



KINDERGARTEN SUPPLEMENT

Set D2 Measurement: Weight

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Skills & Concepts

- ★ compare and order objects according to weight
- ★ use nonstandard units to explore the measurement concept of weight

Bridges in Mathematics Kindergarten Supplement

Set D2 Measurement: Comparing Weight

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Prepared for publication on Macintosh Desktop Publishing system.

Printed in the United States of America.

P201304

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

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Set D2 ★ Activity 1



ACTIVITY

Comparing Weights

Overview

Students share what they understand about the term *weight*, and then work together to compare the weights of several pairs of objects.

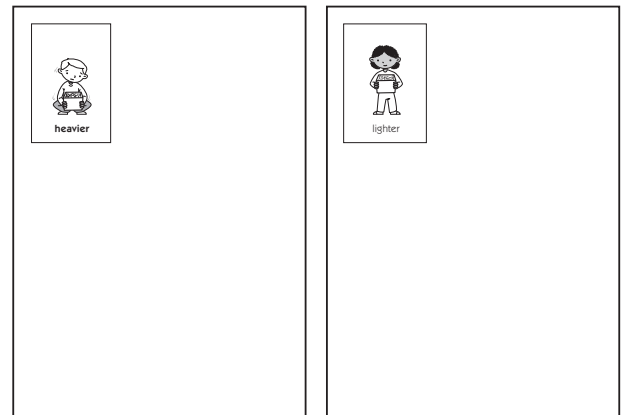
Skills & Concepts

- ★ compare and order objects according to weight

You'll need

- ★ Weight Comparison Labels (page D2.3, 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
- ★ 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 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.

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.*

Activity 1 Comparing Weights (cont.)

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 weight as much—it's lighter.*

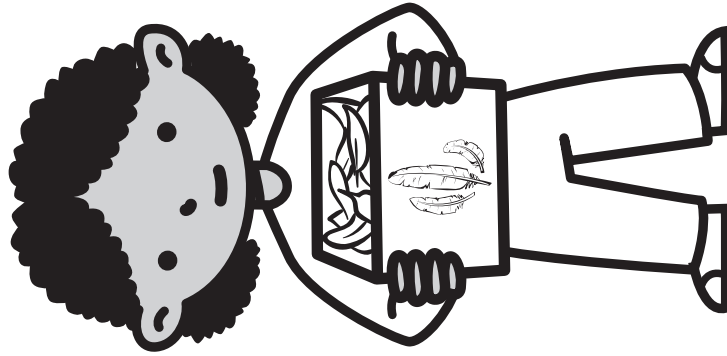
4. Show students the weighing mats you've prepared and place each object on the appropriate mat.

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 turn out to balance each other perfectly on the scale, take the opportunity to discuss the idea that some objects weigh the same amount.

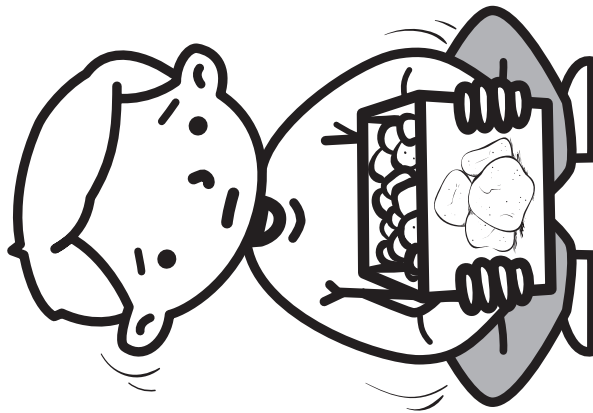
Extension

- Return the objects to the sack. Set up the sack, the balance scale, and the weighing mats 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.

Weight Comparison Labels



lighter



heavier

Set D2 ★ Activity 2



ACTIVITY

A Pound of Potatoes

Overview

Small groups of 8–10 of students find objects around the classroom that are lighter than, the same as, or heavier than 1 pound.

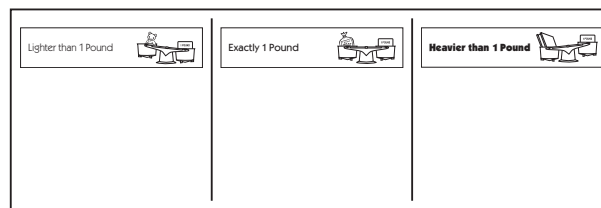
Skills & Concepts

- ★ compare and order objects according to weight
- ★ use nonstandard units to explore the measurement concept of weight

You'll need

- ★ Weight Graphing Labels (page D2.7, 1 copy, see Advance Preparation)
- ★ 5-foot length of butcher paper (see Advance Preparation)
- ★ 1 pound of potatoes (or other produce such as onions or carrots) in a small sack with handles
- ★ a balance scale
- ★ *Stone Soup* (optional, there are many versions of this old folktale)

Advance Preparation Place the potatoes in one of the paper sacks. 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.



Instructions for A Pound of Potatoes

1. Gather a small group of 8–10 children. Show them your sack and explain that you went shopping the other day and bought a pound of potatoes. Take the potatoes out of the sack one by one so they can see how many it took to make a pound 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 potatoes, onions, apples, bananas, or other vegetables or fruits on one of those scales? Do they know how much a pound weighs?

2. Put the potatoes back in the sack. Ask one of the children to lift the sack with the potatoes 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 potatoes, 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 a pound (i.e., 2 or 3 blocks, several plastic toys, a couple of hardback books), that's fine.

Activity 2 A Pound of Potatoes (cont.)

3. When all the children in the group are seated again with their objects, place the sack of potatoes 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 potatoes? How do the children know?



Students *The block is heavier than the potatoes.*

I knew it. Those really big blocks are heavy!

The scale is tipped down on the block's side. That means it's heavier.

4. After each child compares the weight of his or her object to the sack of potatoes, 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 1-pound sack of potatoes?

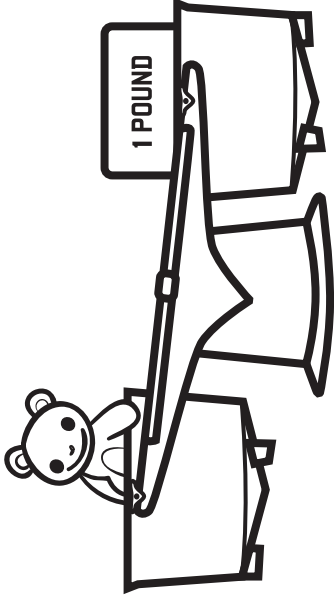
5. Repeat this activity with other groups until each child in class has had a chance to participate. You can either remove the objects from the graph each time or leave them to create a cumulative graph.

Extensions

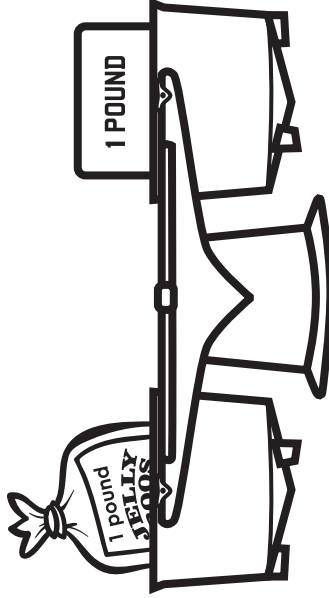
- Set up the sack of potatoes, the balance scale, and the graph as a Work Place. Clear the graph each day and let students build it anew, finding objects around the room that are heavier than, lighter than, or exactly the same as a pound.
- Ask students to find out how many of a particular object it takes to equal the weight of the potatoes exactly. Can they find out how many alphabet blocks they have to place on one side of the balance scale to equal the weight of the potatoes on the other? How many unit blocks does it take? How many large plastic dinosaurs does it take? A few children might enjoy keeping a written record of their discoveries.
- Bring in carrots, onions, and celery, and have students use the balance scale and the pound of potatoes to weigh out a pound of each of these other ingredients. Then read *Stone Soup* and use all the vegetables, along with any other ingredients you want, to make soup with the class.

Weight Graphing Labels

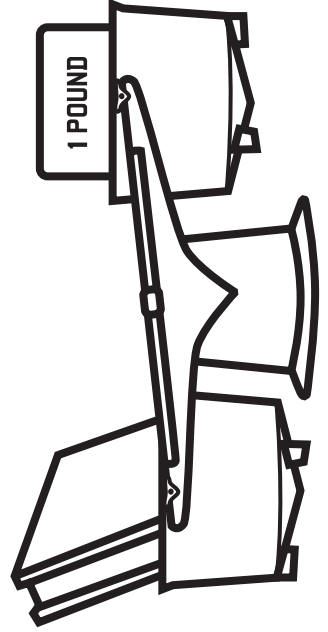
Lighter than 1 Pound



Exactly 1 Pound



Heavier than 1 Pound



Set D2 ★ Activity 3



ACTIVITY

Spin & Compare Weights

Overview

Students compare the weights of various pairs of objects.

Skills & Concepts

- ★ compare and order objects according to weight

Recommended Timing

Anytime after Set D2 Activity 1

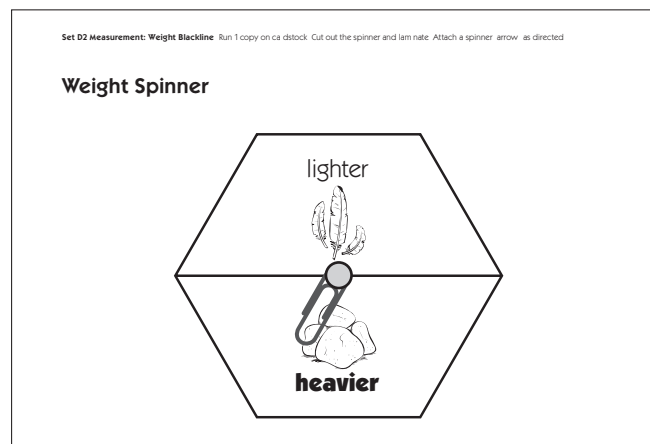
You'll need

- ★ Weight Spinner (page D2.11, run 1 copy on cardstock, 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 page D2.11 to prepare a spinner for this game.

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.



Activity 3 Spin & Compare Weights (cont.)

Students *It landed on the rocks!*

That's the heavy side.

I like the feathers better. I thought it would land there instead.

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. 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.

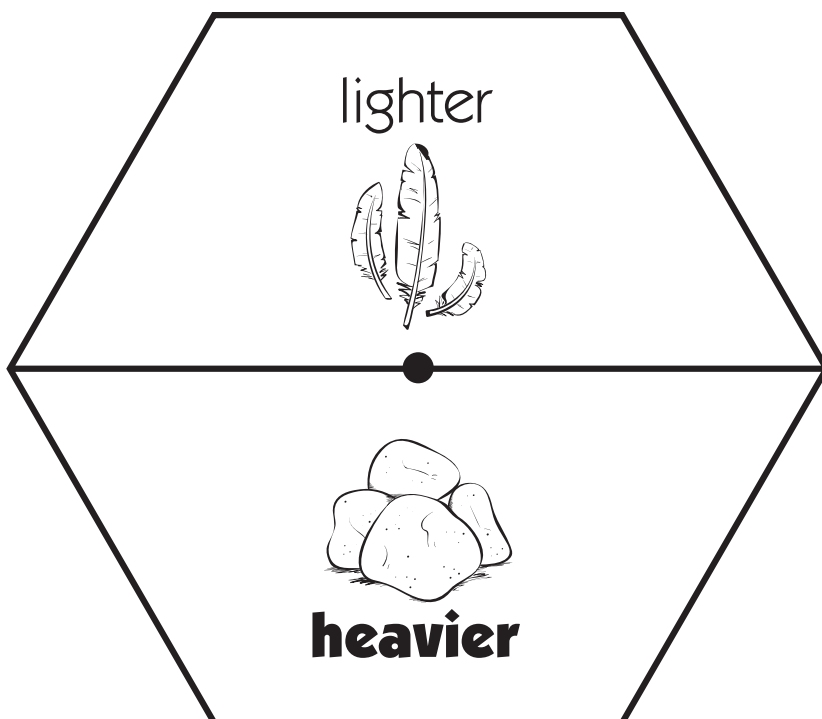
5. Continue the game, taking turns with the class to set the first object on the scale or spin the spinner, until all the objects have been removed from the tray. If you or the class spins something that's not possible, take another turn.

Teacher *Oh dear, I think I'm stuck. Justin put that can of soup on the scale for the class and I spun "heavier". There's nothing on the tray that's heavier than the can of soup. I'll have to spin again.*

Extension

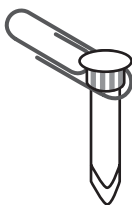
- Set up the tray of objects, the balance scale, and the spinner as a Work Place, and let pairs of students play the game on their own. You can keep children's interest high by periodically changing the objects on the tray (or asking children to gather new collections).

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 gameboard. 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.

