1st Grade MATH

Chp 5 : Addition and Subtraction Relationships | Days in Unit: 15

Unit Summary:
Throughout other units, students have been building understandings of properties of operations through repeated experience with addition and subtraction. In this unit students apply these understandings to solve real-world and mathematical word problems.

0perations and Algebraic Thinking — 1.OA.1, 1.OA.6, 1.OA.7, 1.OA.8
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, e.g. by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Add and subtract within 20 demonstrating fluency for addition and subtraction within 10.
Understand the meaning of the equal sign and determine if equations involving addition or subtraction are true or false.
Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

Unit Vocabulary:
- Word Problems
- Whole Numbers
- Add
- Addition
- Addend
- Sum
  Subtraction

- Difference
- Less than
- Equal To
- Objects
- Manipulatives
- Equations
- Symbol
- Unknown Number

- Represent
- Properties of Operations
- Strategies
- Turnaround Facts
- Properties of Addition
  Properties of Subtraction

Essential Questions:
- What strategies can I use to solve a word problem?
- How can I use drawings to help me solve word problems?
- How can I use symbols to help me find the unknown number in an addition or subtraction problem?
- When I am adding more than two numbers, what strategies can I use to make my work easier?

- What are turnaround facts? How can they help me solve problems quicker?

WHOLE GROUP ACTIVITIES:
(Instructional strategies, guided practice, independent practice)

Word Problems Practice-
Materials Needed:
- White boards with dry erase markers or pencil and paper
- Dice (optional)
- Workmat (optional) https://drive.google.com/file/d/0B9W9zLIJ-lchYmFlNjBkMGUtODgwYS00ZjUzLWIyZWMtODQxOTczZmZlNzE1/view
- Option: Mission Additions Word Problems resource (includes workmat, printable manipulatives and worksheet)
  http://www.cpalms.org/Public/PreviewResourceLesson/Preview/30038

The teacher will present the following problems to students. Students will work with a partner to draw pictures on white boards to represent the problems, write an equation to go with it and take turns explaining their answers. Option: Students can use their own paper for teacher to collect as a work sample.
- The total of three numbers is ten. What might the three numbers be?
- Susan tossed three dice and made a total of eleven. What number of dots might have been on each dice?
- How many different ways can you get a total of twelve when you toss three dice cubes?

Linking Cubes Reteach/Review Associative property-
Materials Needed:
- Linking Cubes

TTW ask students to show addition problems using unifix cubes or linker cubes.
TTW Say: "Show me 5 + 4 using three different colors".
Student response example: Students could show 5 red cubes and 4 blue cubes.
TTW Ask them to look at the bar and then turn it over so there are 4 blue cubes and 5 red cubes.
TTW Ask: So is 5 + 4 the same as 4 + 5? How do you know?
Provide investigations that require students to identify and then apply a pattern or structure in mathematics. TTW demonstrate- pose a string of addition and subtraction problems involving the same numbers chosen from the numbers 0 to 20, like 4 + 13 = 17 and 13 + 4 = 17. Students analyze number patterns and create conjectures or guesses.
TTW Have students choose other three number combinations and explore to see if the patterns work for all numbers 0 to 20. Students then share and discuss their reasoning.
TTW Be sure to highlight students' uses of the commutative and associative properties and the relationship between addition and subtraction.
TTW provide opportunity for students to solve word problems and equations using the properties of addition and subtraction.

Write a story-
Materials Needed:
- Dice
- Linking cubes
- Whiteboard/dry erase markers or pencil/paper
- Optional story problems templates:

https://www.teacherspayteachers.com/Product/Create-Your-Own-Addition-Word-Promblem-1158026

Students write an equation, draw a picture, and write a story.
Story starters:
- Roll two dice and draw them. Write the number sentence and the turn around fact. Repeat.
- Build a two color train using less than 10 unifix cubes. Place cubes of the same color together. Draw your train and write a matching number sentence. Flip the train and write the turn around fact. Repeat with other trains.
- Molly was excited. She said "Look what I found out, 2+4=6 and 4+2=6." "Molly said, "I can show you why that works." Describe what Molly did.

Extension: Write subtraction sentences that go with the fact family. Example: 6-4=2 and 6-2=4

Commutative Property –
Have a student write the number sentence 2 + 3 = 5 on the board to represent the group of students. Call another group of three boy students and two girl students to the front of the class. Ask the following questions:
- How many girls are there?
- How many boys are there?
- How many students are there altogether?

Have a student write the number sentence 3 + 2 = 5 on the board to represent the group of students. Ask students:
- What do you notice about the number sentences?
- Are the answers the same?

Select students to tell how the number sentences are the same and different.
Write the term commutative property on the board. Say, "Mathematicians call this the commutative property. When adding, it does not make a difference which number comes first, 2 + 3 or 3 +2. The answer is still the same, 5." Select a group of four girl students and three boy students to come to the front of the classroom. Ask questions about the group of students.
- How many girl students are there?
- How many boy students are there?
- How many students are there altogether?

Balance it-
Materials Needed:

- Balances
- Counting Cubes

In this lesson, use balances to practice identifying pairs of addition facts which represent the commutative property. Make sure the balances work correctly before beginning. Also be sure that cubes used weigh the same amount.

1. Demonstrate the activity with the whole class and then have the students model the activity in small groups. For the demonstration, use a balance and 10 cubes of one color (red) and 10 cubes of another color (blue). Put three red cubes and two blue cubes on one side of a balance.

2. Have a student write on the board the number sentence that represents the number of cubes on the balance (3 + 2 = 5). Put two blue cubes and three red cubes on the other side of the balance.

3. Have another student write on the board the number sentence that represents the number of cubes on the balance (2 + 3 = 5).
- Is the balance level?
- Why is the balance level?

4. Give each group of students an addition fact card. Have one student put cubes on the left side of the balance to represent the numbers on the addition fact card. Have another student put cubes on the right side of the balance to represent the commutative property. Have another student record the facts.

5. Have the groups repeat this activity using different addition fact cards. Ask students:
- What did you learn in mathematics today? (Possible answers may include that it does not make any difference which number comes first when adding because the answers are the same.

Examples of the commutative property may be given such as 6 + 2 = 2 + 6.

Summative Assessment:
Chapter 5 test