The Wisdom of Word Problems

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This curriculum unit is recommended for:
First Grade Math Students

Keywords: Word Problems, Close Reading, Schematic Drawings

Teaching Standards: See Appendix 1 for teaching standards addressed in this unit.
(Insert a hyperlink to Appendix 1 where you have stated your unit's main standards. For
directions on how to insert a hyperlink, see Fellows Handbook, p. 28.)

Synopsis: This unit is designed for students to interpret word problems for
understanding. In this unit, students will explore mathematical vocabulary to better
understand single step and multi-step word problems. Students will use close reading
strategies to interpret word problems and schematic drawings to help them choose the
operation (operations) that best suit the word problem. Students will create their own
word problems to show mastery of using mathematical vocabulary. Students will be
encouraged to use academic conversations within the classroom to work through word
problem solutions.

I plan to teach this unit during the coming year to 40 students in first grade.

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Introduction:
 In this Unit I plan to demystify word problems for students. Often students read a word problem see numbers but don't have an understanding of what the words are telling them. Then they just put some numbers together and hope they solved the problem correctly. My unit will be designed to slow students down and really put some thought into what the problem is asking. In literacy, we are always teaching the students to slow down and think about what they are reading and to ask questions about their reading. The same strategies can be used in math to help students have a better understanding of what is being asked of them. I have noticed over the year's students struggle with more with interpreting words problems then the computation. Giving them the skills to analyze word problems will help the two come together and create stronger math students and better problem solvers.

 In first grade students are still beginning readers and this is a great time to teach them strategies they can use throughout all their schooling. Giving them the foundation now to understand and solve word problems will better prepare them for State Testing when they get to Third grade and up. These tests are mostly word problem based.

Background:
 I am currently employed as a first-grade teacher at Winding Springs Elementary located in the North Learning Community of Charlotte Mecklenburg Schools. We are a tile one school with a high ESL population. All our students qualify for free breakfast and lunch daily. Many of our students live in apartments, hotels, trailer parks and housing communities.

 Winding Springs is a diverse school with approximately 48% of the students are African American, 41% are Hispanic, 4% Caucasian and 7% other. We have a population of just less than 900 students in grades K-5. We also have a universal preschool program and a preschool for special needs students which brings our population to near 1,000 students.

 My grade level is made up of seven first grade teachers. Six of us team teach with a partner teacher. We are divided up by Literacy and Math, Science, Social Studies. We teach 40 students a day. Team teaching has allowed us to become experts in one area instead of many areas. This has increased the rigor in our classrooms and improved our test scores. This year Winding Springs continued to make growth and we were able to move our state designated grade from a D to a C.

 My class has a large quantity of ELL students. Many of them are still learning English and only use their native language at home. "Language proficiency appears to be a contributing factor in problem solving". Students often perform 10-30% lower in word problems than basic computation. (U.S Department of Education, 2001) And students

who are low readers often will have the same difficulties as their ELL peers when performing word problems.

We often ask students to solve word problems when they are just beginning readers while they are still grasping number sense. It seems that we should allow students to build a strong mathematical foundation to allow them to become better problem solvers. However, with state mandated testing this is not the situation that we face in our classrooms as educators. High stakes testing place heavy emphasis on mathematical word problems.   (Powell, 2011) Therefore we ask our students to be excellent problem solvers with little background knowledge starting in Kindergarten. Children's difficulties in solving word problems lie in four major areas. One, Reading and Understanding Mathematical Vocabulary. Two, creating a number sentence to match the word problem. Three being able to calculate out the problem and four does the answer make sense within the context of the word problem (Gooding, 2009).

Traditional methods of problem solving include read the problem, write an equation, solve the problem and then check the problem. We as educators know that this method does not work for most of our students. Much research has been done over the past decades to provide a schema based instruction to solve mathematical word problems. (Powell, 2011) Schema allows students to organize a word problem with a diagram and equations which will allow them to show the underlying structure of a word problem. (Powell 2011)

Word problems are a complex and rigorous application of mathematical strategies. Students need to read for understating, identify the missing information within the problem, create an equation to match and then solve. (Powell, 2011). Word problems can be easily broken up in a few categories or types of word problems based on what is happening within the word problem. For example, There are six yellow birds and 5 blue birds on a tree. How many birds are on the tree? This type of problem is asking for totaling the number of birds. However, if the problem was asked differently such as ,There are six yellow birds and 5 blue birds on a tree. 5 bluebirds flew away, how many birds are left on the tree? Students are now asked to find the difference or change in the problem. (Powell, 2011). Students can use a schematic diagram to organize each problem and see the difference between the two types of problems. Then students can learn to solve accordingly for the type of problem.

Word problems can be categorized into different types. The following table shows the types of word problems for K-2 as adapted from the common core unpacking document.

Glossary
Table 1 Common addition and subtraction situations[1]

	Result Unknown	**Change Unknown**	**Start Unknown**
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$ (K)	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$ (1st)	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$ One-Step Problem (2nd)
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$ (K)	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$ (1st)	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$ One-Step Problem (2nd)

	Total Unknown	**Addend Unknown**	**Both Addends Unknown[2]**
Put Together/ Take Apart[3]	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$ (K)	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5, 5 - 3 = ?$ (1st)	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5, 5 = 5 + 0$ $5 = 1 + 4, 5 = 4 + 1$ $5 = 2 + 3, 5 = 3 + 2$ (K)

	Difference Unknown	**Bigger Unknown**	**Smaller Unknown**
Compare[4]	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (1st)	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (1st) One-Step Problem	(Version with "more"): Julie has 3 more apples than Lucy. Lucy has five apples. How many apples does Lucy have? $5 - 3 = ?$ $? + 3 = 5$ One-Step Problem (2nd)
	("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5, 5 - 2 = ?$ (1st)	(Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?, 3 + 2 = ?$ (2nd) One-Step Problem	(Version with "fewer"): Lucy has three fewer apples than Julie. Julie has five apples. How many apples does Lucy have? One-Step Problem (1st)

K: Problem types to be mastered by the end of the Kindergarten year.
1st: Problem types to be mastered by the end of the First Grade year, including problem types from the previous year(s). However, First Grade students should have experiences with all 12 problem types.
2nd: Problem types to be mastered by the end of the Second Grade year, including problem types from the previous year(s).

Digital image. Public Schools of North Carolina.
http://www.dpi.state.nc.us/docs/curriculum/mathematics/scos/1.pdf.

Teaching students the different types of problems and how to solve them drawing diagrams will visually show students which part they are solving for. Then students can solve the equation using a strategy that best fits the type of word problem.

For students to represent the problems correctly students also need to be able to read word problems carefully and fully understand the text. We need to teach the students to read like mathematicians. Close Reading strategies implemented within math content will allow the students to gain more of an understanding of the text. Close Reading has been widely used as a best practice within the literacy content areas but can easily transferred into the math content area. Teaching Close Reading within the math content area teaches students to use reading as a tool for thinking and reasoning. Students are taught to read for understanding and to annotate while they read to dig deeper.

Mathematical text can be difficult to understand because mathematical vocabulary can have a different definition then everyday English words. An example of this is "mean". In math, the definition of this is entirely different than when reading a fictional text. (Freitag) Mathematical text can pose a problem for students because they need to read numbers, equations and interpret charts or diagrams. Therefore, reading in mathematics need to be active

and careful. (Freitag) Students not only need to be able to read carefully but they also need to represent what they have read. Mathematical reading is a higher level of thinking and applying then other types of reading.

Teaching Strategies:

Two main methods will be taught to students during this unit. First is using Close Reading strategies to help students read word problems carefully and provide a better understanding of mathematical vocabulary. Second is that students will use schematic drawings and equations based from the drawings to represent word problems. A pre-test and post-test will be given to students to measure student growth. Students will receive explicit instruction on how to use Close Reading and Schematic drawings in a whole class setting and small groups.

Close Reading is an important strategy for students to use across all content areas. It teaches students to slow down and analyze the text. Close Reading in math can use the following steps.
1. Read for the gist. Underline the question.
2. Annotate the problem. Circle important numbers. Box math action words.
3. Write an equation
4. Solve

After students have used the close reading strategy they are then ready to draw a schematic drawing of the word problem checking the key words and numbers as they go along. Once the drawing is complete students can reread the question and check the drawing to see if they match. Then students can carefully solve the problem using an equation they have generated from their drawing.

For students to be successful at close reading they need to understand mathematical language. As educators, we need to use mathematical language in our everyday instruction. (Gooding, 2009) Building connections for students will give them a better understanding of the vocabulary used in word problems. Using a variety of math centered read alouds will allow students to become more familiarized with mathematical vocabulary in a more familiar setting. One strategy is to discuss the vocabulary before reading the text allowing students a chance to become familiar with the vocabulary before reading. Then while reading stop and ask important questions along the way. Building mathematical vocabulary in the classroom will begin to provide them the background knowledge to be good problem solvers. Without building mathematical background knowledge students will have a difficult time decoding mathematical terms in word problems and readings.

Classroom Activities:
Before starting give the Pre-Test **(appendix 2)** so you can measure the growth from the unit.

Lesson 1- Math Action Words. (appendix 3 and appendix 4)
Lesson Problems
1. Sally collected 6 sea shells in the morning. She then collected 5 more shells in the afternoon. How many shells did she collect in all?
2. Mya had 4 stickers in her sticker book. She got 5 more stickers for her sticker book. How many stickers does she have in all?

Create an anchor chart of words commonly used in word problems with the class. Do not separate them by addition or subtraction because some words can be used for both. Label the top of the Chart Math Action words. Explain that math action words help us decide which operation to use when we are reading word problems. They are the verbs of math. Discuss with the class that verbs are action words and have them act out a few like jump, spin, skip and stretch. Next you will display a few word problems (Appendix 2) and look for the math action words when reading them. Highlight the math action words as you find them. You will not solve the word problems today. You are just looking for math action words. Break the students up into 4 groups and give each group one addition and one subtraction word problem. Give them a highlighter and together they can read and highlight the math action words. Once everyone is complete have the groups share what math action words they highlighted. If new words come up that are not on the Math Action Words Chart add them as they come up. Give each student an exit ticket of the same word problem have them circle or color the math action words.

Lesson 2- Close Reading (appendix 3 and 4)
Close Reading Steps for Chart

1. Read for the gist. Underline the question.
2. Annotate the problem. Circle important numbers. Box math action words.
3. Write an equation
4. Solve

Lesson Problems
1. Jamie picked 8 apples from the apple tree. Sarah picked 4 more apples from the tree. How many apples did they pick all together?
2. Jose` has 11 baseball cards. He gives Mathew 4 baseball cards. How many cards does Jose` have left?
3. 14 children said they like soccer. 8 children said they liked baseball. How many more children like soccer?

Introduce close reading in mathematics to the students. Display the close reading chart. Close reading is a strategy that helps readers slow down and comprehend what they are reading. This strategy commonly used in literacy can be used in math also. The first step is to read for the gist. Then after the first read the students underline the question being asked. Then circle all the numbers and finally box the math action words. These are the words that help students determine the operation of a problem. Using a word problem that is displayed on an anchor chart or smart board model how to use close reading with word problems. Do one as a model, one as a class then have the students try one on their own. Next the students can apply close reading on a set of 4 word problems (2 subtraction and 2 addition). Remind the students to use the close reading chart to help them and that they are also solving the word problems today. Check to see if they are applying this new strategy. Once students are complete, display the word problems and have the students come up to solve while the others check their work. At the end give the students an exit ticket (appendix 5). Just check to see if they are using the close reading.

Lesson 3- Which operation? Academic Conversations (appendix5)

Lesson Problems.
1. Mary has 13 flowers. Kim has 7 fewer flowers than Mary. How many flowers does Mary have?
2. There are 12 animals on a farm. 8 are ducks and the rest are pigs. How man pigs are on the farm?
3. Sam picked 9 flowers. Mary picked 4 flowers. How many flowers did they pick all together?

Partner Problems
1. There are 17 chickens on a farm. 9 are white and the rest are brown. How many chickens are brown?
2. Mya is 4 years older than Ben. Ben is 12 years old. How old is Mya?

Ahead of time assign your student a partner to work with. Partner A and Partner B. Academic conversations are essential for students to explain how they solved their problems. Providing them with sentence frames will guide the students when talking with their peers about the work. Display todays word problem (appendix 6) and using the close reading strategy work through the problem. When the close reading is complete ask, which operation are we going to choose? As they respond follow up with, how do you know? Write down the explanations as the students say them. Then take one and add the sentence frame, I know because……. Go through and read the students responses using the, I know because sentence frame first. Student's responses should be based on the math action words. An example would be, I know because the problem asks how many altogether and I know that means addition. Display another word problem and close read the problem together. Then have the students think about which operation they would choose. Ask which operation did they choose and why? Encourage them to use the

sentence frame I know because as they explain the why portion of the question. Record their answers on an anchor chart by filling in the sentence frames. Using a third word problem close read the problem together and again ask, which operation would you choose, and why did you choose that operation? This time have them tell a partner their answer using the sentence frames to guide them. Partner A will answer while partner B listens. I choose _____. I know this because_____. Do the same thing again with another problem for partner B to answer. Then send the students to work on a practice sheet. The students will close read the word problems and then fill in the sentence frames with their answers to why they choose the operation and how they know. Go around to help students with their writing. Come back together when students are finished and go over their responses. Give an exit ticket (appendix 8) to check for understanding.

Lesson 4- Using Schematic Drawings/ Beginning Middle End -Addition (appendix 6 and 7)
Lesson Problems

1. Sally collected 6 sea shells in the morning. She then collected 5 more shells in the afternoon. How many shells did she collect in all?
2. Jamie picked 8 apples from the apple tree. Sarah picked 4 more apples from the tree. How many apples did they pick all together?

   The next step to solving word problems is helping students set up the problems for them to solve. Today students will again use close reading to analyze the problem and academic conversations to discuss the problems. Using those strategies each day will get the students use to the new routine. Today's lesson will connect that word problems are just like the books they read. They each have a beginning, middle and end. Discuss a familiar book with the class and discuss the beginning, middle and end. Then display a word problem. Close read the problem together and then ask what happened in the beginning? On an anchor chart draw what happened in the beginning. Then ask what happened in the middle. Then draw what happened in the middle. Do the same process with the end. The missing number can be represented by a question mark in the drawing. Now you have a drawing representing what the problem is asking. Go back and look at the pictures to create the equation together. Discuss how the pictures help bring the word problem to life like a story. Now go ahead and solve. Go through another addition word problem using the same methods together. Then send the students to work on two addition word problems together using the close reading and drawing the beginning middle and end before solving. Have students share their drawings with the class and discuss how they solved the problems.

Lesson 5- Using Schematic Drawings/ Beginning Middle End -Subtraction (appendix 6 and 7)

Lesson Problems
1. Bill has 12 toy cars. Tom has 7 fewer toy cars than Bill. How many toy cars does Tom have?

2. May is holding 16 balloons. 8 balloons fly away. How many balloons are left?

   This lesson is just like the addition lesson from the day before. However, you need to emphasize that in subtraction the biggest number always goes first. This will help when students begin solving start unknown subtraction word problems. Again, represent the unknown part with a question mark.

Lesson 6- Using Schematic Drawings/ Beginning Middle End - Missing Addends (appendix 9 and 10)
Lesson Problems

1. There are some birds in a tree. 7 more birds land in the tree, then there are 15 birds in the tree. How many birds were in the tree to start?
2. Susie collected 9 seashells on the beach in the morning. Then she collected some more after lunch. All together she had 14 sea shells. How many sea shells did she collect after lunch?

   Using schematic drawings help students to see where the missing addend is located. There are two types of missing addends. Start unknown and change unknown. Start with change unknow problems. Display the word problem. Close read the problem together and on an anchor chart draw what happened in the Beginning, Middle and End. This time the middle is unknown. The drawing will show that the missing number is in the middle of the problem. Use a question mark to show where the missing part is located. Then use the drawing to write the equation with the missing addend. Repeat again using a start unknown problem. The drawing this time will show the beginning is missing in the problem. Write the equation with the missing addend in the beginning and then solve. Next the students will work on two word problems by close reading and drawing the beginning, middle and end of a word problem then writing the equation to solve for both a start unknown and a change unknown word problem. Have the students share their drawings and equations with the class. Then give the exit ticket for the missing addend.

Lesson 7- Using Schematic Drawings/ Beginning Middle End -Missing Subtrahends (appendix 10 and 11)
Lesson Problems
1. Bill has some baseball cards. He gives his brother 4. Bill has 6 cards left. How many baseball cards did Bill start with?
2. 13 kids were swimming. Some kids got out to dry off. 6 kids were still swimming. How many kids got out to dry off?

The lesson today is like missing addends but is demonstrating the missing subtrahend. Again, it is very important to emphasize that in subtraction the biggest number goes first. This is important because when students are solving for a start unknow subtraction problem the missing number will be the biggest number. Follow the same concept as yesterday demonstrating the start unknown and change unknown subtraction word problems. Again, use a question mark in the drawing to represent the missing part. Students again will work on their own and complete an exit ticket.

Lesson 8- Multi Step Word Problems (appendix 3 and 12)
   1. There are 10 people on a bus, 5 more people get on the bus at the next stop. Then at the next stop 3 people get off. How many people are still on the bus?

   2. Mary has 3 toy bears and 3 dolls. Then her friend gives her 3 more dolls. How many toys does she have all together?

Multi step word problems can be tricky because students will want to do all one operation before solving. Using the close reading and drawing the problems will show the students what is going on in the problem. Display the problem and then close read the problem together. Discuss how this problem has two parts to solve. The first part is addition because you need to find out how many people are on the bus. The second part is subtraction because you need to subtract the people who got off the bus to show the total of people on the bus. Use a drawing to show 10 people on the bus in the beginning, 5 people getting on in the middle and some people on the bus at the end. Then solve for how many people are on the bus all together. The next drawing will be the 15 people on the bus in the beginning, then three people getting off from the bus in the middle and some people left on the bus in the end. Then solve for how many people are left on the bus at the end. Model again using a second multistep word problem. Then send students off to solve two multistep word problems using close reading and schematic drawings. Have the students share their drawings and answers with the class then give the exit ticket for the day.

Lesson 9- Acting Out Word Problems

Acting out word problems is essentially brining the schematic drawings to life. Before the lesson make a few question mark pictures to hold for the students who are representing the unknown number. Using a word problem have two students help act out what is happening in the word problem. First close read the problem together. Discuss what is going on in the problem. Instead of drawing the problem act out what is happening. Guide the helper students through what they will do. Once you have acted out the problem write the equation and then solve. Display another word problem, close read together and have the students act out what is happening in the problem. Then write the equation and solve. Break the students up in groups and give them each a different word problem. Have them close read the problem together and then act the problem out and

solve the problem. Once the students are completed have them act out their problems for the class and solve the problems. Check for understanding as there is no exit ticket today.

Lesson 10- Writing Word Problems Draft 1

Today's lesson students will write their own word problems. Have the Math action word chart displayed so students have access to the vocabulary needed to write a word problem. Write one addition word problem and one subtraction word problem together on another chart so that the students can access it when working. Break the students up into groups and give them some chart paper. Have then create a word problem together and record their problem on the anchor chart. When the groups are finished have the groups share and display the charts for the class to see. Finally have the students create their own word problem. Encourage the students not to copy the ones already written. Go around and help students who are stuck on what to write. Read each of the student's word problems and offer suggestions for corrections for misspelled words if needed. This is just a first draft the students will create a final copy tomorrow. Have the students illustrate their word problems using the beginning middle and end strategy. Have a few students share their word problems with the class.

Lesson 11- Writing Word Problems Final Copy

Allow students to make a final copy of their word problems with the corrections so that all word problems are spelled correctly and make sense. When students are finished encourage them to write another word problem. Share some final copies of the word problems with the class and solve them together or in groups.

Lesson 12- Read the Room Activity using student word problem

Select a few word problems from the ones the students wrote and type them up and use some previous word problems for review. Display each one around the room assigning them a number or letter so the students can keep track. Using a piece of paper or notebook have the students go around and solve each problem in small groups recording the problem number/letter and solving. Go over the answers when all the groups are completed.

Lesson 13-Post Test
Give the same Pretest to measure the student's growth from the Pre-Test.

Appendix 1 Implementing Teaching Standards

Operations and Algebraic Thinking
1.OA.1
Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing with unknowns in all positions by using objects, drawings and equations with a symbol for the unknown to represent the problem.

I can solve addition and subtraction word problems with the unknown in all positions.

1.OA.A2
Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20 by using objects, drawings and equations with a symbol for the unknown to represent the problem.

I can solve word problems with 3 or more digits.

Appendix 2 Pre-Test/Post Test

Name_____ Date_____

1. Jamie picked 10 apples from the apple tree. Sarah picked 7 more apples from the tree. How many apples did they pick all together?

2. Sid has 15 Pokémon cards. Mathew has 7 fewer Pokémon cards than Sid. How many cards does Mathew have?

3. There are some birds in a tree. 8 more birds land in the tree. Now there are 15 birds. How many birds were in the tree to start?

4. 12 ducks are in a pond. Some ducks fly away and then there were only 3 ducks in the pond. How many ducks flew away?

5. There were some cupcakes on a table. 6 cupcakes were eaten and then there were only 7 cupcakes left. How many cupcakes were on the table to start?

6. There are some kids on the playground. 8 more kids join them and then there were 14. How many kids were on the playground to start?

7. 9 students were playing basketball. Then 3 more students joined them. At dinner time 5 players left. How many players were still playing basketball?

Appendix 3- Math Action Words

Group Practice Problems Lesson 1

1. There are 6 apples on the ground. 4 more apples fall on the ground. How many apples are on the ground all together?

2. Alex has 8 cookies and gives Sam 4 cookies. How many cookies does Alex have left?

Student Practice Problems Lesson 2

1. A squirrel collected 12 nuts for winter. He then collected 5 more nuts. How many nuts has the squirrel collected for winter?

2. 7 purple tulips bloomed on Monday. 3 more purple tulips bloomed on Tuesday. How many purple tulips bloomed altogether?

3. 14 kids were playing soccer. 7kids left to go home. How many kids were left playing soccer?

4. 9 birds were in a tree. 5 flew away. How many birds were left in the tree?

Appendix 4

Exit Ticket Lesson 1

1. There are 4 ducks in the pond. 8 more ducks join them in the pond. How many ducks are in the pond all together?

2. There are 9 cupcakes on a table. 4 cupcakes get eaten. How many cupcakes are left?

Exit Ticket Lesson 2

1. There are 11 frogs in a pond. Two frogs hop away. How many frogs are left?

2. There are 7 lady bugs on a flower 4 more lady bugs land on the flower. How many lady bugs are there all together?

Exit Ticket Lesson 9

1. Sara had 8 markers. She lost 3 of the markers. Then her Mom bought her a pack of 10 markers. How many markers does Sara have now?

Beginning	Middle	End

Write the equations used_____

Appendix 5

Student Practice Problems Lesson 3

1. There are 9 fish in the tank at the pet store. 3 fish get sold. How many fish are left in the tank?

Which operation did you choose?
I choose _____. I know this because_____.

2. Rob has 12 baseball cards. Nick gives him 8 more for his Birthday. How many baseball cards does Rob have now?

I choose _____. I know this because_____.

Exit Ticket Lesson 3

1. 8 kids were jump roping and 4 kids were playing catch. How many kids were playing all together?

I choose _____. I know this because_____.

Appendix 6

Student Practice Problems Lesson 4

1. Sally picked 5 flowers in the morning and 8 flowers after lunch. How many
   flowers did Sally pick all together?

Beginning	Middle	End

Equation_____+_____=_____

2. There are 5 pigs in a pen and 7 sheep in another pen. How many animals are at
   the farm all together?

Beginning	Middle	End

Equation_____+_____=_____

Appendix 7

Exit Ticket Lesson 4

There are 5 frogs in a pond. 2 more frogs jump in. How many frogs are in the pond all together?

Beginning	Middle	End

Equation_____+_____=_____

Exit Ticket Lesson 5

There are 14 fish in a tank. A cat eats 5 of them. How many fish are left in the tank?

Beginning	Middle	End

Equation_____-_____=_____

Appendix 8

Student Practice Problems Lesson 5

1. There are 13 flowers in a garden. 9 flowers get picked. How many flowers are left in the garden?

Beginning	Middle	End

Equation_____-_____=_____

2. 11 kids are playing basketball. 5 kids leave. How many kids are left playing basketball?

Beginning	Middle	End

Equation_____-_____=_____

Appendix 9

Student Practice Problem Lesson 6

1. Bill had some baseball cards. His brother gave him 6 more and then he had
   17. How many baseball cards did Bill have to start?

Beginning	Middle	End

Equation_____+_____=_____

2. 9 cats were sitting in a window. Some more cats climbed in the window. Then
   there were 12 cats sitting in the window. How many cats climbed into the
   window?

Beginning	Middle	End

Equation_____+_____=_____

Appendix 10

Exit Ticket Lesson 6

Some geese were in a field. 7 more geese landed in the field. All together 12 geese were
in the field. How many geese were in the field to start?

Beginning	Middle	End

Equation_____+_____=_____

Exit Ticket Lesson 7

Some frogs were in a pond. 10 frogs jumped out then there were only 6 frogs left in the
pond. How many frogs were in the pond to start?

Beginning	Middle	End

Equation_____-_____=_____

Appendix 11

Student Practice Problems Lesson 7

1. The librarian had 19 books to out away. She put away some books. Then she had 8 books left to out away. How many books did she put away?

Beginning	Middle	End

Equation_____-_____=_____

Some birds were in a tree. 8 birds flew away and 7 birds were left. How many birds were in the tree to start?

Beginning	Middle	End

Equation_____-_____=_____

Appendix 12

Student Practice Problems Lesson 8

1. There were 12 balloons at Sam's party. Sam let 3 balloons fly away and then popped 4 balloons. How many balloons were left?

Beginning	Middle	End

Write the equations used_____

2. Jennifer had 18 pieces of candy. Her friend gives her 5 more pieces at lunch. Then after school her teacher gave her 4 pieces of candy. How many pieces does Jennifer have all together?

Beginning	Middle	End

Write the equations used_____

Techer Resources

Abcya. http://www.abcya.com/first_grade_word_problems_add_subtract.htm.
This website has many math games to practice common core skills. It also has a section of word problems for first graders. This is great to add technology to your classroom.

@epickidsbooks. "Instantly Access 20,000 High-quality Books for Kids." Epic! - Books for Kids. Accessed November 21, 2016. https://www.getepic.com/.
This website is free for educators and offers a variety of fiction and nonfiction books. There is a section of math read alouds that are great to use for practicing math vocabulary.

Burns, Marilyn, and Stephanie Sheffield. *Math and Literature*. Sausalito, CA: Math Solutions Publications, 2004.
This book has lessons for math using math read aloud for all first grade common core standards. It offers step by step instructions for the educator to begin implementing literature in the math classroom. All of the books used can be bought through scholastic books.

Common Core Problem Solving Journal. Lakeshore learning.

This journal has a variety of math word problems to use as additional math practice. It covers standards in Number and Operations, Geometry and Measurement and Data.

"Math Teaching Resources for K-5 Classrooms." K-5 Math Teaching Resources. Accessed November 15, 2016. http://www.k-5mathteachingresources.com/.
 This website has a section on word problems for each grade level and also has examples of each type of word problem. These problems can be used for practice in groups. Copy and laminate them for students to use.

"Teaching Resources & Lesson Plans | Teachers Pay Teachers." Teaching Resources & Lesson Plans | Teachers Pay Teachers. Accessed November 15, 2016. https://www.teacherspayteachers.com/. This website has many word problems packets for grade levels that could be used in journals for the whole year. These problems are made by teachers for teachers and meet the ever changing needs of our students.
Appendix 12

Work Cited/Readings

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