P6 Molecules and matter revision questions ANSWERS

1	How is the arrangement of particles in a liquid different to that of a solid?	They are randomly arranged (and are free to move)
2	What is meant by the conservation of mass when a solid melts or a liquid boils?	There are the same number of particles before and after the change
3	What happens to the particles in a solid if it's temperature is decreased ?	They vibrate less
4	What word describes the change of state when a gas turns to a liquid ?	Condensation
5	What word describes the change of state when a liquid turns to a solid ?	Freezing
6	How is it possible to tell if a change of state is taking place by using a thermometer ?	The temperature will not change during COS
7	What is measured by the specific latent heat of vaporisation of water and what units is it measured in ?	Energy to turn 1kg of water to vapour (gas)
8	Why does the temperature of the air increase when snow forms ?	Heat energy is released when new bonds are made. (as potential energy of particles decreases)
9	If the specific latent heat of fusion of water is 332J/g. How much energy would it take to melt 2kg of ice ?	332 x 2000 =664 000J or 664kJ
10	What evidence is there for the random motion of particles ?	Smoke grains moving randomly under a microscope (due to collisions with invisible air particles)
11	What three bits of equipment would be needed to measure the density of an irregular solid ?	Eureka can , measuring cylinder, digital scales
12	A cube measuring 2 cm^3 has a mass of 50g. Calculate the density of this material.	$D = m/V = 50 / 8 = 6.25\ g/cm^3$
13	Convert 25^0C to degrees kelvin.	25 + 273 = 298 K
14	What will happen to the pressure of a gas if it is compressed to a quarter of it's original volume ?	It will be 4x higher

15 Explain using particles why the pressure of a gas will increase with temperature.

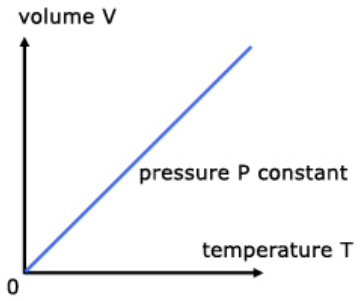
Particles move faster as T increases

Faster particles collide more often with the walls of the container

Each collision happens at a faster speed and so applies a greater force.

(Pressure is the force applied per unit area)

16 What would happen to a balloon placed in a refigerator ? It would shrink



What would the temperature need to be measured in for this grapoh to be plotted ? Kelvin

17 Use P/T = constant :

A car tyre is inflated to 2.2 bar on a cold day (to 5^0C). What would the pressure be once the temperature increased to 25^0C ?

2.2 / (5 +273) = P / (25+273)

2.2 /278 = P / 298, P = 2.2 x 298 /278

= 2.36 bar

What assumption have you made in this calculation ? Volume of tyre is constant