

# Unit 1 – Mix and Flow of Matter

## 1.0 Fluids in Technological Devices

- WHMIS symbols and safety procedures in the lab
- Transporting (**slurry**), processing (glass and steel) and using materials (toothpaste) using fluids
- Properties of fluids include: **viscosity**, **density**, **buoyancy** and **compressibility**

## 2.0 Properties of Mixtures and Fluids using the Particle Model

- Matter can be classified as **pure substances** and **mixtures**
- Solutions are made with a **solute** and a **solvent**
- **Concentration** describes how much solute is in a particular solvent
- **Solubility** depends on the temperature of the solution, the type of solute and the type of solvent

## 3.0 Properties of Gases and Liquids using the Particle Model

- **Viscosity** is a fluid's resistance to flow
- **Density** is the amount of mass in a given volume
- An increase in temperature decreases viscosity and increases density
- The **particle model** describes the spaces between the particles
- Less dense objects float on more dense substances because of **buoyant force**
- Gases are **compressible**, but liquids are nearly **incompressible**
- **Pressure** is calculated by dividing force over area
- **Pascal's Law** states that force applied to a fluid is transmitted equally throughout the fluid

## 4.0 Fluid Technologies

- Fluid technologies include: **solvents**, **pumps**, **valves**, **hydraulics** and **pneumatics**