Measuring Up!

Math Activity for Elementary Students

Time: 1–2 hours

Materials
Activity
- Rulers (metric and customary scale)
- Barn fold-up
- Measurement Recording Worksheet
- Clear tape
- Crayons or colored pencils

Additional Activity
- Tape measure (at least 1 meter, metric and customary scale)
- Scrap lumber (2” x 4”s, plywood, etc.)
- Scene yarn

Background

Being able to measure in a variety of ways is a life skill and part of the National and State Standards for math. How many times a day are we asked, or do we ask, “How much?” “How big?” “How far?” Fortunately, it’s pretty easy to incorporate the math standards of measurement into daily curriculum.

This lesson provides students with an opportunity to practice measuring length in both the metric and customary (English) system using a variety of tools and agricultural products. (For more resources on teaching measuring, visit the Utah Education Network website, www.uen.org, and search “measuring.” You will find a variety of lesson plans and worksheets that will help you teach students how to measure things from a quarter of an inch to a sixteenth of an inch, and in millimeters. There are even ready-made PowerPoint slides on the site to teach measuring.)

The material list for this lesson is easily obtained—most can be found in your classroom or garage. Most measuring tools contain measurement units for both the metric and customary system.

Third graders should be able to measure to the 1/2 inch, fourth graders to the 1/4 inch, fifth graders to 1/8 of an inch and sixth graders should be able to measure to 1/16 of an inch. All third through sixth graders should be able to measure in millimeters. The “Build a Barn” activity is currently constructed in 1/4 inch increments. However, the “Barn Fold-up” page could be scaled on a photocopier to vary the measurements and increase measurement difficulty for older students. In addition, you can check students’ measurement skills by having them create windows, doors, or wall planking in 1/8 inch or 1/16 inch increments.

To add a “real world” skill to this lesson, provide students with a variety of scrap lumber and a tape measure. This adds a new dimension of difficulty especially if the boards are longer than a foot. Larger measurements (greater than a foot) will check their understanding of inches to feet and feet to yards. They should also measure the boards using metric units. Check to see that the lengths of the two-by-fours or one-by-fours are in increments students are capable of measuring. Also be sure to caution students about splinters (try to select smooth lumber for measuring).

Activity Procedures

1. Duplicate the “Measurement Recording” and “Barn Fold-up” worksheets for each student.
2. Provide each student with a ruler and ask students to complete the “Measurement Worksheet.”
3. After the students have completed the “Measurement Worksheet,” you may want to check their work before they color and cut out the barn. You may request that older students draw their doors to specific sizes (1/8 and 1/16 of an inch increments).

Additional Activities

Using a variety of scrap lumber, ask students to use a tape measure to measure the boards and record their findings in both customary and metric units.
1. Measure the distance between points A and B and record your measurements.

_______ inches    _______ millimeters

2. Measure the distance between points C and D and record your measurements.

_______ inches    _______ millimeters

3. Measure the windows.

_______ inch wide      _______ inch high

_______ millimeters wide    _______ millimeters high

4. Draw a door on your barn (one end) to your teacher’s requested measurement or draw it yourself and take the measurement.

My door is ______ inch wide    _____ inch high

My door is _______ millimeters wide    _______ millimeters high

5. Draw two more windows on your barn (on the opposite barn wall) as requested by your teacher or draw it yourself and record the measurement.

_______ inch wide    _______ inch high

_______ millimeters wide    _______ millimeters high

Discussion Questions:

How important would it be to know how to measure if you needed to build a real barn or house?

Who needs to able to measure?

Which measurement scale was easier to use? Metric or Customary?

Which system is usually used in America to build buildings?
Build a Barn

1. Complete the Measurement Recording Worksheet by taking the requested measurements. If your teacher would like you to place measured boards on the side of the barn, take these measurements and draw on the boards.

2. After you complete your Measurement Worksheet, color and cut out the barn.

3. Create a fold on each line and then fold-up the barn and tape the walls and roof together using the tabs and clear tape.

Why do farmers build barns?

What types of barns have you seen?

What are barns usually made of?