

Grade 1 Advanced / Gifted and Talented (GT) Mathematics
Oh, the Places You'll Go: A Unit in Operations and Algebraic Thinking
Lesson Plan 1. Operations and Algebraic Thinking “Oh, The Places You’ll Go!”

Background Information	
Content/Grade Level	<p>Mathematics: Grade 1 GT Domain: 1.OA-Operations and Algebraic Thinking Clusters: Understand and apply properties of operations and the relationship between addition and subtraction; Add and subtract within 20; Work with addition and subtraction equations.</p>
Unit	<p>1.OA.B.3-4; 1.OA.C.6; 1.OA.D.7-8 Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p><i>This lesson plan addresses the Standards listed above. Additional Lesson Plans will need to be developed for the remaining Standards in the Grade 1 Domain ‘Operations and Algebraic Thinking’.</i></p> <p><i>The Lesson Seeds which are part of the GT Unit will address the following Standards:</i> 2.OA.A.1 1.NBT.C.4 1.OA.C.6 2.OA.B.2 2.OA.C.3 2.NBT.A.4 2.NBT.C.5</p> <p>After completing the activities in this Gifted and Talented Grade 1 Lesson Plan and the accompanying Grade 1 Lesson Seeds, students will complete the Problem- Based Learning (PBL) Task. Lesson Seed One introduces the PBL task.</p>
Essential Questions/Enduring Understandings Addressed in the Lesson	<ul style="list-style-type: none"> • What do numbers convey? • How can numbers be expressed, ordered, and compared? • What are the addition properties of whole numbers? • In what way can numbers be composed and decomposed? • What are different models of and models for addition and subtraction? • How do addition and subtraction relate to each other? • Numbers can represent quantity in a variety of ways.



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	<ul style="list-style-type: none"> • Computation involves taking apart and combining numbers using a variety of approaches. • Flexible methods of computation involve grouping numbers in strategic ways. • The commutative and associative properties for addition of whole numbers allow computations to be performed flexibly. This includes mental math as well as paper and pencil computation.
Standards Addressed in This Lesson	<p>1.OA.B.3 Apply properties of operations as strategies to add and subtract.</p> <p>1.OA.B.4 Understand subtraction as an unknown-addend problem.</p> <p>1.OA.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.</p> <p>1.OA.D.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.</p> <p>1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.</p> <p>1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones' and sometimes it is necessary to compose a ten.</p> <p>2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and or the relationship between addition and subtraction.</p> <p>2.OA.C.3 Determine whether a group of objects has an odd or even number of members, e.g. by pairing objects or counting them by 2s; write an equation to express an even number as the sum of two equal addends.</p>
Lesson Topic	Solving addition and subtraction challenges using various strategies.
Relevance/Connections	It is critical that the Standards for Mathematical Practices are incorporated in ALL lesson activities throughout the unit as appropriate. It is not the expectation that all eight Mathematical Practices will be evident in every lesson. The Standards for Mathematical Practices make an excellent framework on which to plan your instruction. Look for the infusion of the Mathematical Practices throughout this unit.
Student Outcomes	<p>The student will:</p> <ul style="list-style-type: none"> • Explain how switching the place of the addends results in the same sum. • Match sums with correct addition sentences.



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	<ul style="list-style-type: none"> • Add and subtract one and two digit numbers using a variety of strategies. • Practice using symbols + and = to create an equation. • Explain how the same sum can be composed from many different addends. • Solve for an unknown in an equation. • Determining all of the possible addends that equal a specific sum.
<p>Prior Knowledge Needed to Support This Learning</p>	<ul style="list-style-type: none"> • How to compose and decompose numbers. • Understand parts and wholes. • Fluently add and subtract within 10. • Compare numbers with 100.
<p>Method for determining student readiness for the lesson</p>	<p>Materials:</p> <ul style="list-style-type: none"> • Math Journals (one per student) <p>Pre-assess the students by asking them these questions during a diagnostic interview, or asking students to respond to the following questions in their Math Journals:</p> <ul style="list-style-type: none"> • “If you did not know the answer to $12-7$, what are some ways you could find the answer?” • “Gus has 12 tickets. He needs 20 tickets for the game he wants to play. Does Gus have enough tickets? If not, how many more tickets does Gus need?” Explain how you got your answer. <p>These questions allow students to solve the task using either addition or subtraction and allow the teacher to see the strategies a student might use. For additional information, refer to the Common Core State Standards, page 88, at: http://www.corestandards.org/Math</p>



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Learning Experience		
Component	Details	<i>How will this experience help students to develop proficiency with one or more of the Standards for Mathematical Practice? Which practice(s) does this address?</i>
Warm Up!	Materials: <ul style="list-style-type: none"> • Resource Sheet 1: Footprint Number Cards (precut prior to beginning the lesson) • Document Camera • Display the Footprint Number Cards on document camera or on the board to make matching pairs of feet equal to 10. Ask the students if it is possible to use three addends and all of the feet to make sums of 10. • Record students' solutions on the board. 	
Motivation	Materials: <ul style="list-style-type: none"> • <u>Oh, the Places You'll Go!</u> By Dr. Seuss. • Tell the students we are going on a trip to explore numbers and operations in many different places. • Read the book <u>Oh, the Places You'll Go!</u> By Dr. Seuss aloud to the class. 	
Activity 1 UDL Components <ul style="list-style-type: none"> • Multiple Means of 	Materials: <ul style="list-style-type: none"> • Resource Sheet 1: Footprint Number Cards (precut and bagged), one per students. You may wish to 	MP1 is evident in this activity as students make sense of problems and persevere in solving them. They will explain to themselves the meaning of the problem and look for



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Learning Experience		
<p>Representation</p> <ul style="list-style-type: none"> • Multiple Means for Action and Expression • Multiple Means for Engagement <p>Key Questions Formative Assessment Summary</p>	<p>copy these on cardstock and laminate them.</p> <ul style="list-style-type: none"> • Resource Sheet 2: Go Right Along Teacher Direction Sheet (one copy for the teacher) • Resource Sheet 3: Go Right Along Student Activity Sheet (one copy per student) • Resource Sheet 4: Create a Number Puzzle • Resource Sheet 5: Sample Puzzles • Resource Sheet 6: Scoring Rubric for Create a Number Puzzle • Tubs of various manipulatives for each table (such as two color counters, connecting cubes, Digi-Blocks, or bears). <p>UDL Components</p> <ul style="list-style-type: none"> • Representation is present in the activity through the use of manipulatives. • Expression is present in the activity through the use of partner and independent work. The extension allows students to create their own version of the puzzle. • Engagement is present through the use of manipulatives and discussions. The activity is open-ended allowing students to explore multiple means of solving the problem as well as multiple solutions for the problem. 	<p>multiple ways to solve it.</p> <p>MP2 Students will reason abstractly and quantitatively by creating a representation of the problem while attending to the meanings of the quantities.</p> <p>MP3 Students will construct viable arguments and critiques the reasoning of others by explaining how they solved the problem. They may also explain why multiple solutions are possible.</p> <p>MP4 Students will model with mathematics as they solve the problem.</p> <p>MP6 Students will attend to precision as they solve the problem and explain the steps with clear and precise language in their discussions with other students.</p> <p>MP8 Students will look for and express regularity in repeated reasoning as they have multiple opportunities to find solutions. They continually check their work by asking themselves, "Does this make sense?"</p>



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Learning Experience

Activity Development:

- Copy the following on chart paper and read aloud to the class or have a student read it for the class:

Go Right Along
*Out there things can happen
and frequently do
to people as brainy
and footsy as you.
And when things start to happen,
don't worry. Don't stew.
Just go right along.
You'll start happening too.*

- Begin this activity by giving each student a set of Footprint Number Cards using only 0-9 (Resource Sheet 1).
- Ask the students to place the cards face- up on their desks.
- Ask, "How many different ways can a sum of 12 be found using three cards?"
- Allow students time to find their sums. Record each way as an equation. Students share their different ways of finding 12 ways with a partner or small group. Help them record any equations they may have missed.
- Ask students questions such as :
 - What strategies did you use to discover new equations?
 - Does it matter which order you put the number cards? Why or why not?



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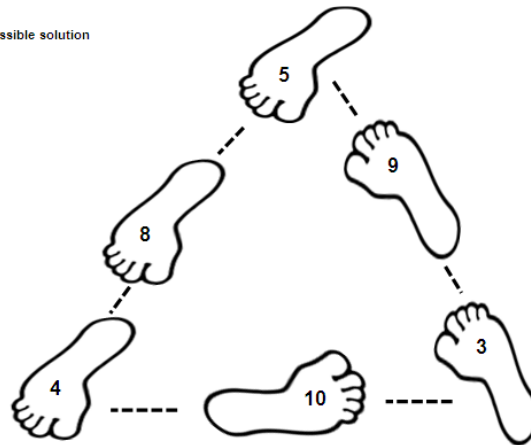
Learning Experience		
	<ul style="list-style-type: none">○ Is $8+3+1$ the same as $3+1+8$? How do you know?● Collect the footprint cards.● Read over Resource Sheet 2: Go Right Along Teacher Direction Sheet prior to continuing.● Display Resource Sheet 3: Go Right Along Student Activity Sheet on the document camera. Read over the directions with the class.● Distribute a copy of Resource Sheet 3 to each student.● Have available tubs of various manipulatives for each table (such as two color counters, connecting cubes, Digi-Blocks, number lines, or bears).● Provide each student with several post-it notes to record the numbers for their solutions.● Students share their solutions.● One possible solution:	



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Learning Experience

One possible solution



Key Questions:

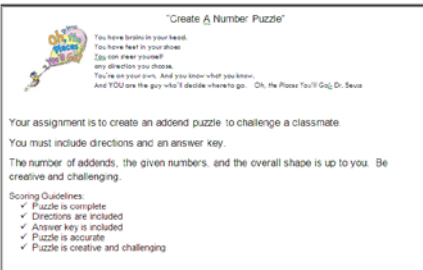
- What strategy or strategies did you use as you began to find a solution to the puzzle?
- Can you find more than one solution?
- Where did you find it the easiest to begin? Why?
- What other sums would work well for this puzzle?
- What if you were given only one number, would the puzzle be easier or more difficult to solve? Explain.

Formative Assessment:

- Distribute Resource Sheet 4: Create A Number Puzzle.



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	<ul style="list-style-type: none"> • If students need some suggestions or additional ideas, share Resource Sheet 5: Sample Puzzles. • Use the puzzles for additional challenge and practice with these concepts as center activities or homework. • Use Resource Sheet 6: Scoring Tool for Create a Number Puzzle. 	
<p>Activity 2</p> <p>UDL Components</p> <ul style="list-style-type: none"> • Multiple Means of Representation • Multiple Means for Action and Expression • Multiple Means for Engagement <p>Key Questions Formative Assessment Summary</p>	<p>Materials:</p> <ul style="list-style-type: none"> • Resource Sheet 7: <i>Ace of Numbers</i> Game Directions, Equation Cards, and Teacher Discussion Questions (copy the directions for each student, and cut and bag the equation cards so that there are enough for each pair of students) • Resource Sheet 8: <i>Life's a Great Balancing Act</i> (one per student) • Document Camera • Tubs of various manipulatives for each table (such as two color counters, connecting cubes, Digi-Blocks, number lines, or bears). • Resource Sheet 9: <i>Solving for the Unknown</i> Exit Tickets (pre-cut, one exit ticket per student) 	<p>MP1 Students will make sense of problems and persevere in solving them. They will explain to themselves the meaning of the problem and look for multiple ways to solve it.</p> <p>MP2 Students will reason abstractly and quantitatively by creating a representation of the problem while attending to the meanings of the quantities.</p> <p>MP3 Students will construct viable arguments and critiques the reasoning of others by explaining how they solved the problem. They may also explain why multiple solutions are possible. Students will also demonstrate this</p>



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Learning Experience		
	<p>Activity Development:</p> <ul style="list-style-type: none"> Copy the following on chart paper and read aloud to the class or have a student read it for the class: <p style="text-align: center;">Life's A Great Balancing Act <i>Step with care and great tact and remember that Life's a Great Balancing Act. Just never forget to be dexterous and deft. And never mix up your right foot with your left.</i></p> <p>UDL Components</p> <ul style="list-style-type: none"> Representation is present in the activity through the use of manipulatives as well as representations of numbers. Multiple strategies for solving for an unknown in an equation are provided to students. Expression is present in the activity through the use of partner and independent work. Engagement is present through the use of manipulatives and discussions. The activity is open-ended allowing students to explore multiple means of solving the problem as well as multiple solutions for the problem. <p>Activity:</p> <ul style="list-style-type: none"> Explore the meaning of an unknown in an equation by modeling several problems. Distribute Resource Sheet 7: Ace of Numbers Game Directions to each student. Provide each student with a set of Equation Cards. Read over the Teacher Discussion Questions. Have students solve the equations using strategies of 	<p>practice as they support or refute the statement about the value of the cube.</p> <p>MP4 Students will model with mathematics as they solve the problem.</p> <p>MP6 Students will attend to precision as they solve the problem and explain the steps with clear and precise language in their discussions with other students.</p> <p>MP7 Students will look for and make use of structure as they look for patterns of the shapes on the balances.</p> <p>MP8 Students will look for and express regularity in repeated reasoning as they have multiple opportunities to find solutions. They continually check their work by asking themselves, "Does this make sense?"</p>

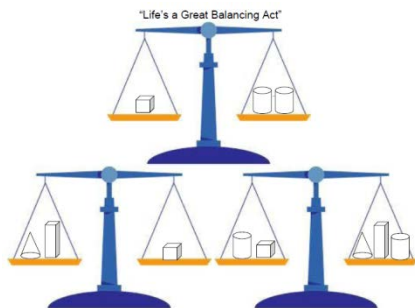


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their choice.

- Note: Some cards have three addends. Add these cards in for students who are ready for the extra challenge.
- As students to play the game, observe them and take notes. Check equations by having students explain the strategies they used to find the missing number in these equations.
- Explicitly show students who are struggling how manipulatives or representations can be used to solve for an unknown.
- Bring the class together for a discussion about the game.
- You may want to begin the next part of the activity on a different day.
- Display Resource Sheet 8: *Life is a Great Balancing Act* on a document camera.



- Pose the problem to the students by writing the directions on the board: **“Using the objects shown on the following balances, tell what number each object represents. Explain how you found each**



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number."

- Ask students to explain what the balances and shapes represent. Write these statements on chart paper.
 - Each three dimensional shape represents the same number on all three balances.
 - The value of the numbers on each side of the balance is the same.
 - The number of objects on each side of the balance does not matter.
- Ask students to think, pair, share with a partner how they might begin to solve this problem. For instance they may notice the first balance has 2 cylinders on one side and a cube on the other. They can relate this to doubles facts. Once students find the answer for one of the balances, they will use the solution to solve the other balances.
- Distribute Resource Sheet 8 to each student.
- Provide students with tubs of manipulatives to choose from as they represent a number for each of the shapes as they explore possible solutions.
- Allow students time to solve the problem independently.
- Pair students and have them share their solutions with one other. Students should realize there can be multiple solutions to this problem because the unknown is represented by all of the shapes. Once a value is chosen for one shape the remaining unknowns can be solved. Students may realize the first balance contains a doubles fact.
- Allow students to explore different strategies for solving the problem as well as multiple solutions.



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	<p>Key Questions:</p> <ul style="list-style-type: none"> • What patterns do you notice? • What strategies did you use to solve the problem? • Why are there multiple answers? • How can properties of addition help you solve unknown addend problems? <p>Formative Assessment:</p> <ul style="list-style-type: none"> • Distribute one of the four exit tickets on Resource Sheet 9: Solving for the Unknown Exit Tickets to each student. Ask the students to write their names on the back of the exit tickets. • Allow students to use manipulatives and/or drawing to help them solve the equations. • Another option for an additional assessment could be to utilize Voice Thread or Voki as a communication tool for the students. Have them solve for the unknown in an equation and then record their explanation using one of these programs. Recordings can be shared with the class. 	
<p>Activity 3</p> <p>UDL Components</p> <ul style="list-style-type: none"> • Multiple Means of Representation • Multiple Means for Action and Expression 	<p>Materials:</p> <ul style="list-style-type: none"> • Virtual hundred board or a hundred pocket chart (optional) • Resource Sheet 10: Hundred Board (one copy per student) • Have available tubs of various manipulatives for each table (such as two color counters, connecting cubes, Digi-Blocks, number lines, or bears). 	<p>MP1 Students will make sense of problems and persevere in solving them. They will explain to themselves the meaning of the problem and look for ways to solve it.</p> <p>MP4 Students will model with mathematics as they solve the problem. They may use a hundred board or base ten blocks to help them</p>



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Learning Experience		
<ul style="list-style-type: none"> Multiple Means for Engagement <p>Key Questions Formative Assessment Summary</p>	<ul style="list-style-type: none"> Resource Sheet 11: Directions for Race to 100 (one per student) Resource Sheet 12: Race to 100 Recording Sheet (one per pair of students) 10-sided die (one per pair of students) Base-ten blocks Resource Sheet 13: Double Ten Frames (enough for each student to have one or two as an optional resource) Resource Sheet 14: Make Up Your Mind (one per student) <p>Activity Development:</p> <ul style="list-style-type: none"> Copy the following on chart paper and read aloud to the class or have a student read it for the class: <p style="text-align: center;">Make Up Your Mind <i>And IF you go in, should you turn left or right... or right-and-three-quarters? Or, maybe, not quite? Or go around back and sneak in from behind? Simple it's not, I'm afraid you will find, for a mind-maker-upper to make up his mind.</i></p> <p>UDL Components</p> <ul style="list-style-type: none"> Representation is present in the activity through the use of the hundred board, base ten blocks, and ten frames. Expression is present in the activity through the use of partner and independent work. Engagement is present through the use of manipulatives and discussions. Students will be engaged with the partner game. 	<p>solve addition within 100.</p> <p>MP5 Students will use appropriate tools strategically as they use base ten blocks or the hundreds board to solve the maze.</p> <p>MP6 Students will attend to precision as they solve the problems and explain the steps with clear and precise language in their discussions with other students.</p> <p>MP7 Students will look for and make use of structure as they look for patterns of the numbers that will help them find the correct path through the maze.</p> <p>MP8 Students will look for and express regularity in repeated reasoning as they have multiple opportunities to find solutions to addition problems. They continually check their work by asking themselves, "Does this make sense?"</p>



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Activity Development:

- Begin this activity by displaying a virtual hundred board, hundred pocket chart, or displaying Resource Sheet 10: Hundred Board on a document camera.
- Distribute Resource Sheet 10: Hundred Board to each student.
- Ask students how they can use the hundred board to add one- and two-digit numbers. Allow a few students to come to the document camera or virtual hundred board to demonstrate solving some problems. Below are some examples of what students might say or do.
- Encourage students to use counters to keep their place on the hundred board.

$$6 + 4 = 10$$

Start at 6.

Move forward 4.

Land on 10.

$$14 + 5 = 19$$

Start at 14

Move forward 5.

Land on 19.

$$23 + 9 = 32$$

Start on 23.

Move forward 9 spaces.

Land on 32.

$$65 + 8 = 73$$

Start on 65.

Move forward 8 spaces.

Land on 73.

- Practice additional problems with the students if necessary.
- Distribute Resource Sheet 11: Directions for Race to 100 to each student. Have a student help you model how to play the game.



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- Pair students up and distribute Resource Sheet 12: Race to 100 Recording Sheet to each pair of students.
- Have using base ten blocks or Resource Sheet 13: Double Ten Frames available to calculate and show the running total.
- As students play the game, ask them questions and observe. Keep notes about the strategies that students are using.
- Bring the class together to discuss the game. You may want to send the game home as homework so students have an opportunity to explain it to someone at home and to practice their addition strategies.
- The next class session, provide each student with a copy of Resource Sheet 14: Make Up Your Mind.
- Read over the directions with the students. You may wish to pair students for this activity.



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Learning Experience																																						
	<div style="text-align: center;"> <small>[Resource Sheet #23]</small> Make Up Your Mind </div> <p>Key</p> <p style="font-size: small;">Create a path through this maze. You will add all the numbers you pass through on your way to the finish. Can you find the path in which the numbers add to exactly 99? You may not move through any part of the maze more than once.</p> <div style="text-align: center;"> <p>Start ↓</p> <table border="1" style="border-collapse: collapse; text-align: center; margin: auto;"> <tr><td>1</td><td>7</td><td>5</td><td>4</td><td>2</td><td>3</td></tr> <tr><td>3</td><td>6</td><td>4</td><td>6</td><td>2</td><td>3</td></tr> <tr><td>3</td><td>7</td><td>1</td><td>2</td><td>5</td><td>1</td></tr> <tr><td>7</td><td>5</td><td>2</td><td>4</td><td>6</td><td>7</td></tr> <tr><td>3</td><td>5</td><td>1</td><td>5</td><td>1</td><td>4</td></tr> <tr><td>4</td><td>6</td><td>2</td><td>7</td><td>6</td><td>2</td></tr> </table> <p>Finish</p> </div> <p>Questions:</p> <ul style="list-style-type: none"> What strategies did you use as you began to move through the maze? As you moved through the maze, what adjustments did you make in your decisions for your next move? <p>Formative Assessment:</p> <ul style="list-style-type: none"> Teachers should observe students as they are completing the Make Up Your Mind Activity (Resource Sheet 14). Provide support as needed. 	1	7	5	4	2	3	3	6	4	6	2	3	3	7	1	2	5	1	7	5	2	4	6	7	3	5	1	5	1	4	4	6	2	7	6	2	
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3	5	1	5	1	4																																	
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Closure	Students may complete the performance based tasks as given in the Choice Board Activity (see Teacher Resource Guide).																																					



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Supporting Information	
<p>Interventions/Enrichments</p> <ul style="list-style-type: none"> • Special Education/Struggling Learners • ELL 	<p>Manipulatives such as counters, hundred boards, base ten blocks, and ten frames can be provided for the activities in this unit. Read aloud tasks and clarify directions as needed. Provide picture clues for additional support as needed.</p>
<p>Resources</p>	<p><u>Oh, the Places You'll Go!</u> By Dr. Seuss</p>
<p>Materials</p>	<ul style="list-style-type: none"> • Resource Sheet 1: Footprint Number Cards (precut prior to beginning the lesson) • Document Camera • Resource Sheet 1: Footprint Number Cards (precut and bagged), one per students. You may wish to copy these on cardstock and laminate them. • Resource Sheet 2: Go Right Along Teacher Direction Sheet (one copy for the teacher) • Resource Sheet 3: Go Right Along Student Activity Sheet (one copy per student) • Resource Sheet 4: Create a Number Puzzle • Resource Sheet 5: Sample Puzzles • Resource Sheet 6: Scoring Rubric for Create a Number Puzzle • Tubs of various manipulatives for each table (such as two color counters, connecting cubes, Digi-Blocks, or bears). • Resource Sheet 7: Ace of Numbers Game Directions, Equation Cards, and Teacher Discussion Questions (copy the directions for each student, and cut and bag the equation cards so that there are enough for each pair of students) • Resource Sheet 8: Life’s a Great Balancing Act (one per student) • Resource Sheet 9: Solving for the Unknown Exit Tickets (pre-cut, one exit ticket per student) • Virtual hundred board or a hundred pocket chart (optional) • Resource Sheet 10: Hundred Board (one copy per student) • Resource Sheet 11: Directions for Race to 100 (one per student) • Resource Sheet 12: Race to 100 Recording Sheet (one per pair of students) • 10-sided die (one per pair of students) • Base-ten blocks • Resource Sheet 13: Double Ten Frames (enough for each student to have one or two as an optional resource) • Resource Sheet 14: Make Up Your Mind (one per student)



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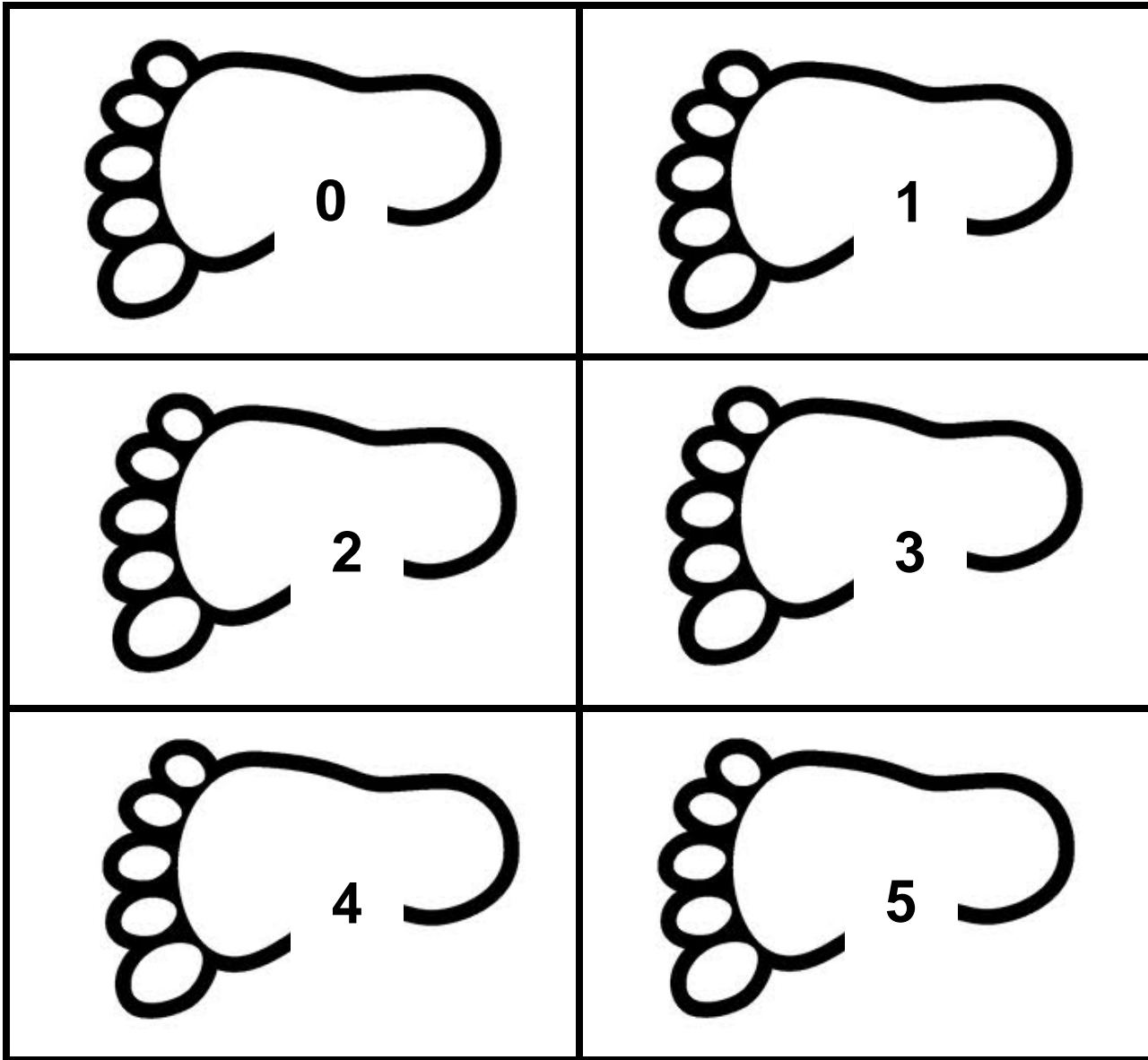
Technology	Utilize Voice Thread or Voki for student responses NCTM Illuminations Pan Balance Activities: <ul style="list-style-type: none">• http://illuminations.nctm.org/ActivityDetail.aspx?id=33• http://illuminations.nctm.org/ActivityDetail.aspx?ID=26 Nrichmath website http://nrich.maths.org/frontpage Common Core State Standards for Mathematics http://www.corestandards.org/Math Ace of Numbers from Fuel the Brain http://www.fuelthebrain.com/Game/play.php?ID=1



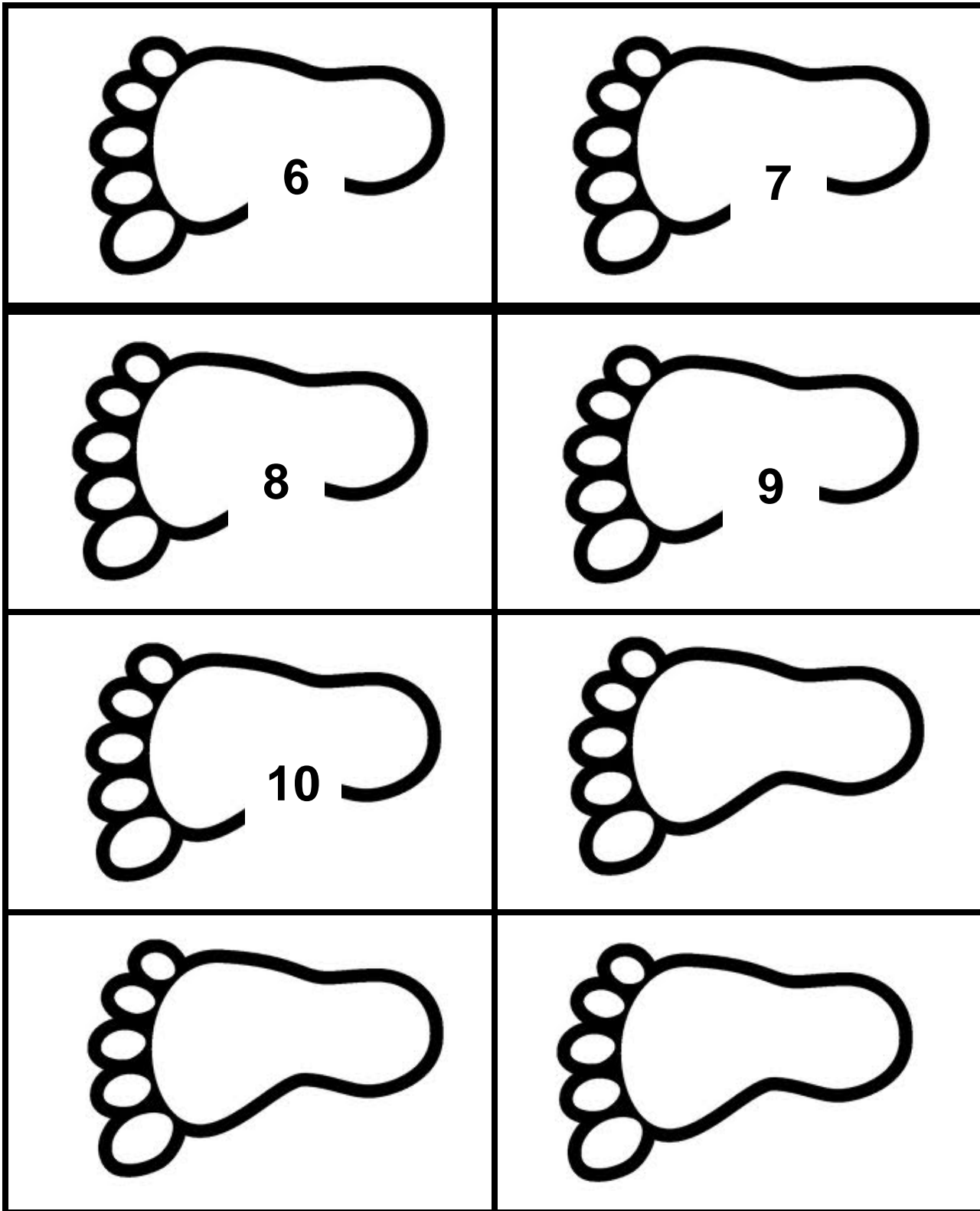
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Resource Sheet 1

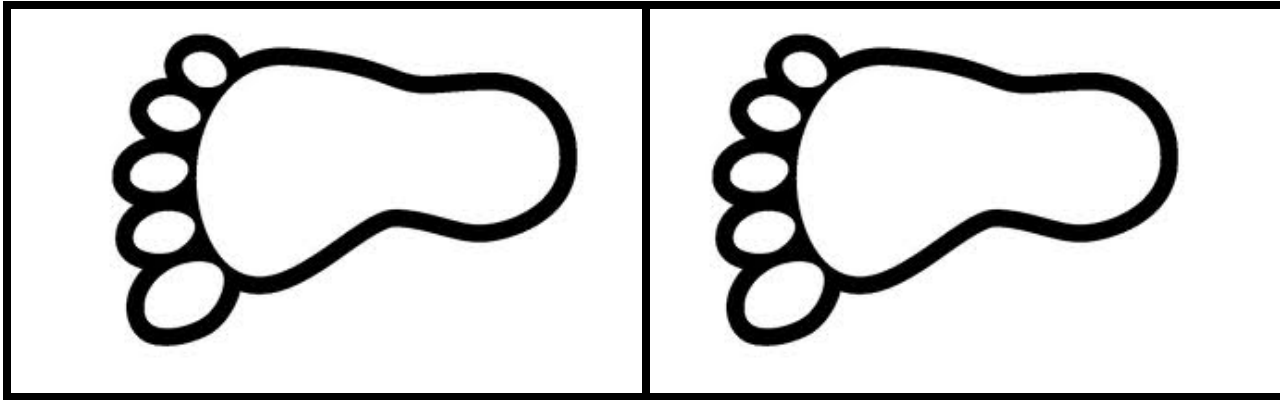
Footprint Number Cards



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Resource Sheet 2



Go Right Along Teacher Direction Sheet

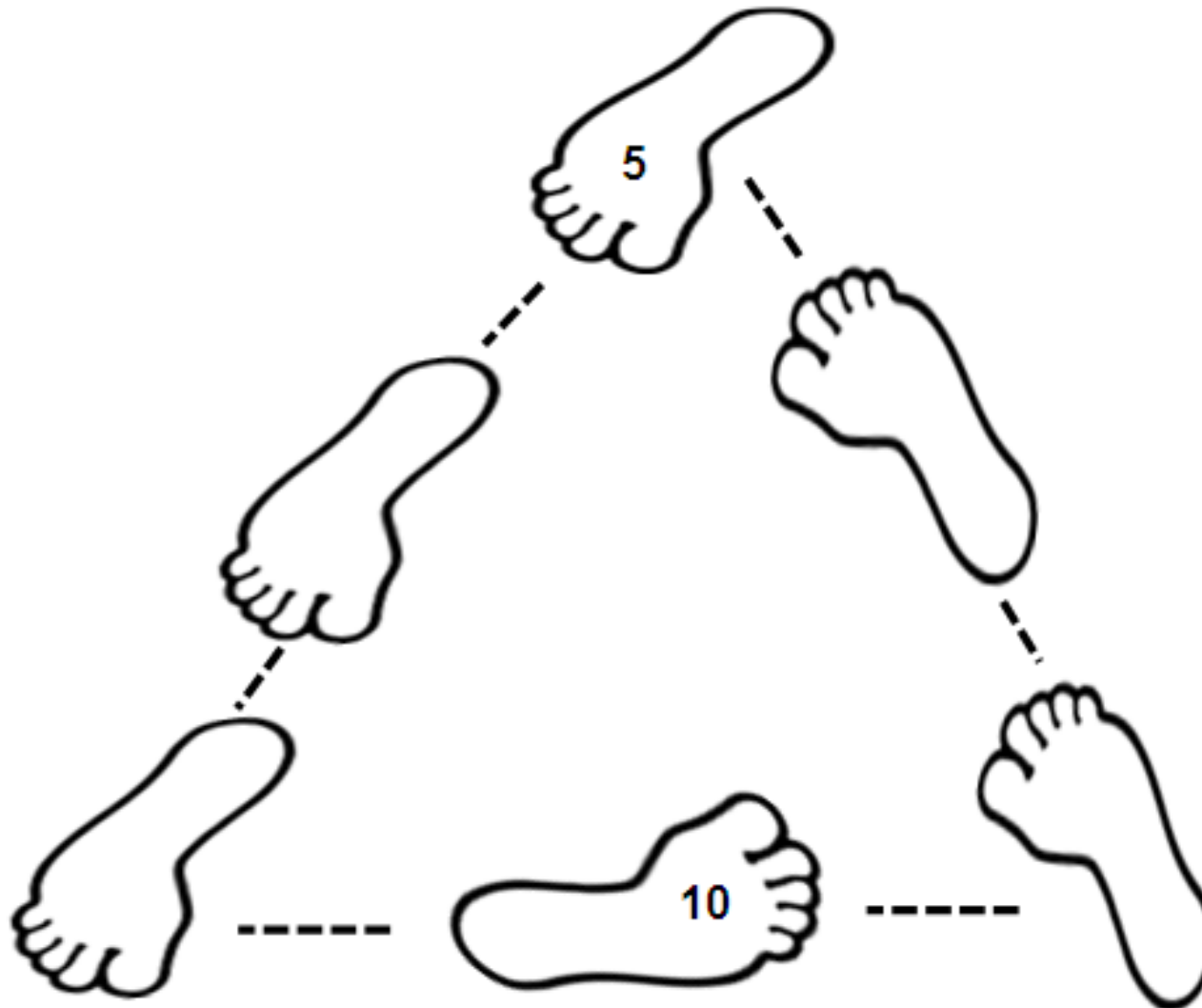
Place the activity under the document camera and give the following directions to the students.

Use math strategies to complete the triangular puzzle so that each side of the puzzle (3 addends) equals 17. Students must write a number on each foot. Students may not use a number more than once.

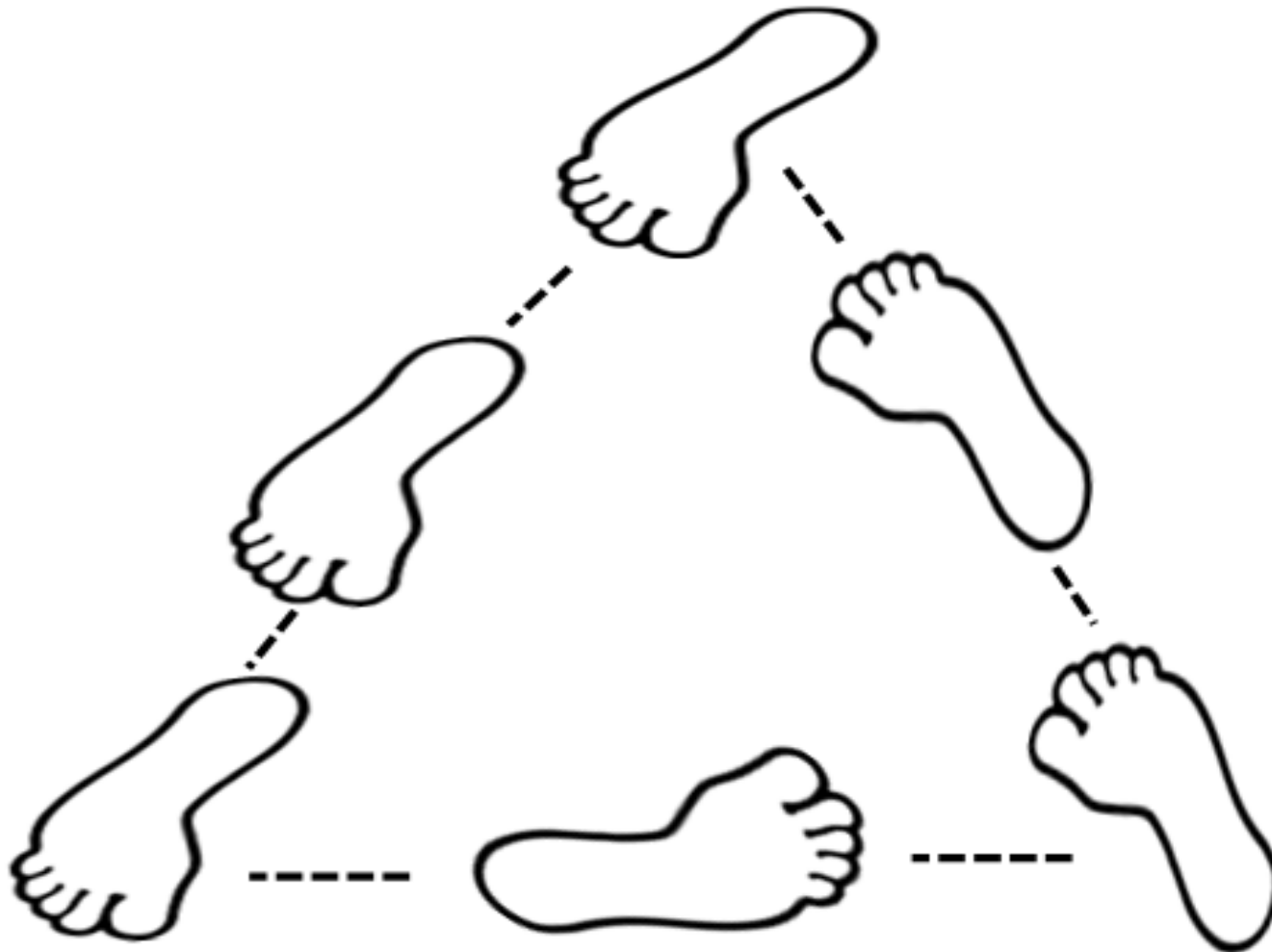
Extension: Have the students find multiple solutions for the puzzle. They may also create a puzzle of their own on the back of Resource Sheet 3.



Resource Sheet 3 (1 of 2) **Go Right Along Student Activity Sheet**



Resource Sheet 3 (2 of 2) Go Right Along Student Activity Sheet



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Resource Sheet 4

Create a Number Puzzle



You have brains in your head.
You have feet in your shoes
You can steer yourself
any direction you choose.
You're on your own. And you know what you know.
And YOU are the guy who'll decide where to go. *Oh, the Places You'll Go!*- Dr. Seuss

Your assignment is to create an addend puzzle to challenge a classmate.

You must include directions and an answer key.

The number of addends, the given numbers, and the overall shape is up to you.

Be creative and challenging.

Scoring Guidelines:

- ✓ **Puzzle is complete**
- ✓ **Directions are included**
- ✓ **Answer key is included**
- ✓ **Puzzle is accurate**
- ✓ **Puzzle is creative and challenging**

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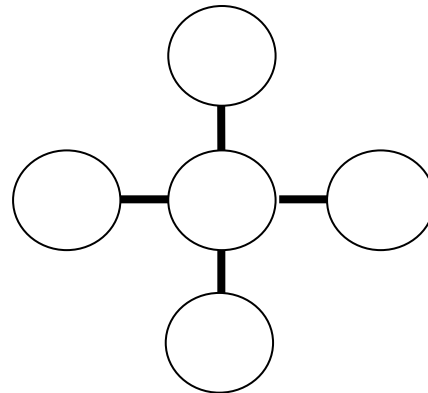
Resource Sheet 5 (1 of 2)

Sample Puzzles

Place the even numbers from 2 to 16 so that the sum of each row is 36.



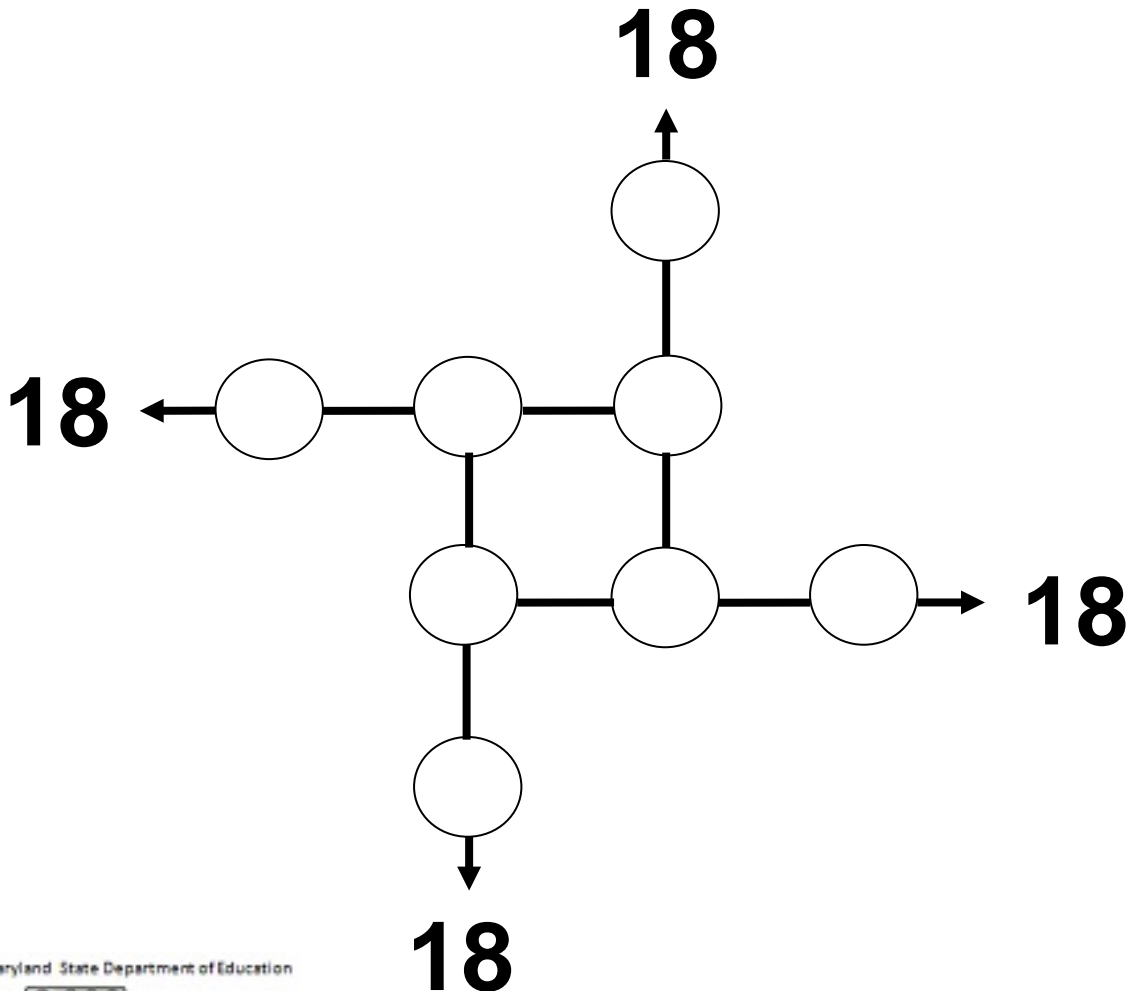
Place the numbers 2,3,4,6, and 7 so that each line down and across gives a sum of 12.



Resource Sheet 5 (2 of 2)

Sample Puzzles

Place the numbers 1,2,3,6,10,11,13, and 14 so that each line gives a sum of 18.



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Resource Sheet 6

Scoring Rubric for Create a Number Puzzle

<p>Suggested Scoring Key: <input type="checkbox"/> Puzzle is complete (2pts) <input type="checkbox"/> Directions are included (2 pts) <input type="checkbox"/> Answer key is included (2pts) <input type="checkbox"/> Puzzle is accurate (2pts) <input type="checkbox"/> Puzzle is creative and challenging (4pts) <input type="checkbox"/> Total (12pts) Comments:</p>	<p>Suggested Scoring Key: <input type="checkbox"/> Puzzle is complete (2pts) <input type="checkbox"/> Directions are included (2 pts) <input type="checkbox"/> Answer key is included (2pts) <input type="checkbox"/> Puzzle is accurate (2pts) <input type="checkbox"/> Puzzle is creative and challenging (4pts) <input type="checkbox"/> Total (12pts) Comments:</p>
<p>Suggested Scoring Key: <input type="checkbox"/> Puzzle is complete (2pts) <input type="checkbox"/> Directions are included (2 pts) <input type="checkbox"/> Answer key is included (2pts) <input type="checkbox"/> Puzzle is accurate (2pts) <input type="checkbox"/> Puzzle is creative and challenging (4pts) <input type="checkbox"/> Total (12pts) Comments:</p>	<p>Suggested Scoring Key: <input type="checkbox"/> Puzzle is complete (2pts) <input type="checkbox"/> Directions are included (2 pts) <input type="checkbox"/> Answer key is included (2pts) <input type="checkbox"/> Puzzle is accurate (2pts) <input type="checkbox"/> Puzzle is creative and challenging (4pts) <input type="checkbox"/> Total (12pts) Comments:</p>



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Resource Sheet 7 (1 of 6) Ace of Numbers Game Directions, Equation Cards, and Teacher Discussion Questions

Materials:

Deck of playing cards with numbers 1-10 and Aces (aces = 1)

Game Mat

Addition Equation Cards or Subtraction Equation Cards (one set per pair of students, laminated if possible)

Directions:

1. The object of this game is to be the first to lay down the card that would complete the problem on the Equation Card.
2. The dealer shuffles the number cards and deals out 7 to each player.
3. The dealer then shuffles the equation cards.
4. Player one chooses an Equation Card and lays it face up in the middle of the table.
5. The first player to lay down the correct playing card keeps the Equation Card.
6. If neither player has a card that completes the equation, both players pass and choose another equation card.
7. Play continues until one partner has collected 5 Equation Cards. For example, if the equation is $12 = 10 + \underline{\hspace{2cm}}$, the first player to lay down a 2 would keep the Equation Card.

Variation:

Aces are wild cards.

Mix up the cards so students can play both the addition and subtraction version of the game.

Add in the cards that have more than one missing addend.

This game has been adapted from: <http://www.fuelthebrain.com/Game/play.php?ID=1>



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Resource Sheet 7 (2 of 6) Ace of Numbers Game Directions, Equation Cards, and Teacher Discussion Questions

$11 = 4 + \underline{\quad}$	$3 + \underline{\quad} = 6$	$9 + \underline{\quad} = 15$
$18 = \underline{\quad} + 13$	$14 + \underline{\quad} = 18$	$13 = 7 + \underline{\quad}$
$\underline{\quad} + 9 = 11$	$16 + \underline{\quad} = 17$	$11 = \underline{\quad} + 9$



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Resource Sheet 7 (3 of 6) Ace of Numbers Game Directions, Equation Cards, and Teacher Discussion Questions

$\underline{\hspace{1cm}} + 3 + 7 = 15$	$14 = 7 + 3 + \underline{\hspace{1cm}}$	$2 + 5 + \underline{\hspace{1cm}} = 11$
$4 + \underline{\hspace{1cm}} + 4 = 17$	$\underline{\hspace{1cm}} = 10 + 10$	$\underline{\hspace{1cm}} = 3 + 5 + 6$
$19 = 2 + 6 + \underline{\hspace{1cm}}$	$19 = \underline{\hspace{1cm}} + 7 + 3$	$15 = \underline{\hspace{1cm}} + 3 + 3$



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Resource Sheet 7 (4 of 6) Ace of Numbers Game Directions, Equation Cards, and Teacher Discussion Questions

$20 - \underline{\quad} = 15$	$8 = 9 - \underline{\quad}$	$13 - 10 = \underline{\quad}$
$12 = 19 - \underline{\quad}$	$13 - \underline{\quad} = 9$	$12 - \underline{\quad} = 6$
$\underline{\quad} + 14 - 6$	$11 - 1 = \underline{\quad}$	$8 = 11 - \underline{\quad}$



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Resource Sheet 7 (5 of 6) Ace of Numbers Game Directions, Equation Cards, and Teacher Discussion Questions

$4 - \underline{\quad} = 3$	$9 = 18 - \underline{\quad}$	$15 - 6 = \underline{\quad}$
$6 = 14 - \underline{\quad}$	$17 - \underline{\quad} = 10$	$11 - \underline{\quad} = 7$
$7 = 10 - \underline{\quad}$	$18 - 13 = \underline{\quad}$	$10 = 17 - \underline{\quad}$



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Resource Sheet 7 (6 of 6)

Ace of Numbers Game Directions, Equation Cards, and Teacher Discussion Questions

What strategies did you use to find the unknown? (Note which students use ‘think addition’ to solve, which ‘count on’ or ‘count back’, and which students have memorized their basic facts to guide further instruction).

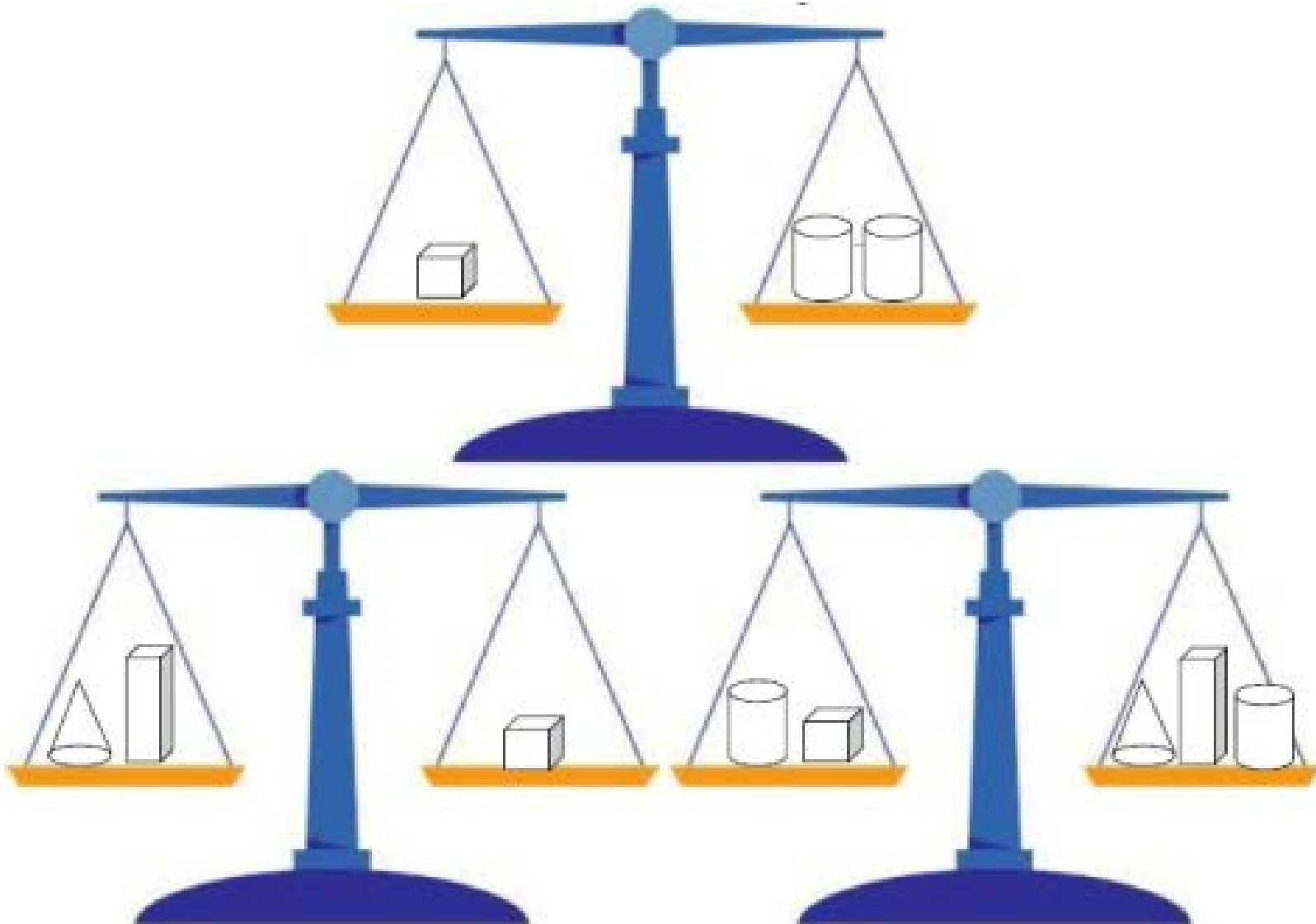
Which numbers do you find easier to combine?

After students have played the game several times, the game can be sent home as homework. The game can be left in the math center and students can play the addition or subtraction version throughout the school year.

You can increase the numbers to 100 as students progress.



Life's A Great Balancing Act



Resource Sheet 9 Solving for the Unknown Exit Tickets

$$16 - \underline{\quad\quad} = 9$$

$$\underline{\quad\quad} + 6 = 13$$

$$17 = 4 + \underline{\quad\quad} + 5$$



$$13 - \underline{\quad\quad} = 7$$

$$\underline{\quad\quad} + 3 = 15$$

$$18 = 4 + \underline{\quad\quad} + 6$$



$$20 - \underline{\quad\quad} = 9$$

$$\underline{\quad\quad} + 5 = 11$$

$$16 = 4 + \underline{\quad\quad} + 7$$



$$17 - \underline{\quad\quad} = 9$$

$$\underline{\quad\quad} + 4 = 18$$

$$20 = 6 + \underline{\quad\quad} + 6$$



Hundred Board

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



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Resource Sheet 11 Directions for Race to 100

Materials:

- Hundred board
- 10-sided die
- Race to 100 Recording Sheet

Directions:

1. Player One rolls the die twice and records their sum.
2. Next Player Two rolls the die twice and records their sum.
3. Player One rolls the die once and adds the number rolled to the previous sum.
4. This should be written as an equation on the recording sheet.
5. Player Two takes their turn and does the same.
6. Continue in this manner until one player reaches 100 without going over.
7. If a roll would result in a player going over 100, the player may not record anything for that turn. Their partner takes their turn.
8. Players continue to take turns until one player reaches 100.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Race to 100 Recording sheet	
Mike	Molly
6	5
$\underline{6} + 8 = 14$	$\underline{5} + 4 = 9$
$\underline{14} + 5 = 19$	



Resource Sheet 12 **Race to 100 Recording Sheet**

Names: _____

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Double Ten Frames

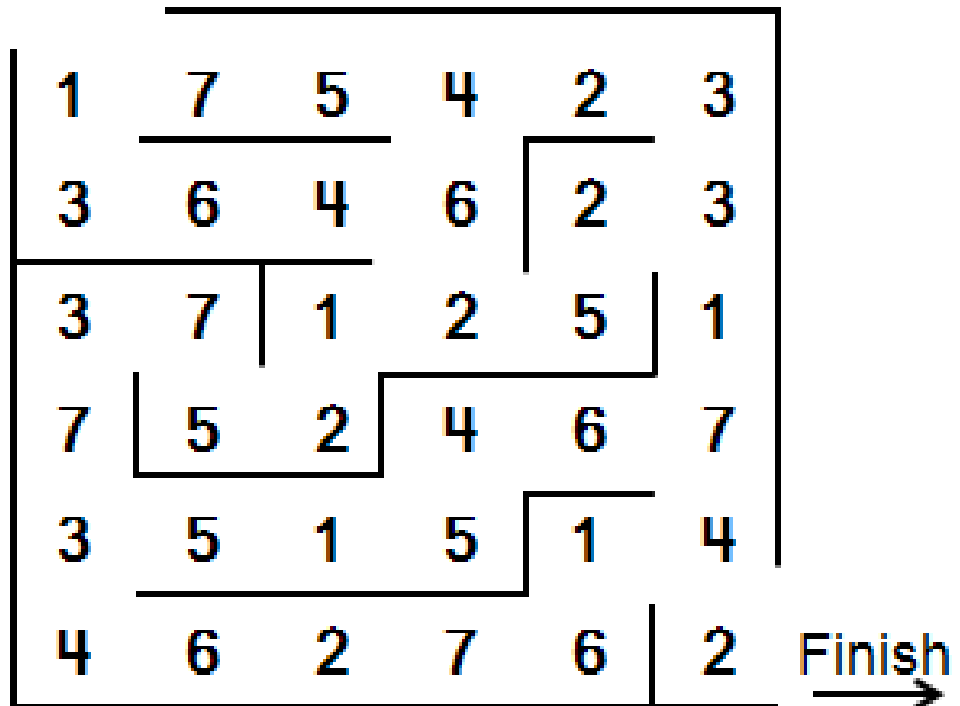


Resource Sheet 14 **Make Up Your Mind**

Directions: Create a path through this maze. You will add all the numbers you pass through on your way to the finish. Can you find the path in which the numbers add to exactly 99? You may not move through any part of the maze more than once.



Start ↓



Name: _____

