

GRADE 8 MATH

Family Letter

We'd like to introduce you to the Open Up Resources Mathematics curriculum. This problem-based curriculum makes rigorous middle school mathematics accessible to all learners.

What is a problem-based curriculum?

In a problem-based curriculum, students spend most of their time in class working on carefully crafted and sequenced problems. Teachers help students understand the problems, ask questions to push their thinking, and orchestrate discussions to be sure that the mathematical takeaways are clear. Learners gain a rich and lasting understanding of mathematical concepts and procedures and experience applying this knowledge to new situations. Students frequently collaborate with their classmates—they talk about math, listen to each other's ideas, justify their thinking, and critique the reasoning of others. They gain experience communicating their ideas both verbally and in writing, developing skills that will serve them well throughout their lives.

This kind of instruction may look different from what you experienced in your own math education. Current research says that students need to be able to think flexibly in order to use mathematical skills in their lives (and also on the types of tests they will encounter throughout their schooling). Flexible thinking relies on understanding concepts and making connections between them. Over time, students gain the skills and the confidence to independently solve problems that they've never seen before.

What supports are in the materials to help my student succeed?

- Each lesson includes a lesson summary that describes the key mathematical work of the lesson and provides worked examples when relevant. Students can use this resource if they are absent from class, to check their understanding of the day's topics, and as a reference when they are working on practice problems or studying for an assessment.
- Each lesson is followed by a practice problem set. These problems help students synthesize their knowledge and build their skills. Some practice problems in each set relate to the content of the current lesson, while others revisit concepts from previous lessons and units. Distributed practice like this has been shown to be more effective at helping students retain information over time.
- Each lesson includes a few learning targets, which summarize the goals of the lesson. Each unit's complete set of learning targets is available on a single page, which can be used as a self-assessment tool as students progress through the course.
- Family support materials are included several times in each unit. These materials give an overview of the unit's math content and provide a problem to work on with your student.

**What can my student do to be successful in this course?**

Learning how to learn in a problem-based classroom can be a challenge for students at first. Over time, students gain independence as learners when they share their rough drafts of ideas, compare their existing ideas to new things they are learning, and revise their thinking. Many students and families tell us that while this was challenging at first, becoming more active learners in math helped them build skills to take responsibility for their learning in other settings. Here are some ideas for encouraging your student:

- If you're not sure how to get started on a problem, that's okay! What can you try? Could you make a guess? Describe an answer that's definitely wrong? Draw a diagram or representation?
- If you're feeling stuck, write down what you notice and what you wonder, or a question you have, and then share that when it's time to work with others or discuss.
- Your job when working on problems in this class is to come up with rough-draft ideas and share them. You don't have to be right or confident at first, but sharing your thinking will help everyone learn. If that feels hard or scary, it's okay to say, "This is just a rough draft..." or "I'm not really sure but I think..."
- Whether you're feeling stuck or feeling confident with the material, listen to your classmates and ask them about their ideas. One way that learning happens is by comparing your ideas to other people's ideas, just like you learn about history by reading about the same events from different perspectives.
- At the end of class, or when you are studying, take time to write some notes for yourself. Ask yourself, "Do I understand the lesson summary? Do the learning targets describe me?" If not, write down a sentence like, "I understand up to... but I don't understand why..." Share it with a classmate, teacher, or other resource who can help you better understand.

We are excited to be able to support your student in their journey toward knowing, using, and enjoying mathematics.