

*It is our mission to make learning mathematics meaningful, enjoyable, and accessible for all.*

The development of all ORIGO resources, including *Stepping Stones 2.0*, is grounded in our mission and beliefs.

### ***We believe:***



*Learning is a social process that requires language and discourse*



*Students who develop strong thinking, problem-solving, and communication skills grow into productive, innovative members of society.*



*Content taught conceptually, and in a logical, learner-friendly sequence develops deep understanding and success*



*Technology empowers rather than replaces teachers*

### **Development of *ORIGO Stepping Stones 2.0***

Mathematics requires the teaching of concepts and skills that are closely interconnected. Our instructional approach builds on students' natural ability to develop understanding and number sense. It helps students avoid misconceptions and promotes confidence with efficient thinking strategies. It also cements concepts and skills with games and practical applications.

### **Spaced Teaching and Practice Approach**

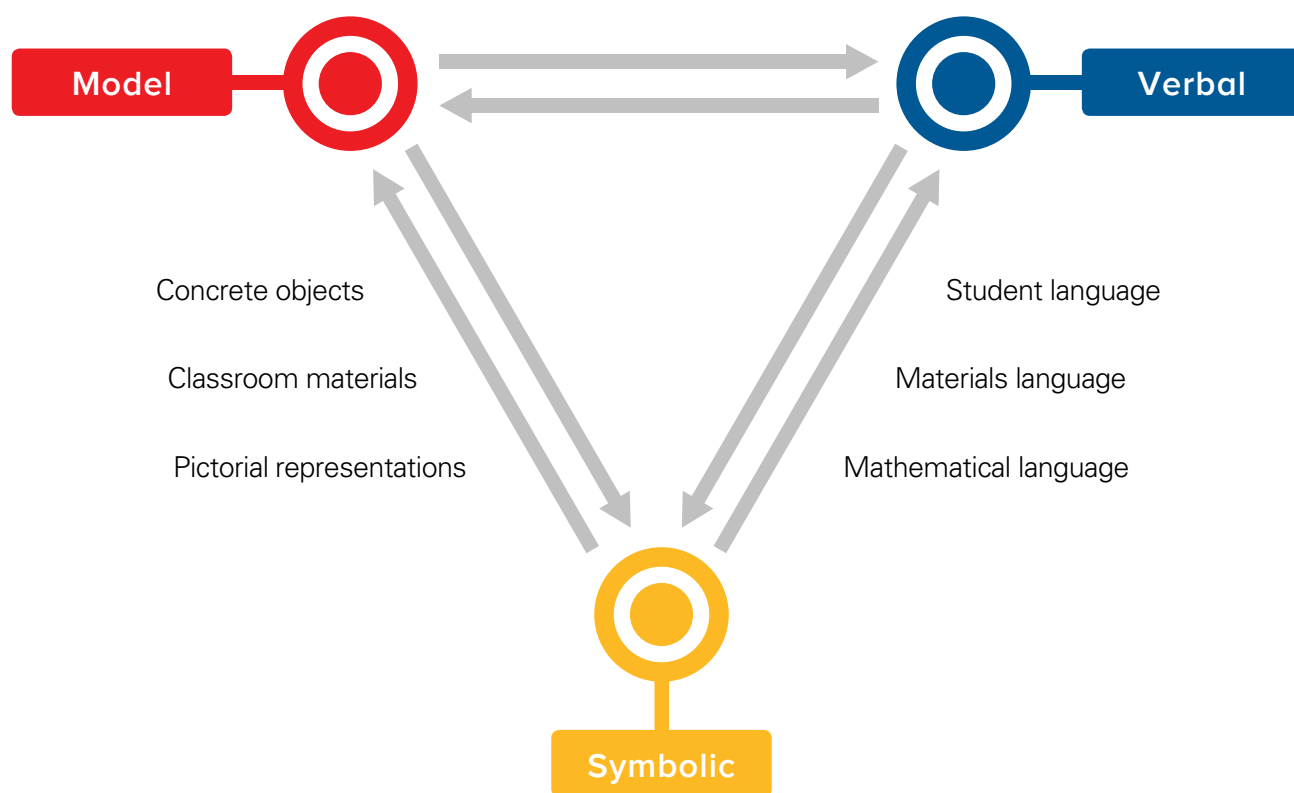
An effective curriculum must carefully build a structure of understanding so that all prerequisite topics are in place before subsequent topics are connected. Without these careful connections, learning is largely superficial.

In *Stepping Stones*, key ideas and skills have been identified and placed in smaller blocks. These blocks, or "spaced teaching and practice experiences," are spread out across the whole school year. In the lessons that follow, work is included to master what was taught alongside the other content development. When students come to a new topic, it can be easily connected. Although practice is an essential component of any mathematics curriculum, *Stepping Stones* requires less practice time as key ideas are revisited through purposeful practice during everyday lessons.

### Approach to Teaching Concepts

Mathematics involves the use of symbols, and a major goal of a program is to prepare students to read, write, and interpret these symbols.

*ORIGO Stepping Stones* introduces symbols gradually after students have had many meaningful experiences with a model ranging from real objects, classroom materials, and 2D pictures, as shown on the left side of the diagram below. This allows students to develop conceptual understanding of the ideas represented by the symbols first. Symbols are also abstract representations of verbal words, so students move through distinct language stages.



This approach serves to build a deeper understanding of the concepts underlying abstract symbols. In this way, *Stepping Stones* better equips students with the confidence and ability to apply mathematics in new and unfamiliar situations.

## Language Approach

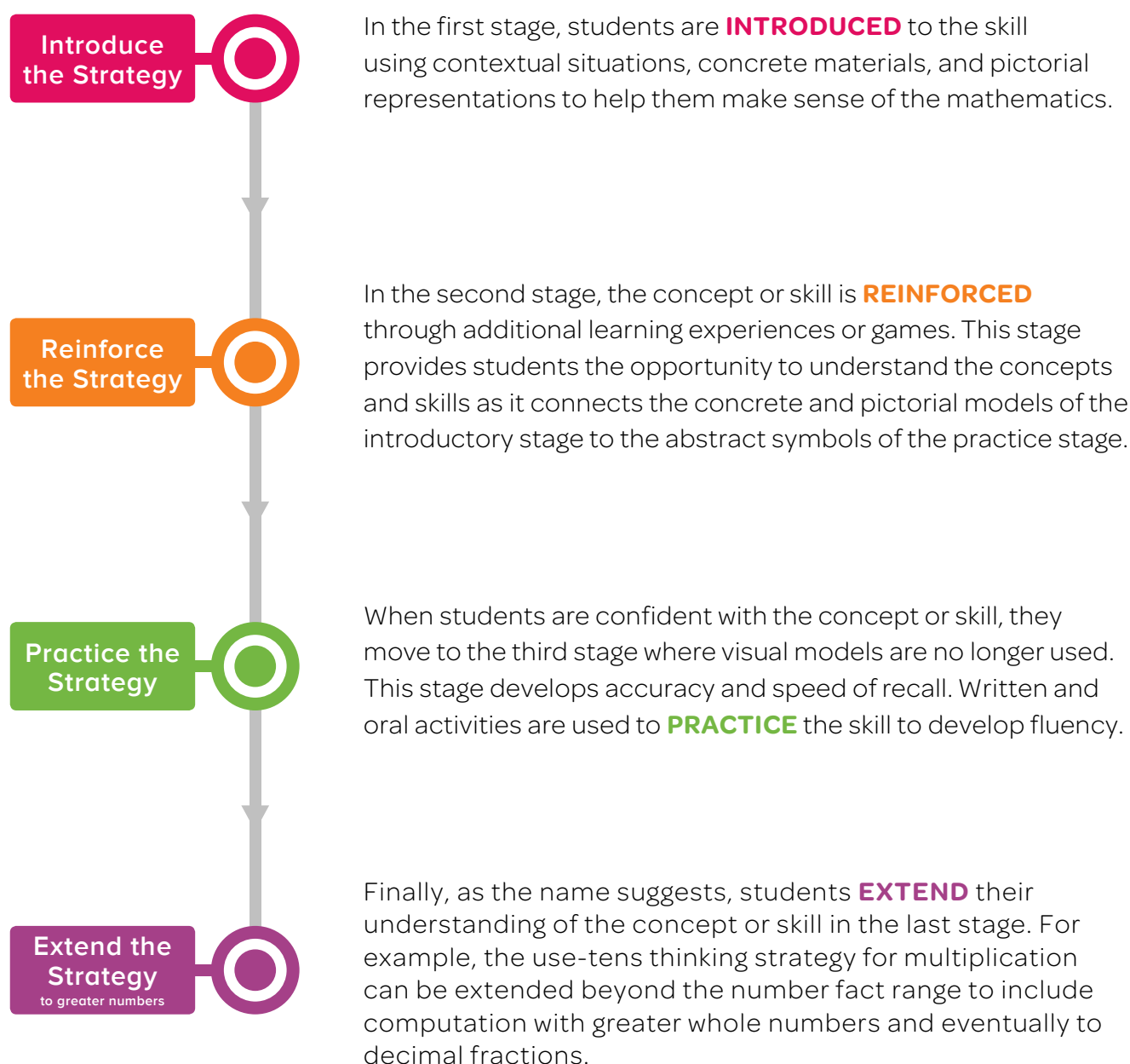
Research tells us that young students need an understanding of mathematical concepts that involve more than just the symbolic notation used to record them. In fact, the authors believe instruction should provide stages of language development (shown on the right side of the diagram above) to ensure a deep understanding of mathematical concepts. Because language is the tool that learners use to connect new ideas to existing ideas, *Stepping Stones* embeds a developmental sequence for teaching it.

- 1) **Student Language Stage.** In the first stage, children are encouraged to use their own natural language to describe the mathematical concepts. For example, to describe situations involving subtraction students may use the words, “eat,” “break,” “jump away,” “swim away,” or “spend.” Teachers should demonstrate this language and use real-world stories and illustrations to stimulate the use of this rich and meaningful language.
- 2) **Materials Language Stage.** The student language broadens as children begin to act out stories and problems using classroom resources. This stage includes language that is unique to the resources being used. For example, when acting out subtraction stories with concrete, hands-on resources new language such as “cover up” or “take away” may be introduced. Similarly, if pictures are being used, the students may say “cross out” or “erase” in the context of subtraction.
- 3) **Mathematical Language Stage.** At this stage, students begin to exhibit mathematical precision in their language. For example, in the context of subtraction, students will use the term “subtract” and eventually “minus.” Similarly, in reference to two-dimensional shapes, students will start to say “vertex” to describe what they may have once called a “pointy corner.” The language at this stage is often considered to be unique to mathematics.
- 4) **Symbolic Language Stage.** In this final stage, students are introduced to the symbols or notation of that concept. Therefore, with subtraction, they learn that the “minus” sign is an abbreviation for all the language of the previous stages.

It is important to remember that students don’t “move through” the stages as such. Rather, they begin by using their own natural language. Then, as we act out those stories in the classroom, we **add to** their language and mental picture of the concept. Then we **add more** mathematical and, finally, symbolic language to build a deeper and more comprehensive understanding of the concept.

### Approach to Teaching Skills

Current standards typically call for students to develop procedural fluency and basic computational skills based on physical and visual models, place-value-linked strategies, and mathematical reasoning. In other words, students are expected to know how to figure out the answer (and why that method works) rather than simply memorizing facts on flash cards. ORIGO believes that students master skills over time as they engage in four distinctly different stages of activities.



### Evidence of Efficacy

At ORIGO Education, every resource, solution, and service we provide is based on research. We know our products work because the research behind each one proves its basis. To evaluate the effectiveness of the *ORIGO Stepping Stones 2.0* program, we examined a number of data sets from various school districts who have implemented the program.

As part of the examination, we sought answers to three major questions:

1. What is the impact on overall student achievement in Mathematics?
2. What is the impact as it applies to the special-needs population specifically?
3. What is the impact as it applies to other at-risk student populations, including those with Limited English Proficiency and Economically Disadvantaged students?

[The research basis of our products and results of these studies can be found here.](#)

### Supplemental Services

ORIGO Education provides supplemental services, including both embedded and on-site professional learning. Embedded within *ORIGO Stepping Stones* is a growing library of professional learning videos on contemporary elementary school mathematics. ORIGO MathEd is an invaluable resource that provides teachers ongoing access to a growing library of professional learning videos. These informative sessions provide teachers with the practical skills to help develop deeper understanding of the mathematical standards and practices in the classroom.

ORIGO Education believes, and research confirms, that having a mathematics curriculum and resources program that provides positive outcomes for students, teachers, and the school community starts with an effective implementation. We leverage the work of the National Implementation Research Network best practices and frameworks around four stages of the implementation process: Exploration, Installation, Initial Implementation, and Full Implementation. ORIGO Education has taken the lead to use the science of implementation to help schools and districts offer *ORIGO Stepping Stones* with fidelity.

### In Summary

*ORIGO Stepping Stones 2.0* is a world-class mathematics program, built from a solid foundation of research, which embeds strategic approaches toward language and concept development. Formal and informal studies continue to indicate that students of teachers who effectively implement *Stepping Stones* achieve greater results than their peers. Through careful sequencing of content, proven instructional design, and engaging professional learning, ORIGO Education is committed to making mathematics meaningful, enjoyable, and accessible for all. [Please contact us to learn more about \*ORIGO Stepping Stones\* and how we can partner to meet your elementary mathematics needs.](#)