

## Academic/Career & Technical Related/Demonstration Lesson Plan

Mrs\_Lewis\_Tech Math A\_Period 2 Offsite\_Learning\_Packet\_Day 2

### State Indicator/Competency:

- Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
- Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

### Instructional Objective(s):

- Convert units within the metric system and customary system with 90% accuracy
- Solve word problems involving measurement conversions with 90% accuracy

### Materials:

- Worksheet- "Measurement Practice" and calculator

### Method of Instruction:

Independent

### Activities:

1) Write 7.2 cubic ft as cubic in

Solution: (a) Since there are 12 inches in a foot, there are  $12 \times 12 \times 12$  (or  $12^3$ ) inches in a cubic foot (since a cubic foot is 3-dimensional).  $12 \times 12 \times 12 = 1,728$

(b) Since there are 1,728 cubic inches in ONE cubic foot, we must multiply this by 7.2 to find out how many cubic inches are in 7.2 cubic feet. (c)  $7.2 \times 1,728 = 12,441.6$  cubic inches

2) Write 8.75 yards as feet and inches

Solution: (a) Since there are 3 feet in 1 yard, there are  $3 \times 8.75$  or 26.25 feet in 8.75 yards. (b) Since there are 26 whole feet, we need to take the partial foot, .25 and change it to inches. We do this by multiplying by 12 (since there are 12 inches in every foot. Remember that  $.25 = \frac{1}{4}$ , so we are looking for  $\frac{1}{4}$  of a foot). Since  $12 \times .25 = 3$ , this means .25 feet = 3 inches.

(c) Final answer: 26 feet and 3 inches (or 26'3")

3) A shop owner has a bolt of fabric with 72 yards of material. If he sells the following lengths how much remains?  $28 \frac{15}{16}$  ' and  $34 \frac{5}{8}$  '. Write your answer as yards and feet.

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Solution: (a) We need to add the amounts we sell and subtract from the total, 72. So we have:

$$72 \text{ yds} - (28 \frac{15}{16} ' + 34 \frac{5}{8} ')$$

(b) Simplify the problem by adding the units in parenthesis (we can do this since they are both in feet):  $72 \text{ yds} - (63 \frac{9}{16} ')$

(c) Since our units don't match, we can't subtract. We first need to change the feet to yards (divide by 3 since there are 3 feet in every yard). This makes the problem  $72 \text{ yds} - 21 \frac{3}{16} \text{ yds}$  which =  $50 \frac{13}{16} \text{ yards}$

(d) We are told to write our answer as yards and feet. We know there are 50 whole yards. The portion of a yard,  $\frac{13}{16}$ , needs to get changed to feet. Multiply it by 3 (since there are 3 feet in a yard) to find  $2 \frac{7}{16}$  ft. Therefore the final answer is 50

yards and  $2 \frac{7}{16}$   
ft.

4) Two pipes that are each 4'11" and 8'9" are connected. Then 2'10" is cut off. How long is the remaining piece of pipe?

Solution: (a) First add together the 2 pieces you are connecting to get 12'20" ( $20'' = 1'8''$  since there are 12 inches in every foot). So the total is 13'8"

(b) Now subtract the piece that is to be cut off from your total:  $13'8'' - 2'10''$ . You cannot subtract 10 inches from 8 inches, so you have to borrow 1 foot (12 inches). Rewrite the problem:  $12'20'' - 2'10'' = 10'10''$

5) Rewrite 65 km as m

Solution: (a) Since  $1 \text{ km} = 1,000 \text{ m}$ , 65 km would =  $65 \times 1,000$  or 65,000m

**Assessment:**

“Measurement Practice Worksheet” (see below) 10 points

Name \_\_\_\_\_

Lewis Tech A Pd 2 Day 2

Measurement Practice

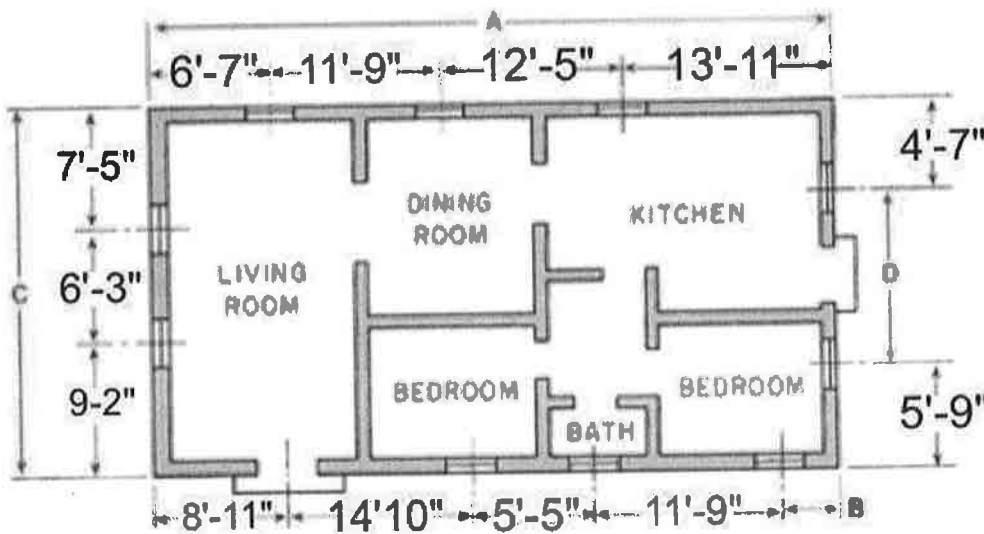
1) Write 5.3 cubic ft as cubic in

2) Write 10.5 yards as feet and inches

3) A shop owner has a bolt of fabric with 56 yards of material. If he sells the following lengths how much remains?  $14 \frac{5}{16}$ , and  $12 \frac{7}{8}$ . Write your answer as yards and feet.

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4) Calculate distances A, B, C, and D in feet and inches on the floor plan shown below. Simplify if needed.



A =

B =

C =

D =

5) Express 5.7 km as m.

6) Darrell has a piece of wood that is 8'3" long. He cuts off a piece that is 1'10" long. He then cuts off a piece that's 2'7" long. How long is the piece that's left over?