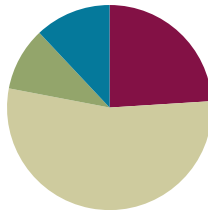


Lesson 12

Objective: Compare the weight of an object with sets of different objects on a balance scale.

Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(27 minutes)
■ Student Debrief	(6 minutes)
Total Time	(50 minutes)



Fluency Practice (12 minutes)

- 5-Group Hands **K.CC.2** (3 minutes)
- Roll and Draw 5-Groups **K.OA.3** (5 minutes)
- Hidden Numbers on the Dot Path **K.OA.3** (4 minutes)

5-Group Hands (3 minutes)

Materials: (S) 5-group cards in vertical orientation (Lesson 5 Fluency Template 1)

Note: This maintenance activity develops flexibility in seeing the 5-groups vertically or horizontally and adds a kinesthetic component.

Conduct as described in Lesson 5, showing the 5-group cards in the vertical orientation. Accordingly, students should put their hands side by side to represent the number.

Roll and Draw 5-Groups (5 minutes)

Materials: (S) Die (with the 6 dot side covered), personal white board

Note: Observe to see which students erase completely and begin each time from one, rather than draw more or erase some to adjust to the new number. By drawing 5-groups, students see numbers as having length in relationship to the five.

Conduct as outlined in Lesson 7. Consider alternating between drawing the 5-groups vertically and drawing them horizontally.

Hidden Numbers on the Dot Path (4 minutes)

Materials: (S) Dot path (Lesson 5 Fluency Template 2) inserted into personal white board

Note: Finding embedded numbers anticipates the work of Module 4 by developing part–whole thinking.

T: Fold your dot path so that you can see only 6 dots. Place it inside your personal white board. How many dots can you see?

S: 6.

T: Circle 2 of them.

S: (Circle the first 2 dots.)

T: See how many twos you can circle on your dot path.

S: (Circle 3 sets of 2 dots.)

T: How many dots are on the whole dot path?

S: 6.

T: How many twos did you find hiding within the 6?

S: 3.

Continue the process with finding groups of 3 within the 6. Guide students to find a group of 4 or 5 and then tell what number of dots remains.

Application Problem (5 minutes)

Find one small item in your backpack. Put it on the balance scale. How many pennies do you think it will take to balance your object? Use pennies to test your guess. Make a picture of the balance with your object and the pennies. Finish this sentence, "My item is as heavy as a set of ____ pennies."

What do you think would happen if you put another penny on each side of the balance scale? Test your guess!

Note: The review of use of the balance to find objects of equal weight will serve as the anticipatory set for today's lesson.



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Challenge students working above grade level by asking them to explain why they think the balance scale remains evenly balanced even as they place an extra penny or more on each side.

Concept Development (27 minutes)

Materials: (T) Simple balance scale, marker, 2 pennies, small bag of linking cubes, small counters, beans, and as heavy as a set recording sheet (Template) (S) 1 simple balance scale per pair or small group of students, 4 small bags of various items to use as weights (pennies, linking cubes, small counters, and large dried beans), collection of classroom objects for the balance exercise, and as heavy as a set recording sheet (Template)

- T: Look carefully at my balance. Now, watch as I put my marker on one side. Do you remember how I weighed my marker yesterday?
- S: You used pennies.
- T: Let's try that again. I have a set of 2 pennies. Watch and see if the scale balances.
- S: 1 penny... 2 pennies... it is not enough! The marker is too heavy.
- T: My marker is heavier than a set of 2 pennies. I don't have any more pennies. What should I do?
- S: (Various comments.)
- T: Look at the other items on the table. Is there another way to see how heavy the marker is?
- S: What if we used cubes?
- T: Could I use my two pennies and a cube?
- S: No! That wouldn't be fair. → The cubes and the pennies aren't the same. → You shouldn't count them all together.
- T: I'll take the pennies off and use a tower of cubes. Help me count how many cubes would be in a tower as heavy as my marker.
- S: 1, 2, 3, 4, 5, 6. 6 cubes.
- T: My marker is as heavy as a tower of 6 cubes. Let me put that on the recording sheet. I will draw the marker and the cubes, and I will write how many cubes in the box. (Demonstrate.)
- T: What else could I use?
- S: Try the beans!
- T: I will take off the cubes and use a set of beans this time. I wonder how many beans it will take to balance my marker. (Various responses.) Count with me. (Repeat experiment and recording with beans and small counters.)
- T: Wow! Look what we've discovered. (Point to sheet.) My marker is as heavy as a tower of 6 cubes. My marker is as heavy as a set of 10 beans. My marker is as heavy as a set of 4 counters. Why are all the numbers different?
- S: The things are all different! → Because the cubes are bigger than the beans. → Because the counters are heavier.
- T: You and your partner can try this, too. Choose one object from your bag. Count how many pennies are as heavy as your object and record it on your sheet. Then count how many cubes are as heavy as the object. Do the same thing with the beans and the counters. Don't forget to guess before you test! (Allow time for experimenting and recording. Circulate to make sure that the only variation is in the unit of measurement.)
- T: Put your things away. Who would like to share his/her recording sheet with our class? What did you discover?



NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Scaffold the activity for English language learners by providing sentence frames such as "I think my [object] is [number] pennies heavy." Listen as they use the sentence frames during their partner work, and encourage them.

Problem Set (10 minutes)

In this lesson, the as heavy as a set recording sheet will serve as the Problem Set for the lesson.

Student Debrief (6 minutes)

Lesson Objective: Compare the weight of an object with sets of different objects on a balance scale.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.


Invite students to review their recording sheets. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to process the lesson.



You may choose to use any combination of the questions below to lead the discussion.

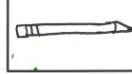

- Did you notice any patterns as you were balancing your object with sets of different things?
- Which set of things was the biggest? Which set was the smallest?
- Why were all of the sets different sizes?
- Compare your recording sheet with your friends'. Did you find the same answers?
- What math vocabulary did we use today to communicate precisely?

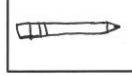

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 12 Template K•3

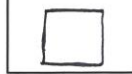

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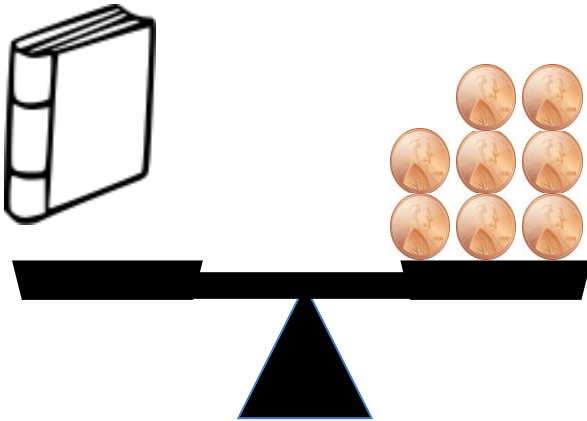
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COMMON CORE Lesson 12: Compare the weight of an object with sets of different objects on a balance scale. Date: 7/1/14 **engage^{ny}** 3.C.32

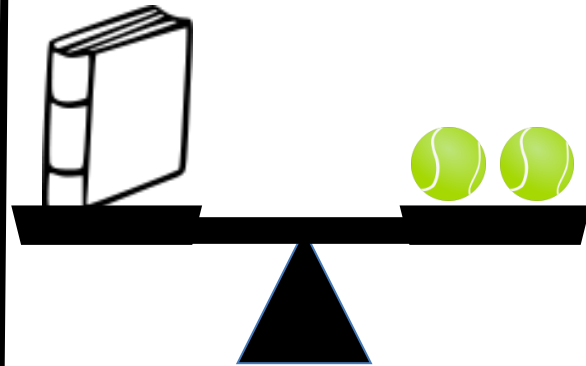
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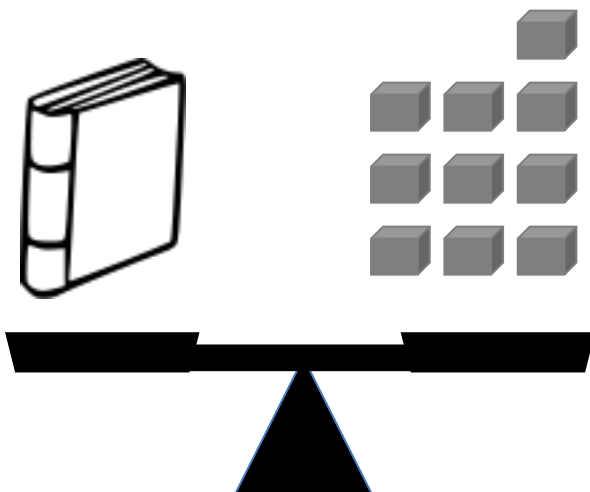
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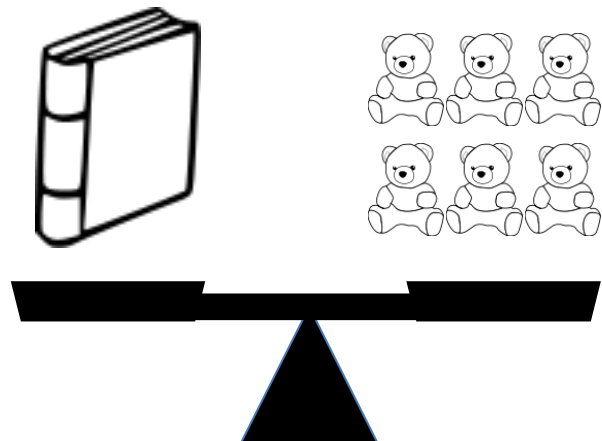
The book is as heavy as _____ pennies.



The book is as heavy as _____ tennis balls.



The book is as heavy as _____ cubes.



The book is as heavy as _____ counting bears.

Name _____

Date _____



My

is as heavy as a set of

My

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as heavy as a set recording sheet