Name Kevin Date 3/6

1. Convert the larger metric units into smaller metric units.

a) Convert 3 meters to centimeters. 3 m × 100 = 300 cm

b) Convert 0.9 meters to centimeters. 0.9 m × 100 = 90 cm

c) Convert 8.1 liters to milli-liters 8.1 L × 1,000 = 8,100 mL

d) Convert 0.537 liters to milli-liters. 0.537 L × 1,000 = 537 mL

e) Convert 90.5 kilometers to meters 90.5 km × 1,000 = 90,500 m

f) Convert 0.234 km to meters. 0.234 km × 1,000 = 234 m

g) Convert 6.4 kilograms to grams 6.4 kg × 1,000 = 6,400 g

h) Convert 0.6 kilograms to grams 0.6 kg × 1,000 = 600 g

i) Explain why converting from meters to centimeters uses a different conversion factor (x 100) than converting from liters to milliliters, kilometers to meters, and kilograms to grams (x 1000). Express the conversions (g) and (h) above using exponents.

A meter is 100 times greater than a centimeter, so you multiply by 100. A liter is 1000 times greater than a milliliter and a kilogram and kilometer are 1,000 times greater than a gram and meter.

g) $6.4\text{kg} \times 10^3 = 6,400\text{g}$

h) $0.6\text{kg} \times 10^3 = 600\text{g}$

2. Read each aloud as you write the equivalent measures.

a) 3.5 km = 3 km 500 m

b) 1.23 L = 1 L 230 mL

c) 2.002 kg = 2 kg 2 g

d) 3 mL = 0.003 L

e) 3012 g = 3.012 kg

f) 0.021 m = 2.10 cm

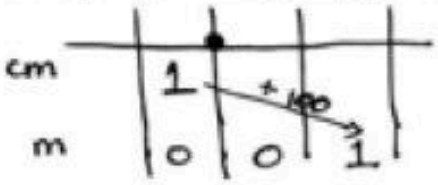
3. The length of the bar for a high jump competition must always be 4.75 m. Express this measurement in millimeters. Explain your thinking using an equation that includes an exponent.

$4.75\,m = 4750\,mm$

$4.75 \times 10^3 = 4750$

4. A honey bee's length measures 1 cm. Express this measurement in meters.

a. Explain your thinking using a place value chart.



$1\,cm = 0.01\,m$

b. Explain your thinking using an equation that includes an exponent.

$1 \div 10^2 = 0.01$ $\quad 1\,cm = 0.01\,m$

5. James drinks 800 ml of water each day during his workout. Henry drinks 600 ml daily during his workout. If James works out 3 days each week, and Henry works out 5 days each week, how many liters do the boys drink in all each week while working out?

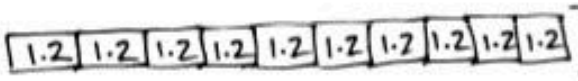
James $800\,mL \times 3 = 2400\,mL = 2.4\,L$

Henry $600\,mL \times 5 = 3000\,mL = 3.0\,L$

$5.4\,L$

The boys drink 5.4 L altogether each week.

6. Katrina needs to tie ribbons around 10 flower arrangements for a party. Each arrangement requires 1.2 m of ribbon. She also needs 325 cm of ribbon to tie to the balloons for the party. If Katrina buys 15 m of ribbon, will she have enough? If so, how much ribbon (in meters) will she have left? If not, how many more meters of ribbon will she need to buy?

K's ribbon arrangements 

$1.2 \times 10 = 12\text{m}$

balloons 3.25m

$325\text{cm} \div 100 = 3.25\text{m}$

$$\begin{array}{r} 12.00 \\ +\ 3.25 \\ \hline 15.25\text{m} \end{array}$$

Katrina won't have enough ribbon. She needs to buy 0.25m more.