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## Grade 3 | Module 1

### Topic: Acclimate Students to ST Math Immersion

### Module 1 Resources

**This module's focus:** Getting your students started on ST Math and acclimated to the structure of the ST Math Immersion program. Whether or not your students have been using ST Math, it is important to introduce ST Math. During this module, students will discuss strategies and learn how to overcome hurdles. Students will also begin to engage with the components of the program. Most importantly, this module students will actively engage in thinking about their thinking and the strategies they use to solve problems and overcome challenges, while getting excited about exploring mathematics.

### Module 1 at a Glance

#### Printed Resources

- **Bookmarks**
  - Problem Solving Process Bookmark
  - Problem Solving Facilitation Bookmark
- **Grades 3–5 Table Games**
  - Traffic Lights Tic-Tac-Toe
  - Dara
  - Equivalent Fraction Concentration (Day 5)
  - Multiplication Connect Four (Day 5)
- **Problem Solving Journal** (pages 2–7)
  - My Thinking Path
  - Problem of the Day (POD)
  - Exit Tickets
  - ST Math Puzzle Reflections
- **Design Challenge Station Booklet**
  - Pages 2–7

#### Optional Printed Resources

- Accomplishments Log
- ST Math Activity Pages
- Pre-Assessment
- Pre/Post Quizzes

#### Immersion Slide Deck (slides 2–17)

- The Immersion Slide Deck is intended to be projected to the class in a whole group setting.

#### Teacher Resources

- Teacher Guide
- ST Math Activity Pages - Teacher Introduction
- Teacher Planner

#### Supplies for Table Games (per group)

- **Traffic Lights Tic-Tac-Toe** - Tic-Tac-Toe game board; red, yellow, and green color tiles (9 of each color)
- **Dara** - Dara game board, 2 sets of 12 small game pieces of different colors

#### Other Supplies for Students

- whiteboards/dry-erase markers

### My Thinking Path

This daily opportunity for reflecting will be introduced on Day 3 of this module. Students will reflect on comparing fractions and counting by unit fractions.

### ST Math Puzzle Talks

- Big Seed
- JiJi Cycle Basket
- JiJi Cycle

## Problem Solving

### Day 1:

- **Problem of the Day** - Create a class “Getting to Know Our Class” chart. Ask the students questions to gather data about the class, and record the information on a chart. For example:
  - What fraction of the class are girls? How many of the students are boys? What fraction of the class are boys? How can we write an equation to show the total of the fraction of girls in the class plus the fraction of boys in the class?
  - Write another question about our class that can be answered by adding fractions of the class. (Add these questions and equations to the class chart. For example, the fraction of the class wearing glasses plus the fraction of the class not wearing glasses. Discuss that the total always equals a fraction equivalent to 1.)

### Day 2:

- **Problem of the Day** - Remind students about yesterday’s Problem of the Day. How we can describe the class mathematically? For example: What fraction of the class has blue eyes? What fraction of the class has brown eyes? How can we write an equation to show the total of the fraction of blue eyes in the class plus the fraction of brown eyes in the class? Write another question about our class that can be answered by adding fractions of the class. Add these questions and equations to the class chart (for example, a fraction of the class wearing glasses plus the fraction of the class not wearing glasses). Discuss that the total always equals a fraction equivalent to 1.

### Day 3:

- **Problem of the Day** - Compare these fractions and explain how to locate them on a number line:  $\frac{5}{8}$ ,  $\frac{6}{8}$ ,  $\frac{2}{8}$ ,  $\frac{9}{8}$ ,  $\frac{3}{8}$

### Day 4:

- **Problem of the Day** - Nancy, Bob, and Devin played a game to see who could get farthest on a number line. They each rolled a fraction cube. Nancy rolled  $\frac{1}{4}$  and 1. Bob rolled  $\frac{3}{4}$  and  $\frac{3}{4}$ . Devin rolled  $\frac{3}{4}$  and  $\frac{1}{2}$ . Where did each player land on the number line? Who won?

## Instructional Stations

*This module is focused on teaching students about the structure of the stations, how to transition between stations, expectations of a station, and responsibilities in a station. It is very important to spend Days 1-3 really teaching the procedures of the stations. Use the [Teacher Planner](#) as a resource for planning Instructional Stations, also see the [Instructional Stations Overview for tips and best practices](#).*

### Day 1: Design Challenge (whole group)

- Discuss why we play games.
- Introduce and play the game Traffic Lights Tic-Tac-Toe.
- Begin page 4 of the Design Challenge Station Booklet.
- Students can play when they complete the Pre-Assessment, or have students complete the Pre-Quiz (optional).

### Day 2: Design Challenge (whole group)

- Introduce and play Dara.
- Engage students in a discussion about both Traffic Lights Tic-Tac-Toe and Dara.
- Complete pages 4–5 of the Design Challenge Station Booklet.
- Introduce the Design Process. (pages 2–3 of the Design Challenge Station Booklet).

### Day 3: Design Challenge (whole group)

- Discuss the task that students are being asked to do: design a game. Help the students start to unpack what they know about games.

### Days 4 & 5: Rotate Through 2 Stations (3-4 per group)

- Station 1 - Small Group Instruction
- Station 2 - ST Math Puzzles
- Station 3 - Table Games
- Station 4 - Design Challenge



## Grade 3 | Module 1 | Day 1

### ST Math Immersion Focus (10 minutes)

Introduce ST Math Immersion and its components, and answer any questions the students may have to better prepare them for a successful experience. Introduce the components of the program including the Problem Solving Journal (which includes My Thinking Path, Problem of the Day (POD), Exit Tickets, and Puzzle Reflections), Puzzle Talks, and Instructional Stations (which includes Small Group Instruction, ST Math Puzzles, and Table Games). There are optional Activity Pages that can also be introduced. Explain how you will be completing the Pre-Assessment and/or Pre-Quiz if you decide to use them.

### ST Math Focus (15 minutes)

#### Reminder About or Introduction to ST Math

Your students likely have been playing ST Math. For some of them, this may be their first experience with ST Math. On this first day, it is important to reintroduce ST Math while sharing important tips and reminders as students play ST Math. (See Slide Deck, slides 3–5.)

If your students have used ST Math, you will not need to do a formal introduction to the program. Instead, focus on engaging them in discussions where they can share tips, encouragement, and success stories with ST Math.

- Brainstorm what students like about ST Math. What tips do they have to share? What do they do when they get stuck?
- Have students share their favorite games and why they like them.
- Discuss goal setting with students. Have students set a puzzles and minutes goal for each day they play ST Math games.
- Provide students with an Accomplishments Log (Data Tracker), and walk them through how to use it.
- Let the students know if they will be doing the Journey, Assignments, or both. Remind them that you are able to see the minutes and puzzles they have completed.
- Ask: When you do an ST Math puzzle how does the animation help? Give an example.
  - This is a group discussion. Help students understand that the animation in the puzzle shows them if they are right or wrong. The information provided by this feedback (animation) can be used to adjust their thinking about how to solve the puzzle. As you discuss, allow all students to contribute to answering this question. Create a chart of their responses. Make sure you put their name or initials by their response so that you can compare it at the end of the program to what they learned.

For students who are new to ST Math

- Choose one of the following ways to introduce ST Math to your students.
  - Show students the [Guided Intro](#) and/or Intro Video [[English](#)] [[Spanish](#)]
  - Play the Slinky [game](#) with your students. During gameplay explain that ST Math is a program that teaches math in a very different way.
    - Encourage students to look at the visual models on the screen and determine what they think they should do.
    - Point out the things that are clickable and the clues that are given on the screen (click on the sky and the parts of the screen shimmer to show where to click).
    - Make sure students understand that they have to complete all the puzzles in a level before moving on to the next.
    - Remind students that if they get a puzzle wrong, they can click anywhere on the screen to replay the animation or track movement on the screen to learn from their informative feedback.

## Problem Solving (20-25 minutes)

### Problem of the Day

- Create a class “Getting to Know Our Class” chart. Ask the students questions to gather data about the class and record the information on a whiteboard or chart. (You will use this information throughout the module, so it is important that it is in a form you can refer back to.)
  - Some questions you may ask to gather data might include: How many students are in this class? How many are girls? Boys? How many students have brown eyes? Blue eyes? Green eyes? How many students in the class have black hair? Brown hair? Blonde hair? Red hair? How many have pets? Siblings? Favorite subject? Favorite flavor ice cream? Favorite color?
  - This is a great opportunity to practice counting, making tally marks, and comparing numbers (more/less, bigger/smaller, one more, two more, one less, two less, etc.).

## Instructional Stations (50 minutes)

### Design Challenge (20-40 minutes, whole group)

- Ask students to think about their favorite game to play. Engage them in a discussion.
- Tell students they are going to play a game. Introduce students to the game Traffic Lights Tic-Tac-Toe.
- Have them play the game with a partner.
- In their Design Challenge Station Booklet (page 4), have students individually write down two things they liked about the game and one thing they didn’t like or wish they could change.
- Discuss as a whole group. Ask students to share what they liked about the game. Ask questions about the math they used in the game and record answers on chart paper. (How did the math work in the game? What was the purpose?)

### ST Math Immersion Pre-Assessment (optional, 30 minutes, whole group)

- Hand out the Pre-Assessment to students. Have them complete it.
- If students finish early, have them play ST Math and complete their ST Math Puzzle Reflection.
  - *If you do not have enough computers for each student, you can have some students work on ST Math and some continue to play Traffic Lights Tic-Tac-Toe.*

### Quizzes (optional, 10 minutes, whole group)

- Quizzes are optional or can be used in combination with the Pre and Post Assessments.
- Hand out the Pre-Quiz. Let students complete and turn in.
- If students finish early, have them play ST Math and complete their ST Math Puzzle Reflection.
  - *If you do not have enough computers for each student, you can have some students work on ST Math and some continue to play Traffic Lights Tic-Tac-Toe.*



## Grade 3 | Module 1 | Day 2

### ST Math Focus

Today you are going to teach students the problem solving process. This process focuses on student thinking and developing problem solving skills. It follows the Perception-Action Cycle and can be used beyond ST Math to support students in problem solving. As you engage students in the Puzzle Talk, spend time highlighting strategies, pointing out the feedback, and asking students facilitation questions to promote their thinking. Show them the [Problem Solving Bookmark](#) and encourage them to refer to it as they play ST Math on their own.

### Puzzle Talk: Big Seed (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with whiteboards/dry-erase markers.

#### Notice and Wonder

- Tell students you are going to teach them questions they can ask themselves to help think through the puzzles.
- Show the first puzzle in Level 1, and encourage students to complete this sentence: “I notice \_\_\_\_\_” (without suggesting a solution). Have several students share what they notice.
- Tell students that they can click the sky to make the clickable elements shimmer.
- Once students call out all the components they see on the screen, ask students what they wonder. What question is this puzzle asking?

#### Predict and Justify

- Encourage students to complete this sentence “My prediction is \_\_\_\_\_ because\_\_\_\_\_”
  - Have different students share their predictions and why they think theirs are the best.
  - Ask students to name or describe their strategy they will use to test their prediction (hypothesis).
    - For example, students may predict that they have to fill the empty blocks. In this case, they would name the strategy of flipping. “My strategy is to flip the shape to fill in the blocks.”

#### Test and Observe

- Try a few student strategies both correct and incorrect. Watch the feedback, and discuss what they observed in the animation.

#### Analyze and Learn

- Facilitate students through the feedback analysis and understanding what worked and didn’t work. By examining their thinking, students either reinforce their strategies or examine their errors, which provides an opportunity for them to learn from their mistakes.
  - How does this compare to what you thought would happen?
  - What did you learn?
  - How will you use what you learned?
- Be sure to use the playback features to pause, rewind, and fast forward the animation and discuss what they are learning from the feedback. Use the annotation tools to highlight the learning.
- Encourage students to complete this sentence: “Something I learned from the feedback is \_\_\_\_\_.”
- Continue to facilitate student thinking as you work through additional puzzles.

## Connect and Extend

- Share solutions, and discuss how puzzles are different as the levels progress. Encourage a variety of strategies/solutions, and remember to facilitate, not teach, how to solve the puzzles.
- Ask the students if what they learned about how the puzzle behaves in previous levels can be applied here.
- When playing Level 3, ask the students if there is more than one answer to the puzzle. Explore different solutions, and discuss what they thought would happen vs. what did happen.
- Before moving on, ask students to describe what is occurring in the puzzles. What are they learning? Do they notice any relationships or patterns? Chart the math concepts/words/skills that students discuss.
- Depending on how students are doing with the puzzles, you may want to skip to Level 5.
- Have students work in breakout groups to complete a puzzle from Level 5. How did what they learned in their earlier puzzles help them solve this puzzle?

## Problem Solving (20-25 minutes)

### Problem of the Day

- Remind students about yesterday's Problem of the Day. How can we describe the class mathematically? Generate a list of three to five things students want to know about each other. For example:
  - Favorite ice cream flavor, favorite color, number of siblings, number of pets, favorite subject in school, month of birth, favorite sport, etc.

## Instructional Station (30 minutes)

- Discuss the game that the students played yesterday, Traffic Lights Tic-Tac-Toe. Review what they liked/didn't like about the game. Ask questions such as: "How did they figure out who won? Did they have a strategy that helped them win?"
- Introduce students to Dara.
  - Have them play the game with a partner.
  - In their Design Challenge Station Booklet (page 4), have students individually write down two things they liked about Dara and one thing they didn't like or wish they could change.
- Discuss as a whole group. Ask questions about the math they used in the game, and record answers on chart paper. (How did the math work in the game? What was the purpose?)
- Show them the chart from yesterday. Have them think about Traffic Lights Tic-Tac-Toe and Dara, while they complete page 5 in their Design Challenge Station Booklet. Discuss their answers to the questions:
  - Which game did they like better? Why? How did the rules make the players use skill and/or strategy? Give examples. How was mathematics involved in each of these games? What are ways other than computation that a game can include mathematics (such as, logical reasoning, critical thinking, problem solving, developing strategies, thinking ahead, etc.)?
- Introduce the Design Process using the [Design Process Poster](#). (See pages 2–3 of the Design Challenge Station Booklet.)

STEP 1: Ask - Define a problem or need.

STEP 2: Investigate - Research what has been done and identify the circumstances/constraints around the problem.

STEP 3: Imagine: Brainstorm potential ways to solve the problem; choose a solution.

STEP 4: Plan - Determine how the solution will be carried out/created; determine materials; draw a diagram/picture.

STEP 5: Create - Use the plan to construct the solution/model/prototype.

STEP 6: Test - Test out the design.

STEP 7: Improve: Evaluate the product and make improvements.
- Let the students know that they will be creating their own math games during Immersion. To help them with that, they will be working through the Design Process.



## Grade 3 | Module 1 | Day 3

### My Thinking Path (10 minutes)

Students will begin solving problems involving fractions and understanding fractions as numbers, including counting by unit fractions (fractions with a numerator of 1).

#### My Thinking Path Discussion:

- Introduce the My Thinking Path page to students. Have them write in the topic, “Compare fractions and count by unit fractions.”
- Have students complete page 2 in their journal.
- Discuss their ideas, and allow students to add to their paper any additional thoughts they have.
- From today on, begin each of Days 1–4 with time for students to reflect on their learning and prepare for the day.

### Puzzle Talk: JiJi Cycle Basket (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with whiteboards/dry-erase markers.

#### Notice and Wonder

- Show a puzzle from Level 1. Ask: “What do you notice? What do you wonder?” Allow students to share.

#### Predict and Justify

- Have students make a prediction and determine a strategy for solving the puzzle. Have students share their predictions, and why. Do they agree/disagree with each other?

#### Test and Observe

- Try one of the students’ ideas, and discuss the feedback. (As you try students’ strategies, be sure to try those that work and those that don’t.)

#### Analyze and Learn

- Ask students how what they saw happen compares to their prediction, such as “How did you know where to place the basket?”
- Show a puzzle from Level 2. Repeat the Problem Solving Process, guiding students to share strategies and their reasoning.
- Discuss unit fractions, and identify the numerator and denominator of the fraction on the number line.
- Show another puzzle from Level 2.
- Discuss how students determine how many unit fractions to select.

#### Connect and Extend

- Show a puzzle from Level 3, and ask how it is different from Level 2.
- Discuss unit fractions and the numerator and denominator of the fraction on the number line, and the mixed number and  $a/b$  ( $b > 0$ ) fraction name for the puzzles greater than 1.
- Show a puzzle from Level 4. Discuss how this puzzle compares to the other levels, unit fractions and the numerator and denominator of the fraction on the number line.
- Continue with puzzles from Levels 3 and 4.
  - Discuss unit fractions, mixed numbers vs.  $a/b$  ( $a > b$ ,  $b > 0$ ), how many unit fractions are needed to make 1.

### How does the student:

- explain how they determined the size of the fraction piece? (It would take 4 pieces this size to make a whole circle.)
- count the fraction pieces? Count the fractions greater than 1? (5 one-thirds =  $5/3$ )
- determine the label for the whole numbers? ( $3/3$  is equivalent to 1)

## Problem Solving (20-25 minutes)

*Engage students in problem solving discussions. Read and discuss the problem, share student work, compare strategies, and make connections.*

### Problem of the Day

Compare these fractions, and explain how to locate them on a number line.  $5/8$ ,  $6/8$ ,  $2/8$ ,  $9/8$ ,  $3/8$

## Instructional Stations (40 minutes)

- With the whole group, review the Design Process (page 2-3 of Design Challenge Station Booklet). See [Design Challenge Station Guide](#).
- Explain they will begin with the **Step 1: ASK** which involves understanding the job or task that needs to be done or the product that needs to be created. Engage students in a discussion to ensure they understand they are going to work in a small group to create a math game that will be presented on the last day of Immersion.
- For **Step 2: INVESTIGATE**, ask the students to explain how they might investigate something. What would they do first, next, and last?
- Part of investigating is starting with what we know. Help the students start to unpack what they know about games.
  - What is a game versus an activity?
  - What is the value in playing math games?
  - What are some games they like? Why?
  - What are some games they do not like? Why?
  - What are some things students may want to consider in creating their games?
  - Ask the students to think about how games can be used to help students learn math. What are some things they might do in a math game? (Chart their ideas on chart paper.)

*TIP: This process is about facilitating thinking among the students. Charting their thoughts, ideas, and brainstorming is a great way to keep students engaged in thinking processes. They can analyze their thoughts, revisit them, expand them, and make refinements based on what they are learning. The charts are a great way of making their thinking visible. It may be beneficial to hang the charts in the room so they are an easy reference for students.*





## Grade 3 | Module 1 | Day 4

### My Thinking Path (5-10 minutes)

Have students reflect on what they have learned about comparing fractions and counting by unit fractions. Students should complete the My Thinking Path reflection page in their journal.

### Puzzle Talk: JiJi Cycle (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with whiteboards/dry-erase markers.

#### Notice and Wonder

- Show a puzzle from Level 1. Ask: "What do you notice? What do you wonder?" Allow students to share.

#### Predict and Justify

- Have students make a prediction and determine a strategy for solving the puzzle.
- Have students share their predictions, what they think will happen, and why. Do they agree or disagree with each other? Why?

#### Test and Observe

- Try one of the students' ideas. (As you try students' strategies, be sure to try strategies that work and those that don't. Analyze and discuss the feedback in both correct and incorrect solutions.)

#### Analyze and Learn

- Ask students how what they saw happen compares to their prediction.
- Show a puzzle from Level 2. Discuss how this level compares to the puzzles from yesterday's game.
- Have students think about and then discuss with a partner how they might solve the puzzle.
- Share whole group.
- Discuss unit fractions ( $1/b$ ,  $b > 0$ ) and the numerator and denominator of the fraction on the number line.

#### Connect and Extend

- Continue with puzzles in Levels 2, 3, and 4. Compare and contrast puzzles from the different levels and how to use what students have learned in previous levels to solve other puzzles.
- Discuss how puzzles can be represented with an expression (no equal sign) or equation.
- Discuss unit fractions, mixed numbers ( $a > b$ ,  $b > 0$ ), and how many unit fractions are needed to make 1.

#### How does the student:

- write equations to show equivalence of fractions?
- discuss the size of the fractions (denominator) and the number of unit fractions (numerator) of that size to compare equivalent fractions?
- partition a number line to place fractions?
- add fractions to a number line?

## Problem Solving (20-25 minutes)

Engage students in problem solving discussions. Read and discuss the problem, share student work, compare strategies, and make connections.

### Problem of the Day

- Nancy, Bob, and Devin played a game to see who could get farthest on a number line. They each rolled a fraction cube.
  - Nancy rolled  $\frac{1}{4}$  and 1.
  - Bob rolled  $\frac{3}{4}$  and  $\frac{3}{4}$ .
  - Devin rolled  $\frac{3}{4}$  and  $\frac{1}{2}$ .
  - Where did each player land on the number line? Who won?

## Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes in each station).

### Station 1: Small Group Instruction

- Have students fold paper strips to make halves, fourths, and eighths.
- Ask questions of the group that leads them to counting unit fractions as a strategy.
- Show  $\frac{7}{8}$  and other fractions. Students will need to add their fractions together for numbers greater than 1.
- Line up the fraction pieces to simulate a number line.
- Have students draw and label the number line and find locations of different fractions by making jumps of unit fractions.

### Station 2: ST Math Puzzles

- Have students sign in and play ST Math puzzles.
- Remind students to use manipulatives and/or paper and pencil to help them solve problems. They can ask themselves the questions that are on the Problem Solving Process Poster.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and [Accomplishments Log](#).

### Station 3: Table Games

- Select either Traffic Lights Tic-Tac-Toe or Dara.
- Students will play the game that was selected.
- Ask students to complete an Exit Ticket during the final 5 minutes.

### Station 4: Design Challenge

- Students will work in groups to discuss the following questions on page 6 of their Design Challenge Station Booklet.
  - Think about all the games you've explored up until now. What information will you take from your knowledge of these games to help you brainstorm your own game ideas?
  - What style of game are you interested in?
  - What math concept(s) will you incorporate into your game? Why?
  - How might you combine some of your game styles and math ideas to help people who struggle with the math concept(s)?
- As a group, they will need to decide what game they will make.



## Grade 3 | Module 1 | Day 5

### Design Challenge Station (20 minutes)

- Review the design process with students. (See the [Design Process Poster](#).) They have ASKed and defined the task. They have begun INVESTIGATING. Let them know that the focus for today is to take what they learned from all the discussions and start to plan their game.
- Ask them to IMAGINE what type of math game they could create.
  - Remind students that their job is to create a game that will be able to help students with math. How would they imagine math being used in their game?
- Have them think about what they know about math. What are things that are important for students to know in their grade? (Brainstorm a list on chart paper.)
- Pick out a concept from the list. Model for students by completing a Math Concept Web together.
- Ask: "What are some things that are important for students to know about this concept?"
  - What is hard about this math concept?
  - How could a game teach those concepts?
  - Is this concept like anything else that we have learned?
  - Ask them to think of what type of game would be best to teach this concept and why?
- Have students get in their groups and review the list of math concepts that you created as a class. Groups will then decide on the math concept they will use. Remind them that they need to be able to explain why they choose this concept.
- Have students as a group complete the Math Concept page (page 7, Design Challenge Station Booklet).
  - As a team, think back to the characteristics of a good math game.
  - How will your game incorporate these characteristics?
  - In what ways will game players explore the math concepts in the game?
  - What are the key math components that your game needs in order for it to be helpful for the players?

### Whole Group Table Games (15-20 minutes)

During this time you will introduce Equivalent Fraction Concentration and Multiplication Connect Four. Students will play these games in the next module in Station 3.

- Introduce one of the games.
- After explaining the game and playing it with the whole group, give students time to play it on their own.
- After playing the game, have them discuss:
  - What math did they learn or use?
  - What strategies did they try to win the game?
  - Repeat with the second game.

### Optional: ST Math Activity Page (15 minutes)

- Project the game, *JiJi Cycle*.
- Play a few puzzles to help students understand the game.
- Have students turn to the ST Math Activity Page: *JiJi Cycle*.
- Ask students what they notice about the content on the page. What do they wonder? Where do they want to start on the page?
- Give them time to complete the page.
- Discuss the page and have students share their thinking.
- Take the time to compare strategies, and have students share their work.
- Make connections to the game.

## Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes in each station).

### Station 1: Small Group Instruction

- Have students fold paper strips to make halves, fourths, and eighths.
- Ask questions of the group that lead them to counting unit fractions as a strategy.
- Show  $\frac{7}{8}$  and other fractions. Students will need to add their fractions together for numbers greater than 1.
- Line up the fraction pieces to simulate a number line.
- Have students draw and label the number line and find locations of different fractions by making jumps of unit fractions.

### Station 2: ST Math Puzzles

- Have students sign in and play ST Math puzzles.
- Remind students to use manipulatives and/or paper and pencil to help them solve problems. They can ask themselves the questions that are on the Problem Solving Process Poster.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishments Log.

### Station 3: Table Games

- Select either Traffic Lights Tic-Tac-Toe or Dara.
- Students will play the game that was selected.
- Ask students to complete an Exit Ticket during the final 5 minutes.

### Station 4: Design Challenge

- Students will work in groups to discuss the following questions on page 6 of their Design Challenge Station Booklet.
  - Think about all the games you've explored up until now. What information will you take from your knowledge of these games to help you brainstorm your own game ideas?
  - What style of game are you interested in?
  - What math concept(s) will you incorporate into your game? Why?
  - How might you combine some of your game styles and math ideas to help people who struggle with the math concept(s)?
- As a group, they will need to decide what game they will make.

## Closing (10-15 minutes)

### Thinking and Reflecting Time

- Give students the Post-Quiz (optional)
- Have students review their ST Math Puzzle Reflections, Exit Tickets, and Problem Solving work.
- Engage students in discussions about what they have learned in this module, what they have questions about, and what they would like to learn more about.