

Subtraction

This section will focus on understanding the concepts associated with the subtraction of whole numbers.

Tray Setup

Figure 1 illustrates the initial tray setup that will be used for all whole number operations. This setup is also what we refer to when students are reminded to reset their trays.

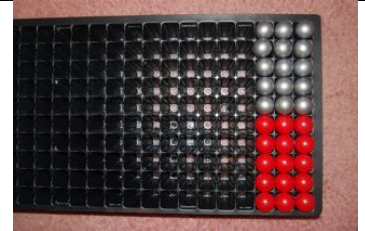


Figure 1

Whole Number Subtraction Overview

1. The concept of the subtraction of whole numbers will be modeled in the take-away, missing addend, measurement, and comparison models. All four forms are shown as they help the student understand when this operation is used in application. Remind students that the operational procedure is still the same and that the only difference in the models is how the application is worded.

2. The subtraction concept is first modeled as the removal or taking away of elements from a set of objects. The balls that we start with model the original set or minuend, the ones we remove represent the subtrahend, and the ones that are left represent the difference. Figure 2 represents the original set or minuend. Figure 3 represents the set that is removed or subtrahend. Figure 4 represents the answer or difference formed by taking away the balls.

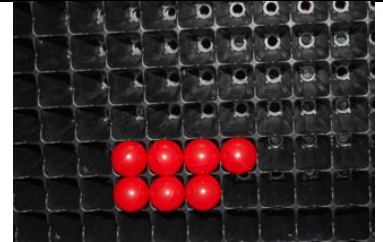


Figure 2

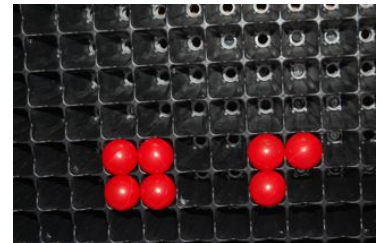


Figure 3

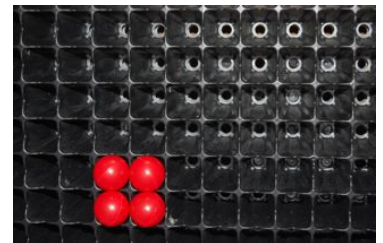


Figure 4

3. The subtraction concept is next modeled using the measurement model. Figure 5 illustrates the minuend or the distance we want to reach. Figure 6 shows a second set that represents the subtrahend or the distance we have already traveled. Figure 7 shows a third set that represents the difference or how much more we need to travel to reach our goal.

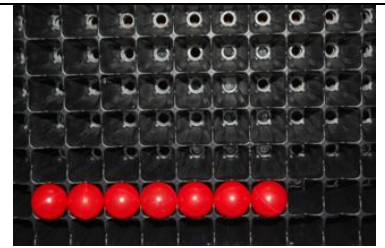


Figure 5

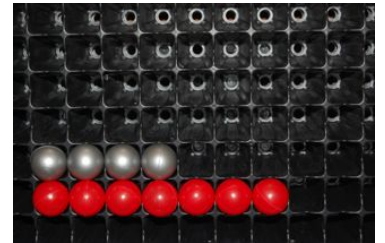


Figure 6

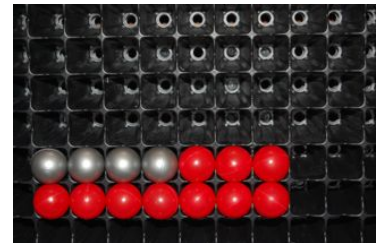


Figure 7

4. The third subtraction concept is the comparison model. Figure 8 illustrates the minuend or the size of the larger object we are comparing. Figure 9 shows a second set that represents the subtrahend or the size of the smaller object being compared. Figure 10 shows a third set that represents the difference between the larger object when compared to the smaller object.

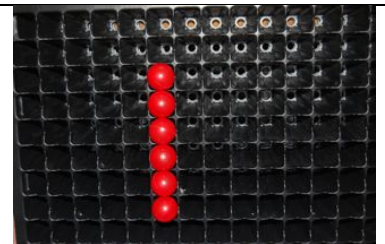


Figure 8

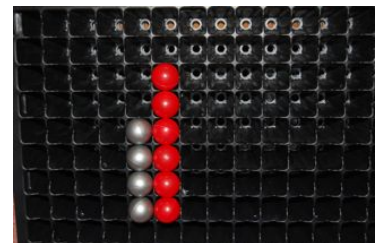


Figure 9

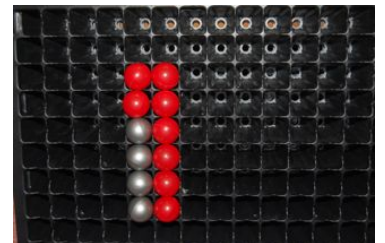


Figure 10

5. The fourth model is the missing-addend model. Figure 11 illustrates the minuend or the amount we want. Figure 12 shows a second set that represents the subtrahend or the amount we have. Figure 13 shows a third set that represents the difference or how much more we need.

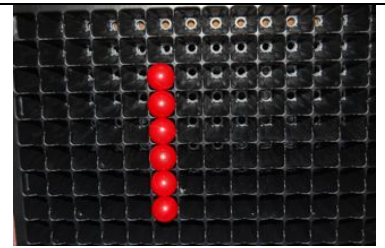


Figure 11

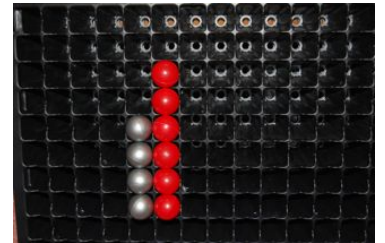


Figure 12

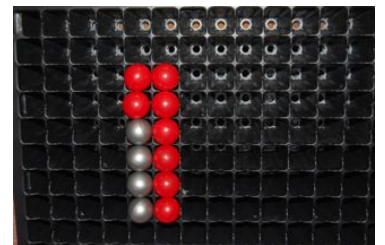


Figure 13

6. Notice that the figures can be interchanged within the various models. These are the four basic forms of application for subtraction. Students need to recognize where the operation of subtraction is used in a variety of word problems.

7. In all sections, the problems will be presented as word problems and solutions illustrated by the use of balls

8. All solutions are given in symbolic form with the accompanying written form.

Instruction Movie Sample Slide

Lesson Name

Problem

Written

Manipulative

Answer

Words

Manipulative

Symbols

Subtraction -- Take away

Your dog had six puppies. When they were old enough, you gave four of them to your friends. How many puppies do you have left?

You have two puppies left.

$$6 - 4 = 2$$

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Instruction Movie Sample Slide

Lesson Name

Problem

Written

Manipulative

Answer

Words

Symbols

Manipulative

Subtraction Comparison

$$5 = 2 + 3$$
$$5 - 3 = 2$$

Daniel bought two pounds more candy.

Daniel and Brandi went to the store. If Daniel bought five pounds of candy and Brandi bought three pounds of candy, how much more candy did Daniel buy.

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Instruction Movie Sample Slide

Lesson Name

Subtraction Measurement

Problem

Written

Manipulative

Answer

Symbols

Words

Manipulative

$9 - 3 = 6$

Kyra and Melinda like to jog. Kyra jogs 9 miles a week and Melinda jogs 3 miles a week. How much further does Kyra jog than Melinda?

Kyra jogs 6 miles further than Melinda each week.

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Instruction Movie Sample Slide

Lesson Name

Subtraction Missing Addend

Problem

Written

Manipulative

Answer

Symbols

Words

Manipulative

$4 + 2 = 6$

$6 - 4 = 2$

My school is six blocks from my house. I walk four blocks on my way to school. How many more blocks do I have to walk before I reach my school?


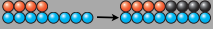
I have to walk two more blocks.

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Assessment Movie Sample Slide

Written Subtraction Problem

Problem as
Drawing

4.)	Manuel and Juan are collecting money to help the needy. If Manuel raised three dollars and Juan raised seven dollars, how much more money did Juan raise than Manuel?
	
$7 - 3 = 4$	
Juan raised four more dollars than Manuel.	
5.)	Danny and Jill each planted a tree last year. If Danny's tree is now eight feet tall and Jill's tree is four feet tall, how much shorter is Jill's tree?
	
$8 - 4 = 4$	
Jill's tree is four foot shorter than Danny's tree.	

Answer in
Symbols

Answer as
Drawing

Written Answer