



# What's the Difference?

## Modeling Addition and Subtraction Based on Comparison Relationships

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# Agenda

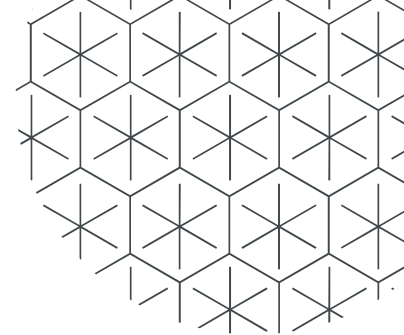
**01 Comparing  
Quantities**

**03 Finding the  
Difference**

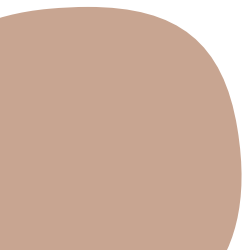
**02 Increasing &  
Decreasing Quantities  
to Highlight Difference**

**04 Finding the  
Difference on  
the Number  
Line**




# Finding the Difference



- Do you think students find subtraction more challenging than addition? Why or why not?
- What have you observed about student understanding of difference?



# Addition and Subtraction Problem Structures

Structure		Example
Join (add to)/ Separate (take from)	 <p>The diagram illustrates two problem structures. On the left, a 'Join' structure: a blue circle labeled 'Start' has an arrow pointing to a green circle labeled 'Result', with an orange oval labeled 'Change' above the arrow. On the right, a 'Separate' structure: a blue circle labeled 'Start' has an arrow pointing to a green circle labeled 'Result', with an orange oval labeled 'Change' above the arrow.</p>	<p>Mark loved to eat fruit snacks. He counted 36 fruit snacks in his bag. He ate 17 fruit snacks. How many are left in his bag?</p>
Part-Part-Whole	 <p>The diagram shows a rectangular bar divided into three sections. The top two sections are orange and each labeled 'Part'. The bottom section is green and labeled 'Whole'.</p>	<p>Genevieve bought 5-cent stamps and 25-cent stamps. Altogether she has 9 stamps. How many of each type of stamp might she have?</p>
Compare	 <p>The diagram shows two rectangular bars. The top bar is blue and labeled 'Bigger Amount'. The bottom bar is orange and labeled 'Smaller'. A double-headed arrow between the right ends of the two bars is labeled 'Difference'.</p>	<p>Lara has 4 more baseball cards than Alex. Alex has 5 baseball cards. How many baseball cards does Lara have?</p>

# Modeling Mathematical Concepts Using Continuous Quantities



Length



Area



Volume



Mass

# Measurement as a Context for Whole Number & Operations: Attributes



$$K = M$$

# Comparing Quantities

Our friend Rabbert left a statement for us. What attribute (length, area, volume, or mass) could he be comparing?

$$T > K$$

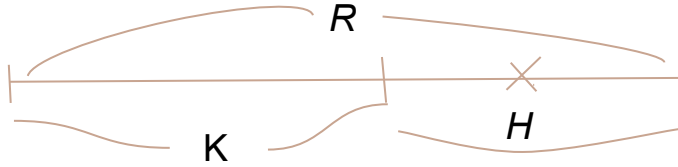


# Feeding Scottie

Lani's neighbor, William, had a pet dog named Scottie. William's family planned to go on a vacation and had to leave Scottie home. William asked Lani to feed Scottie while they were away, and she happily agreed. Scottie needed to be fed breakfast, lunch, and dinner.







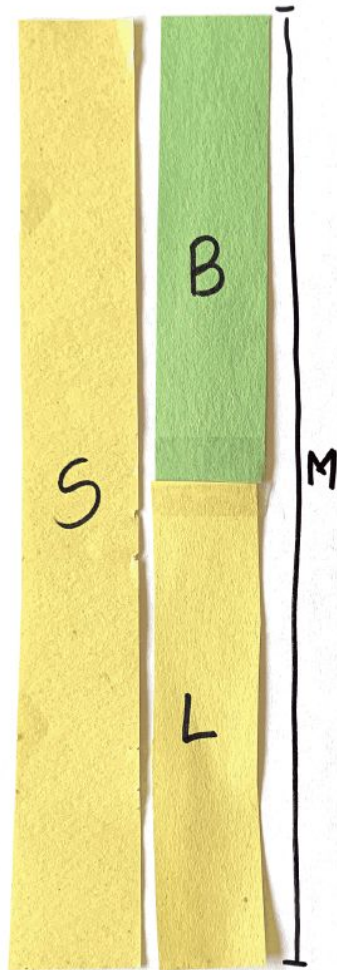
$$R > S \quad \text{or} \quad S < R$$

Decreased  $R$  by  $H$  to make volume  $K$

$$S = K$$

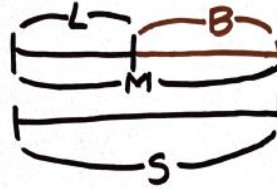
$$S = K \text{ by } H$$

$$R - H = K$$



$$L < S$$

$$S = M$$



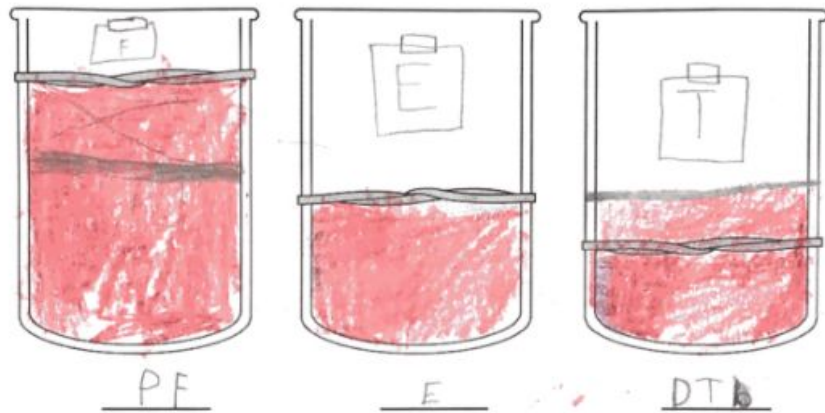
Increase  
Add

$$S = M \text{ by } B$$

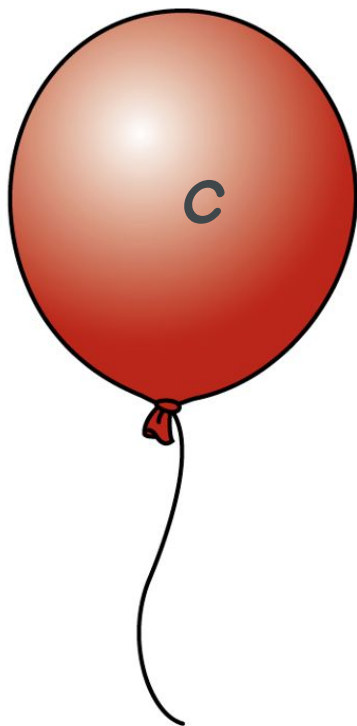
$$L + B = M$$

$$M = S$$

$$L + B = S$$



$$\begin{aligned} D &= E \\ F &= E \end{aligned}$$

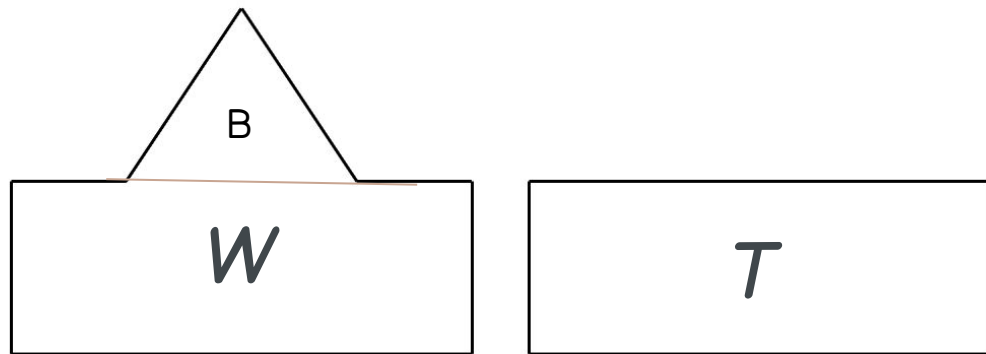


$$C > P$$

$$C > P \text{ by } M$$

$$P + M = C$$

$$C - M = P$$



$$T < W$$

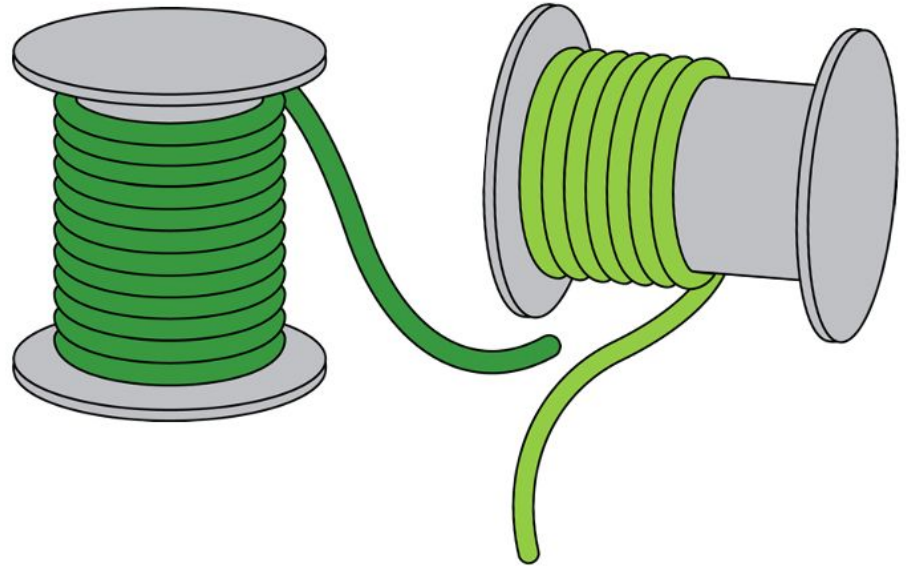
$$T =$$

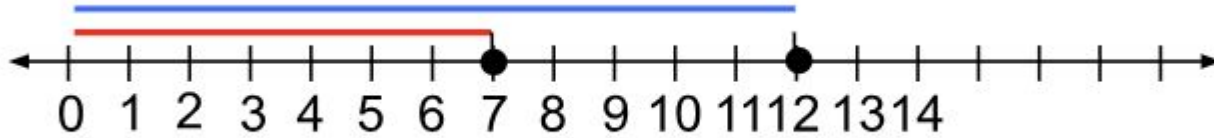
$$T = W \text{ by } B$$

$$W - B = T$$

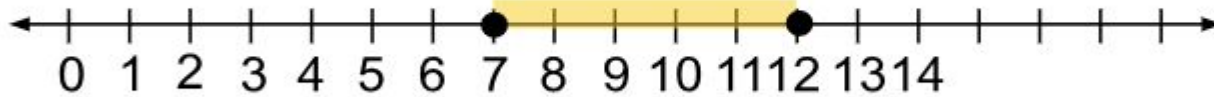
One spool has 7 meters of wire.  
The other spool has 12 meters of wire.

- Represent the lengths of wire on a number line.
- Write a statement to represent how the lengths compare
- Highlight the difference and record the difference in your statement:  
\_\_\_\_\_ < \_\_\_\_\_ by \_\_\_\_\_





$7 < 12$  by 5



How can we make lengths of wire equal if only one length is changed?

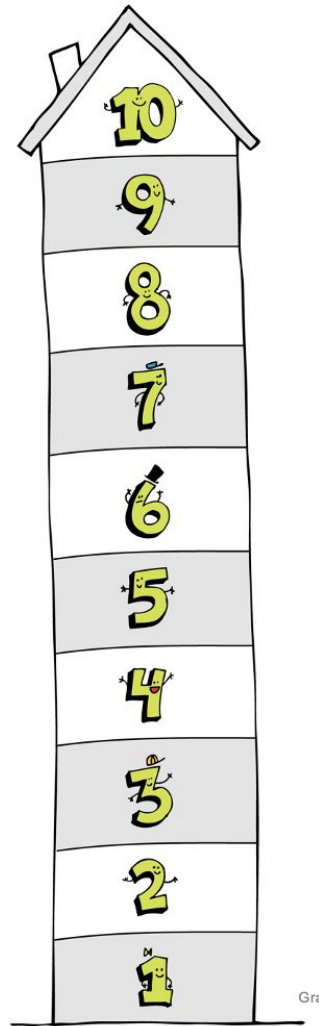
Increase

12 meters = 7 meters + 5 meters

Decrease




12 meters - 5 meters = 7 meters

# Elevator Game





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Part-Part-Whole		<p>Genevieve bought 5-cent stamps and 25-cent stamps. Altogether she has 9 stamps. How many of each type of stamp might she have?</p>
Compare		<p>Lara has 4 more baseball cards than Alex. Alex has 5 baseball cards. How many baseball cards does Lara have?</p>



# Mahalo!

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