ST Math Background

The ST Math® instructional software is a research-proven, comprehensive, grade-level math program that utilizes spatial-temporal (ST) reasoning to teach math concepts that are aligned to Common Core and state standards. Spatial-temporal reasoning is the innate ability to visualize and manipulate images through a sequence of steps in space and time — a process critical to solving problems in math, science, and other curricular areas.

ST Math's innovative visual learning approach not only helps differentiate instruction to reach students of all levels of academic and language proficiency, but also engages students who struggle to learn with traditional materials and methods. The program includes hundreds of language-independent computer games that promote mastery-based learning and mathematical understanding. It can be used to complement any textbook and classroom instruction, and offers self-paced learning, instructive feedback, and data-driven reports.

Visual Learning

Enables students to make predictions about the visual models and to "learn by doing" based on the feedback that adapts to each student answer, showing why the solution was correct or incorrect.

Real-time Informative Feedback

Teaches students mathematical concepts through manipulating interactive visual models found in ST Math's richly animated games to solve problems.

Learning Paths

Provide carefully structured sequences of math content that move from the visual models to incorporating mathematical symbols and language, scaffolding to move students through with a desirable level of difficulty.

Intrinsically Motivating Problem Solving

Builds students' intrinsic motivation as they experience success in solving challenging problems, making learning math fun as students experience success and take ownership of their learning.

Who Is JiJi?

JiJi is the beloved penguin in the ST Math software games. Students help JiJi get past obstacles by solving math puzzles – and they associate JiJi with challenge, learning and the thrill of success. Every time a student demonstrates understanding of a math concept, JiJi crosses the screen, signaling success and leading the student to the next more challenging puzzle.

Teach Without Telling

About ST Math

Making sense of ST Math puzzles starts with analyzing the visual feedback provided within each game. Teachers should help students, not by providing answers, but by using the Think Before You Click process to analyze unfamiliar or difficult games. This process encourages independent problem solving among students and helps teachers see how the games connect to classroom curricula. This means that ST Math games are powerful not only for independent student learning, but as classroom instructional tools as well.
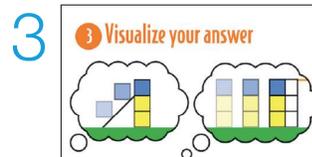
1

1 Where is the path?

Look at the visuals in the puzzle.
How will JiJi get off the screen?
What obstacles are in the way?

2

2 How can you help JiJi cross?
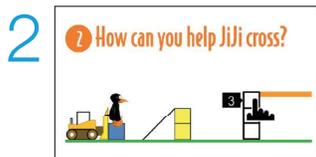
Move the cursor to see what moves. Make a prediction about how the game works and a possible solution.

3

3 Visualize your answer

Create a mental "movie" of how the prediction will look in the puzzle. Select a solution.

4

4 Analyze what happens
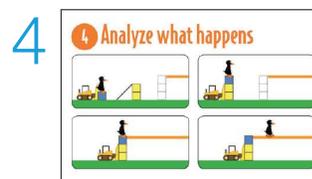
Watch the animation VERY carefully. What does the feedback tell you? How does the feedback match the prediction? Describe the animation. What changes (if any) need to be made to solve the puzzle?

As you analyze the game, think about these questions:

What mathematics is going on here? What do the visuals in the puzzles represent? How would this situation be represented symbolically? How would you read this puzzle as a word problem?

What mathematical vocabulary is related to the math presented in the game? What terms would you want students to use when the game is brought into the classroom?