

# DISCOVERY EDUCATION MATH TECHBOOK™

## EFFICACY STUDY

Discovery Education is offering middle and high schools an opportunity to use Math Techbook resources for up to 18 months as part of participating in an efficacy study of this digital learning solution. The study is designed to examine the impact of Discovery Education's Algebra I Math Techbook on students' attitude toward math and Algebra I achievement. Study participation involves Algebra I 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 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 8<sup>th</sup>- or 9<sup>th</sup>-grade Algebra I courses to participate. Once a school agrees to participate, McREL will randomly assign the school to either a treatment or delayed-treatment group. Although random assignment will occur at the school level, only Algebra I teachers and their students will participate in data collection for the study.**

**Treatment schools will use Algebra I Math Techbook, including embedded curriculum and assessments, in their Algebra I classrooms during the spring semester of the 2018–2019 school year, and will participate in the following professional learning and data collection activities:**

- Algebra I teachers will attend three **professional learning (PL)** sessions that are about six hours each. (Teachers of other mathematics courses – all grade levels and math content – in participating schools will also be invited to attend the PL sessions; estimated dates for three PL sessions are in December, January, and March). There will also be one additional session of job-embedded classroom support just for the participating Algebra I teachers.
- Algebra 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 teachers administer a pre and post version of the **Attitudes Toward Mathematics Inventory (ATMI)** survey to all students (estimated timeframe: January and May); the ATMI should take no longer than 20 minutes to complete
- Algebra I teachers administer a pre and post **Algebra I assessment (provided by McREL; approximately 15 minutes to complete)** to all students (estimated timeframe: January and May)

**Delayed-treatment schools will not use the Algebra I Math Techbook resources in the spring semester of the 2018–2019 school year** (they will receive the resources and accompanying professional learning in fall semester of the 2019–2020 school year) but they will participate in the following data collection activities in the spring semester of the 2018-2019 year:

- Algebra I teachers will administer a pre and post version of the **Attitudes Toward Mathematics Inventory (ATMI)** survey to all students (estimated timeframe: January and May); the ATMI should take no longer than 20 minutes to complete
- Algebra I teachers will administer a pre and post **Algebra I assessment (provided by McREL; approximately 15 minutes to complete)** to all students (estimated timeframe: January and May)

## WHEN?

Algebra I teachers in all participating schools (both treatment and delayed treatment) will participate in data collection in the spring of the 2018-2019 school year. Treatment schools (all grade levels and math content) will receive access to Math Techbook, along with professional learning, beginning in the spring of the 2018–2019 school year and will have continuous access for 18 months as a part of study participation. Delayed-treatment schools (all grade levels math content) will receive access to Math Techbook, along with professional learning, beginning in the fall semester of the 2019–2020 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 Algebra I Math Techbook resources and aims to provide educators with information that will help them select effective Algebra I mathematics interventions for their students in grades 8 and 9.

## How?

McREL will work collaboratively with all treatment and delayed-treatment school principals and Algebra I teachers regarding the study and expectations, and to schedule all data collection. Although principals will be asked to help recruit Algebra I 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 teachers in both treatment and delayed treatment groups will receive one session of job-embedded classroom support and a \$100 gift card for their time to participate in the data collection activities (if allowable within the school/district policies related to compensation). After the spring 2019 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 Algebra I Math Techbook resource, please visit: <https://www.discoveryeducation.com/what-we-offer/techbook-digital-textbooks/math/>

For more information, or how to express interest in participating in the study, please contact the study coordinator, Betsy Callaway ([bcallaway@mcrel.org](mailto:bcallaway@mcrel.org); 303.632.5504) at McREL International.