STEMscopes™
MATH

STEMscopes Math

Research & Philosophical Approach

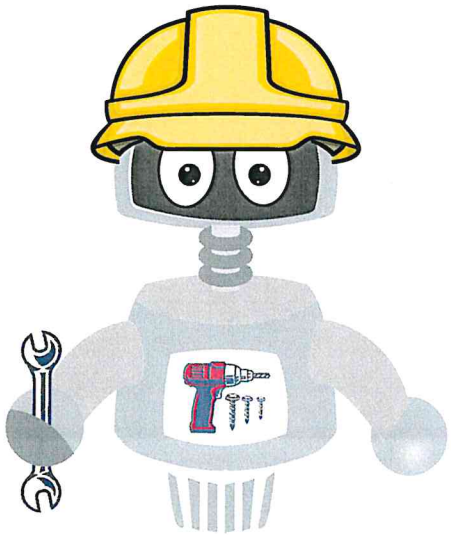
STEMscopes MATH

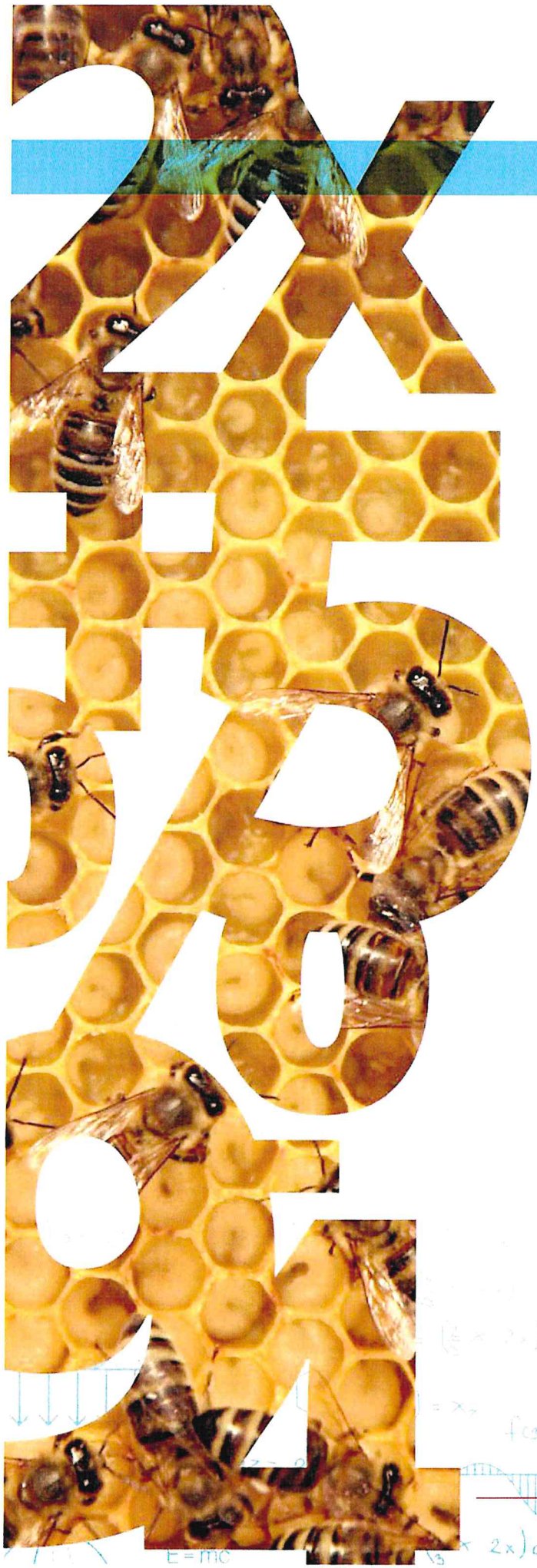
LEARNING WITHIN REAL-WORLD, RELEVANT CONTEXT

STEMscopes Math Elements

In STEMscopes Math, student learning is rooted in real-world scenarios. The **Hook , Explore Activities,** and **Problem Based Tasks** engage students throughout the learning process in relevant situations where the math skill is needed.

Math Today! provides students with authentic news media from the Associated Press. Students are prompted to see how math is involved in various events around the world.





CONCEPTUAL UNDERSTANDING AND NUMBER SENSE

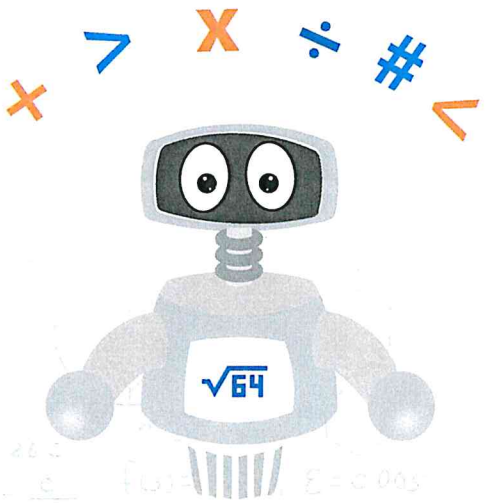
STEMscopes Math Elements

The **Fact Fluency** program develops student automaticity with basic facts by building on their conceptual understanding of the four operations.

The **Explore Activities** focus first on conceptual understanding before moving on to abstract representations and processes.

In order to reason mathematically, students must understand why different representations and processes work. After developing this understanding in the **Explore**, students complete the **Decide and Defend** reasoning assessment where they are prompted to write out an argument using mathematical evidence and reasoning.

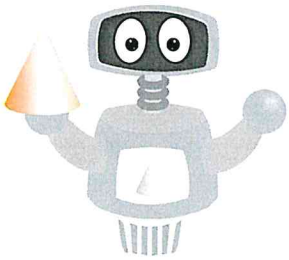
If a student has not yet achieved mastery, teachers can use the **Small Group Intervention** activity to revisit the conceptual foundation in order to build student understanding.

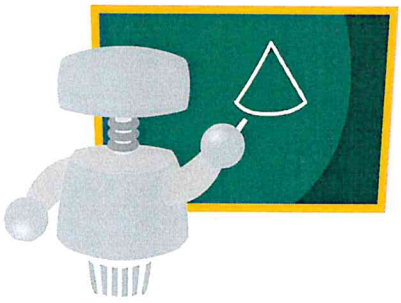


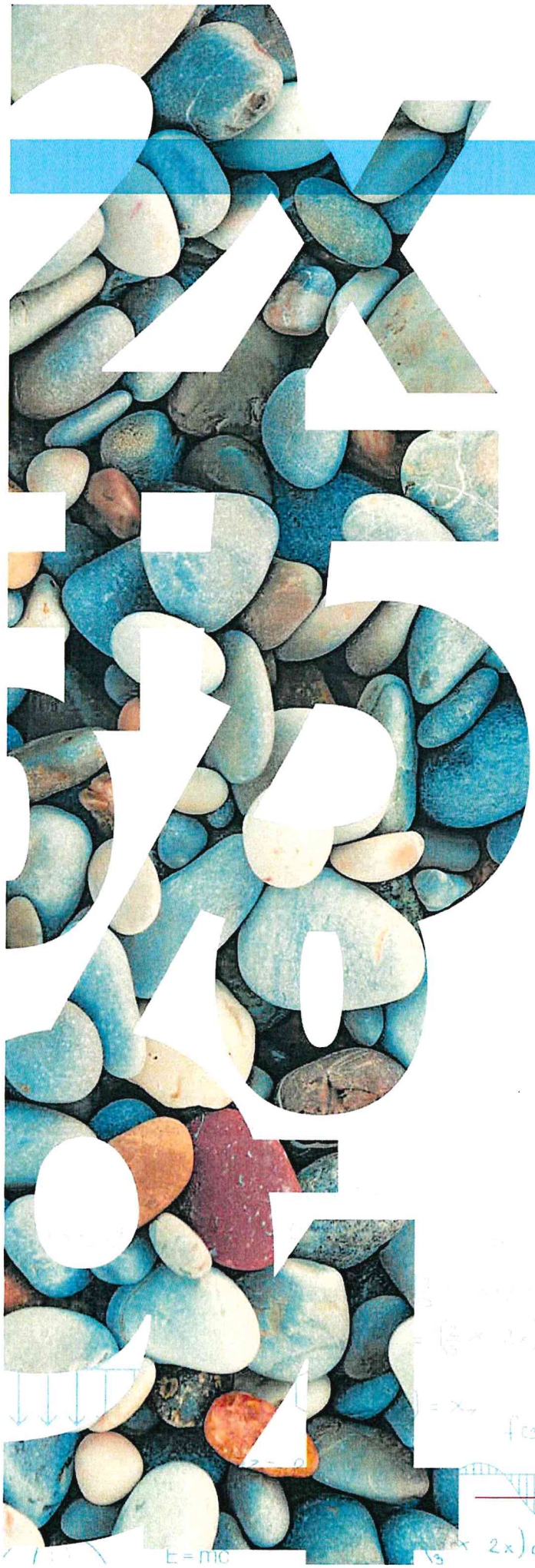
CRA APPROACH

STEMscopes Math Elements

As students progress through the **Explore Activities**, they will transition from hands-on experiences with concrete objects to representational, pictorial models, and ultimately arrive at symbolic representations, using only numbers, notations and mathematical symbols.







USING MANIPULATIVES

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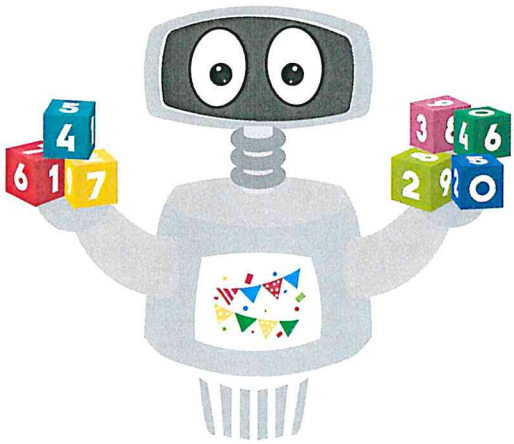
The **Hook** and **Explore Activities** provide thorough facilitation strategies for teachers to use manipulatives in their classroom in a way that is engaging and meaningful. The way these activities are scaffolded allows students to reduce their dependence on manipulatives over time.



COLLABORATIVE EXPLORATION

STEMscopes Math Elements

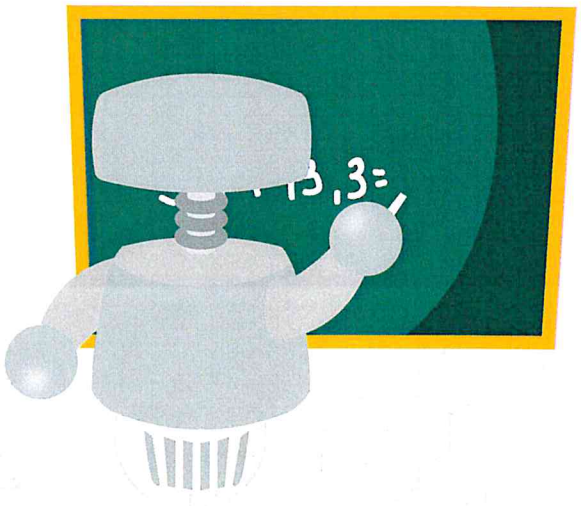
Most of the elements in STEMscopes Math involve student collaboration and require a learning community within the classroom. In the **Hook** and **Explore Activities**, students work together to gain an understanding of a new math concept. These activities include teacher guidance for facilitating math discussions. In the **Problem Based Task**, students work together to use the new skills they just learned. Each of these elements prompts students to communicate their understanding and evaluate the reasoning of others.

COMPUTATIONAL FLUENCY

STEMscopes Math Elements

Students are provided with multiple opportunities to practice skills using a variety of strategies. The **Show What You Know** activity allows students to demonstrate understanding and practice a new skill after exploring the concept.

The entire **Elaborate** section provides several options for student practice. The **Spiraled Review** activities engage students in practice through games or independent activities. In **Math Stories**, students will practice finding the information they need to solve a problem while practicing the new skill. The **Problem Based Task** provides a more rigorous opportunity for students to practice within real-world context. In each practice opportunity, students have the flexibility to use different processes and strategies to reach a solution. Students will develop fluency as they become more efficient and accurate in solving problems.

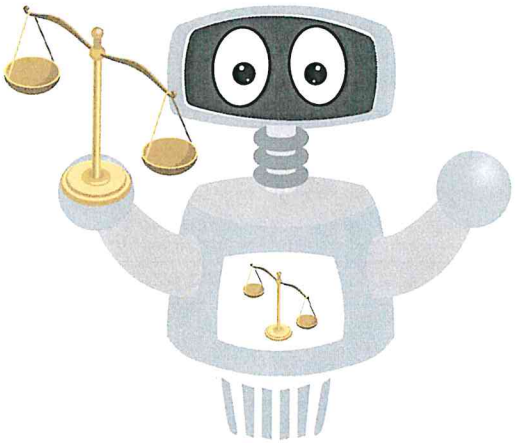


PROMOTING EQUITY

STEMscopes Math Elements

Implementing STEMscopes Math in the classroom provides access to high quality, challenging learning opportunities for every student. The activities within the program are scaffolded and differentiated so that all students find the content accessible and challenging.

The emphasis on collaborative learning within the STEMscopes program promotes a sense of community in the classroom where students can learn from each other.



CONTENT KNOWLEDGE OF TEACHERS AND PARENTS

STEMscopes Math Elements

STEMscopes Math provides **Content Support** for teachers or parents who need additional background knowledge in order to fully support their student's understanding. This element will include why a concept is being taught a certain way by explaining what the students have already learned and giving insight to the concepts students will learn next.