Algebra/Geometry Institute Summer 2007

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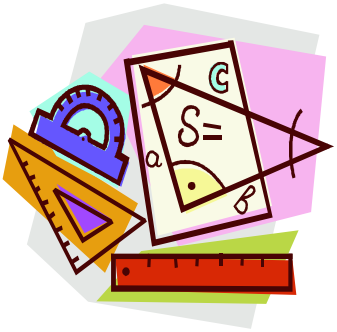
5th Grade Math



Measurement

Objective:

Mississippi Framework 2007

The students will measure line segments and find dimensions of given figures using standard measurements. **(4, a)**

Instructions:

1. The students will complete a bell ringer at the beginning of class.
   Problems for bell ringer:
   Directions: Write the fractions in simplest form.

   a. $\frac{2}{8}$ b. $\frac{4}{10}$ c. $\frac{6}{16}$ d. $\frac{5}{10}$

   The teacher will discuss the problems from the bell ringer with the students.

   The teacher will select the students at random to give the answer and explanation to the problems.

   Answers to bell ringer:

   $\frac{1}{4}$ to get the answer we had to divide both the numerator and denominator by two.

   $\frac{2}{5}$ again we will divide both the numerator and denominator by two.

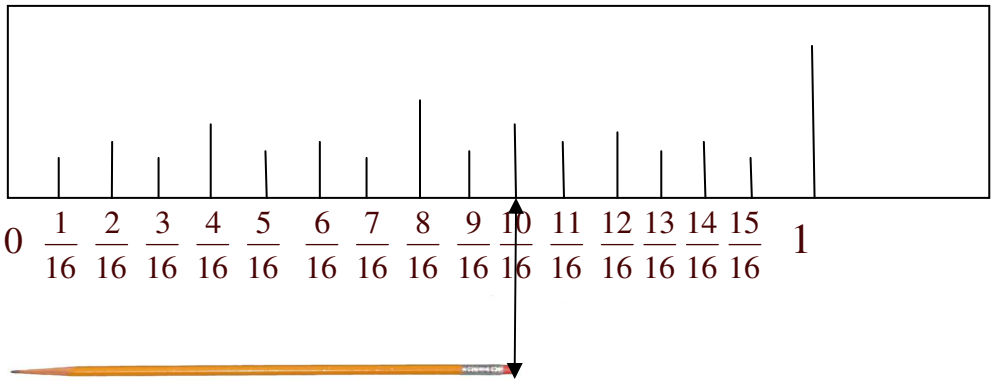
$\frac{3}{8}$ once more divide the numerator and denominator by two

$\frac{1}{5}$ to get the answer, divide both the numerator and denominator by five.

2. The students will be introduced to how to read a ruler using the inch and centimeter side of the ruler.

   The teacher will use a ruler on the overhead projector to show the students how to read a ruler on the inch and centimeter side.

Inch Ruler



Teacher:
An inch ruler starts with **0**. Each mark after 0 is 1/16 of an inch. Some of the fractions can be reduced or simplified. We just completed the bell ringer on simplifying fractions.

Question:
Can someone name a fraction on the ruler that can be simplified?
(Choose a student to call on.)

$\frac{2}{16} = \frac{1}{8}$ $\frac{4}{16} = \frac{1}{4}$ $\frac{6}{16} = \frac{3}{8}$ $\frac{8}{16} = \frac{1}{2}$ $\frac{10}{16} = \frac{5}{8}$

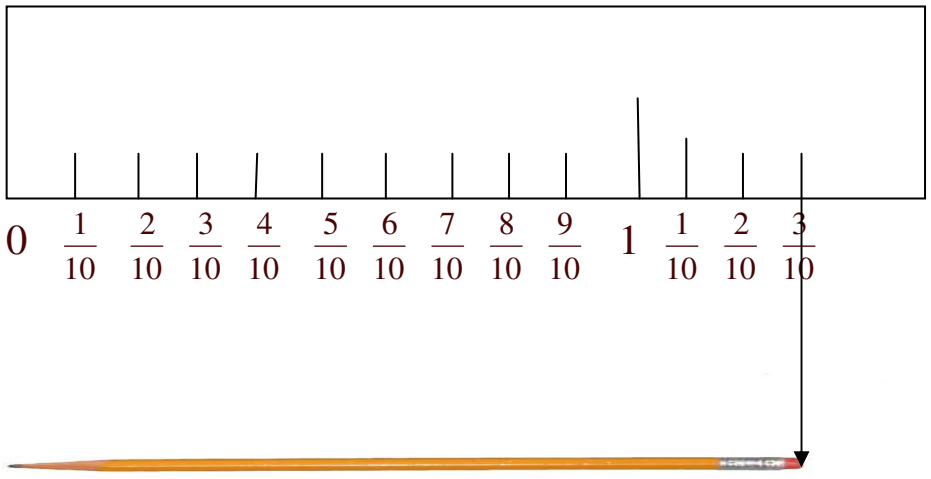
$\frac{12}{16} = \frac{1}{4}$ $\frac{14}{16} = \frac{7}{8}$

Your fractions will need to be simplified.

Once the teacher has shown the students how to read a ruler, the teacher will then demonstrate how to measure an object.

Demonstration:
Let us use the ruler to measure an object in inches.
As you can see the pencil must start at the 0 mark on the ruler, first.
Then you will find where the pencil stops. The pencil stops at $\frac{10}{16}$ of an inch, which we can simplify to $\frac{5}{8}$.

Centimeter Ruler



Teacher:

The centimeter ruler also starts at 0. Each mark after the 0 is $\frac{1}{10}$ of a centimeter.
There are some fractions here that can be reduced.
Can someone name a fraction on the ruler that can be simplified?
(Choose a student to call on.)

$\frac{2}{10} = \frac{1}{5}$ $\frac{4}{16} = \frac{2}{5}$ $\frac{5}{10} = \frac{1}{2}$ $\frac{6}{10} = \frac{3}{5}$ $\frac{8}{10} = \frac{4}{5}$

Simplify all fractions.

Demonstration:
Let us use the ruler to measure an object in centimeters.
As you can see the pencil must start at the 0 mark on the ruler, first.
Then you will find where the pencil stops. The pencil measures longer than one centimeter mark and stops at the third mark after the one, therefore, the pencil is 1 and $\frac{3}{10}$ centimeters long.

Answer: $1\ \frac{3}{10}$ centimeters

Questions and Answers

Students: What if the length of the object stops between two marks and not on an exact mark?

Teacher: In this exercise, if the length of the object stops between two marks and not exactly on a mark, round to the nearest $\frac{1}{16}$ of an inch and to the nearest $\frac{1}{10}$ of an centimeter.

Guided Practice
The teacher will give the students handouts with pictures of different objects that they will measure the length in both inches and centimeters.

After the students have had a chance to measure and record both measurements for all objects, the teacher will select students at random to share their answers and for other students to check or question their answers.

Activity
The students will work in groups to find the measurements of different objects in a bag (paper clip, eraser, pencils, gum, hair bow, candy, pencil gripper; these are suggestions) using the inch and centimeter side of the ruler.

The teacher will circulate around the room to monitor and evaluate the students work.

Materials
Ruler, paper, pencil, handouts, paper clips, eraser, pencils, gum, hair bow, candy, pencil gripper, etc.

Assessment
Observe the students during guided practice and activity.
Grade students' handout from group activity.

Handout #1

Measuring

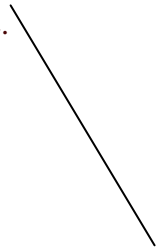
Name_____
Date _____
Math

Directions: Use a ruler to find the length of the measurements in inches and centimeters of the lines and objects shown below.

1. _____

inches: _____
centimeters: _____

2.



inches: _____
centimeters: _____

3.

inches: _____
centimeters: _____

4.

inches: _____
centimeters: _____

5. W

L Width inches: _____ Length inches: _____
centimeters: _____ cm: _____

Teacher Made

Activity #1

Measuring

Group# _____ **Date _____**

Directions: Take the items from the bag, write the name of each item in a box, then use a ruler to measure the length of each in inches and centimeters. Round your answer to the nearest $\frac{1}{16}$ of an inch and $\frac{1}{10}$ of a centimeter. Record all answers.
