



### Further investigations:

Help your child search the newspaper (or go to [www.weather.com](http://www.weather.com)) for daily temperatures and create a graph showing weekly trends. Look at the temperatures for morning, noon, and night. Ask your child to find the difference between the highest and lowest temperature for the day.

Copy a license plate number as you are traveling or watching cars go by. Ask your child to read the license plate as a number (excluding the letters). For example, if the license were 62ab315, the number would be sixty-two thousand three hundred fifteen.

Find other license plates and let your child read their numbers. Is the new number less than, greater than, or equal to your first license plate? Ask your child to estimate the difference between your first number and another license plate. Is it about 10, 100, 1,000, or 10,000 more or less? Find the license plate with the greatest and smallest number on it.

Play the game "What's the Difference?" The object is to make the smallest difference (answer in a subtraction problem). You will need at least two players and playing cards (Ace =1) through 10 (10=0). Place the deck face down. A player draws a card from the deck and places it face up. Each player selects a space on his game board and writes the number of the card on that space. Game boards can be drawn on paper as shown below:


Players draw five more cards to fill in their game cards. As shown below:

Player 1	Player 2
522	657
367	232

Players complete the subtraction. The player with the smallest difference is the winner for the round and scores 1 point. In the event of a tie, each player receives 1 point. Any negative difference causes that player to strike out for that round. The winner of the game is the player with the most points after a set number of rounds or a set time limit.

### Related Files:

[www.ceismc.gatech.edu/csi](http://www.ceismc.gatech.edu/csi)

## Addition and Subtraction of Whole Numbers

### Students will:

- Use mental math to add and subtract
- Use estimation to determine reasonableness of sums and differences
- Read, interpret, solve, and compose simple word problems dealing with addition and subtraction
- Use inverses to verify accuracy of computation
- Write and simplify expressions using symbols in place of numbers
- Represent, read, and name numbers from tenths to ten-thousands place

Third Grade 1 of 6

### Classroom Cases:

**1.** Kim, Bud, and Sam each have a herd of cows. Kim has two black cows, four brown cows, and three red cows. Bud has three black cows, one brown cow, and four red cows. Sam has five black cows, three brown cows, and two red cows. How many cows does each person have? How many cows in all? Are the herds equal in size? How can we make them? Explain your thinking using words, numbers, or pictures.

### Case Closed - Evidence:

Kim has 9 cows, Bud has 8 cows, and Sam has 10 cows; there are 27 cows in all. The herds are not equal in size. If Sam would give Bud a cow, the herds would be equal.

**2.** Suppose you found an old roll of 15 cent stamps and a roll of 33 cent stamps. Can you use a combination of 15 cent stamps and 33 cent stamps to mail a package for exactly \$1.77?

### Case Closed - Evidence:

If you use (4) 33 cent stamps and (3) 15-cent stamps, you can mail the package for exactly \$1.77 because  $$.33 + .33 + .33 + .33 + .15 + .15 + .15 = \$1.77$ .

### Terminology:

**Addend:** a number being added. In  $5 + 9 = 14$ , 5 and 9 are addends and 14 is the sum.

**Associative Property of Addition:** when there are three addends, the sum does not change regardless of which two numbers you group together first.

As in:  $3 + 5 + 2 = (3 + 5) + 2 = 3 + (5 + 2) = 10$ ;  $8 + 2 = 3 + 7 = 10$

**Commutative Property of Addition:** the order in which two numbers are added does not change the sum. As in:  $9 + 7 = 16$  and  $7 + 9 = 16$

**Difference:** the answer obtained when you subtract two numbers

**Doubling:** adding the same amount twice; or two times a number

**Identity Property of Addition:** when zero is added to any number, the sum is the original amount. Or, adding zero to any number does not change the number.

**Inverses:** operations that undo each other, such as addition and subtraction as well as multiplication and division.

**Minuend:** the number you subtract from.

As in:  $522 - 367 = 155$ ; 522 is the minuend.

**Operations:** addition, subtraction, multiplication, and division

**Subtrahend:** The number being subtracted.

As in:  $522 - 367 = 155$ ; 367 is the subtrahend.

**Sum:** the answer obtained when you add two numbers; total number of elements in the sets that were combined

### Book'em:

**12 Ways to Get to 11** by Eve Merriam

**Domino Addition** by Lynnette Long

**Ten Sly Piranhas** by William Wise

**Mission Addition** by Loreen Leedy

**Elevator Magic** by Stuart J. Murphy

