

4.1 – Pressure on Solid Surfaces	
Pressure	Force per unit area.
Equation	Pressure = Force / Area
Units	N/m ² or N/cm ²
Factors affecting pressure	A larger force or a smaller area would give a higher pressure.
High pressure examples	Drawing pins and knives.
Low pressure examples	Camels' feet on sand and polar bears' feet on snow.
4.2 – Pressure in Liquids	
Liquid Pressure	Particles collide with the walls of the container and exert a force. Acts in all directions.
Compressibility	Liquid particles cannot be compressed as the particles are already close together.
Hydraulic systems	Liquids transfer pressure from a small area piston to a large area piston to create a larger force.
Relationship with depth	As you go deeper, pressure increases -> caused by the increase in the weight of the column of liquid above.
Water dams	Thicker at the bottom to withstand higher pressure.
4.3 – Pressure in Gases	
Gas particle motion	Particles move randomly in all directions in straight lines at a range of speeds.
Gas pressure	Particles collide with the walls of the container and exert a force. Acts in all directions.
Temperature and pressure	Temperature of gas increases -> particles have more K.E. -> move faster -> more frequent collisions with walls -> and larger force exerted -> pressure increases.
High pressure danger	May cause container to break, burst or explode.

4.4 - Moments	
Moment	Turning effect of a force about a pivot.
Equation	Moment = Force x Distance
Units	Nm or Ncm
Lever	Device which increases the distance between the force and the pivot to give a larger moment.
Balanced moments	Clockwise moments = anticlockwise moments
4.5 - Density	
Definition	Mass per unit volume (a measure of how heavy compared to size).
Particles	Tightly packed particles -> high density.
States of matter	Solids have high densities. Gases have low densities.
Equation	density = mass / volume
Units	kg/m ³ or g/cm ³
Density of regular solid (e.g. cuboid)	<ol style="list-style-type: none"> 1. Measure length, width and height with a ruler. 2. Calculate volume: length x width x height. 3. Measure mass with a mass balance. 4. Use density equation.
Density of irregular solid (e.g. a stone)	<ol style="list-style-type: none"> 1. Fill eureka can with water and insert object. 2. Collect displaced water in a measuring cylinder to measure volume. 3. Measure mass with a mass balance. 4. Use density equation.

Y8 Science Cycle 2 - Sheet 4

Pressure, Density & Moments

