A.5. CURRICULUM SAMPLE - Second Grade Math

Grade Level	Content Area	Course Title	Unit Title
Second Grade	**Mathematics**	**N/A**	**Word Problems: It's Not Just a Story**

Length of Unit	Time of Year Taught	Expected Prior Knowledge
5 Days plus 1 Day for assessment	**2nd Quarter**	Every student should understand and demonstrate all concepts and skills from previous grade levels in Mathematics, according to Common Core State Standards. Students should have prior knowledge of number bonds, skip counting, comparing numbers, and basic addition and subtraction skills through 100.

Unit Description

Second graders will begin by using manipulatives and transitioning to abstract number sentences throughout this 5-day unit on word problems using addition and subtraction. Students will work independently or in small groups to solve addition and subtraction word problems. Throughout the unit, students will review part-whole concepts of addition and subtraction, use addition to find a whole and subtraction to find a part.

Common Core Standards	**2.OA.1** Use addition and subtraction within 100 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Summative Assessment	Students will use addition and subtraction within 100 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. Students will solve 10 problems on a written test involving word problems using addition and subtraction.
Assessment Scoring	The first 2 problems of the assessment are worth 1 point. Problems 3-10 are worth 1 point. The correct number sentence and answer are worth one point. So, if a student only has the answer, he or she will lose 1/2 point. At an 80% mastery level, students need to score 8/10 points to be considered to have mastered the assessed performance objective.
Materials/Resources Needed	Number bonds, overhead projector, transparency pictures to solve word problems, pictures for each student to solve word problems, individual white boards and white board markers, many scenes depicting animals and other objects to be used for word problems, pencils

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Lesson Instruction	Math Review: Mental Math Examples: What is 10 more then 13, 35? Let's count forward to 100 by 2s, 5s, 10s start with different numbers. *Note: Problems on this day will focus on addition	Math Review: Mental Math Examples: What is 100 more then 13, 35, 212? Let's count forward to 1000 by 2s, 5s, 10s start with different numbers. *Note: Problems on this day will focus on	Math Review: Mental Math Examples: What is 10 less than 13, 35? Let's count backward to 0 by 2s, 5s, 10s start with different numbers. Review number bonds	Math Review: Mental Math Examples: What is 100 less than 113, 335, 600? Let's count backwards to 0 by 2s, 5s, 10s start with different numbers. Review number bonds	Math Review: Mental Math Examples: What is 10 more then 13, 35? Let's count forward to 100 by 2s, 5s, 10s start with different numbers.

	with adding to or putting together. Tell students that today we are going to solve word problems. Explain to students that a word problem is just a math problem that uses words. On the overhead, show students an example of a simple word problem: There were 20 kids swimming in a pool. 40 more kids came to swim in the pool. How many kids are swimming in the pool now? Create simple word problems using the students to increase the real life understanding of word problems. Have students stand to represent the problems concretely. (ex. 3 students were wearing light blue shirts. 4 students were wearing navy blue shirts. How many students were wearing blue shirts?) As these problems are done, show students the number sentence for each problem on the board. Then,	subtraction with taking from, taking apart, and comparing. Tell students that word problems don't always involve adding. Sometimes word problems have other operations such as subtracting. Begin by modeling a simple problem with overhead manipulatives or pictures: There were 40 flowers on a bush. A woman picked 16 flowers from the bush. How many flowers were left on the bush? Create simple word problems using students in the classroom. For example, there were 7 students working in a group. 2 students left to go to the bathroom. How many students were still working in the group? Model more problems like this one, but with increased difficulties in the numbers. (ex. 100 students are in our hallway. 48 students	with students on the overhead. Remind students that with number bonds: Part + part = Whole Whole – part = Part On the overhead, give students a few number sentences and have them practice using their number bonds. Examples: 24 + 19 = ___ 84 – 57 = ___ 59 + ___ = 90 Tell students that today we will use number bonds to solve word problems. Give students the problem: 67 birds were sitting in a forest. A loud noise scared 43 of them away. How many birds are on the branch now? Ask students questions: 1. What does the problem tell us? 2. Do we know the whole in this problem or do we know the parts?	with students on the overhead. Remind students that with number bonds: Part + part = Whole Whole – part = Part Show students a scene that involves fish. Ask students what the cats are doing. Tell the students a story about the fish that includes numbers. Ask students how they would write the number sentence for the story you just told. Write the correct number story on the overhead. Show another scene involving birds. Ask students if anyone has a story they can tell about the picture. Encourage students to tell a story that includes numbers like the one you told. Show a third scene that involves something other than animals. Once again, tell a story about the scene that involves numbers. Have students tell what the number bond and number	*Note: Problems on this day will focus on written word problems. Tell students that today we are going to solve word problems. Explain to students that a word problem is just a math problem that uses words. On the overhead, show students an example of a simple word problem: There were 12 kids swimming in a pool. 12 more kids came to swim in the pool. How many kids are swimming in the pool now? Create simple word problems using the students to increase the real life understanding of word problems. Have students stand to represent the problems concretely. (ex. 3 students were wearing light blue

	transition to larger numbers by using classrooms at school. (ex. Mrs. Smith's class has 26 students, and our class has 27 students. How many students are in the two classes altogether?) Show students pictures on the overhead. Make up stories for the pictures and model how to solve these problems with students by writing a number sentence and solving for the correct answer. Use problems like: Eric got 35 new toy soldiers on his birthday. If he already had 40, how many shirts does he have now? Next, provide students with manipulatives (cubes, beads, etc.) and have them represent the problems at their desks. Finally, put up sample word problems. For each problem ask the students: 1. What is this problem about? 2. What do we know? 3. What else do we know?	leave on a field trip. How many students are left in the hallway?) As you work through the problems, remember to ask the questions: 1. What is this problem about? 2. What do we know? 3. What else do we know? 4. What do we need to know? What is the question asking us? Show students manipulative pictures on the overhead. Make up stories for the pictures and model how to solve these problems with students by writing a number sentence and solving for the correct answer. Provide students with their own manipulatives, and have them solve problems along with you as you model and they practice. Use problems like: Sarah has 84 gummy bears. She gave 22 gummy bears to her	Model for students how to draw a number bond and write the corresponding number sentence for the problem. Now give students a problem that has the unknown in a different position. For example: 78 birds were sitting on a tree branch. A loud noise scared some of them away. Now there are only 20 birds on the branch. How many birds did the noise scare away? Repeat modeling with students so that they can see the difference in this problem. Repeat with many problems until students show understanding sufficient to try it on their own. Provide students with more problems with the unknown in different positions so they can practice using number bonds and writing the	sentence would be for the story. Show the students more scenes and have them tell stories about the scenes. On the overhead, write down the stories they share. Then, have students write number bonds and number sentences for each story and scene on their individual whiteboards. Using a method such as "if your name has 3 letters, stand up," put students into groups of 3 or 4. Provide each group with a set of pictures that involve different numbers of things. Tell students that each person will take a turn sharing their scene and then telling a number story about the scene. Then, the group members will solve the problem that is given. The teacher will walk around to assess understanding during this activity. At the end of the activity, bring the class back	shirts. 4 students were wearing navy blue shirts. How many students were wearing blue shirts?) As these problems are done, show students the number sentence for each problem on the board. Use students throughout the school to increase the difficulty of the numbers included in the problem. Show students manipulative pictures on the overhead. Write out stories for the pictures and model how to solve these problems with students by writing a number sentence and solving for the correct answer. Use problems like: Eric got 13 new toy cars on his birthday. If he already had 45, how many toy cars does he have now?

	4. What do we need to know? What is the question asking us? Then, have students write the corresponding number sentences and solve on individual whiteboards. Informal Assessment: Teacher Observation	friend Grace. How many gummy bears does Sarah have now? Finally, provide students with a few simple word problems on the overhead. Have students solve the problems on individual whiteboards by writing the number sentence and answer for each problem. Informal Assessment: Teacher Observation	number sentences on individual white boards. Informal Assessment: Teacher Observation	together. Share a word problem with students, and have them solve it on personal white boards. Do a final check for understanding to make sure that students understand how to use number bonds and number sentences to solve word problems. Informal Assessment: Teacher Observation	Then, provide students with their own manipulatives and have them write out word problems to go along with their manipulatives. Finally, put up sample word problems. For each problem ask the students: 1. What is this problem about? 2. What do we know? 3. What else do we know? 4. What do we need to know? What is the question asking us? Then, have students write the corresponding number sentences and solve on individual whiteboards. Informal Assessment: Teacher Observation

	Lesson 1	**Lesson 2**	**Lesson 3**	**Lesson 4**	**Lesson 5**
Student	Respond verbally to	Respond verbally to math	Respond verbally to	Respond verbally to math	Respond verbally to

Activities	mental math questions. Listen and follow along with teacher instruction on word problems. Students will stand up and work with the teacher to orally solve word problems using their own bodies and characteristics. Students will use manipulatives to represent word problems at their desks. They will write number sentences and correctly solve word problems on personal white boards. Students will respond to questions about what information a problem provides.	review questions. Listen and follow along with teacher instruction on word problems. Students will stand up and work with the teacher to orally solve word problems using their own bodies and characteristics. Students will use manipulatives to represent word problems at their desks. They will write number sentences and correctly solve word problems on personal white boards. Students will respond to questions about what information a problem provides.	math review questions. Students will participate in the review of number bonds. Students will participate in the discussion of word problems and evaluating whether the whole or parts are known. Students will complete practice problems on personal white boards.	review questions. Students will participate in the review of number bonds. Students will respond to a request for stories about scenes. Students will also respond with appropriate number sentences for each scene and story. Students will write appropriate number sentences on individual white boards when prompted. Students will work in cooperative groups to tell stories about the scenes they were given. They will appropriately take turns and write down the number sentences to go along with the stories that are shared by their group members.	math review questions. Students will listen and follow along with teacher instruction. Students will participate in the class discussion and creation of word problems using themselves as the subject. Students will write their own word problems using manipulatives as a guide. Students will write number sentences on their white boards in response to word problems.

Grade 2 Math Assessment

Write the missing word to complete the equation.

1. Part + Part = _____

2. Whole - _____ = Part

Draw a number bond and write a number sentence to solve each problem.

3. Jen has 29 balloons. 16 balloons are green and the rest are blue. How many balloons are blue?

4. Jada has 56 flowers. How many more flowers will she need to have a total of 70 flowers?

5. Grant has a collection of 72 marbles. He lost some of his marbles and now he has 52 marbles. How many marbles did he lose?

6. Julia has 45 shirts in her wardrobe. Hayley has 12 fewer skirts than Julia. How many skirts does Hayley have?

7. There are 41 gerbils at the pet store. There are also 27 reptiles in the store. How many animals are at the pet store?

8. There are 88 books on the shelf. 36 of the books are non-fiction. The rest are fiction. How many of the books are fiction?

9. Dad has some ties in his closet. 12 of them are striped and 19 of them are plain. How many ties does dad have in his closet?

10. There are 78 students in second grade. 40 of the students are boys. How many girls are in second grad

Assessment Answers:

1. Whole 2. Part

3. 29-16=13

4. 70-56=14 OR 56 + ___ = 70, the answer is 14.

5. 72-52=20 OR 72-___ = 52, the answer is 20.

6. 45-12=33

7. 41+27=68

8. 88-36=52 OR 36 + ___ = 88, the answer is 52

9. 12+19 = 41

10. 78-40=38 OR 40 + ___=78, the answer is 38