping students persevere through making a mistake in a lower-stakes context will ultimately help them improve when taking a test.

On the next page, you'll see some examples of ways some math teachers respond when students make mistakes learning math to create a safe and encouraging learning environment. Please click 'Next' to continue.

{PAGE BREAK}

35. Below you'll see some examples of ways teachers respond to mistakes in the classroom to create a safe and encouraging learning environment. For each one, please indicate how likely you would be to try it out in your classroom. **[DISPLAY IF ON DESKTOP]** Please make sure to click the arrow in order to view the next response.

	RANDOMIZE ROWS	Extremely likely	Very likely	Somewhat likely	Not very likely	Not likely at all	Unsure
a.	Respond with positivity when a student says they made a mistake, which is a cue for students that the mistake is not necessarily a bad thing. Celebrating mistakes as important opportunities to learn can help reframe a mistake for the student from something negative to something positive and helpful.	-1	-2	-3	-4	-5	-9
b.	Show that you, too, make mistakes. This can help normalize mistakes for students. For example, if you struggled with math when you were in school, you could share that. Or, if you make a mistake while demonstrating a problem on the board, you could point out that you are human and make mistakes, just like	-1	-2	-3	-4	-5	-9

	students – and have your students help fix the mistake.						
c.	Break down problems where a student has made a mistake into small steps to identify where the mistake happened. Often the student has only missed one or two steps, and showing them the process is more helpful for their learning than just giving them the correct answer.	-1	-2	-3	-4	-5	-9
d.	For in-class worksheets, homework assignments, or anywhere else where you have autonomy to decide how you grade, give partial credit for the process. Even if the answer was wrong due to a mistake along the way, you can help support students to see what they do know and discourage the thought that they are bad at math.	-1	-2	-3	-4	-5	-9
e.	Communicate to students that it is important to make mistakes when you are learning something new in math. This is how you learn and understand the process. Making mistakes when learning something new is crucial to getting better at math.	-1	-2	-3	-4	-5	-9

{PAGE BREAK}

SPLIT D:

36. Math teacher tool: Building Relationships
Building meaningful relationships with students can help them relate to you and increase trust – so that they feel more comfortable in the classroom and are more willing to ask for help when they need it. Below, you'll see some things other teachers say they do to build relationships with their students each year. For each one, please indicate how likely you would be to try it out in your classroom. **[DISPLAY IF ON DESKTOP]**
Please make sure to click the arrow in order to view the next response.

	RANDOMIZE ROWS	Extremely likely	Very likely	Somewhat likely	Not very likely	Not likely at all	Unsure
a.	Greeting each student individually before class	-1	-2	-3	-4	-5	-9
b.	Noticing when a student has changed something – like gotten a haircut or new shoes	-1	-2	-3	-4	-5	-9
c.	Learning about what students are interested in outside of school	-1	-2	-3	-4	-5	-9
d.	Telling students about a time you struggled to learn something but kept trying at it	-1	-2	-3	-4	-5	-9
e.	Sharing parts of your personal background, like where you're from or what it was like growing up	-1	-2	-3	-4	-5	-9

{PAGE BREAK}

SPLIT E:

37. Math teacher tool: Reframing emotions

Teachers can affirm and normalize the emotional nature of learning math – and can help students reframe their emotions as signals to take positive action. Below you'll see some examples of responses that teachers can give to students when they are feeling stuck, confused, or overwhelmed. For each response, please rate how likely you would be to try it out in your classroom. **[DISPLAY IF ON DESKTOP]** Please make sure to click the arrow in order to view the next response.

	RANDOMIZE ROWS	Extremely likely	Very likely	Somewhat likely	Not very likely	Not likely at all	Unsure
a.	When you're feeling frustrated, confused, or overwhelmed, that's a signal to ask questions and get extra help.	-1	-2	-3	-4	-5	-9
b.	It can feel stressful to make mistakes. Making mistakes is part of the learning process. Mistakes are an important part of how we learn as students and how we grow as people.	-1	-2	-3	-4	-5	-9
c.	At some point in life, most students will struggle with learning math. If you feel frustrated, you're not alone. Other students probably have the same questions you do. When you are brave and ask questions, you're helping other students — and you're helping me, as a teacher, to help all of you learn.	-1	-2	-3	-4	-5	-9
d.	When you feel lost in class or don't understand, it can be embarrassing to ask for help. Those moments are the best time to get extra support. Even though it's hard, it's important for you to ask for the help you need.	-1	-2	-3	-4	-5	-9

{PAGE BREAK}

RESUME ASK OF ALL

SHOW TEXT SCREEN: Next you'll see one last video. When you're ready to begin, click or touch the "Next" button.

{PAGE BREAK}

PLAY VIDEO: PEER TEACHERS

{PAGE BREAK}

38. A. Please indicate how strongly you felt each of the following while you were watching, using a scale of 1 to 7, where 1 represents "Not at all Felt" and 7 represents "Very Strongly Felt"

	RANDOMIZE ROWS	1 – Not at all felt	2	3	4	5	6	7 – Very strongly felt	Unsure
a.	Reflective	-1	-2	-3	-4	-5	-6	-7	-9
b.	Inspired	-1	-2	-3	-4	-5	-6	-7	-9
c.	Stressed	-1	-2	-3	-4	-5	-6	-7	-9
d.	Conflicted	-1	-2	-3	-4	-5	-6	-7	-9

39. Please indicate how well each of the following words describes how you feel about what you just saw and heard, using a scale of 1 to 7 where 1 represents "Does not describe it at all" and 7 represents "Describes it extremely well"

	RANDOMIZE ROWS	1 – Does not describe it at all	2	3	4	5	6	7 – Describes it extremely well	Unsure
a.	Compelling	-1	-2	-3	-4	-5	-6	-7	-9
b.	Helpful	-1	-2	-3	-4	-5	-6	-7	-9
c.	Frustrating	-1	-2	-3	-4	-5	-6	-7	-9
d.	Relatable	-1	-2	-3	-4	-5	-6	-7	-9

{PAGE BREAK}

FOR Q40 RANDOMLY SELECT N=300

40. What, if anything, stands out to you personally in a helpful way about what you heard or saw in this video? **[OPEN END RESPONSE]**

{PAGE BREAK}

FOR Q41 RANDOMLY SELECT N=300

41. What, if anything, do you not like or not agree with, in what you heard or saw in this video? **[OPEN END RESPONSE]**

{PAGE BREAK}

Post-Messaging Metrics

SHOW TEXT SCREEN: Thinking about everything you've seen and heard in this survey, please answer the following questions.

42. Please rate how much you agree or disagree with each of the following statements on a scale of 1 to 7, with 1 meaning strongly disagree, and 7 meaning strongly agree.

	RANDOMIZE ROWS	1 – strongly disagree	2	3	4	5	6	7 – strongly agree	Unsure
a.	Getting to know my students personally early in the school year is important for creating the classroom environment they need to learn math	-1	-2	-3	-4	-5	-6	-7	-9
b.	I feel well equipped to help reduce my students' stress and potential embarrassment around asking questions and making mistakes	-1	-2	-3	-4	-5	-6	-7	-9
c.	When students ask, "Why do I have to learn this?" about higher-level math, I have answers that are credible and motivating to them	-1	-2	-3	-4	-5	-6	-7	-9
d.	I am thinking differently about the student experience in my math class after this survey	-1	-2	-3	-4	-5	-6	-7	-9
e.	The tools and strategies in this survey are helpful to math teachers like me	-1	-2	-3	-4	-5	-6	-7	-9
f.	I would attend a professional development session to learn more about the material in this survey	-1	-2	-3	-4	-5	-6	-7	-9

{PAGE BREAK}

ASK Q43A IF RESPONDENT ANSWERED DIFFERENTLY FOR Q22A AND Q42A
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

43. A. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q22A IN BOLD]** on a scale from 1 to 7 with 1 meaning strongly disagree, and 7 meaning strongly agree. Just now you placed yourself **[IF Q42A = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q42A" IN BOLD].**

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

{PAGE BREAK}

ASK Q43B IF RESPONDENT ANSWERED DIFFERENTLY FOR Q22B AND Q42B
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

43B. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q22B IN BOLD]** on a scale from 1 to 7 with 1 meaning strongly disagree, and 7 meaning strongly agree. Just now you placed yourself **[IF Q42B = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q42A" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

{PAGE BREAK}

ASK Q43C IF RESPONDENT ANSWERED DIFFERENTLY FOR Q22C AND Q42C
DISPLAY STATEMENT ABOVE QUESTION TEXT IN BOLD

43C. For the above statement, earlier in this survey you placed yourself at a **[PIPE IN RESPONSE OPTION FROM Q22C IN BOLD]** on a scale from 1 to 7 with 1 meaning strongly disagree, and 7 meaning strongly agree. Just now you placed yourself **[IF Q42C = UNSURE, PIPE IN "as UNSURE" IN BOLD ELSE PIPE IN "at a RESPONSE OPTION FROM Q42A" IN BOLD]**.

Please tell us the one or two main reasons that you feel or think differently now. **[OPEN-ENDED]**

{PAGE BREAK}

RESUME ASK OF ALL

44. For each of the following, please rate whether you are MORE or LESS likely to do it, based on what you have seen or heard in this survey. If it makes no difference, please say so.

	RANDOMIZE ROWS	MUCH MORE LIKELY	SOMEWHAT MORE LIKELY	SOMEWHAT LESS LIKELY	MUCH LESS LIKELY	MAKES NO DIFFERENCE	Unsure
a.	Share my math journey story with my students—for example, times I struggled to learn math or why I became a math teacher	-1	-2	-3	-4	-5	-9
b.	Consider how my students' emotions might be interfering with their math learning	-1	-2	-3	-4	-5	-9
c.	Encourage students to ask for help when they feel frustrated, confused, or overwhelmed	-1	-2	-3	-4	-5	-9
d.	Reflect on how my teaching practices influence my students' experience learning math	-1	-2	-3	-4	-5	-9
e.	Ask a student who seems "checked out" what else might be going on that is affecting their math learning	-1	-2	-3	-4	-5	-9
f.	Communicate to students who are struggling that they can succeed at learning math	-1	-2	-3	-4	-5	-9
g.	Connect math to the "real world" or things that my students are interested in	-1	-2	-3	-4	-5	-9
h.	Use some of the tools and strategies from this survey	-1	-2	-3	-4	-5	-9
i.	Make the kinds of small changes or subtle shifts in my teaching that can make a big difference in how my students feel about learning math	-1	-2	-3	-4	-5	-9

{PAGE BREAK}

ASSIGN RESPONDENTS RANDOMLY TO SEE ONE OF THE FOUR OPEN ENDS (Q45 – Q48)

45. If there's anything you're thinking about doing differently in the future, given what you've seen and heard in this survey, please describe it here. **OPEN END**

{PAGE BREAK}

46. After everything you've seen and heard today, what, if anything, do you find most exciting or hopeful when it comes to teaching math? **OPEN END**

{PAGE BREAK}

47. Think about the tools and recommendations for math teachers that you've read about today, what, if anything, is most interesting or helpful for you? **OPEN END**

{PAGE BREAK}

48. Think about the tools and recommendations for math teachers that you've read about today. What, if any, concerns would you have about implementing them in your own math teaching? **OPEN END**

{PAGE BREAK}

Final Demographics

SHOW TEXT SCREEN: Thank you for your participation in this survey. These final questions are for statistical purposes only.

{PAGE BREAK}

49. How long have you been teaching math? Please select the total number of years, even if they have not been consecutive.

Less than a year	-1
Between 1 year and 3 years	-2
Between 3 and 5 years	-3
Between 5 and 10 years	-4
More than 10 years	-5
Unsure	-9

{PAGE BREAK}

50. In which county is the school you teach? **DROPDOWN OF CA COUNTIES FOR RESPONDENTS IN CA, TX COUNTIES FOR RESPONDENTS IN TX, NY COUNTIES FOR RESPONDENTS IN NY, FL COUNTIES FOR RESPONDENTS IN FL; MULTISELECT, INCLUDE ROW FOR UNSURE**

{PAGE BREAK}

51. Would you say that all or most of the students in the school you teach at live in…

A large city	-1
A smaller city	-2
A suburb near a city	-3
A small town	-4
A rural area	-5
Unsure/Not Applicable	-9

{PAGE BREAK}

52. How many students do you have in your math class this year? If you teach multiple classes, please give your best guess of what the average is across your classes. **OPEN END NUMERIC TEXT BOX – ACCEPT NUMBERS 1-100 WITH A CHECKBOX FOR NOT APPLICABLE**

{PAGE BREAK}

53. Which of the following math courses do you teach or have you taught in the past? Please select all that apply.
MULTISELECT FOR EACH COLUMN

	Taught in the past	Currently teach
Pre-Algebra	-1	-1
Algebra 1	-2	-2
Algebra 2	-3	-3
Geometry	-4	-4
Trigonometry	-5	-5
Pre-Calculus	-6	-6
Calculus	-7	-7
Other (please specify: _____)	-8	-8
Unsure **EXCLUSIVE**	-9	-9

{PAGE BREAK}

54. What is your age? **[NUMERIC OPEN END, 0-99 RANGE; INCLUDE CHECKBOX FOR UNSURE]**

{PAGE BREAK}

55. Which of the following best describes your educational and professional background? You may check all that apply.
[**MULTIPUNCH]**

Undergraduate degree – not specialized in math	-1
Undergraduate degree – math focus	-2
Graduate degree – not specialized in math	-3
Graduate degree – math focus	-4
Teaching certificate – not specialized in math	-5
Teaching certificate – math focus	-6
Other: Please specify: _____	-7
Unsure	-9

{PAGE BREAK}

56. Thank you for participating in our confidential survey. As a token of our appreciation, we are offering a $XX gift card. Would you like to receive a gift card? If so, please select yes below and then enter your email address on the following screen. If you prefer not to receive the gift card, please indicate that.

Yes	-1	
No	-2	

{PAGE BREAK}

57. **OPTIONAL QUESTION; ALLOW RESPONDENT TO CLICK NEXT WITHOUT SUBMITTING NAME AND EMAIL:** Would you be willing to be contacted to participate in additional research on your experiences with teaching math? If so, please provide your name and email address below. If you do not, you may click "next" to complete the survey.

    SHOW TWO TEXT BOXES, ONE LABELED NAME AND ONE LABELED EMAIL ADDRESS

{PAGE BREAK}

Thank you for taking the time to complete our survey!

[CODE RESPONDENT AS COMPLETE]