

Unit 9 Lesson 1

Metric Conversions

Minds On:

The holidays are almost here! You have 2 favourite vacation spots: Wasaga Beach and Algonquin Park. Below are the distances in kilometres. What would the distances be for each in metres?

Wasaga Beach: 135km = _____m Algonquin Park: 225 km = _____m

In the **metric system** we use the following:

Meters (m) – for _____

Watts (W) – for _____

Litres (L) – for _____

Grams (g) – for _____

These prefixes are used for all of the metric systems:

<i>Prefix</i>	<i>Symbol</i>
kilo-	k
hecto-	h
deca-	da
<i>No prefix</i>	m(meters), W(watts), L(litres), g(grams)
deci-	d
centi-	c
milli-	m

Example 1:

Write each of the following using symbols

a) millimetres _____

b) kilometres _____

c) centilitres _____

d) milligrams _____

e) kilowatts _____

f) centigram _____

Example 2: Think of an instance where you would measure in:

a) Centimetres - _____

b) Watts - _____

c) Kilograms - _____

d) Millilitres - _____

To measure an item, it is important to select a suitable unit. Sometimes you may want to express a measurement in more than one unit. For example, Ray's height is 175 cm. This can also be expressed as 1.75 m.

Note:

- When converting from bigger units to smaller units (move down the chart), you **multiply** by the appropriate multiple of 10 (10, 100, 1000 . . .)
- When converting from smaller units to bigger units (move up the chart), you **divide** by the appropriate multiple of 10.

Example 1: Insert the appropriate value in the blank below.

a) 100 km = _____ m

b) 50 mm = _____ m

c) 1 km = _____ mm

d) 25 km = _____ cm

e) $3 \text{ kW} = \underline{\hspace{2cm}} \text{ W}$

f) $40 \text{ W} = \underline{\hspace{2cm}} \text{ kW}$

g) $550 \text{ cL} = \underline{\hspace{2cm}} \text{ L}$

h) $30 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

i) $2.6 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

j) $60 \text{ mg} = \underline{\hspace{2cm}} \text{ cg}$

Example 2: Calculate the following quantities:

<i>Question</i>	<i>Solution</i>
a) What is the speed of a race car in metres per hour if it travels 230 km in one hour?	
b) What is the power of a 120-watt light bulb in kilowatts?	
c) The diameter of a CD is approximately 12 cm. What is this amount in mm?	
d) A television's screen size was increased by 52.5 cm. What is this increase in metres?	
e) How many litres of oil are poured into a tank if nine 750-ml containers are used?	

Metric System Measurement Conversions

1. 1000 cL = _____ L
2. 120 mm = _____ cm
3. 1200 cL = _____ L
4. 2 cm = _____ mm
5. 11000 L = _____ kL
6. 10 cL = _____ mL
7. 12000 m = _____ km
8. 8 g = _____ cg
9. 80 mL = _____ cL
10. 3 L = _____ cL
11. 2000 L = _____ kL
12. 5 cm = _____ mm
13. 900 cm = _____ m
14. 11 cg = _____ mg
15. 9000 m = _____ km
16. 7000 mL = _____ L
17. 5 kg = _____ g
18. 60 mm = _____ cm
19. 1 kg = _____ g
20. 4000 mL = _____ L
21. 1 cL = _____ mL
22. 1100 cL = _____ L
23. 10000 g = _____ kg
24. 2000 mL = _____ L
25. 7000 L = _____ kL
26. 70 mL = _____ cL
27. 5 g = _____ cg
28. 9 cL = _____ mL
29. 1 g = _____ cg
30. 8 kg = _____ g
31. 6 g = _____ cg
32. 6 km = _____ m
33. 30 mg = _____ cg