EdGems Math

EVIDENCE-BASED RESEARCH

EdGems Math is a middle school math program that aids teachers in delivering mathematics instruction based upon evidence-based research. Our comprehensive program provides clarity to teachers to ensure that instruction is well-rounded and fully aligned to state mathematical standards. A variety of tools are provided which allow teachers to balance explicit instruction, student participation, collaboration, and student reasoning while ensuring that students' learning experiences are differentiated. Powerful assessment tools provide formative and summative data to inform instruction.

> **Teacher clarity is one of the most potent influences on student achievement.**
>
> *- Hattie, 2008*

Teacher Guide **Lesson Presentation** **PD Library** **Lesson Video**

Every lesson helps teachers clarify what they are teaching.

- Clearly stated learning intentions and goals clarify for teachers what student success looks like.

- Standards are communicated to teachers in a variety of ways with additional information on correlations and connections.

- Key vocabulary is defined and introduced in the context of the lesson and students' previous learning.

- Teachers are provided a clear yet flexible learning progression for each lesson.

- Specific examples of "Teacher Moves" and "Student Moves" are provided for each lesson to help teachers bring the Mathematical Thinking & Reasoning Standards to life in the classroom.

Explicit instruction is the most important factor affecting student success.

- Marzano, 1998

Teacher Guide   **Lesson Video**   **Lesson Presentation**

Within every lesson, worked examples demonstrate the steps required to complete a task or solve a problem.

Example 1

Solution

Find the value of $\frac{4}{5} \times \frac{2}{3}$ using a model.

Draw a rectangle and divide it into thirds horizontally. Shade two of the three sections with blue.

Divide the rectangle vertically into fifths. Shade four of the five vertical sections with yellow.

Either fraction can be drawn first without affecting the product.

There are 8 sections shaded twice out of 15 total sections.

$\frac{8}{15}$

The fraction is in simplest form, so $\frac{4}{5} \times \frac{2}{3} = \frac{8}{15}$.

Student Lesson

Example 2

Rafael had $\frac{3}{4}$ liter of water. He drank two-thirds of the water. How many liters did he drink?

$\frac{3}{4}$ liters

$\frac{2}{4} = \frac{1}{2}$ liters

Lesson Video

Example 4

Find the value of $\frac{1}{8} \times \frac{4}{7}$.

Find the greatest common factor of a numerator and a denominator. The GCF of the numerator (4) and the denominator (8) is 4.

Divide the numerator and denominator. Write the factor above or below each number in the fractions.

Simplifying before multiplying means the product will not need to be simplified.

$\frac{1 \times 1}{2 \times 7} = \frac{1}{14}$

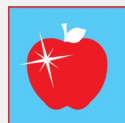$\frac{1}{8} \times \frac{4}{7} = \frac{1 \times 4}{8 \times 7}$

Lesson Presentation

It is critical for students to develop a mathematical mindset so they can approach learning with confidence and a desire to develop understanding.

- Boaler, 2018

Explore!   **Teacher Gems**   **Fluency Board**   **Student Lesson**   **Target Tracker**
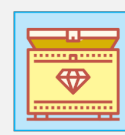
Performance Tasks   **Tic Tac Toe**   **Rich Tasks**   **Student Gems**

Meaningfully involving students in their education can increase their academic achievement, motivation, effort, participation, and engagement in learning.
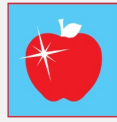
- Anderson, 2010

Collaborative learning helps students achieve better results.

- Chappelle, et al, 2013

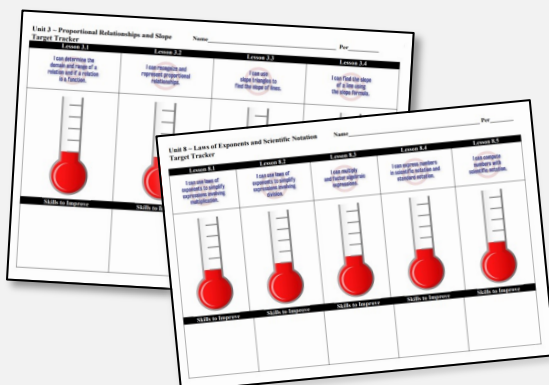**Explore!**   **Teacher Gems**   **Rich Tasks**   **Student Gems**   **Tic Tac Toe**

Reasoning and justifying ideas encourage learners to represent their thinking and share a variety of solutions. *- Dweck, 2006*

Student self-assessment is an important tool for improving academic performance and self-efficacy.

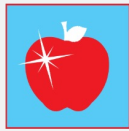*- Rolheiser and Ross, 2001*

Target Tracker

> **Students are more responsive and find it more satisfying if they are taught in ways that are responsive to their readiness levels.**
>
> *- Vygotsky, 1986*

Teacher Gems **Proficient Practice** **Tiered Practice** **Challenge Practice**

> **The major purpose of assessment is to provide teachers with interpretive information about their impact on students.**
>
> *– Hattie, 2008*

Fluency Board **Exit Card** **Online Practice** **Performance Tasks** **Assessments** **Tiered Assessments**

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