

Measurement: (8th,9th)Strategy Teaching the Ruler

Summary

The U.S. Customary system and the Metric system are introduced through a Power Point lesson. A series of evaluation tools are provided to teachers to assess student understanding of applying measurement with a ruler using the U.S. Customary System. In addition, techniques used to teach the reading of the ruler are given where conventional (fractions) methods are not working for the learner.

Time Frame

3 class periods of 45 minutes each

Life Skills

Thinking & Reasoning, Communication, Employability

Materials

A classroom set of Architect's scales. Worksheets, Quizzes, and Tests for the entire class. Ability to project a Power Point document.

Background for Teachers

Although students are exposed to measurement as early as the 3rd grade, exposure does not necessarily mean that students can use or understand the concept of reading the ruler by the time they reach middle/junior high school classes. Many times, students are being asked to apply measurement skills for the first time in the Technology and Engineering classes. Even though the standards and objectives of each cluster area does not all call for an evaluation of measurement skills, it becomes a necessary part of our curriculum as many students are not equipped to succeed in the shop without re-introducing measuring concepts. The following are a series of evaluation materials and techniques to help ensure that students have sufficient knowledge to succeed in the school shop environment.

Student Prior Knowledge

Math Skills are necessary: 1. To be able to recognize patterns. 2. The ability to count is necessary. 3. Understanding of fractions and reduction of fractions is helpful.

Intended Learning Outcomes

The ability to read the ruler, and apply this knowledge to measurement technique.

Instructional Procedures

1st day - Use the Power Point slide show to re-introduce measurement to the students. Each slide must be advanced by the teacher; the content on the slide is automatic. Practice as a class (I use wood blocks that are lettered "A," "B," and "C." I had previously cut the blocks to the exact lengths that I wanted. The students have 3 blocks at each table, and each table's blocks are the same. The 3 blocks are different lengths from one another. The students use architects scales or rulers to measure the lengths and record it on a piece of scratch paper. We then compare answers) and administer 10 question Ruler Quiz. 2nd day - Hand back the graded ruler quiz. Work with individual students that struggled. Review for the Test. 3rd day - Students are required to score a "B" or better on this test. If they don't score well they re-take the test 2 days later. Students that scored well also can re-take the test to try for a better score. There are 2 forms of the same test. Each form is given out to help with

those that "strain their necks." 4th day - Hand back and discuss test. The quiz and test are posted under the assessment section.

Strategies for Diverse Learners

Informally assign students after the initial quiz to help those that are struggling with those that have it down. Make color copies of the color ruler to hand to a few students that struggle.

Assessment Plan

With the attached quiz there is no minimum score. However, with the tests, this teacher requires a "B" or better. The test is made up of three parts which must be introduced to the students. Part A. Fill in the Blank. The student uses the given ruler to record the distance from "A" which is zero. Part B: Short Answer. Students answer simple measurement questions. Part C: Direct Measurement. Students use an Architects scale or ruler to place distance marks on the given lines. Hand out both forms of the test to reduce the cheating incidents.

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