Grade 10 Science – Unit 3 Lesson 1

G.R.A.S.P. Problem Solving

What is G.R.A.S.P.?
A process to solve a problem.

G = Given – List known, draw diagrams
R = Required to find – Identify the unknown
A = Analyze – Write out formula
S = Solve – Plug knowns into formula
P = Present – State your answer using a sentence

Example

Given - Box with Side A of 41.2 m and Side B of 25.0 m

![Box Diagram]

- Length (l) = 41.2 m
- Width (w) = 25.0 m

Required to find – (a) Perimeter and (b) Area

Analyze – The Formula

\[ P = 2l + 2w \] \[ A = l \times w \]

Solve

\[ P = 2(41.2) + 2(25.0) \]
\[ A = (41.2)(25.0) \]
\[ = 82.4 + 50.0 \]
\[ = 132.4 \text{ m} \]

Present

The Perimeter is 132.4 metres and the Area is 1030 m².
Use G.R.A.S.P. to solve each of the problems below. Include a diagram for each problem.

1. A woman wants to determine the size (area) of her house and the length of fence (perimeter) around it. What are the area and perimeter, if her lot is rectangular with a width of 25.0 m and a length of 41.2 m?

2. A jogger runs around a circular track 250 m long (circumference). Determine the diameter and area of the enclosed lawn.

3. A homeowner wants to know how much it will cost to fill his pool with water. If the pool is 4.3 m wide by 10.2 m long by 2.5 m deep and water costs $1.85 / m$^3$, what is the volume of water needed and how much does it cost?

4. A right triangle is formed by a cable attaching a telephone pole to the ground. The cable connects to the pole 8.7 m up and it connects to the ground 11.5 m from the pole. Determine the length of the cable. (complete on back)
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Significant Digits and Scientific Notation

**Significant Digits**

3560.39 \ SD = \\
356.0 \ SD = \\
356 \ SD = \\
0.0125 \ SD = \\
0.01250 \ SD = \\
350.2 – 63.45 \ = \\
26.23 / 1.9 \ = \\

**Scientific Notation**

2,700,000 \ = \\
0.965 \ = \\
260 \ = \\
0.16 \ =