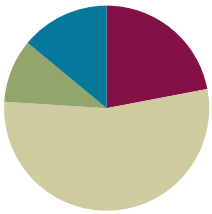
Lesson 10

Objective: Compare the weight of an object to a set of unit weights on a balance scale.

Suggested Lesson Structure



Fluency Practice	(11 minutes)
Application Problem	(5 minutes)
Concept Development	(27 minutes)
Student Debrief	(7 minutes)
Total Time	**(50 minutes)**

Fluency Practice (11 minutes)

- Green Light, Red Light **K.CC.2** (3 minutes)
- Make It Equal **K.CC.6** (4 minutes)
- Double 5-Groups **K.CC.2** (4 minutes)

Green Light, Red Light (3 minutes)

Materials: (T) Green and red dry-erase markers

Conduct activity as described in Lesson 7, gradually building up to teen numbers counting the Say Ten way. Listen carefully for hesitation or errors, and repeat and break down certain sequences as needed.

Make It Equal (4 minutes)

Materials: (S) Bag of beans, foam or laminated paper work mat, 2 dice

Note: In this activity, students experience comparison visually, a skill crucial to the work of this module.

1. Teacher introduces the term *equal* as meaning *the same number*.
2. Both partners roll the dice and put that many beans on their mat.
3. Partner A has to make his or her beans equal to his or her partner's by taking off or putting on more beans.
4. Partner B counts to verify.
5. Switch roles and play again.

Double 5-Groups (4 minutes)

Materials: (T) Large 5-group cards (Lesson 5 Fluency Template 1)

Note: Introducing Say Ten counting now lays the foundation for later work with decomposing teen numbers.

T: You're getting so good at 5-groups! Now, we'll start using two cards! (Display the 10-dot card above the 1-dot card.) This is the top card. (Gesture to indicate the entire 10-dot card, not just the top row of dots.) How many dots are on the top card? (Wait for all hands to go up, and then give the signal.) Ready?

S: 10.

T: This is the bottom card. (Gesture to indicate the entire 1-dot card.) How many dots are on the bottom card? (Wait for all hands to go up, and then give the signal.) Ready?

S: 1.

T: Do you remember how many dots were on the top card?

S: Yes. 10.

T: Do we really need to go back and count them again?

S: No.

T: That's right. We can take the shortcut! Count on from 10, like this. 10 (Wave a hand over the top card.) Ten 1. (Crisply point to the dot on the bottom card.) Try it.

S: 10, ten 1.

T: (Display the 10-dot card above the 2-dot card.) How many dots are on the top card? (Wait for all hands to go up, and then give the signal.) Ready?

S: 10.

T: How many dots are on the bottom card? (Wait for all hands to go up, and then give the signal.) Ready?

S: 2.

T: Count on from 10.

S: 10, ten 1, ten 2.

Continue to ten 3.

Application Problem (5 minutes)

Imagine that you were on a seesaw with a little kitten on the other end. Draw a picture of yourself and the kitten on the seesaw. Which end of the seesaw would be closer to the ground? How do you know? Talk about your picture with your partner. Do your seesaws look the same?

Note: This problem provides students with an opportunity to think about a practical application of a *balance* and to represent it and explain it to their friends. Listen for phrases such as *heavier than* and *lighter than*, and encourage precision in the discussion. The activity bridges the *heavier than* and *lighter than* emphasis from Lesson 9's balance activity with today's more precise use of the tool.

Concept Development (27 minutes)

Materials: (T) Balance scale, pencil, marker, bag of 30 pennies, as heavy as recording sheet (Template) affixed to the white board (S) Balance scale, bag of 30 pennies, bag of objects to weigh (including a pencil, an eraser, a marker, a small child's pair of scissors, a linking cube, and a small block or toy) per pair or small group; as heavy as recording sheet (Template)

T: I have nothing on my balance. What do you notice?

S: It is even. → It's straight across. → It looks the same on both sides.

T: (Place a pencil on one side and a marker on the other side of the balance.) Which is heavier, this pencil or this marker? How do you know?

S: The marker. → The side with the marker is lower.

T: (Remove the marker, and replace it with the eraser.) Which is heavier, the pencil or the eraser?

S: The eraser! That side is lower.

T: I want to find something that is the same weight as my pencil. How would I know if it were the same weight? How would my balance look?

S: It would be the same on both sides. → It would be even!

T: Yes, I would know something weighed the same as the pencil if the balance looked *even*. It would look like this. (Demonstrate. If there is an equilibrium marker on the balance, use this opportunity to show the students how to use the marker.)

T: (Remove the eraser, and replace it with a penny.) Which is heavier, the pencil or the penny?

S: The pencil.

T: (Add another penny.) Which is heavier, the pencil or two pennies?

S: The pencil is still heavier than two pennies!

T: (Continue adding pennies, one at a time, until balanced.)

S: It is even! → They are the same!

T: Let's count the pennies on our balance again.

S: 1, 2, 3, 4, 5. (Answers may vary.)

T: The pencil is as heavy as a set of five of the pennies! I'm going to show that on my recording sheet. (Demonstrate.) Student A, would you please come up to help me test something else? (Empty the balance, and place the marker on one side.)

T: I wonder how many pennies are as heavy as the marker? (Various responses.) Student A, will you help find out? Count with Student A.

S: 1, 2, 3, 4, 5, 6.

T: The marker is as heavy as a set of six pennies. I will put that on my recording sheet. (Demonstrate.)

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

In addition to your model, scaffold the lesson for students working below grade level by using pictures of what a balance scale looks like when one object is heavier or lighter than the pennies used on the other side or when the scale is balanced and the objects are the same weight as the pennies. Students can refer to the visual as an aid.

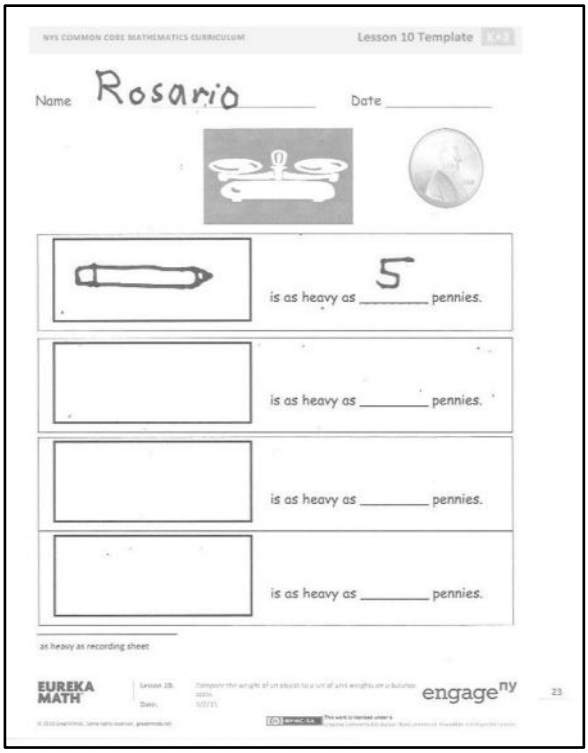
MP.6

T: You and your partner are going to compare the weight of pennies with other things in our classroom. Choose one of the objects from your bag. Guess how many pennies will be as heavy as your object. Use your balance to test your guess. On your recording sheet, draw a picture of your object, and then count and write how many pennies weigh the same as your object. (Allow time for experimentation and recording of results.)

T: Put your things away. What did you discover? (Allow time for discussion.) Which object was the heaviest? Which object was the lightest? Were any of them the same weight? (Allow time for discussion.)

Problem Set (10 minutes)

In this lesson, the as heavy as recording sheet serves as the Problem Set for the Concept Development.



Student Debrief (7 minutes)

Lesson Objective: Compare the weight of an object to a set of unit weights on a balance scale.

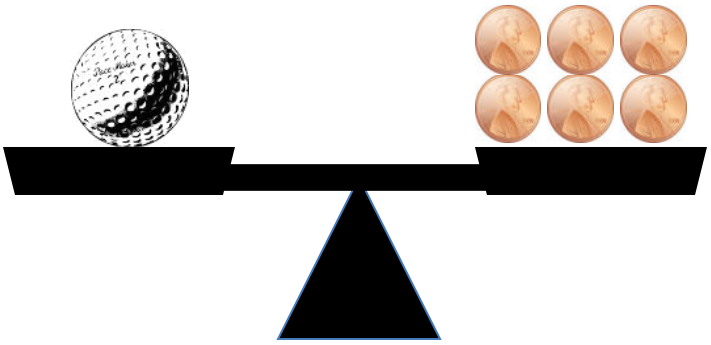
The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

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 Debrief. Guide students in a conversation to process the lesson.

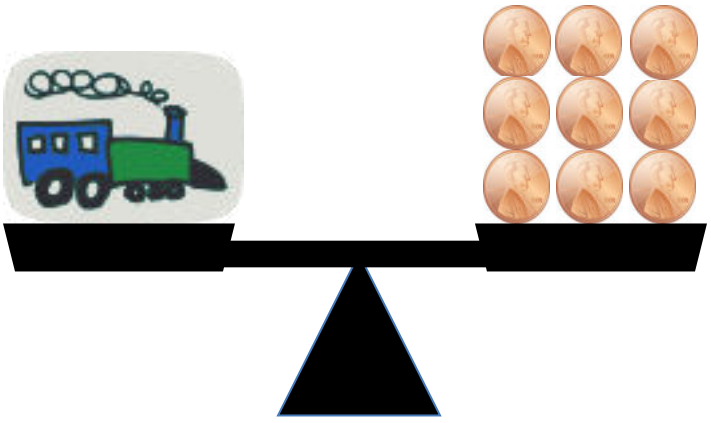
Any combination of the questions below may be used to lead the discussion.

- What did you notice as you weighed the objects?
- When you guessed how many pennies each object would weigh, how close were you?
- How did you know when to stop adding pennies to the balance scale?
- Were you surprised by anything that happened in the activity today?
- Show your as heavy as recording sheet to your friend. Did she make some of the same discoveries?
- What new (or significant) math vocabulary did we use today to communicate precisely?

Name _____ Date _____

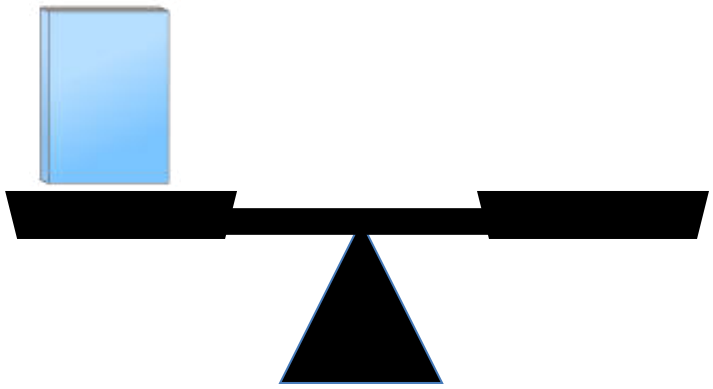


The golf ball is as heavy as _____ pennies.



The toy train is as heavy as _____ pennies.

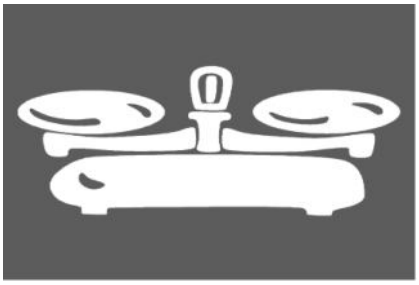
Draw in the pennies so the carrot is as heavy as 5 pennies.



Draw in the pennies so the book is as heavy as 10 pennies.

On the back of your paper, draw a balance scale with an object. Write how many pennies you think the object would weigh. If you can, bring in the object tomorrow. We will weigh it to see if it weighs as many pennies as you thought.

Name _____ Date _____



	is as heavy as _____ pennies.
	is as heavy as _____ pennies.
	is as heavy as _____ pennies.
	is as heavy as _____ pennies.

as heavy as recording sheet