

DISCOVERY EDUCATION MATH TECHBOOK™

EFFICACY STUDY

Discovery Education is offering districts and schools an opportunity to use Algebra I or Math I Integrated Techbook materials for up to 18 months by participating in an efficacy study of this digital learning solution. The study is designed to examine the impact of Discovery Education's Math Techbook on students' attitude toward math and Algebra I/Math I achievement. Study participation involves Algebra I and Math I Integrated teacher participation in professional learning offerings and data collection activities as described in detail below.

WHO?

Discovery Education, the developer of the Math Techbook, is a global leader in standards-based digital content for K–12, transforming teaching and learning with award-winning digital textbooks, multimedia content, professional development, and the largest professional learning community of its kind. Discovery Education has contracted McREL, a leading international non-profit education research organization, to conduct the research study of the Algebra I/Math I Integrated Techbook.

WHAT?

Math Techbook is a digital math textbook designed to connect students to math through real-world problems worth solving. Using a balanced approach to instruction, Math Techbook combines conceptual understanding, procedural fluency, and application to potentially help all students develop a long-lasting mastery of mathematics. **For this study, we are inviting middle and high schools that have 8th- or 9th-grade Algebra I or Math I Integrated courses to participate. Once a school agrees to participate, McREL will randomly assign the school to either Cohort 1 or Cohort 2 groups. Although random assignment will occur at the school level, only Algebra I and Math I Integrated teachers and their students will participate in data collection for the study.**

Cohort 1 schools will use Algebra I or Math I Integrated Techbook, including embedded curriculum and assessments, in their Algebra I or Math I Integrated classrooms during the 2019–2020 school year, and will participate in the following professional learning and data collection activities:

- Algebra I/Math I teachers will complete 4 professional learning (PL) sessions as follows:
 - August – September 2019: Face-to-face Professional Learning Session Day 1 (6 hours)
 - October – December 2019: Virtual Instructional Support Session 1 (45-60 minutes)
 - January – February 2020: Face-to-face Professional Learning Session Day 2 (6 hours)
 - February – March 2020: Virtual Instructional Support Session 2 (45–60 minutes)
- Algebra I/Math I teachers complete an **online survey** of 15–20 minutes asking about perceptions on the quality, utility, and relevance of the program content and resources; feedback on the PL sessions; and students' exposure to Math Techbook resources
- Algebra I/Math I teachers administer a pre and post version of the **Attitudes Toward Mathematics Inventory (ATMI)** survey to all students (estimated timeframe: September 2019 and May 2020). The ATMI

- should take about 15 minutes to complete
- Algebra I/Math I teachers administer a pre and post **Algebra I or Math I Integrated assessment (provided by McREL; approximately 45 minutes to complete)** to all students (estimated timeframe: September 2019 and May 2020)

Cohort 2 schools will not use the Math Techbook resources during the 2019–2020 school year (they will receive the resources and accompanying professional learning during the 2020–2021 school year) but they will participate in the following data collection activities in the spring semester of the 2019–2020 year:

- Algebra I/Math I teachers will administer a pre and post version of the **Attitudes Toward Mathematics Inventory (ATMI)** survey to all students (estimated timeframe: September 2019 and May 2020); the ATMI should take no longer than 20 minutes to complete
- Algebra I teachers will administer a pre and post **Algebra I or Math I Integrated assessment (provided by McREL; approximately 45 minutes to complete)** to all students (estimated timeframe: September 2019 and May 2020)

WHEN?

Algebra I/Math I Integrated teachers in all participating schools (both treatment and delayed treatment) will participate in data collection during the 2019–2020 school year. Cohort 1 schools (all grade levels and math content) will receive access to Math Techbook, along with professional learning, beginning in the fall of the 2019–2020 school year and will have continuous access for 18 months as a part of study participation. Cohort 2 schools (all grade levels math content) will receive access to Math Techbook, along with professional learning, beginning in the fall of the 2020–2021 school year and will have continuous access for 18 months as a part of study participation.

WHY?

This study will contribute to the empirical knowledge base on the effectiveness of the Math Techbook resources and aims to provide educators with information that will help them select effective Algebra I/Math I Integrated resources for their students in grades 8 and 9.

How?

McREL will work collaboratively with all Cohort 1 and Cohort 2 school principals and Algebra I/Math I Integrated teachers regarding the study and expectations, and to schedule all data collection. Although principals will be asked to help recruit Algebra I/Math I Integrated teachers within their school, participation is completely voluntary, and individuals can stop participating at any time without consequence. Because this is not an evaluation of teachers or schools, there are no anticipated risks for participating in these data collection efforts.

BENEFITS?

We are aware of the many demands on educators' and students' time, and we appreciate schools working with us to conduct this study. We offer all participating schools — all grade levels and math content areas from both treatment and delayed-treatment schools — professional learning opportunities in mathematics instruction and continuous access to the Math Techbook resources for up to 18 months as a part of study participation. In addition, Algebra I/Math I Integrated teachers in Cohort 1 and Cohort 2 will receive up to a \$500 honorarium for their time to participate in the data collection activities (if allowable within the school/district policies related to compensation). After the 2019–2020 data

collection is completed, Discovery Education's Partner Engagement team will monitor use and support the participating teachers and schools as part of the extended study experience.

QUESTIONS?

For more information about the Math Techbook resource, please visit: <https://www.discoveryeducation.com/what-we-offer/techbook-digital-textbooks/math/>

For more information about the study or to sign up for participation, please contact the study coordinator, Betsy Callaway (bcallaway@mcrel.org; 303.632.5504) at McREL International.