



Kindergarten | Module 5

Topic: Decompose Numbers

[Module 5 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 5 at a Glance

Printed Resources

- **Bookmarks**
 - Problem Solving Process Bookmark
 - Problem Solving Facilitation Bookmark
- **Problem Solving Journal** (pages 29–31)
 - My Thinking Path
 - Problem of the Day
- **Mats**
 - Partners Game Mat
 - 0 to 10 Number Line Math Mat
- **Mini-Math Game Design Booklet**
- **ST Math Immersion Debriefing Bookmark**
- **Learning Showcase & Celebration Invitation**

Optional Printed Resources

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

Teacher Resources

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

Immersion Slide Deck (slides 67–75)

- 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.

ST Math Puzzle Talk

- Partners

My Thinking Path

- This module, students reflect on decomposing numbers.

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.

Problem Solving (continued)

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?
- **Problem Solving Journal** - Students will solve a problem to make 9.

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.

Day 3 Thinking and Reflecting Time

PART 1: 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 has 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.

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.

PART 2: Mini-Math Game Design

- Students will create a game similar to the Table Games they have played throughout the program.
- Use the slide deck and Mini-Math 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 Learning Showcase and Celebration

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.



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 to their paper any additional thoughts they have.
- 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 30, 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 Puzzles 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 Accomplishments Log.



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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 30, 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 Accomplishments Log.



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Reflection Poster (30 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 has 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 parents 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 think about all of the things that they have learned and make a poster to share what they have learned.

Mini-Math Game Design (Teacher-led) (50 minutes)

Design Process (20 minutes)

See [Mini-Math Game Design Guide](#).

During this time, students will be creating their own game. 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 and on page 2 in the Mini-Math Game Design Booklet.
- 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.
 - Number Kicker
 - Make Ten Concentration
 - Addition War
 - Pyramid Make Ten
 - Tic-Tac-Ten
 - Number Line Race
 - Addition Connect Four
 - Three Cards Make Ten
 - JiJi Sudoku
- When thinking about the game they would like to design, ask students what math concepts they will include.

Mini-Math Game Design (continued)

Making the Game (30 minutes)

During this time, students will be creating a game.

- When thinking about the game they would like to design, ask students what math concepts they will include.
- As students are designing their game, they should decide on a game name and 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 Tomorrow (10 minutes)

- 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



Kindergarten | Module 5 | Day 4

Learning Showcase and Celebration (Final Day of Program)

Parents, board members, and community partners can be [invited](#) [\[Spanish\]](#) 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 in their Activity Pages. Encourage students to keep practicing their math skills by continuing to play ST Math Puzzles at home and by completing this final activity page.

Closing

Thinking and Reflecting Time

- Have students complete the Post-Quiz (optional).
- Engage students in discussions about what they have learned this summer, what they have questions about, and what they would like to learn more about.