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## Kindergarten | 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 learn the components of the program (My Thinking Path, ST Math Exit Tickets, Puzzle Talks, Problem of the Day, Puzzle Reflections and Instructional Stations). 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
- **K-2 Table Games Directions**
  - Number Kicker
  - Make Ten Concentration
  - Addition War (Day 4)
  - Pyramid Make Ten (Day 4)
- **Game Mats**
  - Tug Boat Game Mat
- **Problem Solving Journal** (pages 2–7)
  - My Thinking Path
  - Problem of the Day (POD)
  - Exit Tickets
  - ST Math Puzzle Reflections

#### Optional Printed Resources

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

#### Immersion Slide Deck (slides 2–20)

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

#### Teacher Resources

- ST Math Activity Pages - Teacher Introduction

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

- Number Kicker - 1 deck of cards with face cards removed, 1 printed Number Kicker strip (0 to 20) for each player, centimeter cubes (4 for each player)
- Make Ten Concentration - 2 decks of Jiji Creature Cards

### My Thinking Path

- This daily opportunity for reflecting will be introduced on Day 3 of this module. Students will reflect on solving problems using addition within 10 and comparing numbers.

### ST Math Puzzle Talks

- Attribute Transform
- Tug Boat

## Problem Solving

*Note: The Problem of the Day in the Problem Solving Journal is intended to be an independent activity for students. Those problems are intentionally not included in the slide decks.*

### Day 1: (whole group)

- **Problem Solving Slide Deck**- 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:
  - How many students are in this class? 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?)
- **Problem Solving Journal** - Students are introduced to the journal and complete together with the class.

### Day 2: (whole group)

- **Problem Solving Slide Deck**- Remind students about yesterday’s Problem of the Day. How we can 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.
- **Problem Solving Journal** - Students complete together with the class.

### Day 3:

- **Problem Solving Slide Deck**- Poly and Bob were playing with their cars. Each of them got some cars from the toy box. How many cars does each friend have? Who has the most cars? Poly and Bob put all their cars together so they could share them equally. They each wanted the same number of cars. If they want to share the cars equally, how many would each one get?
- **Problem Solving Journal**- Students solve a similar car problem.

### Day 4:

- **Problem Solving Slide Deck** - Each friend grabbed jelly beans from a basket. How many could they both have? How many jelly beans does each friend have? Who has the most jelly beans? They put their jelly beans together so they could share them. They each wanted the same number. If they want to share the jelly beans equally, how many would each one get?
- **Problem Solving Journal**- Students solve a jelly bean problem.

## Preparing for 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. (See [Instructional Stations Overview for tips and best practices.](#))*

### Day 1: Table Game Play (whole group)

- Discuss why we play games.
- Introduce and play the game Number Kicker.

### ST Math Puzzles (small group)

### Pre-Assessment and/or Pre-Quiz (optional)

### Day 2: Table Game Play (whole group)

- Discuss why we play games.
- Introduce and play the game Make Ten Concentration

### ST Math Puzzles (small group)

### Day 3: Instructional Station Routines

- Establish class Routines

### Table Game Play (small group)

- Number Kicker or Make Ten Concentration

### ST Math Puzzles (small group)



## Kindergarten | 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)

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 class has been using 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?
- 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.

For students who are new to ST Math:

- Choose one of the following ways to introduce ST Math to your students.
  - Read students the *JiJi to the Top* [book \[Spanish\]](#) or show a [video telling the story \[Spanish\]](#) to introduce ST Math.
- 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 to determine what they think they should do.
  - Point out the things that are clickable and that clicking on the sky makes the clickable parts shimmer.
  - Make sure students understand that they have to complete all the puzzles in a level before moving on to the next.
  - Ask students if ST Math reminds them of other math programs. Why or why not?

## Problem Solving (20 minutes)

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

### **Problem of the Day** (slide 6)

- 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 white board 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.)

### **Problem Solving Journal** (page 3, top)

- Students are introduced to the journal and complete together with the class today. In future lessons, the Problem of the Day is intended to be completed independently. They are not included in the Slide Decks.

## Preparing for Instructional Stations (45 minutes)

### **Table Game Play & Discussion** (25 minutes, whole group)

- Tell students they are going to play a game. Ask them to share why people play games. Record their responses on chart paper.
- Introduce students to the game Number Kicker.
- Have them play the game with a partner for about 10 minutes.
- Have students individually think about one thing they liked about the game and one thing they didn't like.
- Discuss as a whole group. Ask students to share what they liked/didn't like 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 Puzzles** (20 minutes, small groups)

Students in small groups will each individually play ST Math Puzzles. You have the option to assign them the entire Immersion objective, have them continue their grade level journey from the previous school year, or assign them specific puzzles. If you do not have enough computers for each student to play ST Math, you can have some students working on ST Math, some continuing to play Number Kicker, and if applicable, others in a small group with the teacher completing the Pre-Assessment and/or Pre-Quiz.

- OR -

### **OPTIONAL - ST Math Immersion Grade 1 Pre-Assessment and/or Pre-Quiz**

Administer the Pre-Assessment and/or Pre-Quiz to students. Those who finish early can play ST Math. This time can also be used to give the Pre-Assessment and/or Pre-Quiz to all students in a whole group setting. Another option would be to administer the assessment to small groups over the course of this first module.



## Kindergarten | 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: Attribute Transform (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

- Introduce and discuss the first Attribute Transform puzzle.
- Tell students you are going to teach them questions they can ask themselves to help think through the puzzles. The first question students should ask themselves is: “What do I notice?”
- Encourage students to complete this sentence “I notice \_\_\_\_\_.”
- Have several students share what they notice, not how they would solve it.
- Remind students that they can click the sky, and the clickable elements will shimmer.

#### Predict and Justify

- The next question students should ask themselves is: “What is my prediction?”
- Encourage students to complete this sentence: “My prediction is \_\_\_\_\_ because \_\_\_\_\_.”
- Have different students share their predictions and why they think theirs is the best prediction.
- Ask students to name or describe the strategy they will use to test their prediction. For example, a student may predict that they have to somehow move the shape from one-side to the other. In this case they would name the strategy of matching. “My strategy is to change the color of the triangle on the left to match the color of the triangle on the right by selecting the block that has the matching color.”
- Ask students to describe what they think will happen when you test their prediction and why.

#### Test and Observe

- Encourage students to observe and think about the results of testing their hypothesis.
- Try a few student suggestions, both correct and incorrect. Watch the feedback and discuss what they observed.

#### Analyze and Learn

- Facilitate students in analyzing the feedback/results and understanding what worked and didn't work.
  - 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.

#### Connect and Extend

- Do one example of each: changing color (Level 1), changing shape (Level 2), stretching (Level 3).
- Help students use what they've learned to solve new puzzles.

## **Connect and Extend** (continued)

- Discuss strategies and solutions (including incorrect ones). Explore different solutions, and discuss what they thought would happen vs. what did happen.
- Have students create their own Attribute Transform puzzle and share it with a neighbor. Can their neighbor correctly solve it? Choose a few to share with the whole group. See who can make the most challenging one, the most unique one, the most surprising one, etc.

## **How does the student:**

- solve the puzzles? (Are students visualizing the changes to the shape as it goes over each belt? Do they struggle to keep track of the changes?)
- compare the shape on the left to the shape in the ground?

## **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** (slide 8)

- Remind students about yesterday's Problem of the Day. How can we describe the class mathematically? Generate a list of 3-5 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.

## **Problem Solving Journal** (page 3, bottom)

- Students complete together with the class today.

## **Preparing for Instructional Stations (45 minutes)**

### **Table Game Play & Discussion** (25 minutes, whole group)

- Discuss the game that the students played yesterday, Number Kicker. 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 would help them win?"
  - Let students know that they are going to play a different game today.
  - Introduce students to Make Ten Concentration.
  - Have them play the game with a partner.
- Discuss as a whole group. Ask students to share what they liked/didn't like 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 of the math?
- Show them the game chart from yesterday. Have them think about Number Kicker and Make Ten Concentration. Discuss their answers to the questions:
  - Which game did they like better? Why?
  - How was mathematics involved in each of these games?

### **ST Math Puzzles** (20 minutes, small group)

Students in small groups will each individually play ST Math Puzzles. You have the option to assign them the entire Immersion objective, have them continue their grade level journey from the previous school year, or assign them specific puzzles. If you do not have enough computers for each student to play ST Math, you can have some students working on ST Math, some continuing to play Number Kicker, and if applicable, others in a small group with the teacher completing the Pre-Assessment and/or Pre-Quiz.



## Kindergarten | Module 1 | Day 3

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

Students develop their understanding of solving addition problems within 10. Students will write equations to represent the problems. Students will solve addition word problems.

#### My Thinking Path Discussion

- Let students know that this module they will be focused on adding numbers to 10 and comparing numbers.
- Have students begin working on the first two boxes.
- 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: Tug Boat (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with a [Tug Boat Game Mat](#) and whiteboards/dry-erase markers.

#### Notice and Wonder

- Ask: “What do you notice? What do you wonder?” Allow a few students to share out.

#### Predict and Justify

- Ask students to think about their strategy for solving and predict what will happen. Have students think-pair-share their strategy with each other and then do a whole class share out.

#### Test and Observe

- Try one of the students’ ideas. Discuss strategies as a class.
- Solve the puzzle and have students describe what happened.

#### Analyze and Learn

- Ask students to think about how what they saw happen compares to what they thought would happen. Replay the puzzle, if needed, with the same solution. What did they learn from the feedback?)
- Give students the Tug Boat Game Mat and counters to represent the boats. As you engage students in the puzzles, have them represent the puzzles on their game mats.
- Solve additional puzzles in Level 1. Try different student strategies.
- Show a puzzle from Level 2. Compare and contrast to Level 1. Discuss, and then think-pair-share. Share with the class.
- Continue with the puzzles in Level 2 in the same way as above.

#### How does the student:

- represent the puzzles on the Tug Boat Game Mat? Do they draw pictures or move manipulatives to show how they want to solve the puzzle?
- write numerals to represent the number of boats?
- compare the number of boats on each side?
- explain how they know there are an equal number of boats on each side?



## 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 Solving Slide Deck (slides 11–12)

- Poly and Bob were playing with their cars. Each of them got some cars from the toy box. How many cars does each friend have? Who has the most cars? Poly and Bob put all their cars together so they could share them equally. They each wanted the same number of cars. If they want to share the cars equally, how many would each one get?

### Problem Solving Journal (page 4, top)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students solve a similar car problem.

## Preparing for Instructional Stations (40 minutes)

Students will visit two stations today (15 minutes per station). See Instructional Station Overview.

### Instructional Station Routines (10 minutes)

- It is important to establish routines for station rotation that allow students to seamlessly move from one station to another with little disruption. Beginning with module 2, there are 3 stations. For today, have students rotate only between the stations below while you monitor the students. Allow for 15 minutes at each station. Consider these tips as you set up stations with your class.
  - Communicate clear expectations to students.
  - Provide clear directions and ensure that students have all the materials they need.
  - Make sure math tools are accessible to students.
  - Set a timer to help students pace themselves.
  - Provide strategies for students who need help during instructional station time.
  - Be sure to consider movement in high traffic areas during transition time.
  - Consider giving students' roles in the group to support accountability and collaboration.

### Station 1: 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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishments Log.

### Station 2: Table Games

- Select Number Kicker or Make Ten Concentration.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.





## Kindergarten | Module 1 | Day 4

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

- Have students reflect on what they have learned about adding and comparing numbers to 10.

### Puzzle Talk: Tug Boat (20-25 minutes)

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

#### Notice and Wonder

- Display a puzzle in Level 3. Ask: "What do you notice that is similar/different from the puzzles we played yesterday?" Allow a few students to share out.
- Ask students to think of their strategy for solving the puzzle and predict what will happen when they try it.

#### Predict and Justify

- Have students think-pair-share their strategy and why they think their strategy can be used to solve this puzzle.

#### Test and Observe

- Have students share out. Try one of the students' ideas. Ask the students to think about if they agree or disagree with the strategy and why. How does it relate to their strategy?
- Watch the feedback together, and discuss what they saw.

#### Analyze and Learn

- Ask students to think about how what they saw happen compares to their prediction. What did they learn from the feedback?
- Show the next puzzle. Ask students to think about what they need to do to solve this puzzle. Ask some students to share.
- Move the boats together, but then pause before clicking the green Go button. Ask: "How could we represent our answer using numbers and symbols?"
- Write a number sentence on the board to show the solution (e.g.,  $4 = 4$ ).

#### Connect and Extend

- Ask: "How could we read this sentence? What does the equal sign mean?" Have students draw on their paper/whiteboard to prove that both sides have the same (or equal) number of boats.
- Continue with puzzles in Level 3.

#### How does the student:

- write equations to show that two different solutions are equal?
- discuss how different combinations of boats can equal the same number on each side?
- determine how to make an equal number of boats on each side?

## 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 Solving Slide Deck (slides 17–20)

- Each friend grabbed jelly beans from a basket. How many could they both have? How many jelly beans does each friend have? Who has the most jelly beans? They put their jelly beans together so they could share them. They each wanted the same number. If they want to share the jelly beans equally, how many would each one get?

### Problem Solving Journal (page 4, bottom)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students solve a jelly bean problem.

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

During this time you will introduce Addition War and Pyramid Make Ten. 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 Activity Page (15-20 minutes) - whole group

### ST Math Activity Page

- Have students complete the Intro to the Activity Book page.
- Project the game *Tug Boat*.
- Play a few puzzles to help students understand the game.
- Have students turn to the Activity Page: *Tug Boat*.
- 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.

## Closing (10 minutes)

### Thinking and Reflecting Time

- Have students complete the Post-Quiz (optional).
- Have students review their Problem Solving Journal work including their Puzzle Reflection, 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.