Algebra/Geometry Institute Summer 2009

Faculty Name: COACH MALCOLM MOORE

School: H. W. SOLOMON MIDDLE SCHOOL

Grade Level: 8TH PRE-ALGEBRA

1   Teaching objective(s)
Solve real-world application problems that include length, area, perimeter, and circumference using standard and metric measurements.

2   Instructional Activities
The students will be given a BELL RINGER ACTIVITY

The students will be led in a discussion about measurement. Can we define what measurement means? What are the different categories, types, and usages of measurement?

The students will be given Activity 1 that asks them to give the appropriate measure for the given item in customary or metric.

The students will then be led in a discussion of Activity 1. Once all misconceptions have been cleared, the students will be introduced to Activity 2, applying dimensional analysis to convert measures from one or two units to an equivalent measurement.

The students will then be led in a discussion of Activity 2. Once all problems have been worked, the students will be asked to come to the board and explain how they got their answers.

3   Materials and Resources
        Textbook : <u>Prentice Hall Pre-Algebra: Tools for a Changing World</u>,
        1997
        Workbook: <u>Prentice Hall Middle Grade Math: Tools for Success</u>,
        2002
        Manipulatives (meter sticks)

4   Assessment
The Assessment will be given with problems that are close to examples
given in class.

BELL RINGER

1. A mosquito can fly at 0.6 mi/h. How many yd/h is this?

2. How many inches per second is this?

BELL RINGER

1. A mosquito can fly at 0.6 mi/h. How many yd/h is this?

$$\frac{0.6\ mi}{1\ h} * \frac{1760\ yd}{1\ mi} = 1056\ ^{yd}\!/_{h}$$

2. How many inches per second is this?

$$\frac{0.6\ mi}{1\ h} * \frac{1760\ yd}{1\ mi} * \frac{36\ in}{1\ yd} * \frac{1\ h}{3600\ sec} = 10.56\ ^{in}\!/_{s}$$

NAME _____

Activity 1

WHAT CUSTOMARY UNIT WOULD YOU USE FOR EACH MEASURE?

1. **length of a stapler**   _____

2. **weight of a cookie**   _____

3. **capacity of a teakettle**   _____

4. **height of a door**   _____

5. **distance to the moon**   _____

6. **weight of a jet aircraft**   _____

WHAT METRIC UNIT WOULD YOU USE FOR EACH MEASURE?

1. **mass of a cat**   _____

2. **length of a playground**   _____

3. **capacity of a test tube**   _____

4. **length of an insect**   _____

5. **capacity of a bathtub**   _____

6. **mass of a coin**   _____

ANSWER KEY

NAME _____

WHAT CUSTOMARY UNIT WOULD YOU USE FOR EACH MEASURE?

1. **length of a stapler** _____inches_____

2. **weight of a cookie** _____ounces_____

3. **capacity of a teakettle** _____fluid ounces_____

4. **height of a door** _____feet_____

5. **distance to the moon** _____miles_____

6. **weight of a jet aircraft** _____tons_____

WHAT METRIC UNIT WOULD YOU USE FOR EACH MEASURE?

1. **mass of a cat** _____grams_____

2. **length of a playground** _____kilometers_____

3. **capacity of a test tube** _____milliliters_____

4. **length of an insect** _____millimeters_____

5. **capacity of a bathtub** _____liters_____

6. **mass of a coin** _____grams_____

ACTIVITY 2

USE DIMENSIONL ANALYSIS TO CONVERT EACH MEASURE. ROUND YOUR ANSWERS TO THE NEAREST HUNDREDTH WHERE NECESSARY.

1. 56 in. = _____ ft

2. 240 d = _____ h

3. 4 gal = _____ pt

4. 0.75 d = _____ h

5. 2.25 T = _____ lb

6. 84 ft = _____ yd

7. 0.25 d = _____ min

8. 0.01 T = _____ oz

9. At one time, trains were not permitted to go faster than 12 mi/h. How many yards per minute is this?

10. A sneeze can travel up to 100 mi/h. How many feet per seconds is this

USE DIMENSIONL ANALYSIS TO CONVERT EACH MEASURE. ROUND YOUR ANSWERS TO THE NEAREST HUNDREDTH WHERE NECESSARY.

1. 56 in. = ___$4\frac{2}{3}$_ ft___

            Or 4 ft 8 in

2. 240 d = __5760_h___

3. 4 gal = ___8_ pt____

4. 0.75 d= __18_ h_____

5. 2.25 T = __4500_ lb

6. 84 ft = __28_yd_____

7. 0.25 d = __360_ min

8. 0.01 T = _320_ oz___

9. **At one time, trains were not permitted to go faster than 12 mi/h. How many yards per minute is this?**

$$\frac{12mi}{1h} * \frac{1760\,yd}{1mi} * \frac{1h}{60\min} = 352\,^{yd}\!\!\Big/\!_{\min}$$

10. **A sneeze can travel up to 100 mi/h. How many feet per seconds is this**

$$\frac{100\,mi}{1h} * \frac{5280\,ft}{1mi} * \frac{1h}{3600\sec} = 146\frac{2}{3}\,^{ft}\!\!\Big/\!_{\sec}$$

ASSESSMENT

AN APPROPRIATE METRIC UNIT OF MEASURE IS ?

1. mass of a banana   _____

2. depth of Lake Michigan   _____

3. length of a small calculator   _____

4. quantity of water in a spoon   _____

AN APPROPRIATE CUSTOMARY UNIT OF MEASURE IS ?

5. distance to Australia   _____

6. volume of a cooking pot   _____

7. length of a sports field   _____

8. weight of a medium-sized fish   _____

USE DIMENSIONL ANALYSIS TO CONVERT EACH MEASURE. ROUND YOUR ANSWERS TO THE NEAREST HUNDREDTH WHERE NECESSARY.

9. 1,000 lb = _____ T   10. $\frac{1}{2}$ mi = _____ ft

ANSWER KEY

ASSESSMENT

AN APPROPRIATE METRIC UNIT OF MEASURE IS

1. mass of a banana _____grams_____

2. depth of Lake Michigan _____kilometers_____

3. length of a small calculator _____centimeters_____

4. quantity of water in a spoon _____milliliters_____

AN APPROPRIATE CUSTOMARY UNIT OF MEASURE IS

5. distance to Australia _____miles_____

6. volume of a cooking pot _____quarts_____

7. length of a sports field _____yards_____

8. weight of a medium-sized fish ____pounds_____

USE DIMENSIONL ANALYSIS TO CONVERT EACH MEASURE. ROUND YOUR ANSWERS TO THE NEAREST HUNDREDTH WHERE NECESSARY.

9. 1,000 lb = ____0.5T __   10. $\frac{1}{2}$ mi = __2640 ft __

$$\frac{1000lb}{1} * \frac{1T}{2000lb} = 0.5T$$ $$\frac{0.5mi}{1} * \frac{5280ft}{1mi} = 2640\,ft$$