Tip the Scales

Subject: Math

Grade Level: K-1st grade

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

BIG QUESTION

How can we tell which coins or groups of coins are greater than, less than, or equal to each other?

TIMING

0 to 45 minutes

LEARNING OBJECTIVES

- Using coins as the standard of measure, students will estimate and check weights of classroom objects.
- Students will demonstrate how to use a balance scale.

MATERIALS

- Cents
- Quarters
- Balance scales (one per group)
- "Tip the Scales" work pages
- Pencils
- Crayons

PROCEDURE

Review what students already know about key concepts (5 minutes)

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."

Demonstrate Estimating and Weighing Process (15 minutes)

2. Display the "Tip the Scales" work pages. Explain that everyone in the group will work together to weigh the objects and check the estimates.
3. Sit at one of the workstations 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 have 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.

Allow Students to Complete Worksheets (25 minutes)

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).

ASSESSMENT

Use the worksheet and class participation to assess whether the students have met the lesson objectives.

DIFFERENTIATE

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.

RELATED

- U.S. Mint Online Game Counting with Coins
- What Types of Coins Does the Mint Make video
- About the Mint page and Circulating Coin pages:
    - Penny
    - Nickel

- Dime
- Quarter
- Half Dollar
- Dollar

- Coin Glossary
- Coin Specification Table

STANDARDS

Common Core Standards

CCSS.Math.Content.K.MD.A.1

Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

CCSS.Math.Content.K.MD.A.2

Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

CCSS.Math.Content.K.MD.B.3

Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[1]

National Standards

Principles and Standards for School Mathematics, National Council of Teachers of Mathematics

Discipline: Mathematics
Domain: K-2 Number and Operations
Grade(s): Grades K–2

Name: _____ Date: _____

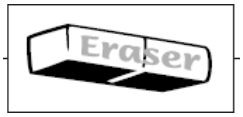
Tip the Scales – Part 1

Directions: Draw each object in the box and write your estimate for its weigh 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.

My Estimate: _____ Cents



Actual Weight: _____ Cents

How close was your estimate? Circle your results below.

Exact!	**Close.**	**Far Off.**
I guessed the exact amount.	My guess was not quite the amount.	My guess was not near the exact amount.

2. Your Turn!

Choose items from your classroom and estimate the weight in cents. Continues onto Part 2.

My Estimate: _____ Cents

My Item: _____

Actual Weight: _____ Cents

Name: _____ Date: _____

Tip the Scales – Part 2

My Estimate: _____ Cents

Actual Weight: _____ Cents

My Item: _____

My Estimate: _____ Cents

Actual Weight: _____ Cents

My Item: _____

My Estimate: _____ Cents

Actual Weight: _____ Cents

My Item: _____

3. Brain Teaser!

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

My Estimate: _____ Cents

Actual Weight: _____ Cents