



# GRADE 1 SUPPLEMENT

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## Set D3 Measurement: Comparing Weight

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### Skills & Concepts

- ★ compare and order objects according to weight

**Bridges in Mathematics Grade 1 Supplement**

**Set D3** Measurement: Comparing Weight

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# Set D3 ★ Activity 1



## ACTIVITY

### Comparing & Ordering Weights

#### Overview

Students share what they understand about the term “weight”, and then work together to compare the weights of several pairs of objects. Finally, they order 3 of the objects, from heaviest to lightest.

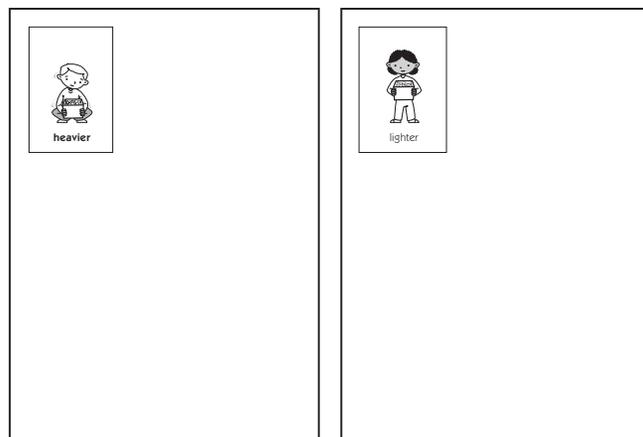
#### Skills & Concepts

- ★ compare and order objects according to weight

#### You'll need

- ★ Weight Comparison Labels (page D3.4, run 1 copy, see Advance Preparation)
- ★ 8 common household objects or classroom items (see Advance Preparation)
- ★ a grocery sack or gift bag
- ★ 2 pieces of 12" × 18" construction paper
- ★ 2 index cards
- ★ felt marker
- ★ a balance scale

**Advance Preparation** Cut the Weight Comparison labels apart and glue each to a 12" × 18" piece of construction paper. Place 8 objects of varying weights (e.g., a building block, a tennis ball, a box of crayons, a plastic toy, a whiteboard eraser, a small book, a stuffed animal, and a can of soup) in a grocery sack or gift bag and fold the top over so children can't see the contents.



#### Instructions for Comparing & Ordering Weights

1. Gather children to your discussion circle. Show them the balance scale and explain that you're going to use it to compare the weights of some objects today. Ask if anyone knows what the word “weight” means.

**Activity 1** Comparing & Ordering Weights (cont.)

**Students** *Is that how heavy something is?  
My mom's always saying she weighs too much.  
That scale will show if something's heavier or lighter.*

2. Now show students the bag of objects. Pull something out of the bag, and then ask a volunteer to pull out a second object. Place both objects in the middle of the circle and ask children to pair-share which of the two they think is heavier. After a few moments, invite volunteers to share their thinking with the class.

**Students** *The can is heavier. I know because cans like that are always heavy.  
But the boat is bigger, so maybe it's heavier.  
I think the can will make the scale go down more because that boat is just plastic.*

3. Ask your helper to compare the two objects by holding one in each hand. Which one *feels* heavier? Explain that you're going to use the scale to check, and ask students to show with their arms how they think the scale will look after you've placed one of the objects on each side of the scale.



**K'Sondra** *Look! Marco's side of the scale went down!*

**Teacher** *Now I'll put the can on my side of the scale.*

**Students** *Wow! Teacher's side is way down to the floor now. That can is heavy!*

**Teacher** *The can is heavier. The boat doesn't weigh as much—it's lighter.*

4. Show students the weighing mats you've prepared and place each object on the appropriate mat.

5. Repeat steps 2–4 with the other 3 pairs of objects in the sack. Be sure to use the terms “heavier” and “lighter” throughout the discussion, and encourage students to do so as well. If two of the objects drawn from the sack balance each other perfectly, take the opportunity to discuss the fact that some objects weigh the same amount.

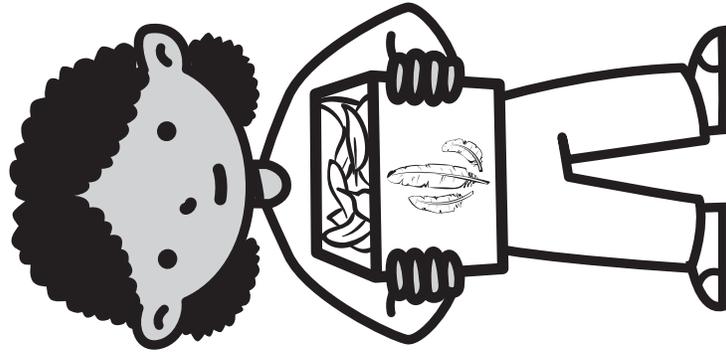
### Activity 1 Comparing & Ordering Weights (cont.)

6. Put all the objects back in the bag. Have 3 different helpers each pull one out again. Work with the class to order the 3 from heaviest to lightest, moving them back and forth on the balance scale as needed. When they've been placed in order, write "heaviest" on one of the index cards and "lightest" on the other. Have one of the children place the 2 labels below the appropriate objects.

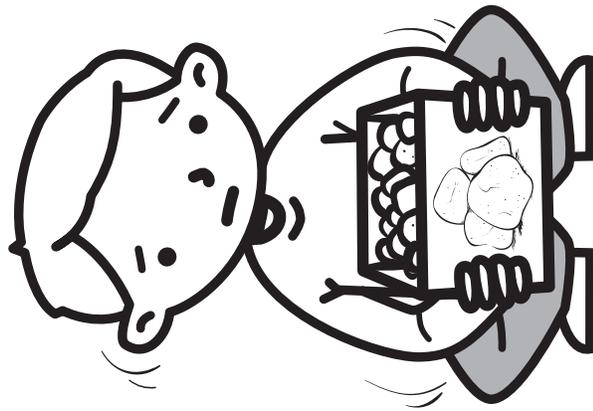
#### Extensions

- Return the objects to the sack. Set up the sack, the balance scale, the weighing mats, and the two index card labels as a Work Place and let students revisit the activity on their own. You can keep children's interest high by periodically changing the objects in the sack.
- Invite students to order more than 3 of the objects from heaviest to lightest. Some students may enjoy the challenge of ordering the entire set of 8 objects.

**Weight Comparison Labels**



lighter



heavier

# Set D3 ★ Activity 2



## ACTIVITY

### Two Pounds of Oranges

#### Overview

Small groups of 8–10 of students find objects around the classroom that are lighter than, the same as, or heavier than 2 pounds.

#### Skills & Concepts

- ★ compare and order objects according to weight

#### You'll need

- ★ Weight Graphing Labels (page D3.7, 1 copy, see Advance Preparation)
- ★ a 5-foot length of butcher paper (see Advance Preparation)
- ★ 2 pounds of oranges placed in a grocery sack or small gift bag
- ★ a balance scale

**Advance Preparation** Fold the butcher paper in thirds the long way to form 3 columns, and glue one of the Weight Graphing Labels to the top of each.

Heavier than 2 Pounds	Exactly 2 Pounds	Lighter than 2 Pounds

#### Instructions for Two Pounds of Oranges

1. Gather a small group of 8–10 children. Show them your sack and explain that you went shopping the other day and bought 2 pounds of oranges. Take the oranges out of the sack one by one so they can see how many it took to make 2 pounds when you weighed them on the scale at the store. Give the children a minute or two to share similar experiences. Have they seen a scale in the produce department at the store? Have they helped weigh oranges, potatoes, apples, bananas, or other vegetables or fruits on one of those scales? Do they know how much 2 pounds weighs?
2. Put the oranges back in the sack. Ask one of the children to lift the sack with the oranges in it. How does it feel? Light or heavy? Have that child leave the group, return with something he or she thinks is about the same weight as the sack of oranges, and sit back down in his or her spot, still holding the object. Repeat this in quick succession with each child in the group. If some of the children feel that they need to bring several objects in order to approximate 2 pounds (i.e., 2 or 3 blocks, several plastic toys, a couple of hardback books), that's fine.
3. When all the children in the group are seated again with their objects, place the sack of oranges on one side of your balance scale. Then give each child a turn to place his or her object(s) on the other side of the scale. How does (do) the object(s) compare? Is it/are they heavier, lighter, or exactly the same as the sack of oranges? How do the children know?

## Activity 2 Two Pounds of Oranges (cont.)

**Students** *The book is heavier than the oranges.  
I knew it. Those big dictionary books are heavy!  
The scale is tipped down on the book's side. That means it's heavier.*

4. After each child compares the weight of his or her object to the sack of oranges, have him or her place it in the appropriate column on your graph. When all the objects have been weighed and graphed, take a minute or two to discuss the results. Are there more objects that are heavier than, lighter than, or the same as the 2-pound sack of oranges?

5. Repeat this activity with other groups until each child in class has had a chance to participate. You can either remove the objects from the graph each time or leave them to create a cumulative graph.

### Extensions

- Set up the sack of oranges, the balance scale, and the graph as a Work Place. Clear the graph each day and let students build it anew, finding objects around the room that are heavier than, lighter than, or exactly the same as 2 pounds.
- Ask students to find out how many of a particular object it takes to equal the weight of the oranges exactly. Can they find out how many unit blocks they have to place on one side of the balance scale to equal the weight of the oranges on the other? How many pattern blocks does it take? How many books of the same size does it take? Some children might enjoy keeping a written record of their discoveries.

**Weight Graphing Labels**

**Heavier than 2 Pounds**

**Exactly 2 Pounds**

**Lighter than 2 Pounds**



# Set D3 ★ Activity 3



## ACTIVITY

### Spin & Compare Weights

#### Overview

Students compare and order the weights of various pairs of objects from heavier to lighter.

#### Skills & Concepts

- ★ compare and order objects according to weight

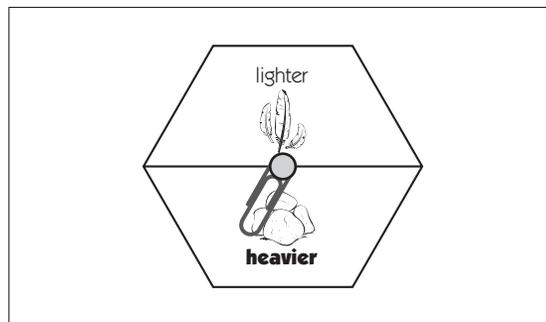
#### You'll need

- ★ Weight Spinner (page D3.11, run 1 copy, see Advance Preparation)
- ★ 8, 10, or 12 common classroom or household items of varying weight on a tray or in a basket
- ★ a balance scale

.....  
**Advance Preparation** Follow the instructions on the blackline to prepare a spinner for this game.  
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#### Instructions for Spin & Compare Weights

1. Gather children to your discussion circle. Place the balance scale and tray of objects in the middle of the circle, but still within your reach. Explain that you're going to play a weighing game with the class and show them the spinner you've prepared. Note with them that one side says "heavier" while the other says "lighter."
2. Select an object from the tray and set it on one side of the balance scale. (Choose an object that's lighter than some of the items on the tray, but heavier than others.) Now explain that it's the children's turn to choose an object, but they have to spin the spinner first. If it lands on "heavier", they have to choose an object from the tray that's heavier than the one you just selected. If they spin "lighter", they have to find an object that's lighter than yours. Pass the spinner to one of the children sitting near you and ask him or her to spin it. When it stops spinning, ask the class to read it.



**Students** *It landed on the rocks!  
 That's the heavy side.  
 I like the feathers better. I thought it would land there instead.*

### Activity 3 Spin & Compare Weights (cont.)

3. Ask the children to examine the objects on the tray. Do they see any they think would be heavier than the item you've already placed on one side of the balance scale? After some discussion, have one of them choose an item and place it on the other side of the scale. Is it heavier? How do they know? If it is, remove both objects from the scale and set them together off to one side in order from heavier to lighter. If it's not, ask students to experiment with other objects until they find one that works, and then remove both objects from the scale to set off to the side.

4. Repeat steps 2 and 3, but this time, let the students select an object from the tray first, while you spin the spinner and do what it says.

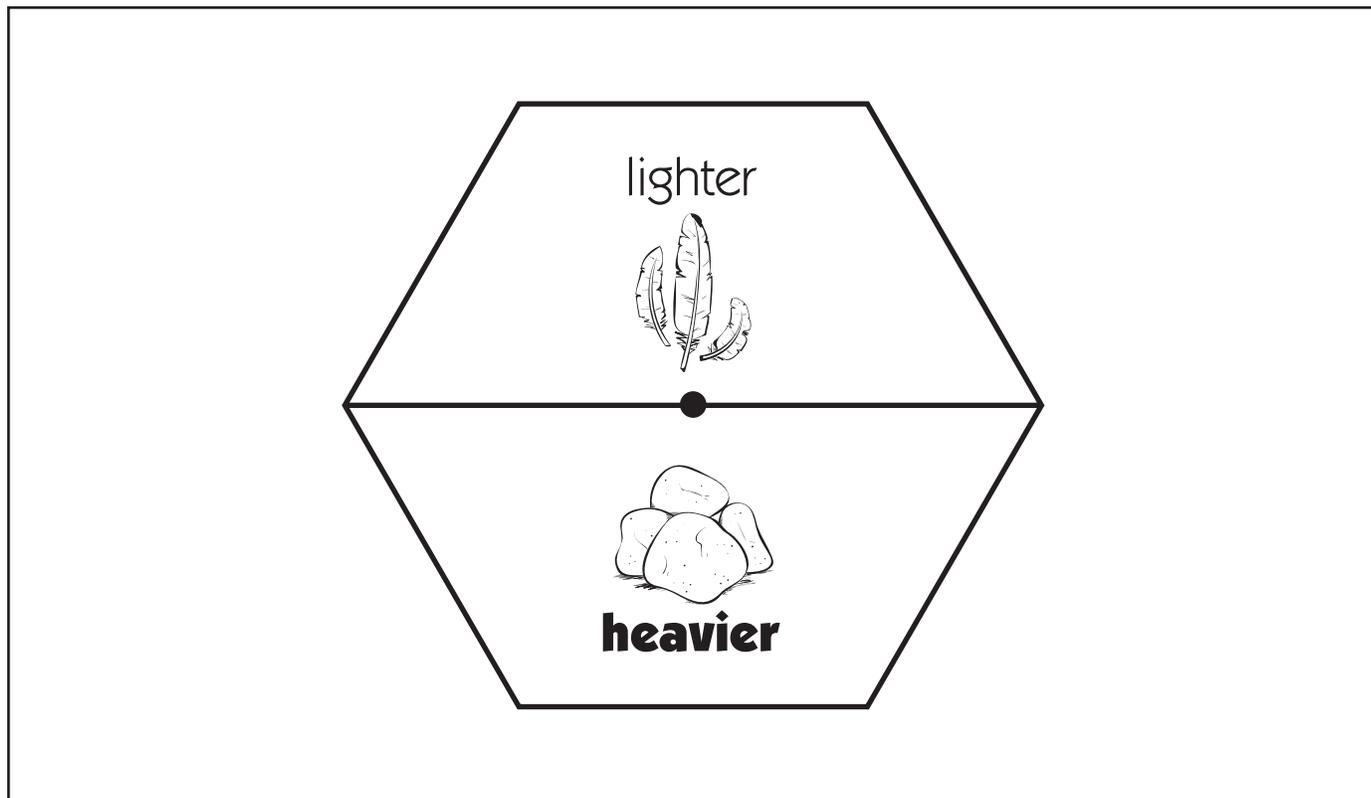
5. Continue the game, taking turns with the class to set the first object on the scale or spin the spinner, until all the objects have been removed from the tray. If you or the class spins something that's not possible, take another turn.

***Teacher** Oh dear, I think I'm stuck. Justin put the toy boat on the scale for the class and I spun "lighter." There's nothing left on the tray that's lighter than the little boat. I'll have to spin again.*

#### Extension

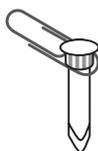
- Set up the tray of objects, the balance scale, and the spinner as a Work Place, and let pairs of students play the game on their own. You can keep children's interest high by periodically changing the objects on the tray (or asking children to gather new collections).

## Weight Spinner



### Spinner-Making Instructions

**1** Poke a brass fastener through a  $\frac{1}{4}$ " length of drinking straw and a paperclip. Be sure to insert the brad and straw into the large end of the paperclip, as shown.



**2** Keeping the straw and the paperclip on the brass fastener, insert it into the midpoint hole of the spinner. Once it has been pushed through to the back side, bend each side of the fastener flat against the underside of the game-

board. The section of straw should serve as a spacer so the brad doesn't push the paperclip flat against the gameboard and prevent it from spinning.

**3** Give the paperclip a test spin to see if it works.

