BIG IDEAS MATH®

Big Ideas Math®: Modeling Real Life for Grades K–8!

Ron Larson and Laurie Boswell used the latest in educational research to develop the *Modeling Real Life* series, along with the body of knowledge collected from expert mathematics educators. The pedagogical approach used in this program follows the best practices outlined in the most prominent and widely accepted educational research, including:

- *Visible Learning, John Hattie © 2009*
- *Visible Learning for Teachers, John Hattie © 2012*
- *Visible Learning for Mathematics, John Hattie © 2017*
- *Principles to Actions: Ensuring Mathematical Success for All, NCTM © 2014*

Grades K–5

Grades 6–8

NATIONAL GEOGRAPHIC LEARNING | CENGAGE

BIG IDEAS LEARNING®

Using Learning Intentions and Success Criteria to Improve Teacher Clarity

John Hattie developed a way of ranking various influences in different meta-analyses related to learning and achievement according to their effect sizes. He has now ranked over 250 influences that are related to learning outcomes from very positive effects to very negative effects.

In three of his meta-analyses, *Visible Learning*, V*isible Learning for Teachers*, and *Hattie 2015*, **Teacher Clarity** consistently had a 0.75 effect size on student learning. He found that the average effect size of all the interventions he studied was 0.40. Hattie's studies support the finding that the influence of **Teacher Clarity** amounts to almost 2 years' worth of learning. Therefore, it can be concluded that this teacher practice has a positive effect on student learning and achievement outcomes.

What is Teacher Clarity?

Effective teaching requires a clear understanding of what students need to accomplish mathematically. Clear learning goals focus the work of teaching and student learning. Teachers need to establish clear and detailed goals that indicate what mathematics students are learning, and they need to use these goals to guide decision making during instruction. *(NCTM Principles to Actions: Ensuring Mathematical Success for All)*

John Hattie's Visible Learning work outlines the effect size and growth that can be achieved when using learning targets and success criteria to provide clarity and understanding.

When students (and teachers) know the learning intention of a chapter and lesson sequence, it helps them to focus on the purpose of the activity, rather than simply completing the activities in isolation.

> *Effective Teaching Practices:*
> *Establish mathematics goals to focus learning.*
>
> *Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.*
>
> —NCTM's Principles to Actions: Ensuring Mathematical Success for All

How *Big Ideas Math: Modeling Real Life* puts Research into Practice Using Learning Targets and Success Criteria

The learning target helps students be aware of what they should learn from the chapter or lesson. Clearly stated learning targets form the basis for assessing what the students have learned and assessing what teachers have taught well to students.

Clarity of learning targets and explicit sharing of them with students are essential for them to become engaged and motivated to achieve progress in their learning. Students are clear about what is expected of them.

Success criteria are the measures used to determine whether, and how well, students have met the learning targets. The success criteria are the guideposts that enable students to self-assess: Am I succeeding in my learning?

A learning target and success criteria are provided for **each chapter** from K-8. When students (and teachers) know the learning target of a chapter sequence, they can focus on how each activity builds to the overall objective, rather than simply completing the activities in isolation.

Laurie's Notes give specific language, questions, or suggestions for making an explicit connection between what students have experienced and one or more success criteria. The more teachers integrate this language into their instructional routine, the more natural it will become. More importantly, students will be successful in their learning. They will be clear about what they are learning and where they are going.

A learning target and success criteria are provided for **each lesson** from K-8 as well. The importance of using a learning target at the beginning of each lesson tells the students and teachers what the students should know, understand and be able to do. The success criteria help students and teachers decide whether the students have in fact achieved the learning target.

Big Ideas Math: Modeling Real Life supports **Teacher Clarity** through the consistent use of learning targets and success criteria. Along with implementation support from Big Ideas Learning and National Geographic Learning, this ensures positive outcomes for student learning and achievement in mathematics.

K–12 Programs

Big Ideas Math programs offer a seamless articulation from elementary through high school. With a consistent author voice from level to level, students make connections through cohesive progressions and rich instruction.

Big Ideas Math uses a balanced approach to engage students' inquiring minds and empower them to become mathematical thinkers in their daily lives.

Big Ideas Math: Modeling Real Life for Grades K–5

Common Core edition available for Grade K through Algebra 2.

Big Ideas Math: Modeling Real Life for Grades 6–8
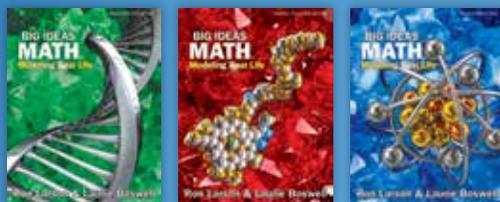
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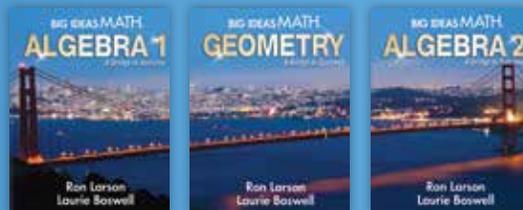
Grades 9–12
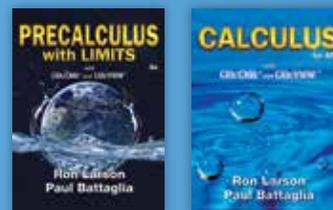
Precalculus / AP® Calculus

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