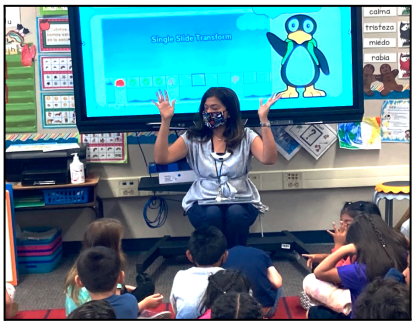
ST Math Camp: Journey

Teacher Guidance

The curriculum content is centered on an ST Math game and includes a Puzzle Talk, two sessions of activities that build on the concepts in the game, and two sessions of individual ST math game play. The modules contain five sessions (30 to 45 minutes each) that can be covered in one week. However, the schedule can be adjusted. See **Pacing Guide**.

Puzzle Talks

Puzzle Talks is a whole class time of facilitation and discussion that combines the ST Math puzzles with the Problem Solving Process. The facilitation of Puzzle Talks has been intentionally designed to develop student identity and agency as mathematical thinkers.



Puzzle Talks focus on **supporting student strategies and thinking about concepts presented in ST Math puzzles.** The goal is not to teach the puzzle, but rather to uncover, discuss, and stretch the thinking of the students. The lessons in ST Math Camp are built around Puzzle Talks.

Puzzle Talks promote rich discussions of math concepts and strategies. It is possible to extend a Puzzle Talk over several days as the students discuss, compare, evaluate strategies and make connections. It is also one of the most flexible areas in the program, which allows the teacher to reduce or increase the amount of time students go through the Problem Solving Process. Teachers are provided with a **Teacher Problem Solving Facilitation Bookmark** to support them as facilitators of the discussions. Additionally, students should be encouraged to use the language of the **Problem Solving Student Bookmark** to help them communicate their thoughts about the content. This language can be extended beyond the puzzles to support students in communicating their thinking.

Student-to-student discourse is important in helping students reflect on and compare their learning. They develop skills to evaluate strategies and assess their thinking and the thinking of their peers. To support student-to-student discourse, engagement strategies to promote conversation are provided.

ST Math Activities

ST Math activities are designed to extend the learning beyond the puzzle. These activities illuminate the mathematics and allow students to further explore, practice, discuss, and connect what they are learning. These activities are designed to allow for variation, so use your creativity to modify the activity so that you can further stretch student thinking around the mathematical concepts.

Camp Journey Exit Tickets (Optional)

We have designed optional Exit Tickets for Camp Journey. If you choose to use Exit Tickets for your program, we recommend that you administer them in the last session of the module.

ST Math Camp Celebration (Optional)

On the final day of the program, consider hosting an ST Math Camp Celebration. This provides a wonderful opportunity for students to reflect on how their thinking and understanding of mathematics have grown. It is also a great time to celebrate the improvements in their mathematical strengths as they have worked on the program. Highlight these strengths: communication, mathematical thinking, understanding of concepts, perseverance, and agency.

As part of the celebration, students reflect on what they have learned throughout the camp. Call attention to what they have learned, the problem solving skills they have developed, how their mindsets have changed, and how they have grown in their mathematical knowledge. See the **Camp Celebration Guide** for suggested activities.

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Engagement Strategies to Promote Discourse

Partner Talk

Have students discuss with a partner. After partners share their thoughts, they can compare their ideas. Challenge students to try to convince their partners to adopt their ideas. This gives them time to summarize, reflect, evaluate, justify, and revise their thinking.

Voting

Have students share strategies and ideas and vote on which ones they would like to try. Then, have them share why they think the strategy they voted for is best. This gives them the opportunity to rate, justify their rating, and discuss the outcome.

Strategy Compare

Have students share their strategies with a partner or small group. After sharing strategies, students can make comparisons, ask clarifying questions, and determine which strategy is best for the situation and explain why. This gives them the opportunity to extend their thinking and evaluate others' strategies.

Popcorn Share

The teacher poses a question and calls on a student to share. That student answers and then chooses another student to pass it to. They continue the popcorn share method by answering questions, adding thoughts, and responding to their classmates. This provides an opportunity to connect and extend student thinking.

Think Pair Share

The teacher asks questions and provides individual thinking time for students. Students share their thoughts with a partner. Then, the teacher engages them in whole group sharing. This gives them the opportunity to share perspectives and ideas.

Say Something Write Something

Pause during the discussion and suddenly exclaim, "Say Something or Write Something!" Have students summarize learning, ask a question, make a comment, or share a new idea/strategy verbally or in writing. This provides a quick check on student understanding.

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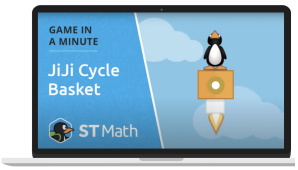
Planning with Your ST Math Camp Curriculum Is as Easy as 1-2-3 and 4

1. **Review the module, including the Game-in-a-Minute video and puzzle used for the Puzzle Talk. Use the teacher planner to help with planning the sessions during the week.**

   ***Note**: You may also find it helpful to play the game as you review the Puzzle Talk.



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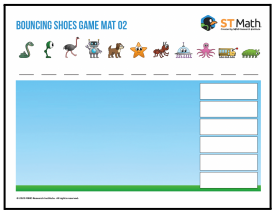
2. **Gather needed materials for the activities.**



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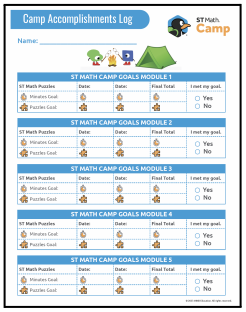
3. **Review the Goal Setting Guide and determine what skill you want to develop with your students (time management, communication, strategies to reach goals, etc.). Use this skill to help craft your goal setting conversation with students.**



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4. **Have the Problem Solving Process Facilitation Bookmark available to support student discussion.**

   ***Note**: The modules are designed to be driven by student thinking, not teacher telling. Encourage student use of the language found in the Problem Solving Process: **I see, I think, I try, I learn, I know**.

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