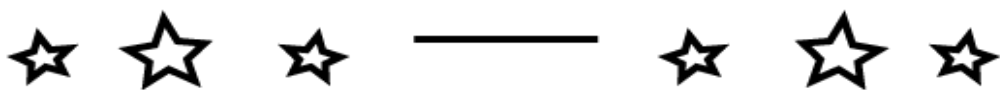


Our Town:

Grade 6
Math and Science Reference Book

Name: _____



Part 1: Math

Units of Measurement:

K H D M D C M

King Henry Doesn't Mind Drinking Chocolate Milk

(Kilometre, Hectometre, Decametre, Metre, Decimetre, Centimetre, Millimetre)

Which unit of measurement would you use to measure these?

1) The length of a phone

4) The length of an ant

2) The distance between
Toronto and Montreal

5) Your height

3) The length of a wall in a
bedroom

6) The distance at the widest
part of Canada

Convert these units of measurement:

1) 154km → _____ m

2) 27mm → _____ cm

3) 11.5m → _____ km

4) 4.75m → _____ mm

Area Formulae:

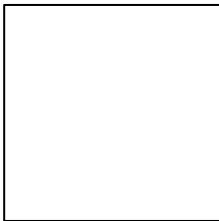
Rectangle

Triangle

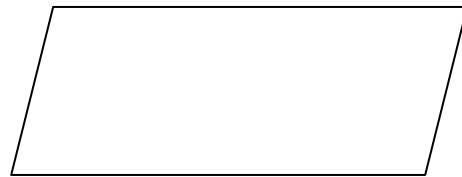
Square

Parallelogram

Estimate the area of these:



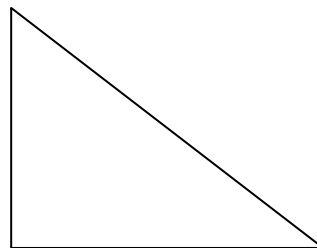
A = _____



A = _____

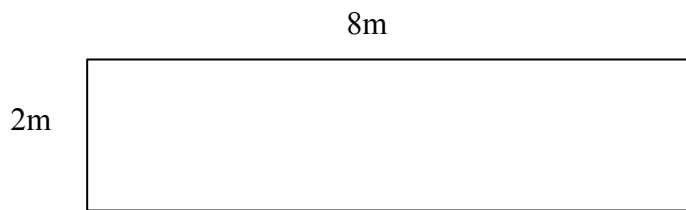


A = _____

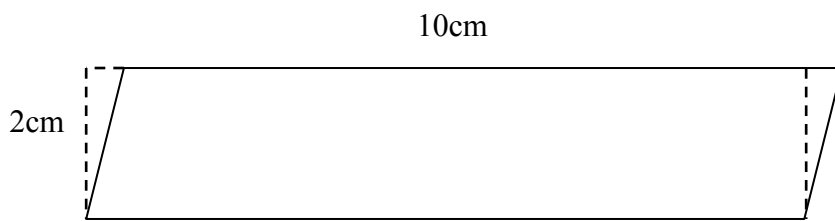


A = _____

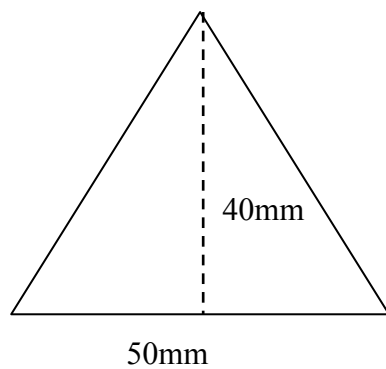
Calculate the area of these shapes in cm^2 then convert to the unit identified for each one.



$$A = \underline{\hspace{2cm}} \text{m}^2 \rightarrow \underline{\hspace{2cm}} \text{cm}^2$$



$$A = \underline{\hspace{2cm}} \text{cm}^2 \rightarrow \underline{\hspace{2cm}} \text{mm}^2$$



$$A = \underline{\hspace{2cm}} \text{mm}^2 \rightarrow \underline{\hspace{2cm}} \text{cm}^2$$

Unit Conversions for Area:

$$1\text{mm}^2 = \underline{\hspace{2cm}}\text{cm}^2$$

$$1\text{cm}^2 = \underline{\hspace{2cm}}\text{mm}^2$$

$$1\text{m}^2 = \underline{\hspace{2cm}}\text{mm}^2$$

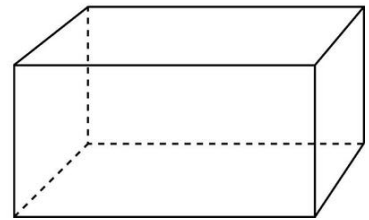
$$1\text{m}^2 = \underline{\hspace{2cm}}\text{cm}^2$$

$$1\text{km}^2 = \underline{\hspace{2cm}}\text{m}^2$$

Surface Area and Volume Formulae:

Rectangular Prism

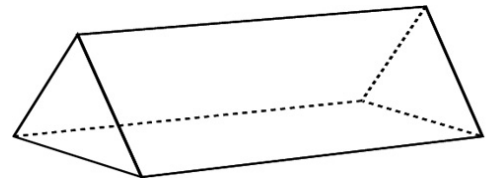
$$\text{SA} =$$



$$V =$$

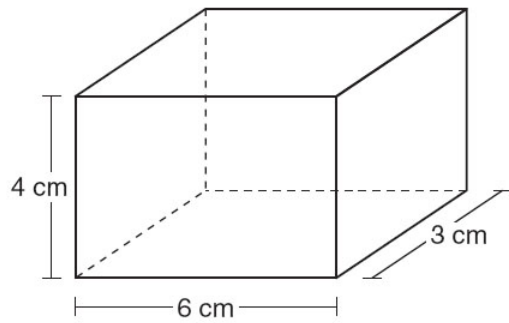
Triangular Prism

$$\text{SA} =$$



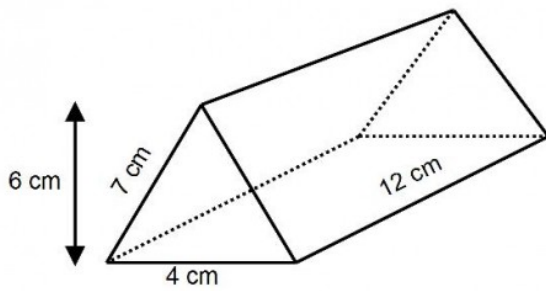
$$V =$$

Calculate the Surface Area and Volume of these shapes:



SA = _____

V = _____



SA = _____

V = _____

Part 2: Science

Symbols:



Battery



Wire



Bulb



Buzzer



Resistor



Motor



Switch (off)



Switch (on)

Match the component to the function:

Battery

Converts electrical energy into movement

Wire

Limits or regulates the flow of electricity

Bulb

Converts electrical energy into sound

Buzzer

Allows current to travel

Resistor

Allows circuits to be open or closed

Motor

Provides electrical energy

Switch

Converts electrical energy into heat and light

Series vs. Parallel Circuit:

Draw a diagram and write a definition in your own words (including an example of where it is used) of a series and a parallel circuit:

Series

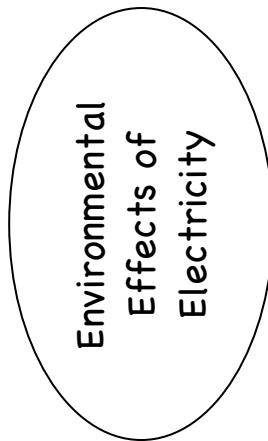
Parallel

These are some of the advantages and disadvantages of series and parallel circuits. Write the code next to the corresponding advantage or disadvantage:

SA = Series Circuit Advantage
SD = Series Circuit Disadvantage
PA = Parallel Circuit Advantage
PD = Parallel Circuit Disadvantage

	If one light bulb goes out, the others go out too
	They do not over-heat easily
	If one light bulb goes out, the others do not go out
	It uses a lot of wires
	They do not blow out very fast
	Every unit that is connected receives the same voltage

Create a mind map of the environmental effects of electricity. Use these questions as a guide to help you: What sources do we use to produce electricity? What are the disadvantages of electricity? What effects does electricity have on nature? What other sources of energy are more environmentally friendly?



Part 3: Your Engineering Company

Create a name and a logo for your engineering company.

Part 4: Design and Build

Congratulations! Your engineering company has been selected to design, and build an electrical or structural component to add to a new town. The town council have provided a list of components that must be included in the town, but they do not want much duplication. You must therefore collaborate with the other engineering companies to ensure that your design will add something unique to the town.

Requirements for Town:

1. A variety of unique structures that must include triangular prisms, rectangular prisms, and parallelograms.
2. For each structure/building, the surface area and volume must be shown so the town council can keep track of size and capacity of the buildings.
3. A variety of electrical components that light up, move, or make sound.
4. Use of series and parallel circuits.



Planning:

Create at least 2 designs that you may want to construct for this new town. Draw diagrams and label them.

Design:

Choose one of your designs. Describe why you chose it (make sure to mention how it meets the criteria of the town) and what materials you will need.

Description:

[illegible]

Materials:

[illegible]

This image shows a full page of white paper with horizontal black ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice or general writing. There are no margins, text, or other markings on the page.

























Part 5: Reflection

Draw your final product and label it.

Briefly describe any changes you made to your original design.
Why did you make these changes?



















Self Assessment:

Use the following criteria to assess your personal contributions to the town. Circle the most appropriate emoji for each statement.

Criteria	Assessment
I understand and can create series and parallel circuits.	  
I am able to calculate the surface area and volume of rectangular and triangular prisms.	  
I can calculate the area of a triangle and a parallelogram.	  
I can convert units for length and area.	  
Our design added something unique to the town.	  
Our design included an electrical and/or structural component that demonstrated my understanding of electricity and measurement.	  
I worked collaboratively with my group members at all times.	  
I listened attentively to others, I showed mutual respect and appreciation, and I respected each person's right to pass and right to participate.	  

Peer Assessment:

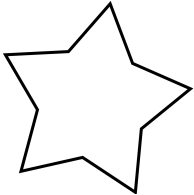
For one other member of your group, complete the following peer assessment.

Criteria	Assessment
They contributed equally to the group, offering ideas, and helping to build the structure.	  
They performed their role well (facilitator, resource manager, or recorder/reporter).	  
They listened attentively to all group members.	  
They showed respect for all group members.	  
They offered appreciation to group members.	  
They respected each group member's right to pass and right to participate.	  

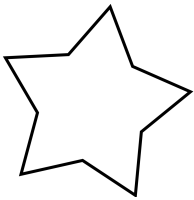
Any comments you wish to add about your peer:

Choose one other company's final product and write 2 glows and a grow (i.e. 2 things you really like about their final product and 1 thing they could improve).

Glow 1:



Glow 2:



Grow: