UNIT 6 SURVIVAL GUIDE: Geometry

GEOMETRIC SHAPES

- geometry is seen in everyday life
- many careers depend on geometry
- geometric shapes are important for
  - ➡ _____
  - ➡ _____
  - ➡ _____

SOLVING PROBLEMS WITH GEOMETRY

- _____- a condition that limits or restricts options
  - ➡ _____ ➡ _____
  - ➡ _____ ➡ _____

2-D SHAPE	PERIMETER	AREA
rectangle	$P = 2l + 2w$ (square: $P = 4s$)	$A = lw$ (square: $A = s^2$)
parallelogram	$P = 2b + 2c$	$A = bh$
trapezoid	$P = a + b + c + d$	$A = \dfrac{(a + b)h}{2}$
triangle	$P = a + b + c$	$A = \dfrac{bh}{2}$
circle	$C = \pi d$ or $C = 2\pi r$	$A = \pi r^2$

3-D OBJECT	SURFACE AREA	VOLUME
rectangular prism	$SA = 2lw + 2wh + 2lh$	$V = lwh$
triangular prism	$SA = bl + ah + bh + ch$	$V = \dfrac{bh}{2}L$
cylinder	$SA = 2\pi r^2 + 2\pi rh$	$V = \pi r^2 h$

METRIC & IMPERIAL MEASUREMENT

Length

30.48 cm = 1 foot
2.54 cm = 1 inch
1.6 km = 1 mile

10 mm = 1 cm
100 cm = 1 m
1000 m = 1 km

12 in = 1 ft
3 ft = 1 yard
1760 yd = 1 mile

Mass

28.35 g = 1 ounce
0.454 kg = 1 pound
0.907 t = 1 ton (US)
454 g = 1 pound

1000 g = 1 kg
1000 kg = 1 t

16oz = 1lb
2000 lb = 1ton

Volume

15 mL = 1 tbsp
29.574 mL = 1 fluid ounce
0.473 L = 1 pint
3.785 L = 1 gallon
1L = 4 cups

1000 mL = 1 L

16 tbsp = 1cup
16 fl oz = 1 pint
2 pints = 1 quart
8 pints = 1 gallon

- Each statement above ie. $\boxed{100cm = 1m}$ can be written as ratios that are equivalent to _____

$$\frac{100cm}{1m} \qquad \text{OR} \qquad \frac{1m}{100cm}$$

- **How do you decide which ratio to multiply by?**
  Look at placement of units, ensure that they would _____ properly.

Steps:
1. Record what's given with _____
2. Decide on how to place a ratio so that units _____
3. Multiply
   top with _____ and
   bottom with _____
4. Simplify final answer and record the result with units.

EX. Jamie is visiting from Florida and wants to visit cottage country while here. She has heard of Muskoka and needs to know how far it is. Convert the 180 km drive to miles for her.

EX. Jeremy measured the width of a room to be 15.7 ft. His boss needs the measurement in metres. Convert his measurement.

NETS & PATTERNS

- _____- a 2-D diagram that can be cut out and folded to form a three-dimensional object

- _____- a 2-D diagram of a 3-D object which is split up into individual shapes
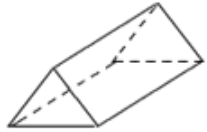
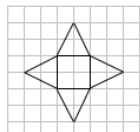**EX.** State the correct net for the 3-D object shown:

Figure A

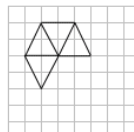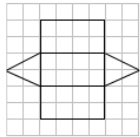**Figure 1**   **Figure 2**
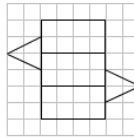
Figure 3   **Figure 4**

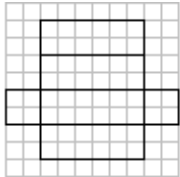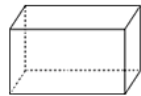**EX.** State the correct 3-D object for the net shown:
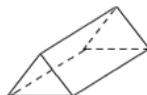
Figure A

Figure 1   **Figure 2**

Figure 3   **Figure 4**

ISOMETRIC & ORTHOGRAPHIC DRAWINGS

- _____- a visual representation of a 3-D object in two dimensions

- _____- a set of drawings that show up to six views of an object (usually from, side and top views)

EX. State the correct set of orthographic drawings for the isometric drawing given:
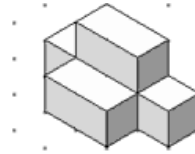
Figure A

Top Front Right side   Top Front Right side
Figure 1   **Figure 2**

Top Front Right side   Top Front Right side
Figure 3   **Figure 4**

PLANS & SCALE MODELS

- _____- a drawing which uses a specific ratio to represent an object that is too large or too small to be drawn in its actual dimensions

  ➡ _____

  ➡ _____

  ➡ _____

- _____- a set of orthographic drawings used to describe a place or object

- _____- a 3-D physical replica of an object which is very large or small

What careers depend on these?

  ➡ _____

  ➡ _____

  ➡ _____

  ➡ _____

  ➡ _____

  ➡ _____

Why?

  ➡ _____

  ➡ _____

EX. A dimension on a blueprint is 14.5 cm and the corresponding actual dimension is 4.35 m. What scale was used on the blueprint?

EX. What scale would you use to draw a scale diagram of a structure 100 m tall, and 20 m at its widest, so that it could be drawn on a full sheet of paper?

EX. Sketch the image using a 2:1 scale