

Title: Converting Units Using the Metric System

Objectives Students will correctly convert from one unit to another using the metric system.	Time frame to Complete 30 minutes
	NRS EFL 4

Stackable Cert.	Documentation	Technology	Study / Life skills	EL-Civics	Career Pathways	Police	Paramedic	Fire Rescue	Medical Asst.	EKG / Cardio	Phlebotomy	Practical Nursing	Healthcare Admin	Pharmacy Tech	IMT	AMT	HVAC	Welding	Other: Culinary	
			X			X	X	X	X			X			X				X	

Standard(s) Addressed in Lesson

Use Math to Solve Problems and Communicate

Benchmark(s) Addressed in Lesson

M. 4.13 Convert fluently, within measurement systems (metric, customary, time), from one unit to another in order to solve contextual problems and express the conversions using appropriate unit labels.

Materials

Handouts (attached), paper, pencil

Learner Prior Knowledge

Decimals and place value

Metric system is used throughout the world and is based on the decimal system. Meters measure length, liters measure liquid, and grams measure weight or mass. These are the basic units. Common prefixes are used to form other units.

Activities

Step 1 Student will follow along as teacher explains handout. (This handout is used in our program. I do not know the original source in order to give credit). The acronym helps the student remember the order of metric units from largest to smallest. Kill (kilo), Him (hecto), Dead (deca), But (basic unit), Don't (deci) Call (centi), Me (milli). Kangaroos Hopping Down Mountains Drinking Chocolate Milk can also be used.

Step 2 Teacher will model on board and explain that the decimal point is moved one place to the right for each letter (KHDBDCM) if changing to a smaller unit or one place to the left if changing to a larger unit. (e.g. If changing from B to C, the decimal point is moved 2 places to the right).

Step 3 Student will work problems on handout, asking for assistance as needed.

Assessment/Evidence

At least 80% mastery of worksheet. Worksheet can be checked by student when class goes over it as a group.

Adaptations for Beginning Students

Beginning students will work with a partner.

Adaptations for Advanced Students

Advanced students might want to convert from English system to metric system or metric system to English.

Teacher Reflection/Lesson Evaluation
This lesson was created by Middletown ABLE.

Kill Him Dead But Don't Call Me

Metric Measurement

Common Prefixes for Metric Units

<u>Prefix</u>	<u>Abbreviation</u>	<u>x Base Unit</u>
kilo	k	1,000
hecto	h	100
deka	da	10
deci	d	.1
centi	c	.01
milli	m	.001

The Metric Stairstep

Each step is ten times greater than the one just below it.

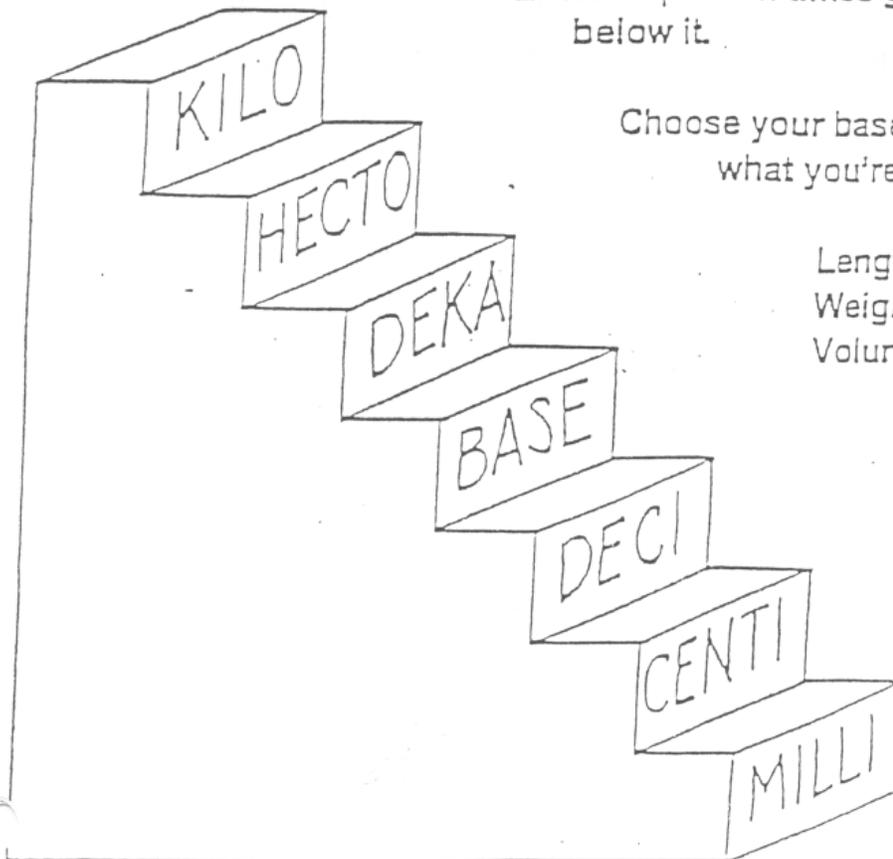
Choose your base unit depending on what you're measuring:

Length use meters

Weight use grams

Volume use liters

So, 1 kilometer is equal to 10 hectometers. And 1 decigram is equal to 10 centigrams.



Refer to the Kill Him Dead handout when working this handout.

1. How many centimeters are in 1 meter?
2. How many millimeters are in 1 meter?
3. How many millimeters are in 1 centimeter?
4. How many meters are in 1 kilometer?
5. How many milliliters are in a 2 liter bottle of Coca Cola?
6. A 20 ounce bottle of Dr. Pepper contains 591 ml. How many liters is this?
7. A 12 ounce can of Diet Coke contains 355 ml. How many liters if this?
8. City A is 2.5 km from City B. How many meters if this?
9. A person weighs 70 kilograms. How many grams is this?
10. One serving of a recipe of Skillet Shrimp with Onions, Succotash, and Tomatoes is $1\frac{1}{2}$ cups. It contains 165 Cal, 3 g Fat, 1 g Sat Fat, 0 Trans Fats, 150 mg Chol, 592 mg Sod, 16 g Carb, 3 g Fib, 20 g Prot, 64 mg Calc. Convert the g to mg and the mg to g.

ANSWER KEY

Refer to the Kill Him Dead handout when working this handout.

1. How many centimeters are in 1 meter? **100**
2. How many millimeters are in 1 meter? **1000**
3. How many millimeters are in 1 centimeter? **10**
4. How many meters are in 1 kilometer? **1000**
5. How many milliliters are in a 2 liter bottle of Coca Cola? **2000**
6. A 20 ounce bottle of Dr. Pepper contains 591 ml. How many liters is this? **.591**
7. A 12 ounce can of Diet Coke contains 355 ml. How many liters is this? **.355**
8. City A is 2.5 km from City B. How many meters is this? **2500**
9. A person weighs 70 kilograms. How many grams is this? **70000**
10. One serving of a recipe of Skillet Shrimp with Onions, Succotash, and Tomatoes is 1 ½ cups. It contains 165 Cal, 3 g Fat, 1 g Sat Fat, 0 Trans Fats, 150 mg Chol, 592 mg Sod, 16 g Carb, 3 g Fib, 20 g Prot, 64 mg Calc. Convert the g to mg and the mg to g.

3000 mg Fat

1000 mg Sat Fat

.150 g Chol

.592 g Sod

16000 mg Carb

3000 mg Fib

20000 mg Prot

.064 g Calc