Math 5 - Act. 21: The Amazing Inch and Measuring Up!

Summary

In this activity, students will gain a knowledge and understanding of both the metric and customary systems of measuring length with rulers, meter / yardsticks, and tape measures.

Group Size

Small Groups

Materials

For each student:

(2) 3" x 12" pieces of oak tag
ruler with standard and metric measurements
"Measuring in Feet and Inches" chart
Enlarged Inch labeled
Enlarged Inch

For teacher:

plastic overhead ruler (to nearest 1/8 inch)

Additional Resources

Literature:

How Tall How Short How Faraway by David A. Adler
Measuring by Sheila Cato

Background for Teachers

Use accurate terminology to demonstrate and explain Metric and Customary Units of Length Measurement. Encourage students to also use correct terminology.

Vocabulary

Customary: A system of measurement used in the United States. The system includes units for measuring length, capacity, and weight.

Units of Length Measurement in Customary System:

one foot (ft or ')	=	12 inches (in or ")
one yard (yd)	=	36 inches
	=	3 feet
1 mile (mi)	=	5,280 feet
	=	1,760 yards

Intended Learning Outcomes

1. Become mathematical problem solvers.
2. Make mathematical connections.

Instructional Procedures

Invitation to Learn

Have students work in partners/cooperative groups to list as many occupations as possible where tools are used for measuring. Students should also list what tools are used with each job. Discuss why it is important to learn how to use these tools in real life situations.

Instructional Procedures

Each student receives one of the 3" x 12" pieces of oak tag.
Students are then instructed that this paper represents one magic "amazing inch." As the teacher models, students follow the teacher's example:

Teacher will fold the paper in half once. Then draw a line on the fold, and label it 1/2. The left side edge of the paper will be labeled 0/2, while the right side edge will be labeled 2/2.
While students continue to follow the teacher's example, the teacher will fold the paper in half again. Students will be asked how many equal parts there are. A line a littler shorter will be drawn on the additional folds and labeled 1/4, 2/4, and 3/4. The edges will be appropriately labeled 0/4 and 4/4.
One more fold and with shorter lines drawn on the folds which will be labeled 1/8, 2/8, 3/8, 4/8, 5/8, 6/8, and 7/8. The edges will be labeled 0/8 and 8/8.

During the folding process, the teacher will review how each time the "magic inch" is folded each of the new sections are equal in size.
Teacher places a transparent plastic ruler on the overhead and points to the different lines on the ruler asking individual students (or popcorn style where students quietly call out answers), what part of the inch each line represents.
Students will apply the concept of the magic inch to an enlarged inch ruler on a sheet of paper by labeling it as was done with the "magic inch" and with the overhead.
Students will practice estimating and measuring by using paper rulers which are ruled to 1 inch, 1/2 inch, 1/4 inch, and 1/8 inch. (It would be a good idea to have students practice first with the 1 inch ruler. Then, after some practice use the 1/2 inch ruler. Continue to practice, then progress to the 1/4 inch ruler and finally after more practice the 1/8 inch ruler). Answers are recorded on a copy of the "Measuring in Feet and Inches" Worksheet.
Students will then partner and, using a ruler, review with each other what the different lines on the ruler represent.
Working in partners or groups, the class will then estimate the measurement of several items in the classroom and record their answers on the "Measuring in Feet and Inches" worksheet. After estimating, students will measure and record the exact measurement of each item.
Students label and glue a copy of an enlarged inch in their journals.
Students will explain in their journals how 2/4 and 4/8 are equal to 1/2, and 2/8 is equal to 1/4, etc. (tie in with fractions).

Curriculum Integration

Journal writing: Discuss how measurement is used in occupations. Use rulers as an additional way to teach fractions. Students, working with a partner, measure themselves and each other, then make a half-size selfportrait on butcher paper. They may draw clothes, hair, etc., to make the half-size me look like themselves. Construction paper and yarn may also be used for clothes and hair. (This activity may be done by customary, to the nearest inch, or metric measuring, to the nearest centimeter.)

Extensions

Possible Extensions/Adaptations/Integration

“Inches” or “Metric Measurement” Games

Social Studies—Students interview parents or other relative to discover how measurement is used in their jobs. Graph the class results.

Math—The measuring activities may also be done in the metric system.

Homework & Family Connections

Students take a 3" x 12" piece of tag board home and teach parents or siblings how to fold and label their own “magic inch.”

Students estimate and then measure items in their homes and record answers on “Measuring in Feet

and Inches” worksheet.

Assessment Plan

Students will estimate the measurement of several items, then measure them and record answers on a copy of the “Measuring in Feet and Inches” worksheet.
Students write the correct measurements on an enlarged inch (blackline included).

Authors

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