P4.1 Knowledge Quiz: Matter

Put the states of matter in order of increasing internal energy.	Solid → liquid → gas
Put the states of matter in order of increasing density.	Gas → liquid → solid
Define density.	The mass per unit volume.
State the equation that links density, mass and volume.	$\rho = \frac{m}{V}$
Describe how to calculate the density of a regularly shaped solid.	Measure the mass using a balance and calculate the volume using the formula V=lbh, then substitute into the equation.
Describe how to calculate the density of a liquid or an irregularly shaped solid.	Measure the mass using a balance and measure the volume using the volume of water displaced from a Eureka can, then substitute into the equation.
Define a fluid.	A substance with no fixed shape.
Explain what is meant by gas pressure.	Particles of a gas collide with the walls of a container, exerting pressure.
Describe the relationship between temperature and pressure of a gas.	As temperature of a gas increases, pressure increases.

Physics Only

Describe the relationship between pressure and volume of a gas.	They are inversely proportional (as volume doubles, pressure halves).
State the equation that links pressure, force and area.	P = F/a
Explain why liquids are used in hydraulic systems.	They are incompressible so forces can be transmitted through them.
Describe the relationship between depth in a fluid and pressure.	The deeper in a fluid, the greater the pressure.
State the equation used to calculate pressure in a fluid column.	$P = \rho g h$
Describe the relationship between altitude and pressure.	The higher the altitude, the lower the pressure.