

Name: _____ Section: _____

Conversions Activity *(Dimensional Analysis)*

In this activity you will try to acquire a better understanding of the process of converting from one set of units to another. At each table there are a set of conversion factors/equivalent measurements. Using these materials, you and your group will need to answer the questions that appear on the "Conversion Activity QUESTIONS" sheet. The questions on the sheet will require you to make MASS, VOLUME, DISTANCE/LENGTH, and TIME conversions. It is very important that each group and its members properly manipulate the materials to get the correct answer. Although there may be opportunities to use your metric map, I would like you to use the process we have been working on to get your answer.

MATERIALS:

- pencil
- Conversions Activity Worksheet (this sheet)
- additional sheet of paper (for calculations)
- calculator

PROCEDURES

1. Read the first question for the respective unit measurement (MASS, VOLUME, DISTANCE/LENGTH, TIME). This will help you find your starting point for the question.
2. Once you have a starting point (the value given by the question), you should have some idea of the steps you need to complete in order to get the answer.
3. Find the appropriate starting point among the pieces and place this number (& unit) over "1."

4. Using the conversion factors/equivalent measurements, try to find the appropriate combinations that will allow you to ultimately be left with the units that the question is asking for.
5. When you think you have all of the appropriate conversion factors arranged on the table, you should try to calculate an answer using your calculator.
6. If you feel your answer is correct, **you should re-write all of this information down onto your additional sheet of paper (exactly the way it looks on the table).** - If you feel your answer is incorrect, you should re-organize the conversion factors and try to calculate it once again.
7. Steps 1-6 should be followed for each question.

It is very important that these questions are solved as a group. All group members should have the opportunity to manipulate the laminated pieces on the table. All questions (20 total) must be completed and re-written on the additional sheet of paper by each member of the group.

Please understand that this is a difficult concept, but can be understood if all activities are completed (according to the procedures) and if group members assist each other.

Name: _____ Section: _____

Conversions Activity (Dimensional Analysis) QUESTIONS

Conversion Factors

(Equivalent Measurements)

Distance/Length

12 inches = 1 foot
3 feet = 1 yard
1760 yards = 1 mile
1 mile = 1.61 kilometer
1 inch = 2.54 centimeters
1 kilometer = 1000 meters
5280 feet = 1 mile

Mass

16 ounces = 1 pound
2000 pounds = 1 ton
1 Newton = 100 grams
1 pound = 454 grams
2.20 pounds = 1 kilogram
1 kilogram = 1000 grams

Volume

1.06 quarts = 1 liter
1 gallon = 3.78 liters
2 pints = 1 quart
42 gallons = 1 barrel
4 quarts = 1 gallon
1000 Liters = 1 kiloliter

All time Conversion Factors must be derived by each group

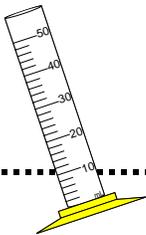


MASS

1. Convert 5 pounds to kilograms
2. Convert 26,000 ounces to tons
3. Convert 12 kilograms to Newtons
4. Convert 2 tons to grams
5. Convert 15,000 ounces to pounds

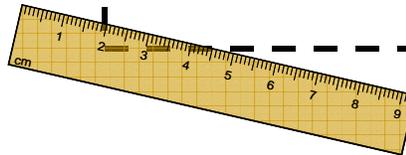
DISTANCE/LENGTH

1. Convert 25 centimeters to inches
2. Convert 2000 feet to miles
3. Convert 10 miles to meters
4. Convert 3000 feet to centimeters
5. Convert 26 miles to kilometers



VOLUME

1. Convert 17 kiloliters to gallons
2. Convert 3 barrels to quarts
3. Convert 6 liters to pints
4. Convert 50 pints to kiloliters
5. Convert 200 liters to barrels



TIME

1. Convert 230 seconds to minutes
2. Convert 3 centuries to years
3. Convert 6,300 minutes to weeks
4. Convert 2 decades to weeks
5. Convert 1 year to seconds

