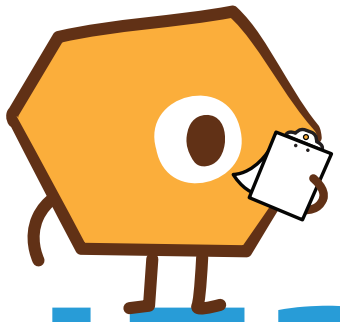
ST Math
Summer Immersion



TEACHER GUIDE WITH LESSON PLANS

ST Math Summer Immersion

Grade K

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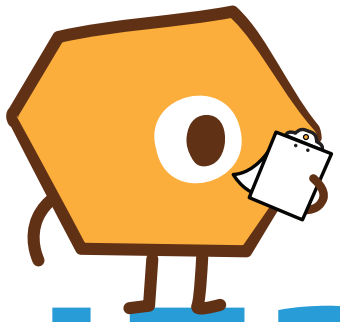

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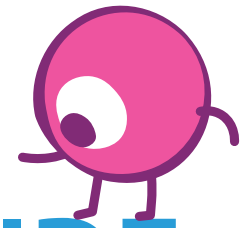
Table of Contents



TEACHER GUIDE

What Is ST Math Summer Immersion?

About ST Math Summer Immersion

ST Math Summer Immersion is an intensive program that combines ST Math with a math curriculum that creates a rich mathematical environment.

The content addresses common areas in which students struggle while providing opportunities for building their content knowledge, reasoning skills, and growth mindset. Grades K-2 focus on operations and algebraic thinking, and Grades 3-5 focus on fractions.

Check out this video to learn more about **ST Math Summer Immersion Overview**.

ST Math Summer Immersion has been designed to accommodate a 4-day or a 5-day summer school schedule.

Instructional Design Overview

The curriculum for each grade level is an extension of the grade level students just completed. For example, the Kindergarten lessons are designed for students who have just completed Kindergarten. The 25 lessons in each grade will extend students' learning from the previous school year and prepare them for the next grade level. This flexible curriculum is designed to be implemented in 60- to 120-minute blocks over four to six weeks.

The lesson plans are divided into three main sections: **Puzzle Talks**, **Problem Solving,** and **Instructional Stations**. Puzzle Talks are a whole class time of facilitation and discussion using the Problem Solving Process. The Problem Solving section allows students to work on the problems of the day. The Instructional Stations divide the classroom into smaller groups to work on different activities at each station.

Student Portfolio

The Student Portfolio is a compilation of academic work and other forms of educational evidence assembled for the purpose of the learning process. ST Math Summer Immersion helps students build strong schema around mathematics and develop perseverance, confidence, and agency as they engage in the lessons and activities.

One way we do this is through the **Problem Solving Journal**. It serves as an artifact to track, evaluate, synthesize, and communicate student thinking around the mathematics they are learning. The Problem Solving Journal is designed for students to reflect upon their learning

through My Thinking Path, Problem of the Day, Exit Tickets, and ST Math Puzzle Reflections.

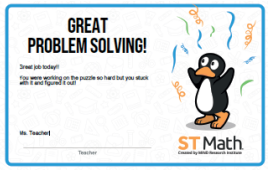
Assessments and Quizzes

ST Math Summer Immersion has assessments that can be used optionally. During the program's first and last module, a pre/post assessment can be administered. There are also pre/post quizzes that could be used on the first and last days of each module. The purpose of these assessments is to monitor the progress of your students and help you make instructional decisions based on their results. Your team should decide whether or not you will administer these assessments and how you will use the results.

Celebrating Students' Growth and Development

Throughout ST Math Summer Immersion, give students encouraging notes. Celebrating students' successes helps motivate learners to achieve more while continuing to develop a growth mindset. As students engage in ST Math, they are not only building mathematical knowledge but developing self-regulatory skills that are essential to success.

Celebrating students
ST Math Summer Immersion concludes its program with the **Learning Showcase and Celebration** on the last day. In the lesson plan, you will find more information and instructions about it. Students will prepare and present their reflection posters and their math game.



Give students an encouraging note like the one above. We have some already designed. See our refillable **celebration notes**.

For more information on celebrating students, visit our **Focus On: Celebrating** page.

We have also created a framework you can use to prepare for the Learning Showcase and Celebration. We recommend teachers extend an invitation to families, community members, district leaders, teachers, peers, and school board members to celebrate and hear from students about what they learned. Use our **Learning Showcase and Celebration Editable Invitation**.

Creating a Reflection Poster
The reflection poster is a culmination of the thinking, learning, and growth that students experienced during the program. The students should review their Problem Solving Journal to help them make the reflection poster. Read more about the poster in the **Reflection Poster Guide**.

Designing a Math Game
In 4-Day Summer Immersion, there is an optional mini-math game design activity that teachers can do with students. This activity involves having students redesign a game they know (e.g., any card game, Candy Land, Uno, etc.) and add mathematical components to the game.

In the 5-Day ST Math Summer Immersion, students will be designing a more elaborate math game. They will engage in the Engineering Design Process, which is adapted from *Engineering is Elementary*® from the Museum of Science in Boston to create their game.

What Makes ST Math Summer Immersion Unique?

The Science Behind the Learning

Building Schemas
Schemas are neural networks, our brain's way of organizing our thoughts and experiences. The way those networks get created and connected ends up defining your concept or understanding of the topic. And when we talk about having a "deep conceptual understanding in math," we're talking about building schemas of mathematical concepts that give students the ability to solve problems they haven't seen before.

The puzzles, activities, problem solving, and discussions in the ST Math Summer Immersion program support students in revising, extending, and building new schemas around mathematics concepts.

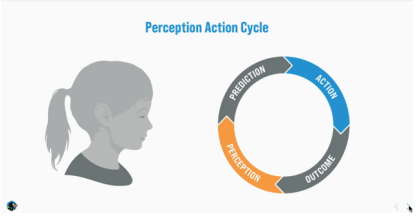
Check out this video to learn more about **schema**.

Blogs on Schema:

- ***Schemas Are Key to Deep Conceptual Understanding***
- ***Mathematical Coherence with ST Math***

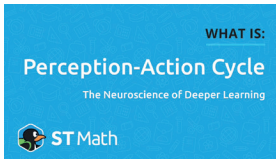
Perception-Action Cycle (PAC)

Brain research tells us students learn by doing. They need to be allowed to engage in meaningful content, make predictions, test those predictions, receive immediate and formative feedback as a result of their testing, and analyze that information to refine their thinking around the content.



The Cycle of Learning
This cycle of learning is known as the **Perception-Action Cycle (PAC)** and is the foundation of our award-winning ST Math program.

The Perception-Action Cycle is this continuous flow of information and action between the brain and the world around it. On and on it goes: sense, predict, act, adjust. Sense, predict, act, adjust. This PAC is embedded in our game-based learning design at MIND. ST Math puzzles take students through this cycle over and over, giving them a safe place to fail, providing new information through immediate and formative feedback, and inviting them to try again until they find the solution.



Watch and learn more about the **Perception-Action Cycle**.

Blogs on PAC:

- ***What the Perception-Action Cycle Teaches Us About How the Brain Learns***
- ***Success and Failure: How Growth Mindset Can Change Education***

Academic Discourse

Effective Facilitation Strategies

Facilitation plays a pivotal role in creating a classroom rich with academic discourse. Effective facilitation promotes, deepens, and supports students' thinking as they grapple with concepts and build understanding. Students understand that they are accountable for their thinking, not just for writing correct answers. As teachers continue to engage students in focusing on what and how they are thinking, students will build confidence, increase their communication skills, and deepen their understanding of concepts.

Blogs on Facilitation:

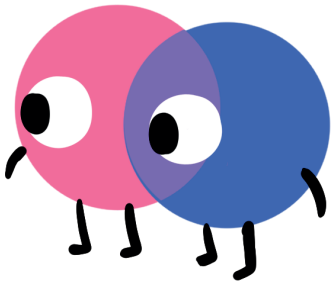
- ***How ST Math's Problem Solving Process Develops Social-Emotional Learning Skills***
- ***Using the Art of Facilitation to Become a Better Math Teacher***

Problem Solving Process

ST Math Summer Immersion uses the Problem Solving Process designed to support teachers as facilitators and students as authors of their ideas and sense-makers of mathematics. It is aligned with the perception-action cycle and helps students develop skills that can be used outside of ST Math.

What Is an Asset-Based Approach?

ST Math Summer Immersion uses an asset-based approach to instruction through diversity, equity, and inclusion. An asset-based approach focuses on the student's strengths and talents instead of their deficits, which is crucial to bringing equity in education. It supports students in seeing how they think about and engage in math. It is essential that every student, teacher, administrator, family, and community see themselves in math.



For too many students, math has been a hurdle to overcome. They are either identified or self-identified as people who can or can't do math. This identification follows students throughout their journey and impacts their learning experiences. One of the goals of ST Math Summer Immersion is to help students build a positive math identity and instill confidence, joy, and wonder in their mathematics ability. It was designed to equip students with the agency to be a knower, a doer, and a sense-maker of math.

The curriculum supports students in developing the understanding that they are capable and confident problem solvers. The lessons provide opportunities for student voices to be heard. Through the sharing of strategies, thoughts, and perspectives, students are positioned to see each other as mathematical resources and build on each other's ideas.

The teacher's role in ST Math Summer Immersion is to (1) facilitate student thinking, (2) position students as authors of their learning, and (3) support students in developing essential skills. Through this focus, teachers center student thinking instead of teaching the puzzle. In turn, students learn that they can construct their knowledge. They also learn that mistakes are not only okay but are expected and are part of the learning process. Having an asset-based approach helps students develop perseverance, resilience, a growth mindset, and self-motivation. These are strengths that students can carry into the school year.

What are Puzzle Talks?

Facilitating in Action

Puzzle Talks
The use of ST Math puzzles to lead a whole group or small group short conversation is what we call Puzzle Talks. Similar to number talks or math talks, the goal is to get students to communicate and deepen their understanding of mathematics.

Puzzle Talks are a whole class time of facilitation and discussion that combines the ST Math Puzzles with the Problem Solving Process. They leverage the power of the visual models inherent in ST Math and use facilitation questions to promote classroom discourse and enhance the learning experience. As teachers deliver Puzzle Talks, they are supporting students in developing mathematical habits of mind, problem solving skills, and deepening their understanding of math concepts.

If you would like more information on Puzzle Talks and how to do them remotely, visit **Focus On: Puzzle Talks** on our ST Math Academy site.

The facilitation of Puzzle Talks has been intentionally designed to develop students' identity and agency as mathematics thinkers. Puzzle Talks are a way to get students thinking about and solving ST Math puzzles as a group and are a key component of ST Math Summer Immersion.

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 Summer Immersion are built around Puzzle Talks. In the lesson plan overview, you will find the ST Math puzzles associated with the Puzzle Talks in the module.

Puzzle Talks promote rich discussions around math concepts and strategies. It is possible to extend a Puzzle Talk over several days as you discuss, compare, evaluate strategies, and make connections. It is also one of the most flexible areas in the program, which allows you to reduce or increase the amount of time to allow students to go through the Problem Solving Process. In

combination with the **Problem Solving Facilitation Bookmark**, we have included some engagement strategies that can be helpful during Puzzle Talks.

Game in a Minute Videos located in the ST Math Summer Immersion site has been designed to give teachers an overview of the ST Math puzzles that will be used during the Puzzle Talks. These under-a-minute videos also have a quick brief explanation of the puzzle's objective and some facilitating questions at the end.

Engagement Strategies with Puzzle Talks

Partner Talk	Have students discuss with a partner. After each partner shares their thoughts, they can compare their ideas. Challenge students to try to convince their partner to adopt their idea. 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. Have students share why they think the strategy they voted for is best. This allows them 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 why. This allows them 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 picks another student to pass it to. They continue popcorning around 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. Engage the students in a whole group sharing. This allows them to share perspectives and ideas.

Say Something Write Something

Pause during the discussion and suddenly say, "*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.

What Are Problem Solving Strategy Discussions?

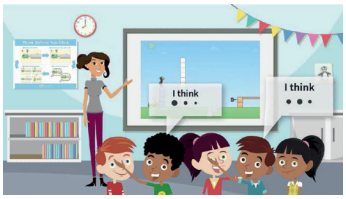
Extending Student Discourse

Facilitation focused on the Problem Solving Process allows for students and teachers to co-lead the learning. Students develop agency and accountability because they understand that their thinking is important. It is what will lead them to a deeper understanding. Facilitation is thinking-driven, not answer-driven.

Focus discussion on

- Strategy sharing and exploration
- Visual to symbolic connections (including word problems)
- Making connections between and among concepts
- Vocabulary connections

Use engagement strategies to promote student-to-student discourse to create an atmosphere that fosters rich math conversations.

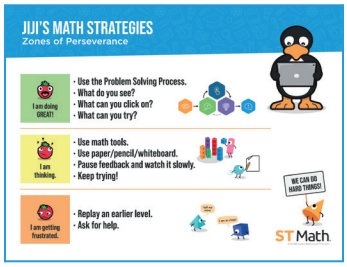


Problem Solving Resources

- **Problem Solving Strategy Discussions**
- **Problem Solving Facilitation Bookmark**

Cultivating a Culture of Perseverance

One of the essential skills ST Math Immersion focuses on is helping students develop perseverance and build the confidence that they can problem solve the most challenging tasks. As students engage in ST Math, they may encounter puzzles that they struggle to solve.



If a student gets stuck, they can start by using the Problem Solving Process on the student bookmark. This helps give them the language they need to reflect and communicate their thinking. Another resource to help students who are struggling is **JiJi's Math Strategies Poster**. It focuses on building perseverance and agency. Students are encouraged to recognize what point of struggle they are experiencing. It also provides strategies to support them. This keeps students engaged in a productive struggle.

In addition, there are **How Are You Doing Cards** that can be used in class to help you keep tabs on how students are doing as they go through the curriculum and activities. Having students use these cards and place a clip or clothespin to indicate how they are feeling alerts the teacher as to when their struggle is becoming unproductive.

Student Engagement

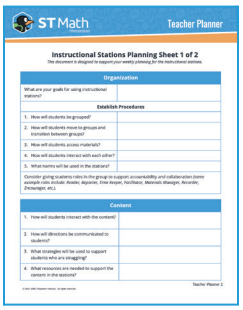
Engaging students in discussions around problem solving activities is a great way to explore connections, expand perspectives, and have students check and challenge each other. Problem solving activities provide a great opportunity to facilitate classroom discussions around student work. When you do a Problem of the Day, it is important to plan your goals and outcomes for the discussion before posing the problem to students.

Planning for the Discussion	Monitoring During Problem Solving	Promoting Classroom Discussion Using Student Work
Before students begin working on the problem solving activity, think about what your students might do to solve the problem and what mathematics you would want to point out and discuss.	As students are working during Problem Solving time, walk around and ask students questions to facilitate their thinking and select students' work to share as a whole class. See the **Problem Solving Facilitation Bookmark** for sample questions.	Order the work you selected to share from least sophisticated to most sophisticated. Include some work that has misconceptions and/or errors in reasoning. Ask students questions that engage them in discussions around both correct and incorrect reasoning. It is important for the teacher to remain in the role of facilitator and ask students questions to help them construct knowledge.

What Are Instructional Stations?

About Instructional Stations

The **Instructional Stations** are a key element in ST Math Summer Immersion. They provide a great model to engage students to learn collaboratively, to build student agency and accountability, and to provide opportunities for personalized intervention. There are three instructional stations: small group instruction, table games, and ST Math puzzles. Familiarize yourself with the instructional stations by reviewing the first module's lesson plan overview section. It is very important that you set expectations for each instructional station.



Instructional Station Planner

The Problem Solving Journal will be used during the instructional stations as a place for students to share their learning. Students will complete Exit Tickets after playing table games and puzzle reflections after playing ST Math puzzles.

Set expectations for the instructional stations by using the optional **Instructional Station Planner** found in the **Teacher Planner**. Learn more about the breakdown of the instructional stations, assigning student roles, facilitating questions, and best practices on our **Instructional Station Overview**.

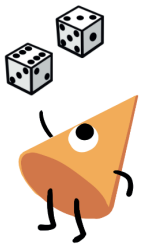
Small Group Station

The Small Group Station is an opportunity to focus on meeting students' needs. This station is teacher-led and focuses on engaging students in math discourse to promote understanding. Share a problem with students that is similar to the Problem of the Day. Allow the students time to solve that problem. As they solve the problem, have them talk about the process of finding the solution. Students should discuss their strategies and defend their points of view for different solutions. There is a **Small Group Intervention Planner** in the teacher planner you may want to use to help organize your groups; however, there are instructions and ideas for your small group station in the lesson plan to make it easy.

ST Math Puzzles Station

The ST Math Puzzles Station is where students will each individually play ST Math Puzzles in their small groups. You have the option to assign them the entire ST Math Summer Immersion objective, have them continue their grade-level journey from the previous school year, or assign them specific puzzles. Students can set their own minutes and puzzle goals using the **Accomplishment Log** and record what they did that day.

Table Games Station

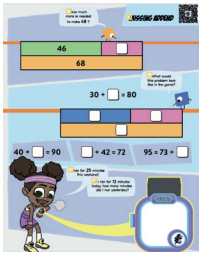


The Table Games Station features games during which students explore math concepts, engage in strategic thinking, apply their knowledge, challenge each other, and have fun with mathematics. All of the games in this station focus on number sense. They are also easily replicated for play at home. The game materials are located in the lesson resources for each module. There is time built into the last day of each module for you to teach your students how to play the game.

Focused Instructional Time

Focused Instructional Time is built in on Day 5 of every module. Use this time to personalize instruction for students. Identify areas to intervene based on student performance, divide the students into four groups, and assign them to the instructional station that will be most beneficial to meet their needs. Use the **Small Group Intervention Planner** to identify students who need more time.

ST Math Activity Pages



ST Math Activity Pages are an optional student activity booklet that can be found on the ST Math Summer Immersion website. It is based on an ST Math Puzzle and was designed to be fun and engaging for students. Teacher directions are written in the lesson plans, and it's recommended to be done as a whole class, but they can be done individually.

Use **Problem Solving Strategies** to stimulate discussion amongst your students. Apply the Problem Solving Process, and have students make connections to the games. Review the **ST Math Activity Introduction** to help you get started.

Instructional Station Rotations

Students should be divided into groups of three to four students to rotate through the different stations. Beginning in Module 2, students will visit two instructional stations per day for about 20 minutes at each station on Days 1–4. Day 1 and Day 2 instructional stations are the same, as are Day 3 and Day 4 stations. This allows students to visit all four stations within the two-day time frame.

On Day 5, if applicable, students will attend one instructional station during Focused Instructional Time at the discretion of the teacher. This is an opportunity for the student to have additional instructional time with the teacher or at a specific instructional station.

Schedule Sample (Days 1-4)

Time	Activity	Group Configuration
5-10 min.	My Thinking Path	Individual/Whole Group
20-25 min.	Puzzle Talk	Whole Group
20-25 min.	Problem Solving	Individual/Whole Group
40 min.	Instructional Stations	Small Group

	Instructional Stations Rotations							
	Day 1		Day 2		Day 3		Day 4	
Station	Rotation 1	Rotation 2	Rotation 1	Rotation 2	Rotation 1	Rotation 2	Rotation 1	Rotation 2
Small Group Instruction	Group A	Group B	Group C	Group D	Group A	Group B	Group C	Group D
ST Math 1:1	Group B	Group A	Group D	Group C	Group B	Group A	Group D	Group C
Table Games	Group C	Group D	Group A	Group B	Group C	Group D	Group A	Group B
ST Math 1:1	Group D	Group C	Group B	Group A	Group D	Group C	Group B	Group A

Schedule Sample (Day 5) - This day is skipped for 4-day implementations

Time	Activity	Group Configuration
60-70 mins	Game Design Challenge	Whole Group
20-30 min.	Focused Instructional Time	Small Group/Whole Group

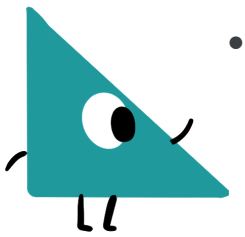
Focused Instructional Time	
During this instructional station time, students do not rotate. They can either be assigned to a station or allowed to choose which one to go to.	
Small Group Instruction	Teacher Intervention Group
ST Math Puzzles	Teacher choice or Student choice
Table Games	Teacher choice or Student choice

How Do We Monitor Students' Learning?

We have designed monitoring tools to help track the growth of student learning during ST Math Summer Immersion. In the Problem Solving Journal, you will find My Thinking Path, ST Math Puzzle Reflection, and Exit Tickets. These graphic organizers encourage students to think about their learning and schema. The Problems of the Day can also be used to monitor students' learning by reviewing their answers. In addition, assessments can be used as a measure of student learning. There are Pre/Post Quizzes for each module. The quizzes are optional but can be used to monitor student learning.

My Thinking Path

What are things I already know about this topic?		
Goal/Purpose	**Support Student Thinking Prompts**	**Look for**
Students show they are beginning to unpack this new idea. They are engaging with the topic and trying to find connections to it. If they can find an access point to the topic, they will have more success understanding it.	• Could what we did yesterday help you with this topic? • Does this make you think of a game or activity you've done? • Are there math tools you think you could use to help you with this topic? • Where have you seen something like this outside of school? • What words/parts of this topic do you know and which are ones you don't? • Can you draw a picture of what this makes you think of?	• Recall of previous day(s) lessons • Mathematical operations they may use • "It looks like when we did ___." • Real-world connections • Highlighting words that sound familiar • "I think it has to do with ____, but I'm not sure." • Drawings of situations it could be used in or related to math strategies • Examples using the topic



What are some questions I have about this topic?

Goal/Purpose	Support Student Thinking Prompts	Look for
Students identify things they have questions about, allowing them to address any confusion that comes up as they work through the topic. This also prepares students to be able to answer their own questions as they learn more about the topic.	• Are there words here you have never heard? • Do you know when you would use this? • What about this topic seems confusing?	• "Does it have to do with [previous topic]?" • "What does _____ mean?" • "Could this help me when I need to _____?" • Questions about how/when to use it

How are the puzzles connected to what I already know?

Goal/Purpose	Support Student Thinking Prompts	Look for
Students are practicing transferring concepts to new situations. They are accessing their schema to figure out ways to use previous skills in a new context.	• Does this make you think of a game or activity you've done? • Have you seen the images in these puzzles before? • What math operations have you used before?	• Mathematical operations they may use • "It looks like when we did ___." • Real-world connections • Other ST Math puzzles • Math games they have played • Math problems from previous lessons

What new things did I learn in playing the puzzles? Did the puzzles make me think of anything differently?

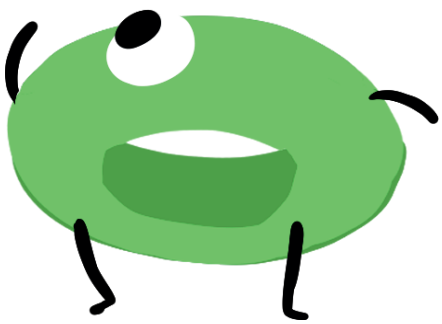
Goal/Purpose	Support Student Thinking Prompts	Look for
Encourage students to think metacognitively as they are solving ST Math puzzles. Since they know they will be asked about what they learned, they will be thinking about it and aware of it as they play.	• What was different in this puzzle from other ones you have played? • Did you have to think about something in a new way from the other puzzles? • What did you try that didn't work? What did you do instead? • If you had to help someone else solve this puzzle, what might you tell them?	• Operations used in the lesson • Terms for operations (joining, separating, taking away, fraction words) • Example problems • Tips they would give to help someone solve • Situations/context the math could be used • Organization/soft skills

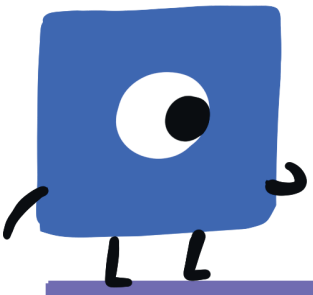
What challenges am I having/questions I still have about this topic?		
Goal/Purpose	**Support Student Thinking Prompts**	**Look for**
Build the idea that our learning doesn't end and there is always more to know. It is also important for students to be okay with having lingering questions and become comfortable with not fully understanding something. This is what pushes us to grow.	• What parts of the game still seemed hard on the last level? • What questions do you think you need more practice with? • What are you curious about? • What do you want to know that the game/teacher didn't show you today? • Did you get a question correct and you don't know why? • Do you think there are other ways to solve these types of problems? • Did your strategy today feel efficient? Do you want to try something new?	• Examples of problems they got stuck on/solved incorrectly • "Where can I use this in the real world?" • "Why was I correct when I did ____?" • "I want someone to explain this part to me again: ____." • A picture of a tricky part of the puzzle • "What would I do if I was given this situation: ____?" • "Could I also use a different strategy?" • "How could I make this problem easier to solve?"

ST Math Puzzle Reflection

The ST Math Puzzle Reflection allows students to have a 1:1 experience with the ST Math puzzles. It captures their ST Math quantitative data and qualitative data. It asks students to show what they learned while playing the ST Math puzzles. It is up to the teacher to decide the content they want students to engage in during ST Math Summer Immersion.

	Goal/Purpose	Support Student Thinking Prompts	Look for
Top Data Points	Students will be able to associate these numbers with their progress. This way they can hold themselves accountable as the numbers grow/decrease.	• What do [levels/percent/minutes/puzzles] tell us? • Why do you think we should write these numbers down each day? • How has it changed from the last module? • What do you want to change in the next module?	• Correct input of data • Understanding the difference between each piece of data • Recognizing this shows us how we are 'growing our brains' each day
Open-Ended Questions	Reinforce student learning. Having them put new ideas into their own words or pictures will help the new understanding 'stick.' Students can also refer back to this when stuck on a problem in the future or to remind them of their growth and build their confidence.	• Tell me about the problem we did together on the carpet. • What did you tell JiJi to do in the ST math puzzle? • What did you have to do to try and win the ST Math puzzle you played at your station? • When would you use the math we did today? • What other kinds of problems could it help with? • What did you do today that made solving math easier? • What part of today's lesson made you feel proud? • What part of the lesson was hard at first?	• Operations used in the lesson • Terms for operations such as joining, separating, taking away, or fraction words • Example problems • Situations/context in which the math could be used • Organization/soft skills

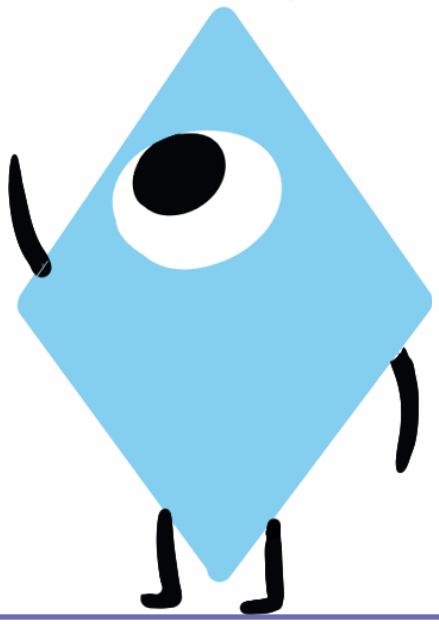




Exit Tickets

Exit Tickets allow students to represent their learning in a different, more novel way (note to a friend, freeform brain dump, as a discovery, etc.). Many of these are the same look-fors and prompts as the My Thinking Path and ST Math Puzzle Reflection.

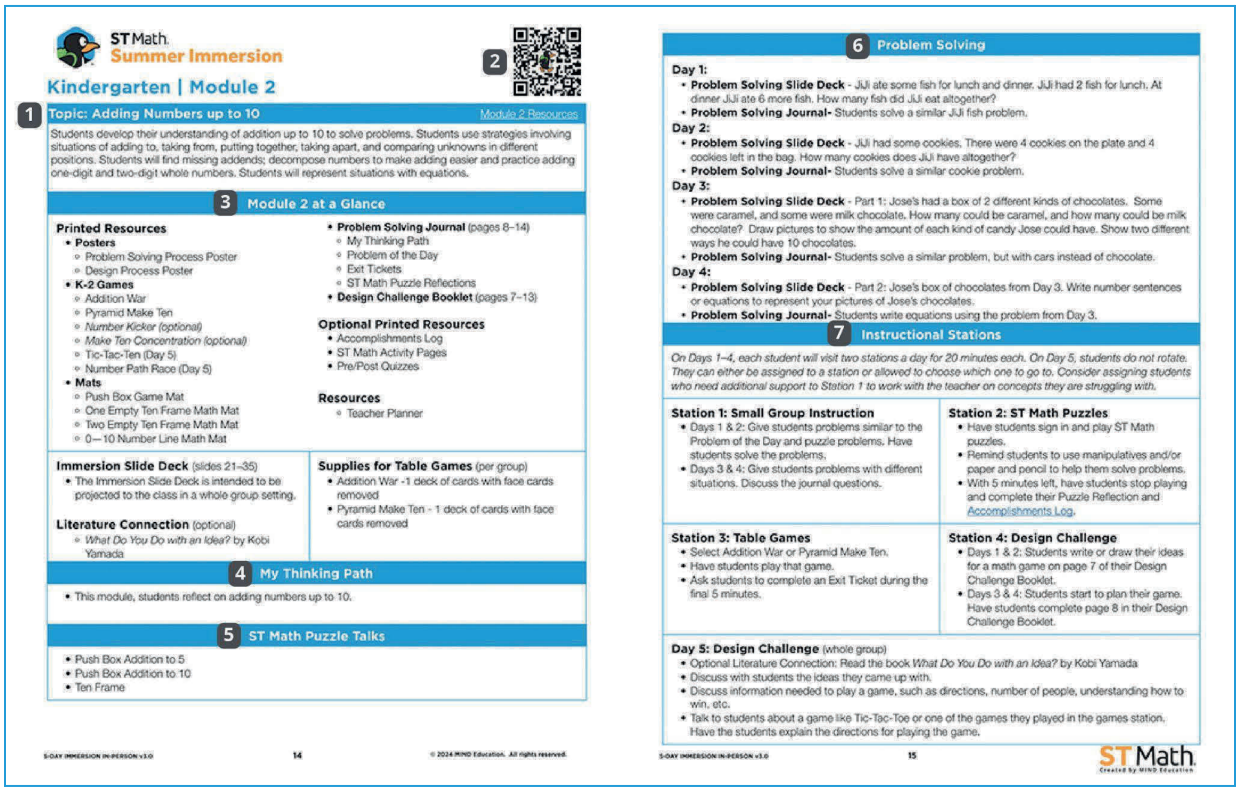
Prompts	Look for
• Tell me about the problem we did together on the carpet. • What did you tell JiJi to do in the ST math puzzle? • What did you have to do to try and win the game you played at the table games station? • When would you use the math we did today? • What other kinds of problems could it help with? • What did you do today that made solving math easier? • What part of today's lesson made you feel proud? • What part of the lesson was hard at first? • What was different in this puzzle from other ones you have played? • Did you have to think about something in a new way from the other puzzles? • What did you try that didn't work? What did you do instead? • If you had to help someone else solve this puzzle, what might you tell them?	• Operations used in the lesson • Terms for operations, such as joining, separating, and taking away fraction words • Example problems • Tips they would give to help someone solve • Situations/contexts in the math could be used • Organization/soft skills • Examples of problems they got stuck on/solved incorrectly • "Why was I correct when I did ____?" • A picture of a tricky part of the puzzle • "Could I also use a different strategy?" • "How could I make this problem easier to solve?"



How Are the Lesson Plans Sectioned?

Module at a Glance

Module at a Glance, which can be found in the lesson plan in blue, gives you an overview of what you'll encounter. Here is a breakdown of what you will see.



ST Math
Summer Immersion

Kindergarten | Module 2

2

1 Topic: Adding Numbers up to 10 — Module 2 Resources

Students develop their understanding of addition up to 10 to solve problems. Students use strategies involving situations of adding to, taking from, putting together, taking apart, and comparing unknowns in different positions. Students will find missing addends; decompose numbers to make adding easier and practice adding one-digit and two-digit whole numbers. Students will represent situations with equations.

3 Module 2 at a Glance

Printed Resources
- **Posters**
  - Problem Solving Process Poster
  - Design Process Poster
- **K-2 Games**
  - Addition War
  - Pyramid Make Ten
  - *Number Kicker (optional)*
  - *Make Ten Concentration (optional)*
  - Tic-Tac-Ten (Day 5)
  - Number Path Race (Day 5)
- **Mats**
  - Push Box Game Mat
  - One Empty Ten Frame Math Mat
  - Two Empty Ten Frame Math Mat
  - 0—10 Number Line Math Mat
- **Problem Solving Journal** (pages 8–14)
  - My Thinking Path
  - Problem of the Day
  - Exit Tickets
  - ST Math Puzzle Reflections
- **Design Challenge Booklet** (pages 7–13)

Optional Printed Resources
- Accomplishments Log
- ST Math Activity Pages
- Pre/Post Quizzes

Resources
- Teacher Planner

Immersion Slide Deck (slides 21–35)
- The Immersion Slide Deck is intended to be projected to the class in a whole group setting.

Literature Connection (optional)
- *What Do You Do with an Idea?* by Kobi Yamada

Supplies for Table Games (per group)
- Addition War -1 deck of cards with face cards removed
- Pyramid Make Ten - 1 deck of cards with face cards removed

4 My Thinking Path
- This module, students reflect on adding numbers up to 10.

5 ST Math Puzzle Talks
- Push Box Addition to 5
- Push Box Addition to 10
- Ten Frame

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6 Problem Solving

Day 1:
- **Problem Solving Slide Deck** - JiJi ate some fish for lunch and dinner. JiJi had 2 fish for lunch. At dinner JiJi ate 6 more fish. How many fish did JiJi eat altogether?
- **Problem Solving Journal-** Students solve a similar JiJi fish problem.

Day 2:
- **Problem Solving Slide Deck** - JiJi had some cookies. There were 4 cookies on the plate and 4 cookies left in the bag. How many cookies does JiJi have altogether?
- **Problem Solving Journal-** Students solve a similar cookie problem.

Day 3:
- **Problem Solving Slide Deck** - Part 1: Jose's had a box of 2 different kinds of chocolates. Some were caramel, and some were milk chocolate. How many could be caramel, and how many could be milk chocolate? Draw pictures to show the amount of each kind of candy Jose could have. Show two different ways he could have 10 chocolates.
- **Problem Solving Journal-** Students solve a similar problem, but with cars instead of chocolate.

Day 4:
- **Problem Solving Slide Deck** - Part 2: Jose's box of chocolates from Day 3. Write number sentences or equations to represent your pictures of Jose's chocolates.
- **Problem Solving Journal-** Students write equations using the problem from Day 3.

7 Instructional Stations

On Days 1–4, each student will visit two stations a day for 20 minutes each. On Day 5, students do not rotate. They can either be assigned to a station or allowed to choose which one to go to. Consider assigning students who need additional support to Station 1 to work with the teacher on concepts they are struggling with.

Station 1: Small Group Instruction
- Days 1 & 2: Give students problems similar to the Problem of the Day and puzzle problems. Have students solve the problems.
- Days 3 & 4: Give students problems with different situations. Discuss the journal questions.

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

Station 3: Table Games
- Select Addition War or Pyramid Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

Station 4: Design Challenge
- Days 1 & 2: Students write or draw their ideas for a math game on page 7 of their Design Challenge Booklet.
- Days 3 & 4: Students start to plan their game. Have students complete page 8 in their Design Challenge Booklet.

Day 5: Design Challenge (whole group)
- Optional Literature Connection: Read the book *What Do You Do with an Idea?* by Kobi Yamada
- Discuss with students the ideas they came up with.
- Discuss information needed to play a game, such as directions, number of people, understanding how to win, etc.
- Talk to students about a game like Tic-Tac-Toe or one of the games they played in the games station. Have the students explain the directions for playing the game.

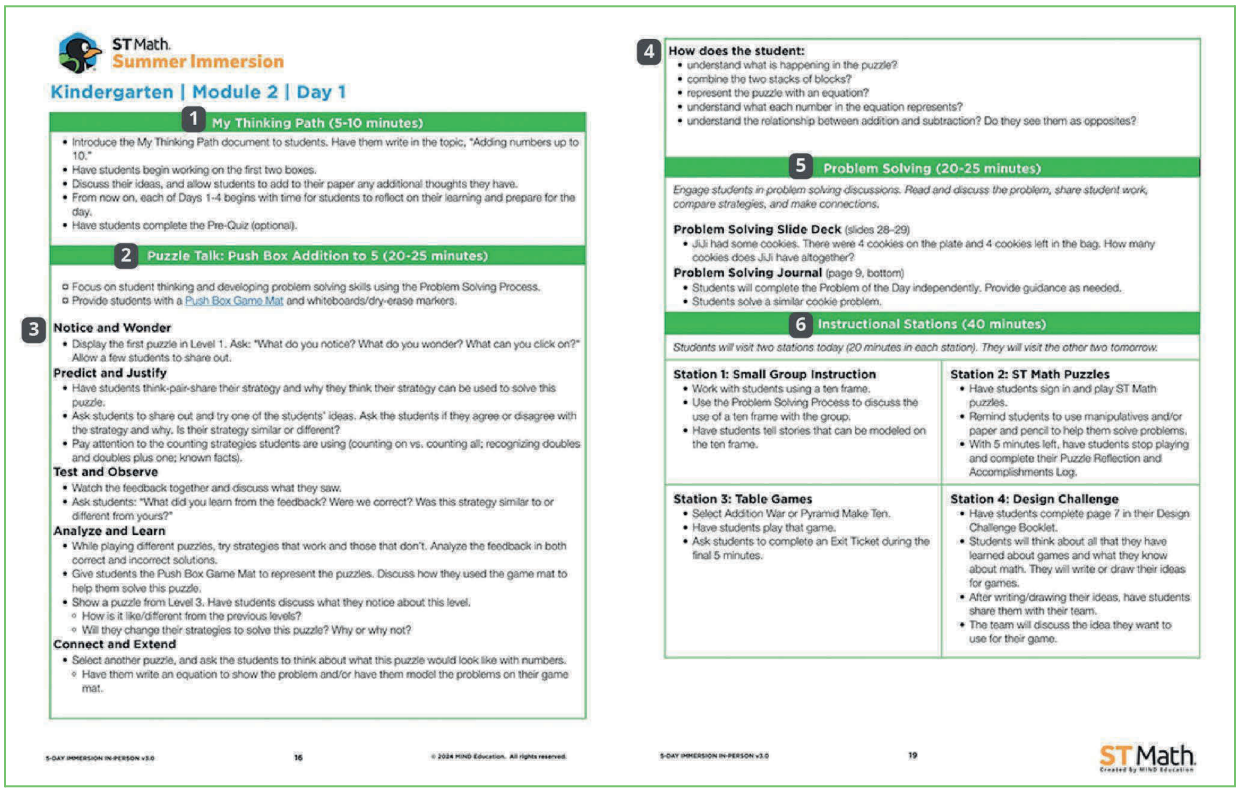
5-DAY IMMERSION IN-PERSON v1.0 15 ST Math

SECTIONS

1. **Topic** - highlights the math focus for that module and the content students will be exploring.
2. **QR Code & Hyperlink** - links to that particular module's resources.
3. **Module at a Glance** - lists documents that need to be printed, slides from the slide deck that will be projected, and any manipulatives necessary for the module.
4. **My Thinking Path** - tracks the student's thinking around the module's topic in a graphic. organizer found in the Problem Solving Journal.
5. **ST Math Puzzle Talks** - specifies the puzzles used during Puzzle Talks (use a QR code/link to locate these).
6. **Problem Solving** - features the Problem of the Day included in the Problem Solving Journal and on the Problem Solving Slide Deck. These are used to explore connections and have students check and challenge each other.
7. **Instructional Stations** - organizes students into small groups to work on various activities at a particular designated rotating station.

Daily Lessons

Daily Lessons, which can be found in the lesson plan in green, give you specific lesson plans for the day. Here is a breakdown of what you will see on most days. The last day of the module is slightly different.



ST Math
Summer Immersion

Kindergarten | Module 2 | Day 1

1 My Thinking Path (5-10 minutes)

- Introduce the My Thinking Path document to students. Have them write in the topic, "Adding numbers up to 10."
- 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 now on, each of Days 1-4 begins with time for students to reflect on their learning and prepare for the day.
- Have students complete the Pre-Quiz (optional).

2 Puzzle Talk: Push Box Addition to 5 (20-25 minutes)

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

3 Notice and Wonder

- Display the first puzzle in Level 1. Ask: "What do you notice? What do you wonder? What can you click on?" Allow a few students to share out.

Predict and Justify

- Have students think-pair-share their strategy and why they think their strategy can be used to solve this puzzle.
- Ask students to share out and try one of the students' ideas. Ask the students if they agree or disagree with the strategy and why. Is their strategy similar or different?
- Pay attention to the counting strategies students are using (counting on vs. counting all; recognizing doubles and doubles plus one; known facts).

Test and Observe

- Watch the feedback together and discuss what they saw.
- Ask students: "What did you learn from the feedback? Were we correct? Was this strategy similar to or different from yours?"

Analyze and Learn

- While playing different puzzles, try strategies that work and those that don't. Analyze the feedback in both correct and incorrect solutions.
- Give students the Push Box Game Mat to represent the puzzles. Discuss how they used the game mat to help them solve this puzzle.
- Show a puzzle from Level 3. Have students discuss what they notice about this level.
  - How is it like/different from the previous levels?
  - Will they change their strategies to solve this puzzle? Why or why not?

Connect and Extend

- Select another puzzle, and ask the students to think about what this puzzle would look like with numbers.
  - Have them write an equation to show the problem and/or have them model the problems on their game mat.

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4 How does the student:

- understand what is happening in the puzzle?
- combine the two stacks of blocks?
- represent the puzzle with an equation?
- understand what each number in the equation represents?
- understand the relationship between addition and subtraction? Do they see them as opposites?

5 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 28-29)

- JiJi had some cookies. There were 4 cookies on the plate and 4 cookies left in the bag. How many cookies does JiJi have altogether?

Problem Solving Journal (page 9, bottom)

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

6 Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes in each station). They will visit the other two tomorrow.

Station 1: Small Group Instruction

- Work with students using a ten frame.
- Use the Problem Solving Process to discuss the use of a ten frame with the group.
- Have students tell stories that can be modeled on the ten frame.

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

Station 3: Table Games

- Select Addition War or Pyramid Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

Station 4: Design Challenge

- Have students complete page 7 in their Design Challenge Booklet.
- Students will think about all that they have learned about games and what they know about math. They will write or draw their ideas for games.
- After writing/drawing their ideas, have students share them with their team.
- The team will discuss the idea they want to use for their game.

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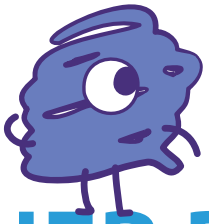
SECTIONS

1. **My Thinking Path** - provides direction on how to get students thinking about the topic of the module.
2. **Puzzle Talks** - brings ST Math which engages students to practice mathematical discourse and problem solving.
3. **Problem Solving Process** - integrates the Problem Solving Process to engage students in mathematical discourse and to develop problem solving skills.
4. **Check for Understanding** - determines the level of understanding of the day's lesson using questions.
5. **Problem Solving** - features the Problem of the Day included in the Problem Solving Journal and on the Problem Solving Slide Deck. These are used to explore connections and have students check and challenge each other.
6. **Instructional Stations** - provides details on the activities students will be working on in small groups at a particular designated rotating station.

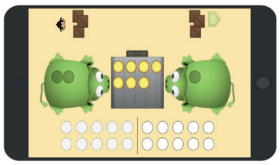


TEACHER PLANNER

Checklist: Module 1

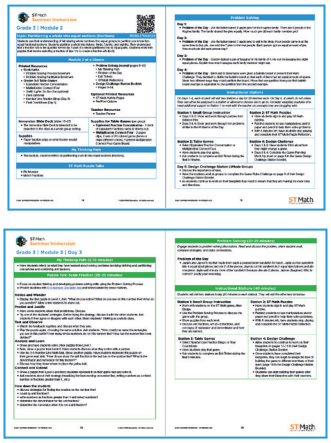
The focus of Module 1 is to get students acclimated to the structure of the program as well as to establish expectations, routines, and procedures.

ST Math Student Experience



- [ ] Ensure all students have access to ST Math®.
- [ ] Review Lesson 1:
  - Plan how you will present ST Math.
  - Review the **Foundations of ST Math - Interactive Webinar** in ST Math Academy to successfully get your students onto the ST Math Program.

ST Math Summer Immersion Curriculum



- [ ] Review the **Embedded Professional Learning**.
- [ ] Module 1 focus:
  - Familiarize students with ST Math.
  - Teach through the Problem Solving Process.
  - Engage in strategies that promote student thinking.
  - Establish and teach procedures for the instructional stations.
  - Set the expectations for problem solving and student work.
  - Introduce the Design Challenge, and review with the students the steps in the **Design Challenge Station Guide** (*for 5-Day Summer Immersion*).
  - Set the expectations for the student portfolio.
  - Use the Pre-Assessment to establish a baseline of students' knowledge.

In the Lesson Plan:

- [ ] Review sections Module at a Glance in blue and Daily Lessons in green.
- [ ] Plan and prepare for the Puzzle Talk, Problem Solving, and Instructional Stations using the document Instructional Station Planning Sheet in this planner.
- [ ] Plan strategies to help students self-facilitate during their ST Math time.

Instructional Stations Planning Sheet 1 of 2

This document is designed to support your lesson planning for the instructional stations.

Organization	
What are your goals for using instructional stations?	
Establish Procedures	
How will students be grouped?	
How will groups transition between the instructional stations?	
How will students access materials?	
How will students interact with each other?	
What norms will be used in the instructional stations?	
Consider giving students roles in the group to support accountability and collaboration. See **Instructional Station Overview**.	

Content	
How will students interact with the content?	
How will directions be communicated to students?	
What strategies will be used to support students who are struggling?	
What resources are needed to support the content in the instructional stations?	

Instructional Stations Planning Sheet 2 of 2

This document is designed to support your lesson planning for the instructional stations.

Monitor/Evaluate	
How will you know what students are learning? ***Example**: Use quizzes or assessments, My Thinking Path, Exit Tickets, ST Math Puzzle Reflection, etc.*	
How will student progress be tracked, monitored, and celebrated?	
How will students know if they are successful?	

Teacher Actions	
What is your role in the instructional stations?	
How will you evaluate the instructional station rotation model you created?	
What will you do once you determine what is/isn't working?	
How often will you make adjustments to maximize success?	

Checklist: All Remaining Modules

This document is designed to support your lesson planning for ST Math Summer Immersion.

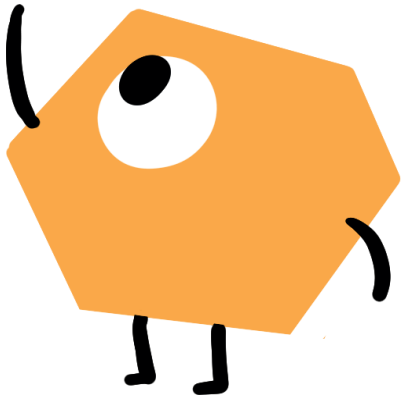
Module's Checklist

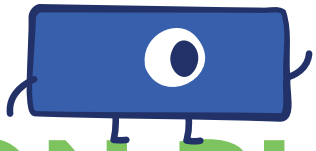
Student Support

- ☐ Review students' work.
- ☐ Identify students who may benefit from more intensive instruction during the Small Group Instruction Station or during Focused Instructional Time (in 5-Day Summer Immersion) by using the Small Group Intervention Planner.

Lesson Preparation

- ☐ **Review the Module at a Glance in blue and Daily Lessons in green.**
  - ☐ Identify the topic for the module.
  - ☐ Review printed resources needed for the module.
  - ☐ Establish goals and celebrate students in this module.
- ☐ **Problem Solving Discussions Review**
  - ☐ Anticipate student responses to promote academic discourse.
  - ☐ Determine strategies to highlight in the discussion.
  - ☐ Review the answer keys.
- ☐ **Puzzle Talks Review**
  - ☐ View the Game in a Minute videos.
  - ☐ Gather math tools.
- ☐ **Instructional Stations Review**
  - ☐ Review and organize instructional station activities.
  - ☐ Determine procedures for instructional stations.
  - ☐ Determine how to group students for instructional stations.
  - ☐ Determine strategies to use to monitor student success.s
  - ☐ Review and prepare for the Table Games.
- ☐ **Math Tools**
  - ☐ Centimeter cubes (K-5)
  - ☐ Connecting cubes (K-5)
  - ☐ Two-color counters or chips (K-2)
  - ☐ Fraction model manipulatives (3-5)
  - ☐ Whiteboards and dry-erase markers for students
  - ☐ Chart paper
  - ☐ Markers





LESSON PLAN

ST Math
Summer Immersion

Kindergarten | Module 1

Click or scan for resources

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 3-8)
  - My Thinking Path
  - Problem of the Day (POD)
  - Exit Tickets
  - ST Math Puzzle Reflections

Optional Printed Resources

- Accomplishment 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 "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 can wedescribe 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, birth month, 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)

Day 4 Instructional Station Rotation

- No Small Group Problem Solving

Table Game Play (small group)

- Number Kicker or Make Ten Concentration

ST Math Puzzles (small group)

ST Math
Summer Immersion

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 andReminders 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 Accomplishment 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 MathReminds 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 "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 4, top)

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

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 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.

ST Math
Summer Immersion

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.
- 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, birth month, favorite sport, etc.

Problem Solving Journal (page 4, 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.

ST Math
Summer Immersion

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 in 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 any additional thoughts they have to their paper.

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 5, 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 Stations 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 Accomplishment 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.

ST Math
Summer Immersion

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.

Predict and Justify

- Ask students to think of their strategy for solving the puzzle and predict what will happen when they try it.
- 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?

Instructional Stations (40 minutes)

Repeat Instructional Stations from Day 3 with 20 minutes for each rotation. Students will visit ST Math 1:1 and Table Games.

*No Small Group Instruction to allow the teacher to reinforce expectations and support students while they do the ST Math 1:1 and Table Game stations.

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 during Stations.

- 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.

Problem Solving - Optional, if time

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 5, bottom)

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

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.

Kindergarten | Module 1 | Day 5

Design Challenge: Whole Group (40 minutes)

Favorite Game Discussion

- Ask students to think about their favorite game to play.
- Engage them in a discussion about favorite games, why we play games, and what they like about games.

Introduce & Play Table Games

- **Number Kicker:**
  - Introduce students to the game Number Kicker.
  - Watch the student created game video
  - Have them play the game with a partner.
  - Facilitate a discussion about the game - chart on the board or chart paper:
    - What they liked/didn't like about the game.
    - What math they used in the game - how did the math work? What was the purpose?
  - Students should complete Design Challenge Booklet Page 33 with what they liked and what math they learned.
- Make Ten Concentration
  - Introduce students to the game Make Ten Concentration
  - Have them play the game with a partner.
  - Facilitate a discussion about the game - chart on the board or chart paper:
    - What they liked/didn't like about the game.
    - What math they used in the game - How did the math work? What was the purpose?
    - Students should complete Design Challenge Booklet Page 34 with what they liked and what math they learned.

Game Comparison

- Discuss as a whole group:
  - Which game did they like better? Why?
  - How did the rules make the players use skill and/or strategy? Give examples.
- Complete Design Challenge Booklet Page 35 together or individually.
  - Students will choose which game they liked better and why.

Literature Connection (Optional)

- Read and discuss *Rosie Revere, Engineer* by Andrea Beaty.
- What happened when Rosie made the hat for her uncle?
- Why did Rosie not want to share her inventions anymore?
- Why was her cheese copter a success even though it crashed?
- Why is it important that we keep working even when things don't work out like we expect?

Design Process Introduction

- Explain to students that they will be working in groups to create a math game that helps others learn or practice mathematics.
- Just like Rosie in the story, they are going to be inventors; they are going to create their own game. They might try different things and some of them will not work, but as Rosie learned, there can't be success without trying.
- Introduce the Design Process to the students - See Design Process Poster in Game Design Booklet Page 47.
- **Step 1 - Ask:** Point to the ASK part of the Design Process Poster and ask:
  - What is it that we are being asked to do? (Work in a group to create a math game.)
  - Why are math games important? (Refer to the games they played yesterday.)
  - Ask them to explain how those games helped them with math.
  - Explain to students that now that they understand their task, they have completed the ASK part of the engineering design process.
- **Step 2 - Investigate:** The next step is to INVESTIGATE. Ask the students to explain how they might investigate something. What would they do first, next, last?
- **Investigate Games Discussion:**
  - Encourage students to think about games that they have played before.
    - Brainstorm and record a list. This will be important to help them come up with a design of their own.
    - Ask students to think of the things they like best about games.
  - Ask students to pick a game from the list and describe it.
    - Get students thinking about characteristics of games by asking them questions about games in the list they just brainstormed. Create a list of the ideas they share.
    - What are the top three games from the list and why?
    - What makes this game fun?
    - What makes it hard?
    - What math is in the game?
    - What are some things every game must have?
  - As a group or individually, complete Design Challenge Booklet Page 36 “A Game Should Have” and decide 3 things all games should have.

TIP: This process is about facilitating thinking among the students. Charting their thoughts and ideas and brainstorming are great ways to keep students engaged in the thinking process. 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.

Kindergarten| Module 1 | Day 5 (continued)

Design Challenge: Whole Group Continued

Brainstorming

- Remind students that their job is to create a game that will help students with math. How do 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?
- Create a list of math concepts.

Model

- Pick out a concept from the list. Model for students by completing a Math Idea Chart (Design Challenge Booklet Page 37) together.
  - What can you tell me about this concept?
  - What does this concept look like?
  - 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.

Game Design Small Groups (20 minutes)

Small Group Game Design

Divide the class into small groups of 2-4 students to design their math game. Groups will work together during each Game Design Day to create their game.

Depending on the students in the class it may work better to walk through each step together as a class, then have groups work together briefly to complete each task.

Choose a Concept

- 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 chose this concept.
- Have students complete the Math Idea (Design Challenge Booklet Page 37) as a group.

Collect Ideas

- Students will think about all that they have learned about games and what they know about math. They will write or draw their ideas for games on Design Challenge Booklet Page 38.
  - After writing/drawing their ideas, have students share them with their team.
  - The team will discuss the idea they want to use for their game.
- Design Challenge Booklet Page 39: Our Game
  - Next, students will pick one idea. Prior to this station, you may want to talk to the students about how they can work together to pick one idea.
  - Finally students will name their game and describe why they chose it and fill out Design Booklet Page 39.

Focused Instructional Time (20 minutes)

- After students complete the Small Group Design task, the remaining time is used for "Focused Instructional Time."
- The teacher can assign the activity or allow student choice:
  - **Individual or small group -** Teacher pulls small groups or individual students to work on a specific skill they struggled with during the week or support students on an ST Math puzzle they are stuck on.
  - **Table Games -** Students can choose a Table Game to play with a partner or small group.
  - **ST Math 1:1 -** Students can continue to play ST Math.

Optional: ST Math Activity Page: Tug Boat

- **Play the game**
  - Project the game.
  - Play a few puzzles to help students understand the game.
- **ST Math Activity Page: Tug Boat**
  - Distribute the Activity Page.
  - 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.

ST Math
Summer Immersion

Kindergarten | Module 2

Topic: Adding Numbers up to 10

Module 2 Resources

Students develop their understanding of addition up to 10 to solve problems. Students use strategies involving situations of adding to, taking from, putting together, taking apart, and comparing unknowns in different positions. Students will find missing addends, decompose numbers to make adding easier and practice adding one-digit and two-digit whole numbers. Students will represent situations with equations.

Module 2 at a Glance

Printed Resources

- **Posters**
  - Problem Solving Process Poster
  - Design Process Poster
- **K-2 Games**
  - Addition War
  - Pyramid Make Ten
  - Number Kicker (optional)
  - Make Ten Concentration (optional)
  - Tic-Tac-Ten (Day 4)
  - Number Line Race (Day 4)
- **Mats**
  - Push Box Game Mat
  - One Empty Ten Frame Math Mat
  - Two Empty Ten Frames Math Mat
  - 0 to 10 Number Line Math Mat
- **Problem Solving Journal** (pages 9–15)
  - My Thinking Path
  - Problem of the Day
  - Exit Tickets
  - ST Math Puzzle Reflections

Optional Printed Resources

- Accomplishment Log
- ST Math Activity Pages
- Pre/Post Quizzes

Resources

- Teacher Planner

Immersion Slide Deck (slides 21–35)

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

Supplies for Table Games (per group)

- Addition War - 1 deck of cards with face cards removed
- Pyramid Make Ten - 1 deck of cards with face cards removed

My Thinking Path

- In this module, students reflect on adding numbers up to 10.

ST Math Puzzle Talks

- Push Box Addition to 5
- Push Box Addition to 10
- Ten Frame

Problem Solving

Day 1:

- **Problem Solving Slide Deck** - JiJi ate some fish for lunch and dinner. JiJi had 2 fish for lunch. At dinner JiJi ate 6 more fish. How many fish did JiJi eat altogether?
- **Problem Solving Journal-** Students solve a similar JiJi fish problem.

Day 2:

- **Problem Solving Slide Deck** - JiJi had some cookies. There were 4 cookies on the plate and 4 cookies left in the bag. How many cookies does JiJi have altogether?
- **Problem Solving Journal -** Students solve a similar cookie problem.

Day 3:

- **Problem Solving Slide Deck** - Part 1: Jose had a box of 2 different kinds of chocolates. Some were caramel and some were milk chocolate. How many could be caramel and how many could be milk chocolate? Draw pictures to show the amount of each kind of candy Jose could have. Show two different ways he could have 10 chocolates
- **Problem Solving Journal -** Students solve a similar problem, but with cars instead of chocolate.

Day 4:

- **Problem Solving Slide Deck** - Part 2: Jose's box of chocolates from Day 3. Write number sentences or equations to represent your pictures of Jose's chocolates.
- **Problem Solving Journal-** Students write equations using the problem from Day 3.

Instructional Stations

On Days 1–4, each student will visit two stations per day following the schedule in the Instructional Stations Overview.

Station 1: Small Group Instruction

- Give students problems similar to the Problem of the Day and puzzle problems. Have students solve the problems.
- Discuss the journal questions.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition War or Pyramid Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 2 | Day 1

My Thinking Path (5-10 minutes)

- Introduce the My Thinking Path document to students.
- Have them write in the topic, “Adding numbers up to 10.”
- Have students begin working on the first two boxes.
- Discuss their ideas and allow students to add any additional thoughts they have to their paper.
- From now on, each of Days 1-4 begins with time for students to reflect on their learning and prepare for the day.

Puzzle Talk: Push Box Addition (20-25 minutes)

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

Notice and Wonder

- Display the first puzzle in Level 1. Ask: "What do you notice? What do you wonder? What can you click on?" Allow a few students to share out.

Predict and Justify

- Have students think-pair-share their strategy and why they think their strategy can be used to solve this puzzle.
- Ask students to share out and try one of the students’ ideas. Ask the students if they agree or disagree with the strategy and why. Is their strategy similar or different?
- Pay attention to the counting strategies students are using (counting on vs. counting all; recognizing doubles and doubles plus one; known facts).

Test and Observe

- Watch the feedback together, and discuss what they saw.
- Ask students: “What did you learn from the feedback? Were we correct? Was this strategy similar to or different from yours?”

Analyze and Learn

- While playing different puzzles, try strategies that work and those that don’t. Analyze the feedback in both correct and incorrect solutions.
- Give students the Push Box Game Mat to represent the puzzles. Discuss how they used the game mat to help them solve this puzzle.
- Show a puzzle from Level 3. Have students discuss what they notice about this level.
  - How is it like/different from the previous levels?
  - Will they change their strategies to solve this puzzle? Why or why not?

Connect and Extend

- Select another puzzle, and ask the students to think about what this puzzle would look like with numbers.
  - Have them write an equation to show the problem and/or have them model the problems on their game mat.

How does the student:

- understand what is happening in the puzzle?
- combine the two stacks of blocks?
- represent the puzzle with an equation?
- understand what each number in the equation represents?
- understand the relationship between addition and subtraction? Do they see them as opposites?

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 24–25)

- JiJi ate some fish for lunch and dinner. JiJi had 2 fish for lunch. At dinner JiJi ate 6 more fish. How many fish did JiJi eat altogether?

Problem Solving Journal (page 10, top)

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

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Work with students using a ten frame.
- Use the Problem Solving Process to discuss the use of a ten frame with the group.
- Have students tell stories that can be modeled on the ten frame.
- Give the students some problems involving addition within 10. For example:
  - A man had 10 dog treats. He gave his dogs 2 treats on Monday and 4 treats on Tuesday. The man believes that he has 4 treats left. Is he right? Explain your answer in pictures or words.
- Discuss what they know in the problem and what they need to know to solve the problem.
- Bring the discussion about each problem to the equation and discuss what each of the numbers in the equation represents.
- Ask students to compare their drawings, etc., to the numbers in the equations.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition War or Pyramid Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 2 | Day 2

My Thinking Path (5-10 minutes)

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

Puzzle Talk: Push Box Addition (20-25 minutes)

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

Notice and Wonder

- Display the first puzzle in Level 1. Ask: "What do you notice? What do you wonder?" Allow a few students to share out.

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 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 what they thought would happen. What did they learn from the feedback?
- Be sure to try strategies that work and those that don't. Analyze the feedback in both correct and incorrect solutions.
- Display Puzzle 2 in Level 1. Have students model the puzzle on their Push Box Game Mat using cubes. Ask students to solve the puzzle. Ask students to share their strategy. Discuss a few answers and strategies as a whole class. You can repeat with a few more puzzles.
- Ask students: "What is JiJi doing with the two stacks of blocks? Does JiJi end up with more or less blocks?" Explain to students that when you combine or put together two groups of objects, you are adding.

Level 2

- Show a puzzle from Level 2. Have students think about what they see in this puzzle and discuss what they notice with a partner. Ask students: "What is different in this puzzle compared to the ones we just did? How will we get JiJi across the screen now?"

Connect and Extend

- Display another puzzle and ask the students: "What would this puzzle look like with numbers and symbols?" Have students represent and solve the puzzle.
- Write the math concepts/words/skills that students discuss.
- Share a few solutions with the whole class, and include an equation that represents how they solved the problem.
- Repeat with the remaining puzzles in Level 2 and 3.

How does the student:

- understand what is happening in the puzzle?
- combine the two stacks of blocks?
- represent the puzzle with an equation?
- understand what each number in the equation represents?
- understand the relationship between addition and subtraction? Do they see them as opposites?

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 28–29)

- JiJi had some cookies. There were 4 cookies on the plate and 4 cookies left in the bag. How many cookies does JiJi have altogether?

Problem Solving Journal (page 10, bottom)

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

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Work with students using a ten frame.
- Use the Problem Solving Process to discuss the use of a ten frame with the group.
- Have students tell stories that can be modeled on the ten frame.
- Give the students some problems involving addition within 10. For example:
  - A man had 10 dog treats. He gave his dogs 2 treats on Monday and 4 treats on Tuesday. The man believes that he has 4 treats left. Is he right? Explain your answer in pictures or words.
- Discuss what they know in the problem and what they need to know to solve the problem.
- Bring the discussion about each problem to the equation and discuss what each of the numbers in the equation represents.
- Ask students to compare their drawings, etc., to the numbers in the equations.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition War or Pyramid Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 2 | Day 3

My Thinking Path (5-10 minutes)

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

Puzzle Talk: Ten Frame (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with One Empty Ten Frame Math Mat, Two Empty Ten Frames Math Mat, and whiteboards/dry-erase markers.

Notice and Wonder

- Display the first puzzle in Level 1. Ask: "What do you notice? What do you wonder?" Ask students to share.

Predict and Justify

- Ask students to think of their strategy for solving the puzzle and predict what will happen when they try it. Have students think-pair-share their strategy and why they think it can be used to solve this puzzle.

Test and Observe

- Have students share out. Try one of the students' ideas. Ask the students 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 what they thought would happen. What did they learn from the feedback?
- Be sure to try strategies that work and those that don't. Analyze the feedback from both.

Connect and Extend

- Display another puzzle in Level 1.
- Give students a One Empty Ten Frame Math Mat and some two-color counters. Have them model the puzzle on their Math Mat. Have students write the numeral for the number of counters they are representing on their Math Mat.
- Have them turn and talk to their partner to explain what they did.
- Talk with students about the ten frame and how it is organized. Ask students: "How many would you have if you added one more (two more) counters? How many would you have if you took one (two) away? How does organizing the counters on the ten frame help you know the number quickly?"
- Have students share their counting strategies. Repeat with the remaining puzzles in Level 1.
- Display the first puzzle in Level 2. Ask: "What do you notice that is different? How might this change the strategy that you were using?"
- Allow a few to share their strategies and discuss with the class. What do they think will happen? Try the strategies, and discuss the feedback.
- Display the next puzzle in Level 2. Give students the Two Empty Ten Frames Math Mat and have them model the puzzle on the Two Empty Ten Frame Math Mat using cubes to show the solution.
- Brainstorm with students the math that they learned in this game. Ask students, "How do you think having the ten frame helped you solve these puzzles?"
- Repeat with the remaining puzzles in Level 2. Continue to have the students work through the problems, modeling the problems on ten frames and creating equations.

How does the student:

- model the problem on their paper?
- write numerals to represent the number of counters and equations to represent the problem and solution?
- use ten frames to help them solve the puzzles?
- discuss the benefits of using ten frames for solving problems?
- discuss what each number in the equation represents in the puzzle?

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 (slide 32)

- Part 1: Jose had a box of 2 different kinds of chocolates. Some were caramel and some were milk chocolate. How many could be caramel, and how many could be milk chocolate? Draw pictures to show the amount of each kind of candy Jose could have. Show two different ways he could have 10 chocolates.

Problem Solving Journal (page 11, top)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students solve a similar problem but with cars instead of chocolate.

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Work with students using a ten frame.
- Use the Problem Solving Process to discuss the use of a ten frame with the group.
- Have students tell stories that can be modeled on the ten frame.
- Give the students some problems involving addition within 10. For example:
  - A man had 10 dog treats. He gave his dogs 2 treats on Monday and 4 treats on Tuesday. The man believes that he has 4 treats left. Is he right? Explain your answer in pictures or words.
- Discuss what they know in the problem and what they need to know to solve the problem.
- Bring the discussion about each problem to the equation and discuss what each of the numbers in the equation represents.
- Ask students to compare their drawings, etc., to the numbers in the equations.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition War or Pyramid Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 2 | Day 4

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about solving problems with addition and subtraction.

Puzzle Talk: Ten Frame (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with a 0–10 Number Line Math Mat, One Empty Ten Frame Math Mat, Two Empty Ten Frame Math Mat and whiteboards/dry-erase markers.

Notice and Wonder

- Show a puzzle from Level 3 (line in ground to 5). Ask "What do you notice is the same/different from the puzzles we did yesterday? What do you wonder?" Allow a few students to share out.

Predict and Justify

- Have students think-pair-share their strategy and why they think their strategy can be used to solve this puzzle.
- Have students share out. Try one of the students' ideas. Ask the students to think about if they agree/disagree with the strategy and why. How does it relate to their strategy?

Test and Observe

- Watch the feedback together and discuss what they saw.

Analyze and Learn

- Ask students to think about how what they saw happen compares to what they thought would happen. What did they learn from the feedback? Try a few more puzzles, showing strategies that work and those that don't.
- Ask students: "How is this puzzle different from the puzzles from Levels 1 and 2?"
- Have students represent the puzzle on their ten frame, solve the puzzle, and write an equation to represent the solution.
- Repeat with the remaining puzzles in Level 3.
- Give students the Two Empty Ten Frames Math Mat. Show another puzzle.

Connect and Extend

- Show a puzzle from Level 4 (line in ground to 10).
- Have students represent the puzzle on their Math Mats, solve, and write an equation to represent the solution.
- Give students a number line 0 to 10 and have them represent the puzzle on the number line. Show the numbers adding together by jumps on the number line.

How does the student:

- model the problem on their Math Mat?
- effectively use the Two Empty Ten Frames Math Mat?
- write numerals to represent the number of counters and equations to represent the problem and solution?
- use ten frames to help them solve the puzzles?
- discuss the benefits of using ten frames for solving problems?
- discuss what each number in the equation represents in the puzzle?

Instructional Stations (40 minutes)

Repeat Instructional Stations from Day 3.

Whole Group Table Games (Teacher-led) (15-20 minutes)

During this time you will introduce Tic-Tac-Ten and Number Line Race. 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.

Problem Solving - Optional, if time

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

Problem Solving Slide Deck (slide 35)

- Part 2: Jose's box of chocolates from Day 3. Write number sentences or equations to represent your pictures of Jose's chocolates.

Problem Solving Journal (page 11, bottom)

- Students will complete the Problem of the Day independently. Provide guidance as needed. Students write equations using the problem from Day 3.

Closing (10 minutes)

Thinking and Reflecting Time

- Have students complete the Post-Quiz (optional).
- Have students review 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.

ST Math
Summer Immersion

Kindergarten | Module 2 | Day 5

Design Challenge: Whole Group (40 minutes)

Optional Literature Connection: *What Do You Do with an Idea?* by Kobi Yamada

- Discuss the story:
  - What was this book about?
  - Why do you think the idea followed the boy around?
  - Why did the boy think about giving up his idea?
  - Why did he decide not to give up on his idea?
  - What are some things that you learned from this book?

Share Ideas

- Have each group share and discuss the ideas they came up with for their game last week.
- Point to the IMAGINE part of the poster.
- Explain that a big part of the design process is imagining what you could make to complete the task.
- Now that they have imagined some of the things they want to make, it is important to think about how those ideas might work in a game.

Important Parts of a Game

- Ask students to explain what information they need to play a game.
- Answers should include things such as rules, number of people, and understanding how to win.
- Inform students that directions and rules are really important. Let them know that the focus for today will be on the rules of the game.
- Ask students to share some things they think are important in creating a math game.
- How will they make these things part of their games? (Write the big ideas on chart paper.)

Importance of Rules

- **Discuss the game Tic-Tac-Toe:**
  - What are the rules of the game?
  - Play a game or two of Tic-Tac-Toe as a whole class to make sure that students understand how it is played. Students could also play a game with a partner.
  - Have the students write the rules in their booklets.
  - Remind students it is important to write rules that are clear and easy for the players to understand.
- **Change the Rules:**
  - Working in teams of two, have the students change one rule for Tic-Tac-Toe, write the new rule, and play the game using that rule.
  - Write the new rule on Design Challenge Booklet Page 40.
  - Share out rules and discuss how gameplay was affected by their new rule.
  - Write the reflection on the new rules in Design Challenge Booklet Page 40, Boxes 3-4.
  - Reiterate the importance of having clear rules.
  - Inform the students that writing rules is only part of what they need to plan for their game.

Game Design Small Groups (20 minutes)

Step 4: Plan - Game Blueprints

Inform the students that writing rules is only part of what they need to plan for their game. Next they will work on the Blueprints for their game.

- **De ine "Blueprint":** Ask students if they know what a "Blueprint" is. Discuss. (You could pull up pictures of blueprints for a building.)
- Review Design Challenge Booklet Pages 41-44 with the students.
- Discuss that blueprints allow them to plan out each part of their game so that it is easier to build.
- Let students know that they will be working on their blueprints, creating a sketch of their game, and writing their rules.
- **Thinking about Jobs:** Share with students that next week they will begin assigning jobs to team members to build their game. As they make their blueprint, they can start to think about who will have the job of making the game board, who will make the game cards or game pieces, who will write out all the rules that the group decides on, etc. It is important that everyone in the group helps build the game.
- **Small Group Design Time:** After reviewing the booklet with the students, give them time to begin their blueprints.

Focused Instructional Time (20 minutes)

- After students complete the Small Group Design task, the remaining time is used for "Focused Instructional Time." There is also an optional ST Math Activity Page that could be done in small or whole group.
- The teacher can assign the activity or allow student choice:
  - **Individual or small group -** Teacher pulls small groups or individual students to work on a specific skill they struggled with during the week or support students on an ST Math puzzle they are stuck on.
  - **Table Games -** Students can choose a Table Game to play with a partner or small group.
  - **ST Math 1:1 -** Students can continue to play ST Math.

Optional: ST Math Activity Page: Ten Frame

- **Play the game**
  - Project the game.
  - Play a few puzzles to help students understand the game.
- **ST Math Activity Page: Ten Frame**
  - Distribute the Activity Page.
  - 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.

ST Math
Summer Immersion

Kindergarten | Module 3

Topic: Subtracting Numbers up to 10

Module 3 Resources

Students work with puzzles to develop their understanding of addition and subtraction situations within 100 to solve one-step and two-step problems.

Students use strategies involving situations of adding to, taking from, putting together, taking apart, and comparing unknowns in different positions. Students will represent situations with equations.

Module 3 at a Glance

Printed Resources

- **Bookmarks**
  - Problem Solving Process Bookmark
  - Problem Solving Facilitation Bookmark
- **K-2 Table Game**
  - Tic-Tac-Ten
  - Number Line Race
  - Addition War (optional)
  - Pyramid Make Ten (optional)
  - Number Kicker (optional)
  - Make Ten Concentration (optional)
  - Addition Connect Four (Day 4)
  - Three Cards Make Ten (Day 4)
- **Mats**
  - Push Box Game Mat
  - Bird Expressions Game Mat
  - 0-10 Number Line Math Mat
- **Problem Solving Journal** (pages 16-22)
  - My Thinking Path
  - Problem of the Day
  - Exit Tickets
  - ST Math Puzzle Reflections

Optional Printed Resources

- Accomplishment Log
- ST Math Activity Pages
- Pre/Post Quizzes

Resources

- Intervention Planner

Immersion Slide Deck (slides 36–52)

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

Supplies for Table Games (per group)

- Tic-Tac-Ten - 1 deck of cards with face cards removed or 1 dice, 1 Tic-Tac-Ten game board, 2 different colored pencils, crayons, or markers
- Number Line Race - 1 dice, 2 different colored centimeter cubes, 2 index cards (draw a + sign on one and a – sign on the other), 1 paper bag, number line 0-27

My Thinking Path

- This module, students will reflect on subtracting numbers to 10.

ST Math Puzzle Talks

- Push Box Subtraction
- Bird Expressions Subtraction

Problem Solving

Day 1:

- **Problem Solving Slide Deck** - She had 7 pencils in her backpack. She gave her friend some pencils. She has 5 pencils left. How many did she give to her friend?
- **Problem Solving Journal** - Students solve a similar missing addend problem involving pencils.

Day 2:

- **Problem Solving Slide Deck** - How could you describe JiJi's sticker collection to your friends? If JiJi put 2 heart stickers on his backpack and gave 1 blue star and 1 yellow happy face to Paco, how many stickers does JiJi have left?
- **Problem Solving Journal** - Students solve a problem with stickers.

Day 3:

- **Problem Solving Slide Deck** - JiJi went to the apple orchard to pick apples. If there were 10 apples on the tree and JiJi picked 4 of them, how many apples are left on the tree?
- **Problem Solving Journal** - Students solve a problem with birds flying from a tree.

Day 4:

- **Problem Solving Slide Deck** - JiJi baked some cookies for his party. How many cookies did JiJi bake? JiJi gave 2 cookies to Ostrich and 3 cookies to Robot. How many cookies did JiJi have left?
- **Problem Solving Journal** - Students solve a cookie problem.

Instructional Stations

On Days 1-4, each student will visit two stations per day following the schedule in the Instructional Stations Overview.

Station 1: Small Group Instruction

- Show and work through some of the puzzles in Select Box Subtraction.
- Have students problems with different problem situations. Discuss the journal questions.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Tic-Tac-Ten or Number Line Race.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 3 | Day 1

My Thinking Path (5-10 minutes)

- Have students write in the topic, “Subtracting numbers up to 10.”
- Have students begin working on the first two boxes.
- Discuss their ideas, and allow students to add any additional thoughts they have to their paper.
- Have students complete the Pre-Quiz (optional).

Puzzle Talk: Push Box Subtraction (20-25 minutes)

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

Notice and Wonder

- Display the first puzzle in Level 1. Ask: "What do you notice? What do you wonder?" Allow a few students to share out.
- Give students the Push Box Game Mat. Have students come up with a strategy and illustrate their thinking on the mat.

Predict and Justify

- Give them a few minutes to discuss with a partner: What do they think is going to happen and why?
- Have a volunteer share their strategy. Before trying the strategy, discuss it with the other students (agree/disagree; what do they think will happen).

Test and Observe

- Select a strategy and try it. Watch the feedback together, and discuss what they saw.

Analyze and Learn

- Ask students what they learned from the feedback about their strategy.
- Display the next puzzle in Level 1. Ask students what they notice on the screen now. Have students think, pair, share responses with a neighbor.
- Solve a couple more puzzles in Level 1, and then work together to write an equation to represent the puzzle. Remind students that the minus sign is used for subtraction. Ask students: “How do we know boxes are being subtracted in this puzzle?”

Connect and Extend

- Display the first puzzle from Level 2. Ask the students what this puzzle would look like with numbers and symbols? How would they represent it? Have students represent it on their game mat and solve it.
- Continue to work on the puzzles from Level 2. Ask students if the position of the holes in the ground matters in the puzzle. Have students share their strategies for solving the puzzles, and record students’ strategies.
- Repeat with some additional puzzles in Level 2 and Level 3.
- Do they notice any relationships or patterns? Discuss.

How does the student:

- model the problem on the Push Box Game Mat?
- write equations to represent the problem and solution?
- discuss what the numbers in their equation represent in the puzzle?
- explain the strategy they use to solve a subtraction problem?

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 (slide 39)

- She had 7 pencils in her backpack. She gave her friend some pencils. She has 5 pencils left. How many did she give to her friend?

Problem Solving Journal (page 17, top)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students solve a similar missing addend problem involving pencils.

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Work with students on the ST Math game *Select Box Subtraction*.
- Use the Problem Solving Process to discuss the game with the group.
- Give students centimeter cubes to represent the problems.
- Have them line up the cubes they have to start (yellow squares) and show the action of taking some cubes away (red striped squares).
- Have students write equations to represent what is happening in the puzzles.
- Give the students some problems involving subtraction within 10.
  - For example: Maria won 10 bouncy balls at the fair. She gave some to her little sister. Now, Maria has 6 bouncy balls. How many bouncy balls did she give to her sister?
- Discuss what they know in the problem and what they need to know to solve the problem.
- Bring the discussion about each problem to the equation, and discuss what each of the numbers in the equation represents.
- Ask students to compare their drawings, etc., to the numbers in the equations.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Tic-Tac-Ten or Number Line Race.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 3 | Day 2

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about subtracting numbers up to 10.

Puzzle Talk: Push Box Subtraction (20-25 minutes)

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

Notice and Wonder

- Ask students what they remember from the previous day's puzzles.
- Show a puzzle from Level 4. Ask the students what they notice about this puzzle. Ask them to wonder about what this puzzle would look like with numbers and symbols.
- How would they represent it? Have students represent it on their Push Box Game Mat.

Predict and Justify

- Have students think-pair-share with their neighbor explaining their representation, what they think will happen, and why.
- Ask students to write an equation that represents how they solved the problem.

Test and Observe

- Have a volunteer share and try their strategy.
- What did the students notice that happened in the game?

Analyze and Learn

- Ask students to share how what they observed in the game feedback compares to the representation they created on their mat. How would the solution to this puzzle be written as an equation? How does that equation compare to their equations?
- Play through some more puzzles in this level.

Connect and Extend

- Help connect the math in the game to other problems. You can pose different addition and subtraction story problems and have students model the problems on their game mat, paper, or whiteboard.
- For example: Gloria had 7 beads on a ring. She took 2 off to give to her friend. How many beads are on the ring now? Have students write an equation to represent the problem and solution.

How does the student:

- share their strategies to solve the puzzle?
- write equations to represent the solutions?
- write an equation to show the new total after adding 10 to the solution?
- find and discuss all the possible solutions for one puzzle?

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 42–43)

- How could you describe JiJi's sticker collection to your friends? If JiJi put 2 heart stickers on his backpack and gave 1 blue star and 1 yellow happy face to Paco, how many stickers does JiJi have left?

Problem Solving Journal (page 17, bottom)

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

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Work with students on the ST Math game *Select Box Subtraction*.
- Use the Problem Solving Process to discuss the game with the group.
- Give students centimeter cubes to represent the problems.
- Have them line up the cubes they have to start (yellow squares) and show the action of taking some cubes away (red striped squares).
- Have students write equations to represent what is happening in the puzzles.
- Give the students some problems involving subtraction within 10.
  - For example: Maria won 10 bouncy balls at the fair. She gave some to her little sister. Now, Maria has 6 bouncy balls. How many bouncy balls did she give to her sister?
- Discuss what they know in the problem and what they need to know to solve the problem.
- Bring the discussion about each problem to the equation, and discuss what each of the numbers in the equation represents.
- Ask students to compare their drawings, etc., to the numbers in the equations.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Tic-Tac-Ten or Number Line Race.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 3 | Day 3

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about subtracting numbers up to 10.

Puzzle Talk: Bird Expressions Subtraction (20-25 minutes)

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

Notice and Wonder

- Display the first puzzle in Level 1. Ask: "What do you notice? What do you wonder?" Allow a few students to share out.
- Ask: "How would you solve this puzzle?" Ask students to think of their strategy for solving the puzzle and predict what will happen when they try it.
- Work together to count out the number of birds shown in the sky. When the minus sign and number appears, say to students, “What do you think we need to do to solve this puzzle?”

Predict and Justify

- Have students come up with a strategy. Have some students share their strategies, explain what they think is going to happen, and why.
- Try one of the students’ strategies. Before trying the strategy, discuss it with the other students. Ask students if they agree or disagree, and what they think will happen.
- For those that disagree, ask them to propose an alternate strategy. Begin a list of students’ strategies for subtraction.

Test and Observe

- Watch the feedback together, and discuss what they saw.

Analyze and Learn

- Pause the animation, and ask students what the minus sign represents and what happens to the total number of birds when some of the birds fly away. Have students share out.
- Have students think about the feedback. What did they learn from it? What are some ideas they have about subtraction?
- Display the first puzzle from Level 2. Have students think about what they see in this puzzle and discuss what they notice.
- Give students the Bird Expressions Game Mat, and have them solve the problem on their mat.

Connect and Extend

- Try a couple of the strategies, and discuss what the feedback teaches them about their strategy. Do they notice any relationships or patterns? Discuss.

How does the student:

- model the problem on the Bird Expressions Game Mat using math tools?
- discuss and chart the math concepts and vocabulary evident in the puzzles?
- represent the puzzle with numbers and symbols?
- write equations to represent the problem and solution?
- discuss what the numbers in their equation represent in the puzzle?

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 46–47)

- JiJi went to the apple orchard to pick apples. If there were 10 apples on the tree and JiJi picked 4 of them, how many apples are left on the tree?

Problem Solving Journal (page 18, top)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students solve a problem with birds flying from a tree.

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Work with students on the ST Math game *Select Box Subtraction*.
- Use the Problem Solving Process to discuss the game with the group.
- Give students centimeter cubes to represent the problems.
- Have them line up the cubes they have to start (yellow squares) and show the action of taking some cubes away (red striped squares).
- Have students write equations to represent what is happening in the puzzles.
- Give the students some problems involving subtraction within 10.
  - For example: Maria won 10 bouncy balls at the fair. She gave some to her little sister. Now, Maria has 6 bouncy balls. How many bouncy balls did she give to her sister?
- Discuss what they know in the problem and what they need to know to solve the problem.
- Bring the discussion about each problem to the equation, and discuss what each of the numbers in the equation represents.
- Ask students to compare their drawings, etc., to the numbers in the equations.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Tic-Tac-Ten or Number Line Race.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 3 | Day 4

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about subtracting numbers up to 10.

Puzzle Talk: Bird Expressions Subtraction (20-25 minutes)

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

Notice and Wonder

- Ask students to recall what they did in Levels 1 and 2 of Bird Expressions yesterday, perhaps pulling up a few puzzles.
- Now open up a puzzle for Level 3 and ask students: “What do you notice? What do you wonder? How is this puzzle different?”

Predict and Justify

- Have students think-pair-share about their strategy, and encourage them to work out problems on their game mats or whiteboards.

Test and Observe

- Have students share out their strategies and test one. Observe the feedback and ask students what they see.

Analyze and Learn

- Ask students to think about how what they saw happen compares to their prediction. What did they learn from the feedback? Be sure to analyze the feedback in both correct and incorrect solutions.
- Brainstorm with students the math that they learned in this puzzle.

Connect and Extend

- Go through a few puzzles in Level 4 and 5, and ask students if they can write a number sentence to model how many birds they need to choose.

How does the student:

- model the problem on the Bird Expressions Game Mat using math tools?
- discuss and chart the math concepts and vocabulary evident in the puzzles?
- represent the puzzle with numbers and symbols?
- write equations to represent the problem and solution?
- discuss what the numbers in their equation represent in the puzzle.

Instructional Stations (40 minutes)

Repeat Instructional Stations from Day 3.

Whole Group Games (15-20 minutes)

During this time you will introduce Addition Connect Four and Three Cards 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?
- If time allows, repeat with the second game.

Problem Solving - Optional, if time

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

Problem Solving Slide Deck (slides 50-52)

- JiJi baked some cookies for his party. How many cookies did JiJi bake? JiJi gave 2 cookies to Ostrich and 3 cookies to Robot. How many cookies did JiJi have left?

Problem Solving Journal (page 18, bottom)

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

Closing (10 minutes)

Thinking and Reflecting Time

- Have students complete the Post-Quiz (optional).
- Have students review 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.

ST Math
Summer Immersion

Kindergarten | Module 3 | Day 5

Design Challenge: Whole Group (40 minutes)

*Note that most of the time today will be spent working on creating games.

Optional Literature Connection: *The Most Magnificent Thing* by Ashley Spires.

- What did you learn from this book?
- The girl in the book used her imagination. Why is imagination important?
- How does your imagination help you when you are designing something?
- What did the girl do when her thing did not turn out the way she expected?
- What did she learn from all the times she tried?
- Do you ever try things, and then get frustrated when they don't work?
- What are some things you can do when something doesn't work?
- Why is it important to learn from what you are doing?

Introduction:

- Review the Design Process Poster and identify what step you are on in the process.
- Last week we finished Step 4: Plan and this week we will focus on Step 5: Create.

Share Blueprints & Sketches:

- Give each group a few minutes to review their Game Design from Pages 41-43 in the booklet. They should identify one person to share about their game with the group.
- Each group should share an update about their game and let the class ask questions and give feedback.

Step 5: Create - Brainstorm Jobs

- As a class brainstorm a list of jobs they could have on their team.
- The rest of the time today will be spent working on Step 5: Creating their game.

  Note: If students haven't finished their blueprints they should do that first.
- Groups should work together to fill out Game Design Booklet Page 44 and decide on the job role and team members.
  - Students can start building their games after they share their blueprints and job assignments with their teacher.

Game Design Small Groups (20 minutes)

- Remind students that as they create their game, it might not turn out the way they were expecting, but just like the young lady in the story, we can learn from our mistakes. The idea here is to encourage the students so they don't get overly frustrated.
- Take the time to meet with groups and have them share their blueprints and game ideas. Use the game design facilitation questions to help unpack their thinking. This will help them as they are creating.
- Use the remaining time to have students start to build their games.
- Once students have had their blueprints and job assignments (Pages 41-44) approved by the teacher they can spend the rest of the Game Design time building their games.

*If students don't finish creating their games today you may want to consider allowing them to work on them throughout the following week.

Focused Instructional Time (20 minutes)

- After students complete the Small Group Design task, the remaining time is used for "Focused Instructional Time." There is also an optional ST Math Activity Page that could be done in small or whole group.
- The teacher can assign the activity or allow student choice:
  - **Individual or small group -** Teacher pulls small groups or individual students to work on a specific skill they struggled with during the week or support students on an ST Math puzzle they are stuck on.
  - **Table Games -** Students can choose a Table Game to play with a partner or small group.
  - **ST Math 1:1 -** Students can continue to play ST Math.

Optional: ST Math Activity Page: Bird Expressions

- **Play the game**
  - Project the game.
  - Play a few puzzles to help students understand the game.
- **ST Math Activity Page: Bird Expressions**
  - Distribute the Activity Page.
  - 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.

ST Math
Summer Immersion

Kindergarten | Module 4

Topic: Making 10

Module 4 Resources

Students will use different models to compose 10 when one addend is given. Students will solve problems involving making combinations of 10. Students will decompose numbers less than or equal to 10 into different pairs of addends. Students solve word problems involving making 10.

Module 4 at a Glance

Printed Resources

- **Bookmarks**
  - Problem Solving Process Bookmark
  - Problem Solving Facilitation Bookmark
- **K-2 Table Games Directions**
  - Addition Connect Four
  - Three Cards Make Ten
  - Tic-Tac-Ten (optional)
  - Number Line Race (optional)
  - Addition War (optional)
  - Pyramid Make Ten (optional)
  - Number Kicker (optional)
  - Make Ten Concentration (optional)
  - JiJi Sudoku (Day 4)
- **Game Mats**
  - Bouncing Shoes Game Mat
  - Creature Cards
- **Problem Solving Journal** (pages 23–29)
  - My Thinking Path
  - Problem of the Day
  - Exit Tickets
  - ST Math Puzzle Reflections

Optional Printed Resources

- Accomplishment Log
- ST Math Activity Pages
- Pre/Post Quizzes

Immersion Slide Deck (slides 53–66)

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

Supplies for Table Games (per group)

- Addition Connect Four - 2 paper clips, 2 different color chips (20 of each color), 1 copy of the Addition Connect Four Game Mat
- Three Cards Make Ten - 1 deck of cards with face cards removed.

My Thinking Path

- Daily reflection time for students on equal groups and representing numbers with repeated addition.

ST Math Puzzle Talks

- Bouncing Shoes
- Bouncing Shoes to 10
- Bouncing Shoes with Numbers

Problem Solving

Day 1:

- **Problem Solving Slide Deck** - JiJi is making a bracelet. JiJi made a bracelet with 10 beads. How many more beads does JiJi need?
- **Problem Solving Journal** - Students solve a similar bracelet bead problem.

Day 2:

- **Problem Solving Slide Deck** - Octopus was thinking about all the ways to make 8. Help Octopus make 8.
- **Problem Solving Journal** - Students show all the ways to make 7.

Day 3:

- **Problem Solving Slide Deck** - Pie Monster wants to eat 10 pies. The pies are either cherry pies or apple pies. How many pies are cherry? How many pies are apple?
- **Problem Solving Journal** - Students solve a problem with cupcakes showing how to make 8.

Day 4:

- **Problem Solving Slide Deck** - JiJi went to the zoo and saw these two animals in one of the exhibits. JiJi looked down and saw 10 feet. How many giraffes and how many monkeys did JiJi see?
- **Problem Solving Journal** - Students solve a problem to make 10.

Instructional Stations

On Days 1–4, each student will visit two stations per day following the schedule in the Instructional Stations Overview.

Station 1: Small Group Instruction

- Engage students in a math conversation about math concepts using a rich problem.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition Connect Four or Three Cards Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 4 | Day 1

My Thinking Path (5-10 minutes)

- Have students write in the topic, “Making 10.”
- Have students begin working on the first two boxes.
- Discuss their ideas, and allow students to add any additional thoughts they have to their paper.
- Have students complete the Pre-Quiz (optional).

Puzzle Talk: Bouncing Shoes (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with Bouncing Shoes Game Mat, Creature Cards, centimeter cubes, whiteboards, and dry-erase markers.

Notice and Wonder

- Display the first puzzle in Level 1. Ask: “What do you notice? What do you wonder?” Allow a few students to share out.
- Ask students: ”How do you think we fill these shoes?”

Predict and Justify

- Have students think-pair-share about what they would like to try, what will happen when they try it, and why they think it will work.
- 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?
- Count together to prove that the creature they have chosen matches the number of shoes shown (e.g., “I see 1, 2, 3 feet on Robot and 1, 2, 3 shoes.”)

Test and Observe

- Watch the feedback together, and discuss what they saw.

Analyze and Learn

- Ask students to think about how what they saw happen compares to what they thought would happen. What did they learn from the feedback?

Connect and Extend

- Display the first puzzle in Level 2. Give students the Bouncing Shoes Game Mat, centimeter cubes, and JiJi Creatures Cards.
- Compare these puzzles to puzzles in Level 1. As they use their game mat to solve the problem, ask students: “What is different about this puzzle and the ones we solved in Level 1? How do you think we solve this puzzle?”
- Select a volunteer, and discuss their strategy for solving the problem. Do the students agree or disagree, why? Does anyone else have a different strategy? Compare the strategies and as a class decide on one to test.
- Have students write an equation to represent their solution.
- Ask students: “Is there more than one solution to this puzzle? Why? How do you know you have found all of the possible solutions?” Record all of the solutions for each puzzle.
- Repeat with additional puzzles in Level 2 and some puzzles in Level 3.

How does the student:

- model the problem on the Bouncing Shoes Game Mat using math tools?
- find all of the possible creature combinations to fill the shoes?
- explain why all of the possible solutions have been found?
- discuss and chart the math concepts and vocabulary evident in the puzzles?
- represent the puzzle with numbers and symbols?
- write equations to represent the problem and solution?

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 56–57)

- JiJi is making a bracelet. JiJi made a bracelet with 10 beads. How many more beads does JiJi need?

Problem Solving Journal (page 24, top)

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

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Use the Creature Cards to ask questions about how many shoes different combinations of creatures would need and which creatures could wear a certain number of shoes. For example:
  - I have 10 shoes. Which creatures could wear the shoes?
  - Pick two creatures, and tell how many shoes those two creatures would wear.
  - Write equations for the problems, and discuss what the numbers in the equations represent.
- Have students get out a number of two-color counters or other manipulatives. Explore different combinations. For example:
  - Put your counters in two different piles. Write an equation to represent combining your two piles.
  - Discuss the different equations and write equations to show that two different expressions are equal.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition Connect Four or Three Cards Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

Kindergarten | Module 4 | Day 2

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about making 10.

Puzzle Talk: Bouncing Shoes to 10 (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with Bouncing Shoes Game Mat, whiteboards, and dry-erase markers.

Notice and Wonder

- Display the first puzzle in Level 1. Ask: “What do you notice? What do you wonder?” Allow a few students to share out.

Predict and Justify

- Have students predict how to solve this puzzle and use their game mat, paper/whiteboard to show their prediction. Have students share their prediction and the reason they think it will work with a neighbor.
- Have students share out. Discuss different solutions to the puzzle. Write the different strategies on chart paper. Ask students: “Why is there more than one solution? Can all of them be correct? How could we prove that these solutions are correct?”

Test and Observe

- Select one of the students’ ideas to try. Watch the feedback together and discuss what they saw.

Analyze and Learn

- Discuss why it was correct or incorrect. What did they learn from the feedback and is it different than what they thought would happen? Ask students: “Did we learn something that can help us prove that these other solutions are correct?” Discuss other possible solutions. Students can prove it on their mat or by making an equation.
- Pull up other puzzles in Level 1 and 2. Have students write equations to represent their answers on their game mat or whiteboards, and discuss what the numbers in the equations represent.
- Share and prove the solutions as a whole class.
- Ask students: “If you could add one more creature to this puzzle, which creature would it be and why?” Have them think and then group share.
- Share students’ answers, and prove that the total number of shoes can be filled using the new creature as part of an equation.

Connect and Extend

- Record the number sentences the students have discovered. Ask students if there are any additional equations that would equal the total number of shoes and how they know if they have found all of the possible equations.
- Ask students to describe what is occurring in the puzzles. What are they learning? Do they notice any relationships or patterns?
- Write the math concepts/words/skills that students discuss.
- Repeat with additional puzzles in Level 2 and a few puzzles from Level 3.

How does the student:

- model the problem on the Bouncing Shoes Game Mat?
- represent the puzzle with numbers and symbols?
- write equations to represent the problem and solution?
- discuss what the numbers in their equation represent in the puzzle?
- prove that their number sentence equals the total number of shoes?

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 (slide 60)

- Octopus was thinking about all the ways to make 8. Help Octopus make 8.

Problem Solving Journal (page 24, bottom)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students show all the ways to make 7.

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Use the Creature Cards to ask questions about how many shoes different combinations of creatures would need and which creatures could wear a certain number of shoes. For example:
  - I have 10 shoes. Which creatures could wear the shoes?
  - Pick two creatures, and tell how many shoes those two creatures would wear.
  - Write equations for the problems, and discuss what the numbers in the equations represent.
- Have students get out a number of two-color counters or other manipulatives. Explore different combinations. For example:
  - Put your counters in two different piles. Write an equation to represent combining your two piles.
  - Discuss the different equations and write equations to show that two different expressions are equal.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition Connect Four or Three Cards Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 4 | Day 3

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about making 10.

Puzzle Talk: Bouncing Shoes to 10 (20-25 minutes)

¤ Focus on student thinking and developing problem solving skills using the Problem Solving Process.

¤ Provide students with Bouncing Shoes Game Mat, Creature Cards, whiteboards, and dry-erase markers.

Notice and Wonder

- Give students Bouncing Shoes Game Mats and/or Creature Cards.
- Display the first puzzle in Level 1. Ask: “What do you notice? What do you wonder?” Allow a few students to share out the things they notice. Ask: “How is this like the puzzle from yesterday?”

Predict and Justify

- Have students use their Bouncing Shoes Game Mat or Creature Cards to make and prove their predictions to the puzzles you project.
- Have students discuss their predictions and strategies with a neighbor. How are they the same? How are they different? If they are different, can they both be correct?
- Have students share out. Try one of the students’ ideas. Ask the students to think about if they agree or disagree and why. How does it relate to what they had?

Test and Observe

- Watch the feedback together, and discuss what they saw

Analyze and Learn

- Ask students to think about how what they saw happen compares to what they thought would happen. What did they learn from the feedback?
- Discuss different solutions to the puzzle. Ask students: "Why is there more than one solution? How could we prove that all of these solutions are correct?”

Connect and Extend

- Have students write equations to represent their answers and discuss what the numbers in the equations represent.
- Repeat with additional puzzles in Level 1.
- Display the first puzzle in Level 2. Ask students to find both solutions and represent those solutions on their game mats or with the Creature Cards. Share and prove the solutions as a whole class.
- Ask students: “If you could add one more creature to this puzzle, which creature would it be and why?” Have them think and then group share.
- Share students’ answers, and prove that the total number of shoes can be filled using the new creature as part of an equation.
- Record the number sentences the students have discovered. Ask students if there are any additional number sentences that would equal the total number of shoes and how they know if they have found all of the possible number sentences.
- Ask students to describe what is occurring in the puzzles. What are they learning? Do they notice any relationships or patterns?

- Write the math concepts/words/skills that students discuss.
- Repeat with additional puzzles in Level 2 and a few puzzles from Level 3.

How does the student:

- model the problem on the Bouncing Shoes Game Mat?
- represent the puzzle with numbers and symbols?
- write equations to represent the problem and solution?

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 (slide 63)

- Pie Monster wants to eat 10 pies. The pies are either cherry pies or apple pies. How many pies are cherry? How many pies are apple?

Problem Solving Journal (page 25, top)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students solve a problem with cupcakes showing how to make 8.

Instructional Stations (40 minutes)

Students will visit two stations today (20 minutes per station). See Instructional Stations Overview.

Station 1: Small Group Instruction

- Use the Creature Cards to ask questions about how many shoes different combinations of creatures would need and which creatures could wear a certain number of shoes. For example:
  - I have 10 shoes. Which creatures could wear the shoes?
  - Pick two creatures, and tell how many shoes those two creatures would wear.
  - Write equations for the problems, and discuss what the numbers in the equations represent.
- Have students get out a number of two-color counters or other manipulatives. Explore different combinations. For example:
  - Put your counters in two different piles. Write an equation to represent combining your two piles.
  - Discuss the different equations and write equations to show that two different expressions are equal.

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.
- With 5 minutes left, have students stop playing and complete their Puzzle Reflection and Accomplishment Log.

Station 3: Table Games

- Select Addition Connect Four or Three Cards Make Ten.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

ST Math
Summer Immersion

Kindergarten | Module 4 | Day 4

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about making 10.

Puzzle Talk: Bouncing Shoes with Numbers (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Provide students with Bouncing Shoes Game Mat, Creature Cards, centimeter cubes, and whiteboards/dry-erase markers.

Notice and Wonder

- Give students a Bouncing Shoes Game Mat, centimeter cubes, and Creature Cards.
- Display the first puzzle in Level 2. Ask: “What do you notice that is different about this puzzle from the ones we did yesterday? What do you notice that is the same?” Allow a few students to share out.
- Ask students: “How do we know how many shoes we need to fill?"
- Have students use their Bouncing Shoes Game Mat or Creature Cards to make and prove their predictions to the puzzles you project.

Predict and Justify

- Have students discuss their predictions and strategies with a neighbor. How are they the same? How are they different? If they are different, can they both be correct?
- Have students share out. During the share out, check students’ understanding of the number shown and how they will prove they have filled that many shoes.

Test and Observe

- Try one of the students’ ideas. Ask the students to think about if they agree or disagree and why. How does it relate to what they had?
- Watch the feedback together and discuss what they saw.

Analyze and Learn

- Ask students to think about how what they saw happen compares to what they thought would happen. What did they learn from the feedback?
- Discuss different solutions to the puzzle. Engage the students in a conversation about the different thinking and solution strategies that have been presented. Ask students: "Why is there more than one solution? How could we prove that all of these solutions are correct?”
- Have students write equations to represent their answers and discuss what the numbers in the equations represent.

Connect and Extend

- Discuss other possible solutions if they had the missing Creature Cards to use. Ask students: “If you could add 2 more creatures to use to solve this puzzle, which two creatures would you add and why?”
- Allow a couple volunteers to share their thinking and their solution. Repeat with additional puzzles in Level 2.
- Display the first puzzle from Level 3 and have students solve the puzzle. After you have shared solutions, ask questions such as: “If you added (one, two) shoes, how many shoes would you have and how would this change your solution?”
- Display the next puzzle in Level 3. Ask students: “Can you find a solution using three creatures? What would the equation for this look like?” Share students’ solutions and prove the three numbers equal the

total number of shoes. You may ask them to write their solution on their whiteboard or game mat using an equation. Share students' equations. Repeat with additional puzzles from Level 3.

How does the student:

- model the problem on the Bouncing Shoes Game Mat?
- represent the puzzle with numbers and symbols?

Instructional Stations (40 minutes)

Repeat Instructional Stations from Day 3.

Whole Group Games (15-20 minutes)

During this time you will introduce JiJi Sudoku. Students will play this game in the next module in Station 3.

- Introduce JiJi Sudoku using the simple picture game boards.
- Allow students to work together to solve the picture puzzles.
- If there's time, explain that Sudoku is usually played with numbers and share one or two of the additional numeric Sudoku puzzles.

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 (slide 66)

- JiJi went to the zoo and saw these two animals in one of the exhibits. JiJi looked down and saw 10 feet. How many giraffes and how many monkeys did JiJi see?

Problem Solving Journal (page 25, bottom)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students solve a problem to make 10.

Closing (10 minutes)

Thinking and Reflecting Time

- Have students complete the Post-Quiz (optional).
- Have students review 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.

ST Math
Summer Immersion

Kindergarten | Module 4 | Day 5

Design Challenge: Whole Group (40 minutes)

*Note: If students have not finished creating their games you may want to give a set amount of time at the beginning to allow them to finish.

Materials: For this activity you will need to print copies of the Game Tester Report. Each student will need 2-3 copies of the Game Tester Report.

Introduction:

- Today we are going to reflect on and analyze our games and then have classmates play our games and give feedback. We will also create an advertisement for our game.
- Discuss Feedback - why is it important in design? What can be tricky about feedback?
- Prepare students that there may be some changes needed to their games and that might not feel great, but it's an important part of the design process.

Step 6: Test - Watching others play your game

For this step you will create new groups of 4-5 students with one or two students from different Game Design Groups. Students test playing the game of one of the group members while the Game Designers watch.

- **Explain**: Clearly layout the activity to students & divide them up into "Game Testing Groups".
  - This is when students test the games, get feedback, and then see what else they need to do to improve their games.
  - Preview the "Game Tester Report" and discuss how to kindly give feedback.
- **Play:** Give students 10-15 minutes to play a game.
  - When students are done playing the game, ask them to rate the game using the Game Tester Report.
  - Rotate the games, so each group will get a new game. Have students play that game and then complete a feedback sheet.
  - Students can share their feedback with the Game Designer.
  - As students are playing games, monitor student gameplay and use facilitation questions to help support their thinking about games and about math.
  - Students will continue this activity back in their Game Design Small Groups next.

Game Design Small Groups (20 minutes)

Reflect on Feedback

- **Review Feedback: Game Feedback Form (Page 45)**
  - Students should review the feedback collected from the Game Tester Reports.
  - Have students answer the Game Feedback Form on Design Challenge Booklet Page 45.
- **Make Adjustments: Reflecting on Improvement (Page 46)**
  - Fill out Design Challenge Booklet Page 46 together and decide what improvements they want to make.
  - Design Groups should revise their games and ask another classmate to play it again if needed.
- **Optional: Create a game poster**
  - If students complete their game improvements and have some extra time they can use Design Challenge Booklet Page 47 to draw a poster about their game.

** There is time built in during Module 5 to complete games if students do not finish.*

Focused Instructional Time (20 minutes)

- After students complete the Small Group Design task, the remaining time is used for "Focused Instructional Time." There is also an optional ST Math Activity Page that could be done in small or whole group.
- The teacher can assign the activity or allow student choice:
  - **Individual or small group -** Teacher pulls small groups or individual students to work on a specific skill they struggled with during the week or support students on an ST Math puzzle they are stuck on.
  - **Table Games -** Students can choose a Table Game to play with a partner or small group.
  - **ST Math 1:1 -** Students can continue to play ST Math.

Optional: ST Math Activity Page: Bouncing Shoes

- **Play the game**
  - Project the game.
  - Play a few puzzles to help students understand the game.
- **ST Math Activity Page: Bouncing Shoes**
  - Distribute the Activity Page.
  - 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.

ST Math
Summer Immersion

Kindergarten | Module 5

Topic: Decompose Numbers

Module 5 Resources

Students use the relationship between addition and subtraction to solve problems.

Module 5 at a Glance

Printed Resources

- **Bookmarks**
  Problem Solving Process Bookmark
  Problem Solving Facilitation Bookmark
- **Problem Solving Journal** (pages 30-32)
  My Thinking Path
  Problem of the Day
- **Mini-Math Game Design Booklet**
- **ST Math Immersion Debrie ing Bookmark**
- **Learning Showcase & Celebration Invitation**

Optional Printed Resources

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

Teacher Resources

- Teacher Planner
- Reflection Poster Guide
- Mini-Math Game Design Guide
- Learning Showcase and Celebration Guide

Immersion Slide Deck (slides 76–91)

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

Supplies needed for students

- 1 poster board or large sheet of construction paper per student.
- Various supplies to create Mini-Math Game.

My Thinking Path

- In this module, students reflect on the relationship between addition and subtraction to solve problems.

ST Math Puzzle Talks

- Partners

Problem Solving

Note: Students will only complete Problem Solving on Day 1 & Day 2 of this module.

Day 1:

- **Problem Solving Slide Deck** - Have students look at the picture of the hands. Ask them what they see and how they see it. Their answers will vary. Some may see 7, others may see 5 and 2 more. Have students share their thinking. Ask students to use their fingers to show you different ways to make 7.
- **Problem Solving Journal** - Students will solve missing addend problems.

Day 2:

- **Problem Solving Slide Deck** - JiJi is blowing up orange and pink balloons for the party. How many balloons of each color do you think JiJi will blow up? JiJi has 10 balloons for the party. Some balloons are orange. Some balloons are pink. How many are pink, and how many are orange?

Instructional Stations

Students will only have Instructional Stations on Day 1 & 2 of this module and will only have 2 stations. Use this time to give the Post-Assessment and/or Quizzes. They should rotate through both stations each day.

Station 1: Small Group Instruction

- Administer the Post-Assessment and/or Quizzes.
- Students will review Problem Solving Journal.
- Begin discussion around Reflection Poster and Mini-Math Game Design.

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.
- With 5 minutes left, have students stop playing and complete their Accomplishment Log.

Day 3 Thinking and Reflecting Time

Reflection Poster

- Students are going to create a poster that represents the learning they have gained. The poster should reflect how their thinking and understanding have grown. It should be an opportunity for students to show what they know.
- Work with students to review the thinking they have recorded in their Problem Solving Journal (My Thinking Path, Problem of the Day, Exit Tickets, and ST Math Puzzle Reflections) and discuss what they have learned during Immersion.

Option 1: If you did the Game Design Challenge

Students will complete their games and participate in Focused Instructional Time.

Option 2: If you did not do Game Design Challenge Mini Game Design:

Students will create a game similar to the Table Games they have played throughout the program.

- Use the slide deck and Mini-Game Design Booklet to guide students through the process. They will begin with brainstorming games they are familiar with and end by working in small groups to create a game.

Day 4 & Final Day

The Learning Showcase and Celebration occurs on the final day of ST Math Immersion. It will serve as a time for students to showcase their learning. It will also serve as a debrief as students share their projects and respond to questions from those attending the event.

- Parents, board members and community partners can be invited to attend. This is a great opportunity for students to showcase their learning from the Immersion program.
- Provide students time to make any final adjustments to their game and notes for the presentation of their games.

  Have groups present their posters and introduce their games to the class.

  Provide an opportunity for the students to play each other's games.

  Provide each visitor with an Immersion Debriefing Bookmark of questions to ask the students.

ST Math
Summer Immersion

Kindergarten | Module 5 | Day 1

My Thinking Path (5-10 minutes)

- Have students write in the topic, “Breaking up numbers.”
- Have students begin working on the first two boxes.
- Discuss their ideas, and allow students to add any additional thoughts they have to their paper.
- Have students complete the Weekly Pre-Quiz (optional).

Puzzle Talk: Partners (20-25 minutes)

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

Notice and Wonder

- Give students a copy of the Partners Game Mat.
- Display the first puzzle in Level 1. Ask: "What do you notice? What do you wonder?" Allow a few students to share out the things they notice. Ask: “How is this like the puzzle from yesterday?”
- Have students use their Partners Game Mat to make and prove their predictions to the puzzles you project.

Predict and Justify

- Have students discuss their predictions and strategies with a neighbor. How are they the same? How are they different? If they are different, can they both be correct? Have students share out.

Test and Observe

- Try one of the students’ ideas. Ask the students to think about if they agree/disagree and why. How does it relate to what they had?
- Watch the feedback together, and discuss what they saw.

Analyze and Learn

- Ask students to think about how what they saw happen compares to what they thought would happen. What did they learn from the feedback? Ask students: “How does the feedback affect your thinking? What would you like to try now? How many correct answers do you think there are? Why?”
- Discuss different solutions to the puzzle. Why is there more than one solution? Ask students: “How could we prove that all of these solutions are correct?”

Connect and Extend

- Show another puzzle from Level 1. Have students draw pictures, write equations, and/or count their fingers to represent their answers, and discuss with their partner the numbers in the equations represent.
- Ask the students what strategies they are using to come up with the answer, and make a list.
- Try a few in Levels 1 and 2 to watch the feedback and ask students to describe what is occurring in the puzzles. What are they learning? Do they notice any relationships or patterns? Write the math concepts/words/skills that students discuss.
- Display the last puzzle in Level 2. Ask students to write all of the solutions for the puzzle. Choose one of the solutions and ask students if order matters when you add the two numbers (e.g., Is 2 + 5 the same as 5 + 2?). Have students talk with a partner. Share students’ thinking.
- Work together to record ALL of the possible combinations to make the target number.
- Repeat this process to find all of the ways to make different target numbers.

How does the student:

- model the problem on their whiteboard using drawings or math tools?
- discuss and chart the math concepts and vocabulary evident in the puzzles?
- represent the puzzle with numbers and symbols? Can they write equations to represent the problem and solution?
- discuss what the numbers in their equation represent in the puzzle?
- represent the numbers in the puzzle with manipulatives and discuss what the manipulatives represent in the puzzle?

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 70–71)

- Have students look at the picture of the hands. Ask them what they see and how they see it. Their answers will vary. Some may see 7, others may see 5 and 2 more. Have students share their thinking. Ask students to use their fingers to show you different ways to make 7.

Problem Solving Journal (page 31, top)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students will solve missing addend problems.

Instructional Stations (40 minutes)

Students will visit both stations today (20 minutes per station). Instructional Stations will only take place on the first two days of this last module.

Station 1: Small Group Instruction

- Work with students going through their journals, My Thinking Path, Exit Tickets, PODs, Puzzle Reflection, etc., and discuss what they have learned during ST Math Immersion.
- Discuss major concepts and vocabulary they learned and used during ST Math Immersion.
- Have students add to their journal as you discuss things they have learned but may have not yet included in their journal.
- This will prepare the students to complete their Reflection poster on Day 3.

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.
- With 5 minutes left, have students stop playing and complete their Accomplishment Log.

ST Math
Summer Immersion

Kindergarten | Module 5 | Day 2

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about breaking up numbers.

Puzzle Talk: Partners (20-25 minutes)

- Focus on student thinking and developing problem solving skills using the Problem Solving Process.
- Give students the 0–10 Number Line Math Mat and centimeter cubes to use to represent their solutions.

Notice and Wonder

- Give students a 0–10 Number Line.
- Display the first puzzle in Level 4. Ask: "What do you notice? How is this like the puzzle from yesterday?"

Predict and Justify

- Have students discuss their predictions and strategies.

Test and Observe

- Try one of the students' ideas. Ask the students what they think is going to happen. Watch the feedback together, and discuss what they saw.

Analyze and Learn

- Ask students to think about how what they saw happen compares to what they thought would happen. What did they learn from the feedback?
- Have the students use their 0–10 Number Line to show what the solution will look like on a number line.

Connect and Extend

- Have students write equations to represent their solution and show as jumps on the number line.
- Use your judgment on how many puzzles to play through Levels 4, 5 and 6.
- Brainstorm with students the math that they learned in this game.
- Have the students show what the solution will look like on a number line.

How does the student:

- model the problem on their whiteboard using drawings or math tools?
- discuss and chart the math concepts and vocabulary evident in the puzzles?
- represent the puzzle with numbers and symbols? Can they write equations to represent the problem and solution?
- discuss what the numbers in their equation represent in the puzzle?
- represent the numbers in the puzzle with manipulatives and discuss what the manipulatives represent in the puzzle?

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 74–75)

- JiJi is blowing up orange and pink balloons for the party. How many balloons of each color do you think JiJi will blow up? JiJi has 10 balloons for the party. Some balloons are orange. Some balloons are pink. How many are pink, and how many are orange?

Problem Solving Journal (page 31, bottom)

- Students will complete the Problem of the Day independently. Provide guidance as needed.
- Students will solve a problem to make 9.

Instructional Stations (40 minutes)

Students will visit both stations today (20 minutes per station). Instructional Stations will only take place on the first two days of this last module.

Station 1: Small Group Instruction

- Hand out the Post-Assessment and/or Post-Quiz to students.
- Begin a discussion about the Reflection Poster and the Mini-Math Game Design students will be doing on Day 3.
- This would be a good time to let students know that they are going to create a math game.
- Begin the Design Process in small group.
- Take a look at the Mini-Math Game Design Guide.

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.
- With 5 minutes left, have students stop playing and complete their Accomplishment Log.

ST Math
Summer Immersion

Kindergarten | Module 5 | Day 3

Reflection Poster (20 minutes)

Students are going to create a Reflection Poster that represents the learning they have gained. The poster should reflect how their thinking and understanding have grown. It should be an opportunity for students to show what they know.

- With the whole class, brainstorm a list of all the things they have learned this summer. Record their ideas on chart paper.
- Discuss major concepts and vocabulary they learned and used during Immersion.
- Work with students to review the thinking they have recorded in their journals (My Thinking Path, Exit Tickets, PODs, Puzzle Reflection) and discuss what they have learned during Immersion.
- Have students add to their journal as you discuss things they have learned but may have not yet included in their journal. This will prepare the students to complete their poster.
- Ask students to work with their group to see what they might want to include on their poster.
- Instruct groups to make their posters colorful, interesting, and informative so students in other classes will see what they have accomplished in the past few modules.
- Give students time to work on their posters.
- The posters will be displayed for the entire school and families to see on Day 4.

The Reflection Poster is best done as a small group project because that allows students to engage in higher order thinking skills (e.g., evaluating their learning and the ideas of others, synthesizing their thoughts and the thoughts of others, reaching consensus, and working together). It can, however, be done as an individual project. Have students consider their learning and make a poster to share it with others.

Optional: Assessments (20 minutes)

Use this time to give the Post-Assessment and/or Weekly Post-Quiz.

Mini Game Design or Finish Design Challenge (50 minutes)

Did you do the Game Design Challenge?

Yes, Go to:	**No, Go to:**
Finalize Game Designs (Dark Blue Section)	Mini-Math Game Design (Purple Section)

Option 1: Finalize Game Designs (50 minutes)

Game Design Groups: Final Touches

- Students should complete the final touches on their games.
- If they finish they can play each other's games or choose from the Focused Instructional Time.

Focused Instructional Time

The teacher can assign the activity or allow student choice:

- **Individual or small group** - Teacher pulls small groups or individual students to work on a specific skill they struggled with during the week or support students on an ST Math puzzle they are stuck on.
- **Table Games** - Students can choose a Table Game to play with a partner or small group.
- **ST Math 1:1** - Students can continue to play ST Math.

Option 2: Mini-Math Game Design (50 minutes)

Design Process (20 minutes)

During this time, students will be creating their own game. See Mini-Math Game Design Guide.

- Display the slide deck and have them complete the Mini-Math Game Design Booklet to guide them through the process.
- Brainstorm a list of games they have played. Include both the Table Games in Immersion and any other board game they are familiar with. Record the list on a whiteboard or chart paper.
- Take the opportunity to discuss the games that students have learned to play. Compare and contrast the games and share opinions, strategies, and experiences. Discuss the impact any of the games have had on the games students are designing.
- When thinking about the game they would like to design, ask students what math concepts they will include.

Making the Game (30 minutes)

During this time, students will be making their game.

- As students are designing their game, they should decide on a game name, directions, and rules for their game.
- Students will work in small groups to create a game. Provide them with the supplies needed. The list below are samples of items that could be used.
    - Dice or number cubes
    - Construction paper
    - Scissors
    - Poster board
    - Manila folders
    - Index Cards
    - Egg cartons
    - Water bottles
    - Pizza circles
    - Paper towel rolls
    - Buttons
    - Other creative items
- Once students have a game created, they should test it out with their classmates and make any changes needed. They should complete page 3 in the Mini-Math Game Design Booklet.
- The students will be presenting their games at the Learning Showcase and Celebration on Day 4. They will be given the opportunity to play games with the guests.

Prepare for Learning Showcase and Celebration

- Discuss what students will need to do tomorrow during the Showcase. Include details about:
    - Organizing games and displays
    - Setting up posters
    - Expectations for the day

ST Math
Summer Immersion

Kindergarten | Module 5 | Day 4

***Final Day?** If today is your final day of ST Math Summer Immersion, skip Day 4 and jump to the Final Day.

Focused Instructional Time (45-70 minutes)

- The teacher can assign the activity or allow student choice:
  - **Reflection Poster** - Students should make sure their reflection posters are complete.
  - **Game Design** - If students have not finished their games, this is the last opportunity.
  - **Table Games** - Students can choose a Table Game to play with a partner or small group.
  - **ST Math 1:1** - Students can continue to play ST Math.

Prepare for the Learning Showcase

Discuss what students will need to do tomorrow during the Showcase. Include details about:

- Organizing games and displays
- Setting up posters
- Expectations for the day
- Time to practice presentations
- Preparing answers to Immersion Debriefing Bookmark questions

Kindergarten | Module 5 | Final Day

Learning Showcase and Celebration

Families, board members, and community partners can be invited to attend. This is a great opportunity for students to showcase their learning from the Immersion program.

- Provide students time to make any final adjustments to their game and notes for the presentation of their games.
- Have groups present their Reflection Posters and introduce their games to the class.
- Provide invited guests a copy of the Immersion Debriefing Bookmark. They should ask students those questions as they visit with each group.
- Provide an opportunity for the students to play each other's games.
- Reflection Poster Gallery Walk (See Learning Showcase and Celebration Information.)

Optional Activity Page

ST Math Activity Page

Students will have one final Activity Page left. Encourage students to keep practicing their math skills by continuing to play ST Math Puzzles at home and by completing this final Activity Page.

ST Math

PROBLEM SOLVING PROCESS

NOTICE & WONDER

Focus **students' thinking about the problem.**

- What do you notice?
- What do you wonder?
- What question is the problem asking?

PREDICT & JUSTIFY

Uncover **students' thinking around how they plan to address the problem.**

- What is your prediction?
- What strategy will you use to test it?
- What do you think will happen when you test your prediction and why?

TEST & OBSERVE

Encourage **students to observe and process the results of testing their hypothesis.**

- Test your hypothesis.
- Describe what happened.

ANALYZE & LEARN

Facilitate **students in analyzing the feedback/results.**

- How does this compare to what you thought would happen?
- What did you learn?
- How will you use what you learned?

CONNECT & EXTEND

Stretch **students' thinking.**

- How does what you learned support your understanding of [the concept]?
- What would happen if_____?
- How would you apply this concept to [this] situation?

ST Math

PROBLEM SOLVING PROCESS

NOTICE & WONDER

Focus students' thinking about the problem.

- What do you notice?
- What do you wonder?
- What question is the problem asking?

PREDICT & JUSTIFY

Uncover students' thinking around how they plan to address the problem.

- What is your prediction?
- What strategy will you use to test it?
- What do you think will happen when you test your prediction and why?

TEST & OBSERVE

Encourage students to observe and process the results of testing their hypothesis.

- Test your hypothesis.
- Describe what happened.

ANALYZE & LEARN

Facilitate students in analyzing the feedback/results.

- How does this compare to what you thought would happen?
- What did you learn?
- How will you use what you learned?

CONNECT & EXTEND

Stretch students' thinking.

- How does what you learned support your understanding of [the concept]?
- What would happen if_____?
- How would you apply this concept to [this] situation?

ST Math

PROBLEM SOLVING PROCESS

When your students struggle with...

Getting Started
- What do you need to do to solve this problem?
- What do you know about this problem and what do you need to know?
- What question is this problem asking you to solve?
- How might you begin?

Identifying and Testing Strategies
- What is your strategy? Why is that the best strategy?
- What will happen if you click on _____?

Persevering
- Is there anything you learned from those earlier levels that can help you now?
- Is this like _____ that you did earlier? How is it the same? How is it different?
- What have you tried? What happened?
- What did you try that did not work? Why did it not work?
- What do you already know about (concept/problem)?

Learning from Feedback
- What did you learn from the feedback?
- What do you need to do next?
- What did you see that showed you the answer was wrong?
- Explain why your answer was correct or incorrect.
- How did the earlier problems/levels work?

Extending and Connecting
- Please explain it in a different way.
- Is there another way to solve this puzzle?
- Can you represent this puzzle symbolically?
- Show me how this will work on the next problem.
- Why did you ____?

ST Math

PROBLEM SOLVING PROCESS

When your students struggle with...

Getting Started
- What do you need to do to solve this problem?
- What do you know about this problem and what do you need to know?
- What question is this problem asking you to solve?
- How might you begin?

Identifying and Testing Strategies
- What is your strategy? Why is that the best strategy?
- What will happen if you click on _____?

Persevering
- Is there anything you learned from those earlier levels that can help you now?
- Is this like _____ that you did earlier? How is it the same? How is it different?
- What have you tried? What happened?
- What did you try that did not work? Why did it not work?
- What do you already know about (concept/problem)?

Learning from Feedback
- What did you learn from the feedback?
- What do you need to do next?
- What did you see that showed you the answer was wrong?
- Explain why your answer was correct or incorrect.
- How did the earlier problems/levels work?

Extending and Connecting
- Please explain it in a different way.
- Is there another way to solve this puzzle?
- Can you represent this puzzle symbolically?
- Show me how this will work on the next problem.
- Why did you ____?

ST Math® Summer Immersion provides students in grades K-5 with an opportunity to accelerate math learning during the summer months. Students experience engaging and fun puzzles, lessons, and projects that focus on grade-level development of content knowledge, reasoning skills, and growth mindset.

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