ADULT LEARNING ACADEMY

PRE-ALGEBRA WORKBOOK

UNIT 8: METRIC SYSTEM

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MoHealthWINs

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UNIT 8: METRIC SYSTEM

LEARNING OBJECTIVES

1. **Metric Prefixes:**
   - ☐ Know the basic units for measuring length, weight, volume, and temperature in the metric system
   - ☐ Know the meaning of metric prefixes and how they are related by powers of ten
   - ☐ List the metric prefixes in order from kilo to micro

2. **Metric Benchmarks:**
   - ☐ Identify metric benchmarks for length, weight/mass, volume, and temperature
   - ☐ Approximate the measures of everyday things using metric benchmarks
   - ☐ Approximate temperatures using metric benchmarks

3. **Converting in Metric:**
   - ☐ Convert units within the metric system
   - ☐ Understand the relationship between decimal point movement and powers of ten
   - ☐ Convert temperature from Fahrenheit to Celsius, and from Celsius to Fahrenheit

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UNIT 8 VIDEO & EXERCISE LIST

Topic	Website	Videos
Metric Prefixes	http://www.youtube.com/watch?v=2tcRNLHb0Yg	Wanda Sykes The Metric System
	http://www.youtube.com/watch?v=hCxDEB2t5Hc	Basics of Metric System Mathmanprice
	http://www.youtube.com/watch?v=83e3n83Re5s	Deirdre Flint The Metric System Song
	http://www.youtube.com/watch?v=KfrCaKyhwZk	Meters, Liters and Grams petehendley
	http://www.youtube.com/watch?v=PLhK9rat-NU	Think Metric by Amanda and Kimberly
Converting in Metric	http://www.youtube.com/watch?v=XS-8FCqYo5M	Metric Conversions Shortcut Method
	http://www.youtube.com/watch?v=pEDVddQvimI	Unit Conversion in the Metric System
Metric Temperature	www.khanacademy.org	Compare Celcius &Farenheit Temp Scales
		Converting Farenheit to Celcius
		Ex: Evaluate a Formula using Substitution
Unit 8 Review Flashcards	www.stlcc.edu	Powerpoint on Blackboard

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Metric Prefixes

KILO	HECTO	DEKA	BASE (UNIT)	DECI	CENTI	MILLI	X	X	MICRO
1000	100	10	1 gram liter meter	1/10	1/100	1/1000			1/1,000,000

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Killer Whale	Hippo	Donkey		Dog	Cat	Mouse	Maggot? Mite?
King	Hector	Died		Drinking	Chocolate	Milk	
Kangaroos	Hop	Down	My	Driveway	Carrying	M&M's	

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3.7 kilometers = _____ meters

20 milliliters = _____ liters

21.3 centigrams = _____ dekagrams

4.2 hectograms = _____ micrograms

50 deciliters = _____ kiloliters

Metric Length Benchmarks: Use a measuring tape.

1. Find a part of your body that is 1 centimeter long: _____
   (for many people, it's the width of their pinkie nail)

2. How high on your body is 1 meter? _____
   (for many people, it's their hip or bellybutton)

3. Measure from your shoulder blade across your back to your fingertips.
   How close is it to 1 meter? _____

4. How tall are you in centimeters? _____

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Metric Mass/Weight Benchmarks: Use a scale.

5. What is the mass of your textbook in grams? _____

6. What is the mass of a pencil in grams? _____

7. What is the mass of a paperclip in grams? _____

8. At home, read the label on a bottle of pain reliever. How many mg of medicine is in each tablet? _____

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Metric Temperature: Use a thermometer.

9. What is the temperature of the room in celcius? _____ in Farenheit? _____

10. What is your body temperature in celcius? _____ in Farenheit? _____

11. At what temperature does water freeze in celcius? _____ in Farenheit? _____

12. At what temperature does water boil in celcius? _____ in Farenheit? _____

I. Metric Sense: Circe the most reasonable measurement.

a) A healthy newborn baby might weigh

7 kilograms 70 grams 3 kilograms 70 pounds

b) You might wear shorts when the outdoor temperature is

30° F 35° C 80° C 212° F

c) Your bedroom might have a length of

5 feet 5 cm 5 kilometers 5 meters

d) If you are thirsty, you might drink this much water at one time:

1 milliliter 1 liter 1 gallon 1 dekaliter

e) You might take a warm shower in water that is

100° F 100° C 10° C 10° F

f) A basketball player might be this tall:

2 dekameters 2 centimeters 2 meters 2 decimeters

g) Your finger is about this long:

8 centimeters 8 inches 8 meters 8 millimeters

h) A jogger might run

10 meters 10 kilometers 10 liters 10 kilograms

i) An apple might weigh

30 grams 30 decigrams 30 dekagrams 30 kilograms

j) An infant might drink this much formula at one meal:

50 liters 50 milliliters 50 kiloliters 50 ounces

II. **From the Guinness Book of World Records** (www.guinnessworldrecords.com)

a) The longest tongue measures 9.8 centimeters from the tip to the middle of his closed top lip and was achieved by Stephen Taylor (United Kingdom), at Westwood Medical Centre, Coventry, United Kingdom, on 11 February 2009.

Stephen's tongue was _____ meters long.

Stephen's tongue was _____decimeters long.

Stephen's tongue was _____millimeters long.

Stephen's tongue was _____ micrometers long.

Stephen's tongue was _____ kilometers long.

Name an object that is about as long as Stephen's tongue:

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b) The shortest female who ever lived was Pauline Musters, born in 1876 in the Netherlands. At nine years old, she was 55 cm tall and weighed only 1.5 kg.

Pauline was _____ millimeters tall and weighed _____ grams.

Pauline was _____ meters tall and weighed _____ milligrams.

Pauline was _____ decimeters tall and weighed _____ decigrams.

Pauline was _____ dekameters tall and weighed _____ dekagrams.

Name an object that is about as tall as Pauline was at 9 years old:

Name an object that weighs about as much as Pauline did:

How many of Stephen's tongue, laid end-to-end, would approximate Pauline's height?

III. What is the most appropriate measure?

Choose from among these:

micrometers, millimeters, centimeters, meters, kilometers, milliliters, liters, grams, milligrams, kilograms

Item to be measured	Most appropriate metric unit
Length of your pencil	
Distance between cities	
Mass (weight) of a large dog	
Amount of blood in a syringe	
Diameter of a freckle	
Length of a swimming pool	
Amount of medicine in a pill	
Amount of fat in a serving of food	
Amount of water in your bathtub	
The length of a DNA cell	

IV. Temperature benchmarks:

	Degrees Fahrenheit	Degrees Celcius
Water freezes		
Water boils		
Normal Human Body Temperature		