

TP: Students will explore conversions in the metric system using the ladder method 9/27/12
806
811
705

Do Now
Explain which is heavier- a kilogram of feathers or a kilogram of gold?

Homework
No conversions on test!
1. Study for test Tuesday Oct 2
2. Complete Worksheet (WS)

Sep 27-9:30 AM

Ladder Method

How do you use the "ladder" method?

- 1st - Determine your starting point.
- 2nd - Count the "jumps" to your ending point.
- 3rd - Move the decimal the same number of jumps in the same direction.

Example: $4 \text{ km} = \underline{\hspace{1cm}} \text{ m}$
Starting Point: km, Ending Point: m
How many jumps does it take?
4. $\overset{1}{\downarrow} \overset{2}{\downarrow} \overset{3}{\downarrow} = 4000 \text{ m}$

Sep 27-9:36 AM

Conversion Practice

Try these conversions using the ladder method.

1000 mg = _____ g 1 L = _____ mL 160 cm = _____ mm
14 km = _____ m 109 g = _____ kg 250 m = _____ km

Compare using <, >, or =.

56 cm ○ 6 m 7 g ○ 698 mg

— m |

Sep 27-9:37 AM

Metric Conversion Challenge

Write the correct abbreviation for each metric unit.

1) Kilogram _____	4) Milliliter _____	7) Kilometer _____
2) Meter _____	5) Millimeter _____	8) Centimeter _____
3) Gram _____	6) Liter _____	9) Milligram _____

Try these conversions, using the ladder method.

10) 2000 mg = _____ g	15) 5 L = _____ mL	20) 16 cm = _____ mm
11) 104 km = _____ m	16) 198 g = _____ kg	21) 2500 m = _____ km
12) 480 cm = _____ m	17) 75 mL = _____ L	22) 65 g = _____ mg
13) 5.6 kg = _____ g	18) 50 cm = _____ m	23) 6.3 cm = _____ mm
14) 8 mm = _____ cm	19) 5.6 m = _____ cm	24) 120 mg = _____ g

Sep 27-9:38 AM

Compare using <, >, or =.

25) 63 cm ○ 6 m	27) 5 g ○ 508 mg	29) 1,500 mL ○ 1.5 L
26) 536 cm ○ 53.6 dm	28) 43 mg ○ 5 g	30) 3.6 m ○ 36 cm

Sep 27-9:38 AM

TP: Students will make quantify the length of objects using measuring tools

Do Now:

1. What device would you use to measure a book?
2. Would you use the same device to measure the length of the room? Explain.

Homework:

702

Sep 20-10:10 PM

Practice Measuring Length of Objects

Sep 25-9:38 AM

TP: Students will determine the volume of common objects through measurement and calculation of rectangular solids

Do Now:

- Which is larger, 4 meters or 410 cm?
- You are taking a trip to Florida, which metric unit of length would you use to measure the distance

Sep 25-9:40 AM

English vs. Metric Units

Which is larger?

- 1 liter or 1 gallon
- 1 liter or 1 quart
- 1 milliliter or 1 fluid ounce

1 gallon = 3.79 liters

1 quart = 0.946 liters

1 fl oz = 29.573 ml
1 12-oz can of soda would equal approximately 355 ml.

It would take approximately 3 3/4 1-liter bottles to equal a gallon.

Sep 25-9:42 AM

Metric Units

Volume is the amount of space an object takes up.

The base unit of volume in the metric system is the liter and is represented by L or l.

Standard: 1 liter is equal to one cubic decimeter

Metric Units

1 liter (L) = 1000 milliliters (mL)
1 milliliter (mL) = 1 cm³ (or cc) = 1 gram*

Which is larger?

- 1 liter or 1500 milliliters
- 200 milliliters or 1.2 liters
- 12 cm³ or 1.2 milliliters*

A liter is the volume of a cube 10 cm on each side.

Click the image to watch a short video about volume.

* When referring to water

Line Image: <http://www.illustration.com/Teacher-Primates/Item.pdf>

Sep 25-9:43 AM

Measuring Volume

We will be using graduated cylinders to find the volume of liquids and other objects.

Read the measurement based on the bottom of the meniscus or curve. When using a real cylinder, make sure you are eye-level with the level of the water.

What is the volume of water in the cylinder? ____ mL

What causes the meniscus?

A concave meniscus occurs when the molecules of the liquid attract those of the container. The glass attracts the water on the sides.

Sep 25-9:43 AM

TP: What is mass and how do we measure it?

Do Now: Continue with the length lab

Hwk: Current events due Monday


Extra Credit
 Sunday Oct 2 @
 Fresh Kills Park 11-4
 Free Tours
 nyc.gov/sneak peak

Sep 23-12:01 PM


English vs. Metric Units

Which is larger?


1. 1 Pound or 100 Grams
2. 1 Kilogram or 1 Pound
3. 1 Ounce or 1000 Milligrams



1 ounce of gold =
28,349.5 milligrams



100 kilogram =
220 pounds




1 pound = 453.6 grams

Sep 28-11:16 AM


kg g Metric Units g mg

Mass refers to the amount of matter in an object.
The base unit of mass in the metric system is the **kilogram** and is represented by **kg**.

Standard: 1 kilogram is equal to the mass of the **International Prototype Kilogram (IPK)**, a platinum-iridium cylinder kept by the BIPM at Sèvres, France.



Kilogram Prototype



Click the image to watch a short video about mass.

Metric Units
1 Kilogram (km) = 1000 Grams (g)
1 Gram (g) = 1000 Milligrams (mg)

Which is larger?

A. 1 kilogram or <u>1500 grams</u>	C. 12 milligrams or <u>12 kilograms</u>
B. <u>1200 milligrams</u> or 1 gram	D. 4 kilograms or <u>4500 grams</u>


Kilogram Prototype image - <http://en.wikipedia.org/wiki/Kilogram>

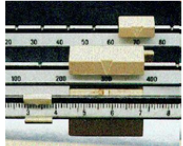
Sep 28-11:17 AM

Measuring Mass

We will be using **triple-beam balances** to find the mass of various objects.

The objects are placed on the scale and then you move the weights on the beams until you get the lines on the right-side of the scale to match up.





Once you have balanced the scale, you add up the amounts on each beam to find the total mass.

What would be the mass of the object measured in the picture?

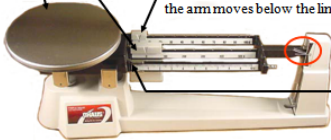
_____ + _____ + _____ = _____ g

Top image: http://www.outwestbooks.com/Ones_Triple_Beam_750-80.jpg
Bottom image: <http://www.agencetech.org/Reports/100g/units/100unit/graphics/100unitbalance.jpg>

Sep 28-11:17 AM

Measuring Mass – Triple-Beam Balance

- 1st – Place the film canister on the scale.
- 2nd – Slide the large weight to the right until the arm drops below the line. Move the rider back one groove. Make sure it "locks" into place.
- 3rd – Repeat this process with the top weight. When the arm moves below the line, back it up one groove.
- 4th – Slide the small weight on the front beam until the lines match up.
- 5th – Add the amounts on each beam to find the total mass to the nearest tenth of a gram.



[Click here to try an online activity.](#)

Sep 28-11:18 AM



Sep 25-9:31 AM