

4 STEPS TO MATH SUCCESS

Curriculum that Impacts Student Achievement

At ORIGO, we believe that every student can learn math and that all students should have access to a high quality, standards-aligned program that supports a deep conceptual understanding of math. Elementary students bring a variety of skills, competencies, and attitudes to learning math. That's why we have designed our *Stepping Stones 2.0* program to support different learning styles and preferences, so that every student can reach that wonderful "ah-ha" moment when learning clicks.



Too many elementary math programs still rely on teaching a process that reaches only a portion of the students in the classroom. If you have students in your class who just don't get it, you may be using one of these programs. Perhaps you've noticed that students can use a memorized formula and get the correct answer, but don't truly understand how they got the answer, making it difficult for them to apply what they "learned" to more complex equations or real-life problems. Again, this may be due to pedagogical approach of the math materials you are using.

Math is a discipline that builds upon itself—students need to have a strong understanding of basic concepts before moving on to increasingly more complex content. This means that math must be taught in a way that allows students to develop a strong conceptual understanding. *Stepping Stones 2.0* four-step, staged learning model—introduction, reinforcement, practice, and extension—provides a learner-friendly, logical instructional pace, helping students master concepts and cement knowledge. This approach gives students a deep understanding of the math underlying the concept so that they feel powerful in their math skills and knowledge, able to tackle new concepts confidently. Furthermore, ORIGO's staged-learning model supports all 8 of the Standards for Mathematical Practice.



The Four Stages of Learning Mathematics Skills

1

Step 1: Introduction

Students encounter new skills by employing concrete and pictorial models that help them “see” the math and use context to make learning meaningful and relevant. At this stage, students begin to lay down an understanding of the underlying concepts. (Math Practices 1, 5)

2

Step 2: Reinforcement

Games and activities help students internalize their thinking and connect the visual models used to introduce new concepts to the symbolic representations of the practice stage. This critical step, often overlooked in traditional programs, allows students to explore multiple representations to make sense of a given problem. They may use fraction pieces, base-10 blocks, or drawings. They may start with counters and realize that the problem can be more effectively solved with a number line or by writing a number sentence. It’s at this stage that students further cement their understanding and move toward abstract reasoning. (Math Practices 1, 3, 4, 5, 7)

3

Step 3: Practice

Students frequently practice skills with symbols and in short time periods to help them develop accuracy and speed. This stage also improves students’ ability to quickly retrieve information and reinforces math fluency. (Math Practices 1, 2, 6)

4

Step 4: Extension

Students have multiple opportunities to apply their skills to new situations, which often involve greater numbers. At this stage, students are showing true mastery by applying what they have learned to connected, but more complex problems. (Math Practices 2, 3, 4, 7, 8)

Stepping Stones 2.0 four-staged learning model is supported by a [spaced-learning approach](#). Spaced learning—distributing short teaching sessions of a particular skill over time—allows students to practice skills and cement learning. Most elementary math programs rely on a massed learning approach, where students learn and then practice mathematical concepts numerous times during a relatively short period and then move on to new material. Unfortunately, this approach makes it difficult for students to retain learning, meaning that you often end up completely reteaching previously covered concepts.



Benefits of the Four Stages of Learning Model

This carefully architected approach:

- Organizes content so students and teachers can see how ideas build upon one another.
- Incorporates Piaget’s theory of development, which John Hattie’s Visible Learning research shown has an effect size of 1.28, tripling the rate of learning.
- Supports different learning styles and preferences so that all students can learn high-level math.
- Provides students with a deep understanding of the math concepts behind the skills.
- Presents students with multiple approaches and strategies to solve any given problem.
- Provides students with the opportunity to use multiple representations, cementing learning.
- Teaches students how to apply reasoning toward problems, allowing them not only to tackle classroom math but also to solve real-world problems.
- Creates opportunities for rich classroom discourse.
- Encourages productive struggle as students grapple with mathematical ideas and relations.
- Presents students with meaningful and scaffolded practice that allows them to own their learning, building confidence and agency.
- Supports learning retention and mastery of standards-based, grade-level requirements.
- Immerses students in a way of doing math that is fun and motivating.

What Do Educators Say?

“What’s different about *Stepping Stones* is the intentionality of building in the research into how the program is structured, it provides teachers with an understanding of why they are teaching what they are teaching, where it’s coming from, and where it’s headed. The intentionality of the scope and sequence is also unique and once again provides an understanding of how the program builds from module to module and grade level to grade level.”— *Assistant Superintendent of Curriculum and Instruction*

“Using *Stepping Stones* in all our elementary schools at all levels from Pre-K–6th grade ensures that all our students have the same opportunity to learn. Our vision was to implement a program that increased high-level mathematics understanding and helped students and teachers love math. It is so exciting to see our vision become a reality.” — *Coordinator of Instruction for Mathematics*



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