Grade Level	Content Area	Course Title *(For 9-12 Samples Only)*	Unit Title
2nd grade	Math		One and two step problems with unknowns

Length of Unit	Time of Year Taught	Expected Prior Knowledge
5 days/60 minutes day	4th quarter	Operations and Algebraic Thinking: Add and subtract within 20: 2.OA.2. Fluently add and subtract within 20 using mental strategies.[2] By end of Grade 2, know from memory all sums of two one-digit numbers. Number and Operations in Base Ten: Use Place values understanding and properties of operations to add and subtract: 2.NBT.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.2.NBT.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.2.NBT.7. Add and subtract within 1000, 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.2.NBT.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.2.NBT.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.[1]

Unit Description: This unit walks students through the process of solving one and two step problems with unknowns in every position. The lessons are broken up by addition and subtraction and one and two step problems. Students will be assessed at the end of the week with a quiz that contains one and two step problems.

Standards: See instructions on page 15.	Operations and Algebraic Thinking: Represent and solve problems involving addition and subtraction. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
Summative Assessment *In addition to the description, include a copy of the summative assessment in the application package.*	Students will complete a 10 question quiz where they write an equation to represent the problem and the correct answer. The quiz will have one and two step problems with unknowns in all positions.
Scoring for Summative Assessment *In addition to the description, include a copy of the answer key and scoring rubric (if applicable) for the summative assessment in the application package.*	Students will complete a quiz with ten problems, each problem is worth two points. Each correct equation is worth one point and each correct answer is worth one point. Students will demonstrate mastery by scoring 14 out of 20 on the quiz.
Materials/Resources Needed *Include all items for the entire unit.*	Math journals, white boards, assessment

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Instruction and Timeline	Objective: Students will use addition word problems within 100 to solve word problems using drawings and equations with unknowns in all positions. Anticipatory Set: Students list words that signal addition in word problems. Instructional input/Modeling: Display addition word problem. Point out addition signal words in the story. Model reading the story carefully to determine what information is given and what information is unknown. On overhead model placing information from the problem into an equation that matches word problem 5+2= X Discuss that in this problem the result is unknown. Model drawing pictures to match the information and solving the problem. Display another story	Objective: Students will use addition word problems within 100 to solve word problems using drawings and equations with unknowns in all positions. Anticipatory Set: Students list words that signal subtraction in word problems. Instructional/Modeling: Display subtraction word problem. Point out subtraction signal words in the story. Model reading the story carefully to determine what information is given and what information is unknown. On overhead model placing information from the problem into an equation that matches word problem 5-2= X Discuss that in this problem the result is unknown. Model drawing pictures to match the information and solving the problem. Display another story problem. On overhead,	Objective: Students will use addition and subtraction to solve two step word problems using drawings equations. Anticipatory Set: Give students a simple two step problem: I have two dogs and two cats and a bird. How many pets do I have? Students solve on white boards. Instructional Input/Modeling: Display two step addition word problem. Model reading the problem carefully to determine What information is known and unknown. Ask students if they notice anything different about this problem compared to the problems done the previous two days. Explain that there are two steps to the problem. Circle the first step of the problem and label it with number 1. Explain that we must complete the first part of	Objective: Students will use addition and subtraction to solve two step word problems, with unknowns in all positions, using drawings and equations and a symbol for the unknown number. Anticipatory Set: Students solve a two step problem on their white boards. Instructional Input/Modeling: Display two step addition word problem. Model reading the problem carefully to determine what information is known and unknown. Remind students of unknown positions (results, change, start) Explain that unknowns work the same way in two step word problems as they do in one step problems Model working through a two step problem with the unknown in the results position. Circle the first step of the problem and label it with number 1. Model placing the information into an equation that matches the word problem. Model drawing pictures to match the equation to solve the first part	Students will demonstrate mastery using addition and subtraction to solve two step word problems, with unknowns in all positions, using drawings and equations and a symbol for the unknown number. Anticipatory set: Give students a two step problem and ask questions to review process. Instructional Input/Modeling: Students complete assessment. Closure: Review one of the questions from the quiz after it's collected.

	problem. On overhead model placing information from the problem into an equation that matches word problem 51+X= 55 Discuss that in this problem the change is unknown. Model drawing pictures to match the information and solving the problem. Display another word problem. On overhead, model placing information from the problem into an equation that matches the word problem X+2= 19 Discuss that in this problem the start is unknown. Model drawing pictures to match the information and solving the problem. Check for understanding: Read a new addition story problem and asking students where to place the X (results, change or start?) Guided practice: Display an addition story problem on overhead. Students will write an equation on their whiteboards to match the story. Discuss where the unknown is. Teacher will	model placing information from the problem into an equation that matches word problem 51-X= 50 Discuss that in this problem the change is unknown. Model drawing pictures to match the information and solving the problem. Display another word problem. On overhead model placing information from the problem into an equation that matches word problem X-2= 19 Discuss that in this problem the start is unknown. Model drawing pictures to match the information and solving the problem. Check for understanding: Read a new addition story problem and asking students where to place the X (results, change or start)? Guided practice: Display a subtraction story problem on overhead. Students will write an equation on their whiteboards to match the story. Discuss where the unknown is. Teacher will write the correct equation	the problem. Model placing the information into an equation that matches the word problem. 7+2=x Model drawing pictures to match the equation to solve the first part of the problem. Model returning to the word problem and thinking aloud about how to approach the problem. Model circling the second step in the problem and write a 2. Explain that we will use the answer from the first step to write the equation for the second step. 9-3=x Model drawing pictures to solve the problem. Guided Practice: Display a two step word problem using both addition and subtraction. As a class, determine first step and second step and label 1 and 2 on the over head. Together write the first equation (students will copy the equation on their white boards, as	of the problem. Model returning to the word problem and thinking aloud about how to approach the problem. Model circling the second step in the problem and write a 2. Explain that we will use the answer from the first step to write the equation for the second step. Model drawing pictures to solve the problem. Repeat this process, modeling solving for the unknown in the change and start. Guided Practice: Display a two step word problem using both addition and subtraction. As a class determine first step and second step and label 1 and 2 on the over head. Together write the first equation (unknown in results position) Students will copy the equation on their white boards, as teacher writes) Students will draw and solve first step on white boards. Teacher then solves on the overhead. Students can make	

	write correct equation on the board. Students can make changes to their equations as needed. Students will then solve the problem by drawing pictures on white boards. Share and discuss answers and pictures. Repeat this process with several different addition word problems with the unknown in each position. Independent Practice: Display addition word problems (there will be 1 problem for each unknown position) on overhead. Teacher will read word problem. Students will write equation and draw pictures to solve. Closure: Students review answers to problems.	on the board. Students can make changes to their equations as needed. Students will then solve the problem by drawing pictures on white boards. Share and discuss answers and pictures. Repeat this process with several different subtraction word problems with the unknown in each position. Independent Practice: Display subtraction word problems (there will be 1 problem for each unknown position) on overhead. Teacher will read word problem. Students will write equation and draw pictures to solve. Closure: Students review answers to problems.	teacher writes). Students will draw and solve first step on white boards. Teacher then solves on the overhead. Students can make corrections if needed. Together write second equation. (students will copy equation on their white boards). Students will draw pictures to solve the problem on their white boards. Teacher then solves on the overhead. Students can make corrections as needed. Repeat the process. Independent Practice Display a two step word problem (using addition and subtraction) on the over head. Students will work through both steps in their math journals, writing equations and drawing pictures to match. Closure: What is the first step in the problem you just practiced? What is the second step?	corrections if needed. Together write second equation. Students will draw pictures to solve the problem on their white boards. Teacher then solves on the overhead. Students can make corrections as needed. Repeat the process with unknown in change and start positions. Independent Practice Display a two step word problem (using addition and subtraction) on the over head. Students will work through both steps on their white boards, writing equations and drawing pictures to match. Students will then work through a two step problem with the unknown in the change position. Students will then work through a two step problem with the unknown in the start position Closure: As a class, review answers to problems.	

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Student Activities and Timeline	Students list words that signal addition in word problems. Students will tell where to place the X (results, change or start?), after being read the problem. Students will write an equation on their whiteboards to match the story. Students will discuss where the unknown is. Students will make changes to their equations as needed, after seeing correct equation. Students will then solve the problem by drawing pictures on white boards. Students will share and discuss answers and pictures. Students repeat the process with several different addition word problems with the unknown in each position. Students will write an equation and draw pictures to solve addition	Students list words that signal subtraction in word problems. Students will tell where to place the X (results, change or start), after being read the problem. Students will write an equation on their whiteboards to match the story. Students will discuss where the unknown is. Students will make changes to their equations as needed, after seeing the correct equation. Students will then solve the problem by drawing pictures on white boards. Students will share and discuss answers and pictures. Students repeat this process with several different subtraction word problems with the unknown in each position. Students will write an	Students solve: I have two dogs and two cats and a bird. How many pets do I have? Students solve on white boards. Students discuss if they notice anything different about this problem compared to the problems done the previous two days. As a class, students determine first step and second step of the problem and label 1 and 2 on the over head. Students will brainstorm an equation to match a problem. Students will copy the equation on their white boards, as teacher writes. Students will draw and solve first step on white boards. Students will make corrections if needed, after seeing correct equation. Students will brainstorm a second equation. Students will copy equation on their white boards, as teacher writes.	Students solve a two step problem on their white boards. Students review the previous lesson. Display a two step word problem using both addition and subtraction. As a class, students will determine first step and second step and label 1 and 2 on the over head. Students will brainstorm the first equation (unknown in results position) Students will copy the equation on their white boards, as teacher writes. Students will draw and solve first step on white boards. Students can make corrections if needed, after seeing the correct answer. Students will brainstorm the second equation. Students will draw pictures to solve the problem on their white boards. Students will make corrections as needed, after seeing correct answer.	Students solve a two step problem and ask questions to review process. Students review assessment. Students complete assessment. Students review one of the questions from the quiz after it's collected.

	problems on their white boards. Students review answers to problems.	equation and draw pictures to solve subtraction problem on their white boards. Students review answers to problems.	Students will draw pictures to solve the problem on their white boards. Students can make corrections as needed. Students repeat the process. Students will solve two step word problems (using addition and subtraction) on the over head. Students will work through both steps in their math journals, writing equations and drawing pictures to match. Students will answer what is the first step in the problem they just practiced? What is the second step?	Students will repeat the process solving problems with unknown in change and start position.. Students will work through both steps on their white boards, writing equations and drawing pictures to match. Students will work through a two step problem with the unknown in the change position. Students will then work through a two step problem with the unknown in the start position Students review answers to problems.	

Name:_____ Date: _____

Quiz

1. You have 4 books to read. You get 3 more books from the library. How many books do you have now?

2. Kristin had 17 apples. How many more apples will she need to have 39 apples all together?

3. Clifford has some bones. Emily gave him 23 more bones. Now Clifford has 46 bones. How many bones did Clifford have to start with?

4. Jessica had 14 toy cars. She lost 11 of the cars. How many cars does she have left?

5. Sara had 99 goldfish. She gave some away. Now she has 32 goldfish left. How many goldfish did Sara give away?

6. Ashley had some guppies. She gave 28 guppies to Timmy. Now Ashley has 12 guppies left. How many guppies did Ashley have to start with?

7. Jane gave 10 pieces of candy to Sam. Fred gave Sam 6 pieces of gum. Mary gave Sam 12 pieces of gum. How many pieces of gum does Sam have now?

8. Dad ate 5 cookies. Later he ate 10 more. Now there are 29 cookies left on the plate. How many cookies did Dad start with?

9. A clown had 66 balloons. All of the blue balloons floated away. Then, 5 pink balloons floated away. Now the clown has 45 balloons left. How many blue balloons floated away?

10. Melissa had 78 pumpkin seeds. She gave 23 of them to her brother. Then her friend gave her 10. How many pumpkin seeds does Melissa have now?

Name:_____ Date: _____

Quiz
Answer Key

1. You have 4 books to read. You get 3 more books from the library. How many books do you have now?
   - 4 + 3= x
   - 4+3=7
2. Kristin had 17 apples. How many more apples will she need to have 39 apples all together?
   - 17+x=39
   - 17+22=39
3. Clifford has some bones. Emily gave him 23 more bones. Now Clifford has 46 bones. How many bones did Clifford have to start with?
   - X+23=46
   - 23+23=46
4. Jessica had 14 toy cars. She lost 11 of the cars. How many cars does she have left?
   - 14-11=x
   - 14-11=3
5. Sara had 99 goldfish. She gave some away. Now she has 32 goldfish left. How many goldfish did Sara give away?
   - 99-x=32
   - 99-67=32
6. Ashley had some guppies. She gave 28 guppies to Timmy. Now Ashley has 12 guppies left. How many guppies did Ashley have to start with?
   - X-28=12
   - 40-28=12
7. Jane gave 10 pieces of candy to Sam. Fred gave Sam 6 pieces of gum. Mary gave Sam 12 pieces of gum. How many pieces of gum does Sam have now?
   - 10+6+12= x
   - 10+6+12=28
8. Dad ate 5 cookies. Later he ate 10 more. Now there are 29 cookies left on the plate. How many cookies did Dad start with?
   - X-5-10=29
   - 44-5-10=29
9. A clown had 66 balloons. All of the blue balloons floated away. Then, 5 pink balloons floated away. Now the clown has 45 balloons left. How many blue balloons floated away
   - 66-x-5=45
   - 66-16-6=45
10. Melissa had 78 pumpkin seeds. She gave 23 of them to her brother. Then her friend gave her 10. How many pumpkin seeds does Melissa have now?
    - 78-23+10=X
    - 78-23+10=65

Score: _____/20

Each correct equation is worth one point and each correct answer is worth one point. 14 points out of 20 is the minimum needed for mastery.

Number correct:	Percent:	
0-9	10% -49%	Falls Far Below
10-13	50%-69%	Approaches
14-20	70%-100%	Meets Mastery Level