



## Algebra/Geometry Institute 2010

Faculty Name: Virginia Curb

School: John F. Kennedy High-Mound Bayou Public School District

Grade Level: 4

### Everyday Measurements

#### I. Teaching Objective(s):

##### **Institute's objectives:**

- Development of measurement concepts and formulas through the use of geometry

##### **Mississippi math competencies and objectives:**

- 4d. Use appropriate tools to determine, estimate, and compare units for measurement of weight/mass, area, size of angle, temperature, length, distance, and volume in English and metric systems and time in real-life situations. (DOK 1)

#### II. Instructional Activities.

##### i. Prior to instruction

- The instructor should collect 5 objects of different shapes and sizes to use as comparison objects.
  - Ex. The length of a pencil should be used in comparison with the length and width of a sheet of paper (if a pencil is \_\_\_ cm, the length or width of the paper should be \_\_\_cm).
  - Comparison items: 1 soup can, 1 dollar bill, 1 paper clip, 1 basketball, 1 baseball, and 1 sheet of paper.
- The instructor should collect 15 objects similar to the comparison objects.
- The collected objects should be correctly measured prior to the class.
- The instructor should have a teacher copy of the measurement sheet already filled out prior to the day of instruction (attachment #1)

## ii. Introduction

The students will be placed into groups of four.

The instructor will begin the class by accessing the students' knowledge about measurement. The instructor will hold up each of the five comparison objects and ask the students to estimate the measurements (height, length, width, diameter, perimeter, etc...) of the objects. Each group will give an estimate.

The instructor will then ask a member of each group to stand up and describe to the class how and why they derived that measurement.

The instructor will give the students the correct measurements for each comparison object.

Each group would record both the estimated and the actual measurements. The class will discuss the differences between their guessed measurements and the actual measurements.

## iii. Class activity

The instructor will then have the students to guess the measurements of the 20 additional.

The instructors will assist the students with doing this by comparing the objects with the known measurements of other objects.

Example: The instructor will say "What is the length of this object if it is about half the length of a dollar bill? A dollar bill is about 6 inches long."

The students will record their answers on their estimation input sheet. (See Attachment #2)

After the measurements have been recorded into the estimation input sheet (attachment #2), the instructor will take up those sheets and pass out the actual measurement input sheet (attachment #3) and a ruler

The students will measure each object and record the actual measurements in the actual measurement input sheet (attachment #3)

The instructor will pass out the estimation input sheet to the groups and they will compare the answers on the estimation input sheet (attachment #2) with the answers on the actual input sheet (attachment #3).

The students will then complete the instructor created height activity in attachment #4.

The students will be given a teacher created assessment at the end of the lesson. The students must carefully read the directions on the assessment and fill it out to the best of their abilities. This assessment will result in a weekly grade.

### **III. Materials and Resources**

- 1 soup can
- 1 dollar bill
- 1 paper clip
- 1 large coffee can
- 1 standard sheet of paper
- Rulers
- Attachments (1, 2, &3)
- Yarn
- Note cards
- Markers
- Tape measure
- Attachments 1, 2, 3, and 4
  - Attachments 1, 2, 3, and 4 are all instructor created attachments.

### **IV. References**

Deminsions Guide. 28 June 2010 <[www.deminsionsguide.com](http://www.deminsionsguide.com)>.

# Assessment

Name: \_\_\_\_\_

Date: \_\_\_\_\_

The purpose of this assessment is to measure the student's understanding of a previously taught objective. The student will read each problem carefully and place his or her best answer in the space provided.



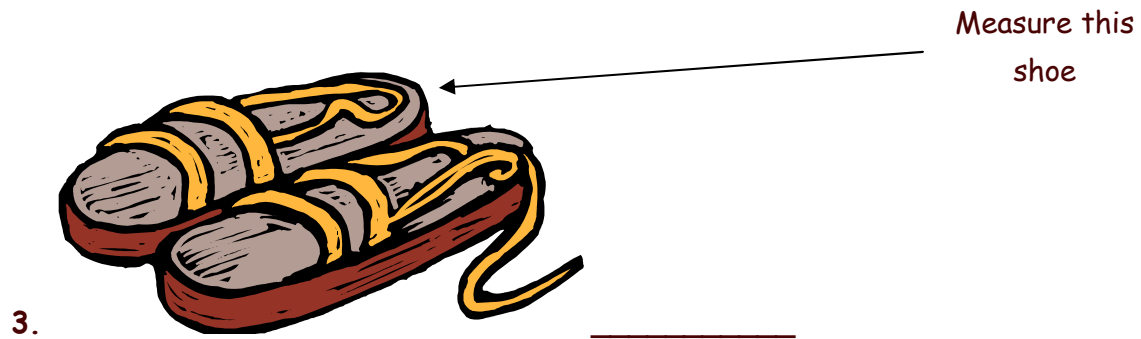
Measure the paper clip and use that measurement to estimate the measurements of the following items. Please use inches when measuring your items.



1. \_\_\_\_\_



2. \_\_\_\_\_



Measure this shoe

3. \_\_\_\_\_

## Assessment



4. \_\_\_\_\_



5. \_\_\_\_\_



6. \_\_\_\_\_

**Actual Measurement Input Sheet  
(Teacher Copy)**

<b>Object</b>	<b>Length</b>	<b>Width</b>	<b>Height</b>	<b>Diameter</b>	<b>Circumference</b>
Shoe Box		15.5 in	7 in	4 in	
Cereal Box		8 in	2 in	10 in	
Golf Club			44 in		
Baseball Bat	42 in			2.75 in	
Bath Towel	52 in	27 in			
Hand Towel	30 in	30 in			
Wash Towel	13 in	13 in			
Brick	8 in	4 in	2.25 in		
Coat Hanger	15 in				
Soccer Ball					27 in
Football	11.375 in				28 in
Softball (slow pitch)					12 in
Dinner Plate				9 in	
Dessert Plate				6.75 in	
Coke Can		2.5 in	4.8125 in		

**Comparison Objects**

<b>Object</b>	<b>Length</b>	<b>Width</b>	<b>Height</b>	<b>Diameter</b>	<b>Circumference</b>
Dollar bill	6.14 in	2.61 in			
Paper Clip	1.38 in				
Soup Can			5.75 in	3.4375 in	
Sheet of Paper	11 in	8.5 in			
Basketball					30 in
Baseball					9.25







## How tall are you? How long are your arms?



1. Separate the students into groups of four.
2. Give each group a bundle of yarn, a tape measure, and four note cards for each student in the group.
3. Instruct the students in each group to take one student at a time, have that student to stand up and hold his or her arms straight out on their sides (like an airplane).
4. One other student in the group should measure the length of the standing student's arms by taking the yarn and spreading it across the student's arms from the longest left finger tip to the longest right finger tip. The students should cut the yarn and then write the student's name on a note card. The cut yarn should be placed on top of the note card. This should be done for every student in the group.
5. Have the students to then take each piece of yarn, measure it with a tape measure, and record the measurement, in inches, on the corresponding note card. \* There should be the student's name, along with the measurement of the yarn written on the note card.
6. Take each note card and place them in order from smallest to largest, according to the inches.
7. Have the students to get in order, according to the place of their note card.
8. Begin an open discussion on the student's observations between the length of their arms and their height.
9. Lead the students into making the connection between the length of their arms and their height. The length of the students' arms should be close to their height.