

Measuring Me

Summary

Students will learn the importance of accurate measurement both in customary and metric units.

Materials

- *Millions to Measure*
- *Measuring Penny*
Ruler with customary and metric measures
Measuring cups: customary and metric
Scales(s): customary and metric
Tape measure
Paper
Pencils
- [Measuring Me worksheet](#)
- [Measuring Me 2 worksheet](#)

Additional Resources

Books

- *Millions to Measure*
, by David M. Schwartz; ISBN 0-688-12916-1
- *Measuring Penny*
, by Loreen Leedy; ISBN 0-8050-6572-5
- *The Write Math: Writing in the Math Classroom*
, by Cathy Marks Krpan; ISBN 0-7690-2505-6
- *Investigations in Number, Data, and Space: Measurement Benchmarks--Estimating and Measuring*
, by Catherine Anderson; ISBN 1-57232-801-0

Background for Teachers

This activity is a good cross-curricular investigation of Objectives 1 & 2 of Standard IV of the 5th grade mathematics Core Curriculum. It relies on two pieces of literature, *Millions to Measure* and *Measuring Penny*. Students will learn the importance of accurate measurement both in customary and metric units. They will gain an understanding of the relationship between units of measurement in the metric system. Students will be able to compare and contrast customary measure and metric.

Intended Learning Outcomes

2. Become mathematical problem solvers.
3. Reason mathematically.
4. Communicate mathematically.

Instructional Procedures

Invitation to Learn

Have each student measure his/her foot and report their measurement on board. Read *Millions to Measure*. Journal the following question, "Should the U.S. join the rest of the world and measure only in the metric system?" Discuss the journal responses.

Instructional Procedures

Read *Measuring Penny*.

Discuss how this story compares with *Millions to Measure*.

In cooperative groups, each student will measure (in both units of measure) and record their body parts listed on their [Measuring Me worksheet](#).

In groups, students take their measurements (to the nearest 1/2 inch or inch) and average each body part to obtain the average measurement representing the students in their groups. Remind the class that the mean is an average obtained by adding the set of data for the same body part and dividing by the number of units in that set.

As a class, create a chart or graph representing the comparison of all the groups in the classroom.

Using the [Measuring Me 2 worksheet](#), students follow the directions and complete the assignment. (This may take a few days.) The teacher should stress accurate measuring and creativity. Students can choose to present their work in a variety of formats. Discuss/brainstorm the different formats that could be used for "publishing" this assignment.

Discuss the Extension activities. Optional: Model with class an example. Use brainstorming and consensus to choose activity.

Extensions

Students create their own unit of measure using a body part. Explain their reasoning and give three examples of its use.

Each student could create a book (see [How Much is a Million?](#), step 4.), in the same pattern as *Measuring Penny*, titled *Measuring Me*.

Students create their own menu for a simple dinner and measure appropriate portions using the measuring cups, spoons, and a scale. Provide guidelines on size of portions or the size of the entire meal.

Family Connections

Students and their families can use *Measuring Penny* as a model for measuring one of their pets and comparing to other animals found around the home and/or neighborhoods. Use the *Measuring Me 2* worksheet as an outline for this home activity.

Assessment Plan

Observe students while they are working in groups and individually. Did they work well in cooperative groups? Were the materials used properly and accurately? Could the students present and discuss their opinions and feelings?

Evaluate the completed *Measuring Me* worksheets.

In cooperative groups, students will find the measurements to create the average student representing their group. This also reinforces the concept of mean.

Did the student adequately journal this activity with procedure, observations, and conclusions described and illustrated?

Bibliography

Research Basis

Van Zoest, L. & Enyart, A. (1998). Discourse, of course: encouraging genuine mathematical conversations, *Mathematics Teaching in the Middle Schools*, 4(3), 151-157.

Students should be encouraged to defend, question, and clarify their mathematical ideas. Discussion is one of the most important components to students gaining mathematical understanding. If they can express themselves orally, then journaling becomes easier. Teachers should listen carefully to the students' ideas. The teacher's role is to facilitate discussion, providing information, clarification, and modeling if needed. Students are to investigate, form conjectures, and determine mathematical

evidence to be used in their discussions and journaling.

NCTM. (2000). Principles and Standards for school mathematics. (Online at <http://standards.nctm.org/>).

In learning measurement, students should be actively involved, drawing on familiar and accessible contexts, e.g., body parts. The first step is to understand measurable attributes of objects and the units of measurement--both customary and metric. Measurement is the bridge from number sense to geometry. Connection(s) must be made to realworld applications. Students should investigate a wide variety of applications.

Authors

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