



# 6: Tip the Scales



## OBJECTIVE:

Using coins as the standard of measure, students will estimate and check weights of classroom objects.



## MATERIALS:

- Cents
- Quarters
- Balance scales (one per group)
- “Tip the Scales” work pages (pages 24 and 25)
- Pencils
- Crayons



## PREPARATIONS:

- Set up one weighing station per group that will include:
  - ▼ 1 balance scale
  - ▼ 1 set of objects to weigh (e.g., 1 glue stick, 1 chalkboard/whiteboard eraser, 1 package of markers, 1 small book)
  - ▼ Cup of cents
  - ▼ 1 quarter
  - ▼ Pencils and crayons
  - ▼ “Tip the Scales” work pages (pages 24 and 25), one per student



## GROUPING:

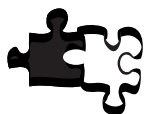
- Small groups (3 or 4)

*NOTE: You may wish to invite a parent or upper-grade student volunteer to work with each group of students.*



## CLASS TIME:

- 1 class period



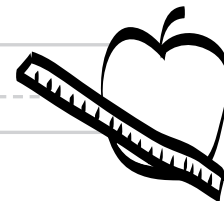
## CONNECTIONS:

- Science
- Math



## TERMS and CONCEPTS:

- Estimate
- Weight
- Balance
- Value



## Estimating and Verifying Weight



### STEPS:

1. Explain that the class will work in groups to estimate the weights of classroom objects, and then check their estimates at weighing stations. Review the terms “estimate,” “weight,” and “balance.”
2. Display the “Tip the Scales” work pages (pages 24 and 25). Explain that everyone in the group will work together to weigh the objects and check the estimates.
3. Sit at one of the work stations and explain that you will demonstrate the entire estimation/weighing process with a different item than the ones the children will work with.
4. Hold up an eraser and ask a volunteer to estimate how many cents will weigh the same as the eraser. Write the estimate in the spaces provided on the work page.
5. Place the eraser on the scale and ask students to remind you how many cents have been estimated to balance the scale. Start putting cents in the scale and count aloud.
6. Add cents until the scale is balanced or the estimated number has been reached. (It may be necessary to explain what the scale should look like when it is balanced.)
7. If the estimated number comes first, then discuss what happened, and whether or not the estimate has been confirmed. Then, add cents until the scale is balanced. If the scale balances before the estimated number has been reached, discuss how close the estimate was to the actual number of cents needed.
8. Remind students that they will be weighing different classroom objects, and show them the objects they will work with.
9. Assign groups and send each group to a station. You may wish to assign jobs (balancer, counter, cent dropper) within each group, so that every child participates. Students could then rotate jobs with each new object.
10. Allow students 25 minutes to complete the tasks. When time is called, ask students to share how close their estimates were, and what surprised them during the activity. You may wish to discuss the “brain teaser” activity on the work page, highlighting the difference between weight and value (25 cents are worth one quarter, but 25 cents weigh more than one quarter).



### ENRICHMENT/EXTENSIONS:

*Students may create their own weighing challenges to trade with classmates: weigh an object using cents or quarters and ask a friend to estimate the weight. The students can then check the estimate together.*



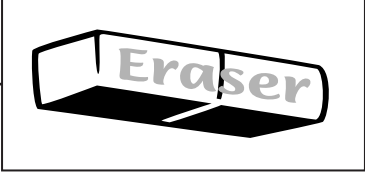
# Tip the Scales—Part 1

**DIRECTIONS:**

Draw each object in the box and write your estimate for its weight in cents. Then weigh the object and record the actual weight.

**1. Class Warm-Up!**

As a class, estimate how many cents equal the weight of an eraser.

<p><b>My Estimate:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>		<p><b>Actual Weight:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>
<p><b>How close was your estimate?</b> Circle your results below.</p>		
<p><b>Exact.</b></p> <p>I guessed the exact amount.</p>	<p><b>Close.</b></p> <p>My guess was not quite the amount.</p>	<p><b>Far Off.</b></p> <p>My guess was not near the exact amount.</p>

**2. Your Turn!**

Choose items from your classroom and estimate the weight in cents.

<p><b>My Estimate:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>	<div style="border: 1px solid black; width: 100%; height: 100%;"></div> <p style="text-align: center;">_____</p> <p style="text-align: center;"><b>My Item</b></p>	<p><b>Actual Weight:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>
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# Tip the Scales—Part 2

<p><b>My Estimate:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>	<p>_____</p> <p><b>My Item</b></p> <p>_____</p>	<p><b>Actual Weight:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>
<p><b>My Estimate:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>	<p>_____</p> <p><b>My Item</b></p> <p>_____</p>	<p><b>Actual Weight:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>
<p><b>My Estimate:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>	<p>_____</p> <p><b>My Item</b></p> <p>_____</p>	<p><b>Actual Weight:</b></p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>

### 3. Brain Teaser!

Guess how many cents equal the weight of one quarter.  
As a class, weigh the coins and record your answer.

<p><b>My Estimate:</b></p> <p>1 quarter =</p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>		<p><b>Actual Weight:</b></p> <p>1 quarter =</p> <p>_____</p> <p style="text-align: center;"><b>Cents</b></p>
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