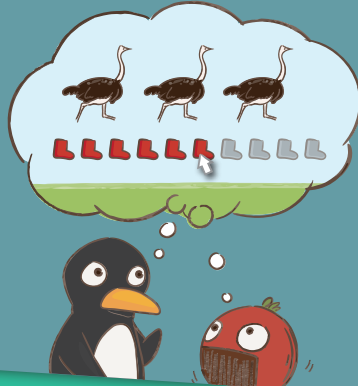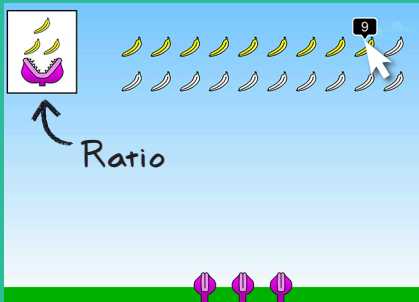# ST Math®

VISUAL LEARNING TRANSFORMS ELL MATH EDUCATION

All students, regardless of language proficiency level, have the ability to think deeply about mathematical concepts. However, when math is presented only as words and numbers on a page, English language learners can miss out on crucial opportunities to understand the meaning behind the math.
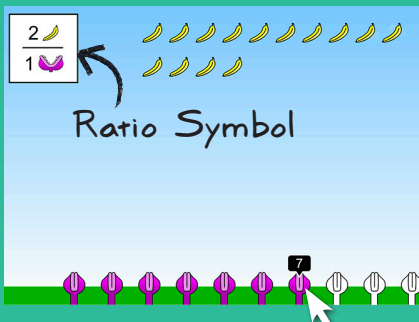
The ST Math game-based learning program guides students at all language proficiency levels in visualizing math concepts through tantalizingly tricky puzzle challenges.

How It Works...

1 Visually Present Math Concepts

The game visually asks the ratio question: "If each purple fruit monster eats 3 bananas, how many bananas will 3 monsters eat?"
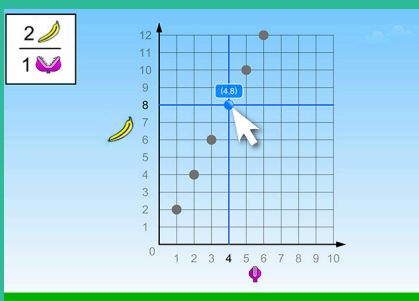
2 Introduce Mathematical Symbols

Using the division bar, the visual asks: "If each monster eats 2 bananas, how many monsters will eat 14 bananas?"

3 Introduce Language

Students learn the language for stating ratios.

4 Transfer Learning to New Concepts

Students learn that ratios are used in linear relationships.

Visual Learning Activates the Mind

Designed by experts in neuroscience, the ST (Spatial-Temporal) Math brain-building games provide all students the opportunity to become confident and capable problem solvers and to reach higher levels of math achievement. Research shows that:

- Mathematics learning and performance is optimized when the areas of the brain that work with visual and spatial information are activated.

- Teaching students through visual experiences improves math performance significantly, even on symbolic or language-heavy tasks.

Schools using ST Math have doubled - or - tripled their growth in math proficiency
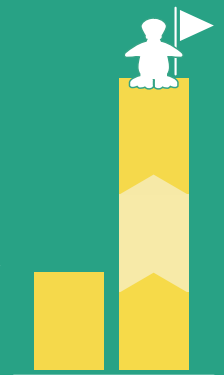
ST Math Provides All Students with
Transformative Learning Experiences

The Power of Visual Learning
Interactive visual models let all students engage in complex mathematical problem solving. Students receive comprehensible input on screen, without unnecessary distractions, that guides them in constructing the meaning behind the math.

Intrinsic Motivation for Problem Solving
ST Math leverages students' love for gameplay to foster an enthusiasm for mathematical problem solving.

Scaffolded Learning Paths
Carefully constructed math content sequences gradually introduce mathematical symbols and language while increasing the level of rigor in order to expand students' schema of knowledge.

Immediate and Informative Feedback
Richly animated puzzles show students the consequences of a chosen solution immediately after each attempt. This real-time feedback activates the mind's natural perception-action learning cycle, allowing students to adjust their thinking and learn from mistakes.
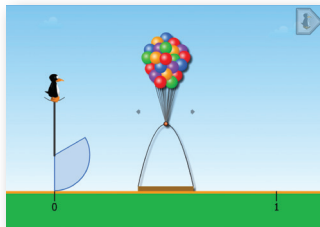
Curriculum Connections
ST Math aligns to mathematical content and practice standards for each state. Teachers receive the instructional support they need to facilitate deep and engaging learning experiences.
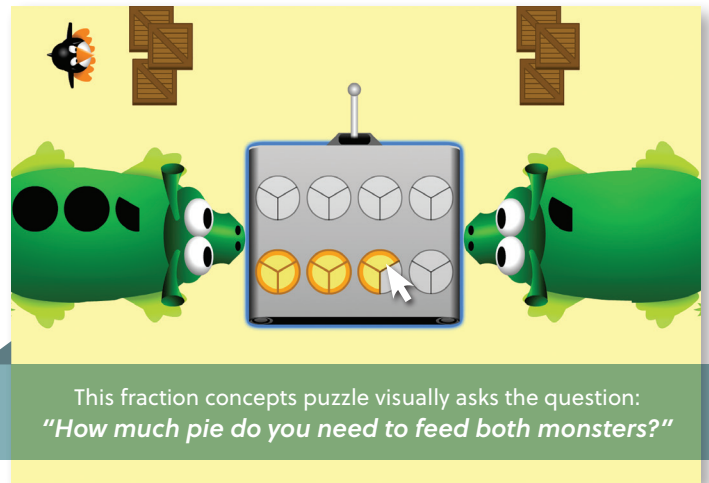

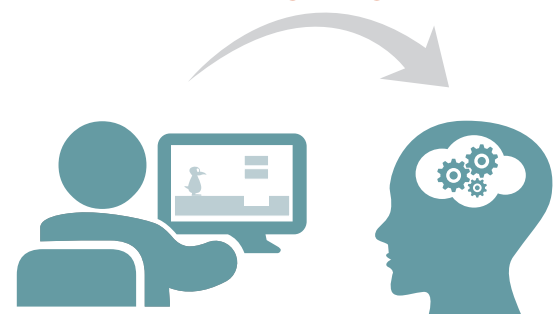This fraction concepts puzzle visually asks the question:
"How much pie do you need to feed both monsters?"

PERCEPTION

ACTION

Find Out More About ST Math

Watch **Teaching Without Words**
bit.ly/visualmath

Play the **ST Math Demo**
bit.ly/STMathDemo

mindresearch.org | 888.751.5443 | info@mindresearch.org
f JiJiMath   @MIND_Research

MIND Research Institute
A neuroscience and education social benefit organization