



Grade 1 | Module 5

Topic: Relationship between addition and subtraction

[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
- **K-2 Table Games**
 - 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
- **ST Math Immersion Debriefing Bookmark**
- **Learning Showcase & Celebration Invitation**

- **Problem Solving Journal** (pages 29–31)
 - My Thinking Path
 - Problem of the Day
- **Design Challenge Booklet** (page 16)

Optional Printed Resources

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

Teacher Resources

- Teacher Planner
- Learning Showcase and Celebration Guide
- Reflection Poster Guide

Immersion Slide Deck (slides 76–87, 94–96)

- 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 Table Game.

My Thinking Path

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

ST Math Puzzle Talk

- Missing Addend

Problem Solving

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

Day 1:

- **Problem Solving Slide Deck** - There are ducks in the pond. Some ducks are white and some ducks are yellow. If there are 10 ducks in the pond, how many could be white and how many could be yellow?
- **Problem Solving Journal** - Students will solve missing addend problems.

Problem Solving (continued)

Day 2:

- **Problem Solving Slide Deck** - Dot is on a number line. Show me all the ways I can get to 10 in 2 jumps.
- **Problem Solving Journal** - Students will solve a number line problem.

Thinking and Reflecting Time (whole group)

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. They can begin to brainstorm on page 55 of the Problem Solving Journal. *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.*

Instructional Stations

Students will only have two stations this module (20 minutes in each station). Use this time to give the Post-Assessment and/or Quizzes and allow students to finish their games and reflection posters.

Station 1a: Small Group Instruction

- Days 1 & 2: Engage students in a rich math conversation about math concepts using a rich problem.

Station 1b: Reflection Poster

- Days 3 & 4: Give students time to continue working on their reflection poster.

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.

Station 3: Table Games

- Days 1 & 2: Students solve Sudoku puzzles.
- Days 3 & 4: Students play one of the games they have learned.

Station 4: Design Challenge

- Days 1 - 4: Students play each other's games, make revisions, and produce the final version.

Day 5: 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 games 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.



Grade 1 | Module 5 | Day 1

My Thinking Path (5-10 minutes)

- Have students write in the topic, "Relationship between adding and subtracting"
- Have students complete the My Thinking Path page in their Problem Solving Journal.
- Discuss their ideas, and allow students to add to their paper any additional thoughts they have.
- Have students complete the Pre-Quiz (optional).

Puzzle Talk: Missing Addend (20-25 minutes)

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

Notice and Wonder

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

Predict and Justify

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

Test and Observe

- Test out one student's strategy. Watch the feedback together and discuss what you saw.

Analyze and Learn

- Ask students to think about how what they saw happen compares to their prediction.

Connect and Extend

- Display another puzzle from Level 1, and have students create an equation that could represent the puzzle. Make sure they are including a letter or symbol for the unknown.
- Share students' equations and discuss strategies for finding the unknown. For example, if the puzzle shows $? + 2 = 5$, students could count on from 2 to get to 5, use the problem $5 - 2 = ?$, etc.). Solve the puzzle and repeat with other puzzles in Level 1.
- After playing a few puzzles, teach students the term *commutative property* by using the animation in the puzzles to prove that order doesn't matter when you add.
- Before showing puzzles in Level 2, have students record one combination of two numbers that add up to 6, 7, 8, and 9 (one combination for each number), and ask: "Are there more combinations of numbers to make this whole?" For example, students may write $5 + 1$, $4 + 3$, $4 + 4$, and $3 + 6$.
- Show 3-4 puzzles from Level 2. Say to students: "Now we will play a game. When we see a puzzle in Level 2, if you have the combination that is represented in the puzzle, do a silent thumbs up, or cheer."
- Discuss and record other combinations of numbers that could be placed on top of the bottom number.
- Choose a puzzle in Level 2. Pause the puzzle before JiJi gets all of the way across. Say to students: "JiJi just walked over a part-part-whole model of this puzzle. These numbers form a number bond (or fact family). We can use the numbers in a number bond (or fact family) to create two addition and two subtraction equations."
- Have students write addition and subtraction equations to represent the puzzle. Share out as a whole group.

How does the student:

- represent the puzzle with an equation?
- identify the unknown in the puzzle?
- explain the commutative property of addition?
- understand the relationship between addition and subtraction?
- use number bonds (or fact families) to solve for the unknown?

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 79–80)

- There are ducks in the pond. Some ducks are white, and some ducks are yellow. If there are 10 ducks in the pond, how many could be white and how many could be yellow?

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 rotate through the stations (20 minutes each). Use this time to give the Post-Assessment and allow student to finish their games.

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 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 poster.

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.

Station 3: Table Games

- Have students solve the Sudoku puzzles.

Station 4: Design Challenge

- Have students finish their games.
- Students who finish early can play any of the games they learned at the games station.



Grade 1 | Module 5 | Day 2

My Thinking Path (5-10 minutes)

- Have students reflect on what they have learned about using the relationship between addition and subtraction to solve problems. They should complete the My Thinking Path reflection page.

Puzzle Talk: Missing Addend (20-25 minutes)

- Provide students with whiteboards/dry erase markers.

Notice and Wonder

- Show a puzzle from Level 3. (All of these are combinations to 10.) Ask students: “What do you notice? What do you wonder?” Allow students to share.

Predict and Justify

- Have students make a prediction and determine a strategy for solving the puzzle.
- Do a student share out. Ask the students to think about if they agree/disagree with the strategy and why.

Test and Observe

- Try a student's solution. 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? Be sure to analyze the feedback in both correct and incorrect solutions.
- After showing the first puzzle, tell students that the puzzles in this level are all combinations to 10.

Connect and Extend

- Have them draw a Tic-Tac-Toe board on paper or on their whiteboards before you continue.
- Have them place an expression in each of the nine cells that is a possible combination to make 10.
- Explain that the order will matter. For instance, if they have $3 + 7$ and a puzzle shows 7 first and then 3, they cannot mark that cell. As you show the puzzles have students put an X through the combinations, if they have it.
- If there is extra time, play the Bingo game as you solve the puzzles.
- If no one has bingo by the end of the game, go out of and back into that level and play again. NOTE: If someone gets bingo really fast, tell students they need to get two rows or even blackout.

How does the student:

- represent the puzzle with an equation?
- identify the unknown in the puzzle?
- explain the commutative property of addition?
- understand the relationship between addition and subtraction?
- use number bonds (or fact families) to solve for the unknown?

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 83–84)

- Dot is on a number line. Show me all the ways I can get to 10 in two jumps.

Problem Solving Journal (page 30, bottom)

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

Instructional Stations (40 minutes)

Students will rotate through the stations (20 minutes each). Use this time to give the Post-Assessment and/or Post-Quiz (optional) and allow students to finish their games.

Station 1: Small Group Instruction

- Work with students going through their journals, My Thinking Path, Exit Tickets, PODs, 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 poster.

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.

Station 3: Table Games

- Have students solve the Sudoku puzzles.

Station 4: Design Challenge

- Have students finish their games.
- Students who finish early can play any of the games they learned at the games station.



Grade 1 | Module 5 | Day 3

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.

- Work with students to review the thinking they have recorded in their journals (My Thinking Path, Exit Tickets, PODs, Puzzle Reflection, etc.) and discuss what they have learned during Immersion. Discuss major concepts and vocabulary they learned and used 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 begin working on their posters using the Reflection Poster Brainstorm page in their Problem Solving Journal.
- The posters will be displayed for the entire school and parents to see on Day 5.

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 begin to think about all of the things that they have learned and make a poster to share what they have learned.

Whole Group Table Games (20 minutes)

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

Focused Instructional Time(40 minutes)

Focused Instructional Time

- In this time, students must complete the survey, their game, and their reflection poster.
- If everything is completed, they may choose to play their own games, ST Math puzzles, or the board games; or practice their presentations.

Station 1a: Small Group Instruction

- Use this time to give the Post-Assessment to students in small groups or individually as you read the questions for those who need support.

Station 1b: Reflection Poster

- Give students time to continue working on their reflection poster.

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.

Station 3: Table Games

- Allow students to choose one of the games they have learned.
- Have students play that game.

Station 4: Design Challenge

- Have students finish their games and reflection posters.
- Students who finish early can play any of the games they learned at the games station.



Grade 1 | Module 5 | Day 4

Focused Instructional Time (45-70 minutes)

Focused Instructional Time

- In this time, students must complete the survey, their game, and their reflection poster.
- If everything is completed, they may choose to play their own games, ST Math puzzles, or the board games; or practice their presentations.

Station 1a: Small Group Instruction

- Use this time to give the Post-Assessment to students in small groups or individually as you read the questions for those who need support.

Station 1b: Reflection Poster

- Give students time to continue working on their reflection poster.

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.

Station 3: Table Games

- Allow students to choose one of the games they have learned.
- Have students play that game.
- Ask students to complete an Exit Ticket during the final 5 minutes.

Station 4: Design Challenge

- Have students finish their games and reflection posters.
- Students who finish early can play any of the games they learned at the games station.

Prepare for Tomorrow (20 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
 - Time to practice presentations

Closing (10 minutes)

Thinking and Reflecting Time

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



Grade 1 | Module 5 | Day 5

Learning Showcase and Celebration (Final Day of Program)

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 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.