Unit 1 – Mix and Flow of Matter

Complete each of the following questions, relating to the specific learner outcomes, covered this year in Grade 8. The questions in this review reflect what you should have mastered and will be tested on in the Final Achievement Exam. The answers will be covered in class.

**Part 1** – Fluids are used in Technological devices and common everyday materials

What does the acronym W.H.M.I.S. stand for?

W________ H________ M________ I________ S________

Identify the WHMIS symbols illustrated and explain what Safety procedures should be followed.

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<thead>
<tr>
<th>Symbol</th>
<th>Type of Hazard</th>
<th>Safety Procedure</th>
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<tbody>
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<td>![Symbol 1]</td>
<td>![Description 1]</td>
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Describe ‘Slurry’ technology

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Part 2 – Properties of matter, using the Particle Model

What properties distinguish solids, liquids and gases (p.7)?

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<th>Gases</th>
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What are the key ideas in the Particle Model of Matter (p. 8)?

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Describe the action of particles in solids, liquids and gases. (p. 9-10)

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Part 3 – Changes of State

Describe the Changes of State and the terminology used, when a substance undergoes a specific change of state. (p. 11-12)

Part 4 – Classification of Matter

How is matter classified? (p. 13)
Part 5 – Solutions

Describe a **suspension**, a **colloid**, and an **emulsion**. (p.15)

What conditions must be present to enable a material to **dissolve** in another material? (p.17)

Explain the difference between a **solute** and a **solvent**. (p.18)

Why is water called 'the universal solvent'? (p.19)

What affects the **rate** at which a material will dissolve? (p.19)

What is a **saturated** solution? (p.21)

Why are some substances **insoluble**? (p.24)
Part 6 – Separation Methods

Describe the 'desert tent' method of separation. (p.28)

What is desalination? (p.28)

Describe how distillation is able to separate the parts of a solution. (p.29)

How is petroleum separated and the fractional parts collected? (p.30)

How is ore (such as gold) mined and collected? (p.31)

Describe, in general terms, how sugar is processed from sugar cane. (p.36)
Part 7 – Properties of gases and liquids (using the Particle Model)

Viscosity – Density - Buoyancy - Pressure

How is the thickness or a thinness of a fluid measured and what is it called? (p. 40)

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Describe some practical applications of the knowledge about viscosity. (p.45)

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How is viscosity in different fluids affected by temperature? (p. 48-49)

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Calculate density using a formula. (p.57)

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How are mass and volume related, when determining density?

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Describe the density of solids liquids and gases, using the particle model. (p.51)

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How is *buoyancy* determined?

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Describe how a ship (made out of steel) can *float*.

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How does a ‘*cartesian diver*’ work?

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What is *average density* and what benefits does it have?

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Explain ‘*Archimedes Principle*’ and how he came to formulate it.

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Describe how *scuba gear* works. (p. 69)

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Calculate pressure using a formula.

What conditions must be met to compress a gas? (p. 73)

Provide some examples of the advantages of compression.

What effect does atmospheric pressure have on our body? (p.75)

How is atmospheric pressure affected by altitude? (p.75)

Describe how a fire extinguisher works. (p.79)

Describe the components needed to make a hydraulic system. (p.80)

What is the primary difference between hydraulic systems and pneumatic systems? (p.81)