100 Illustrated Ways to Pass the Earth Science Regents with Sample Questions and Games

1 If pressure and temperature are constant, density of any substance, regardless of size is the same.

Density

Size
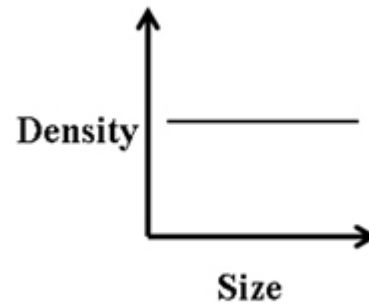
(constant pressure & temperature)

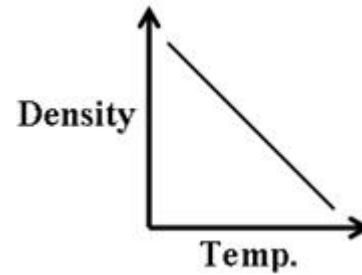**2** As pressure increases on a solid or gas, density increases.
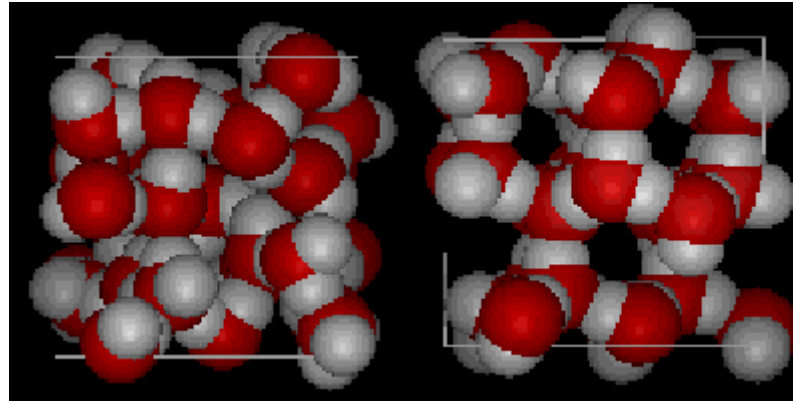
Density

Pressure
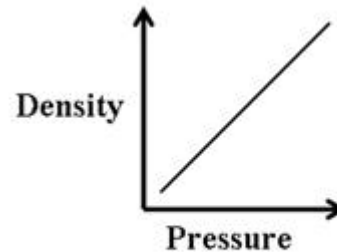
(not true for most liquids, especially water)

**3** As temperature of matter increases, its density decreases (in an open system).


4 Water expands when it freezes.

These are molecules of water; a.k.a., H_2O (gray is hydrogen & red is oxygen). The first picture shows a typical structure of liquid water and the second is an ice structure (note the extra open space in the ice). This open space is caused by the expansion of water molecules as it freezes. This lowers the ice's density, which causes it to float in water.

5 Many changes are cyclic (an event which repeats itself).
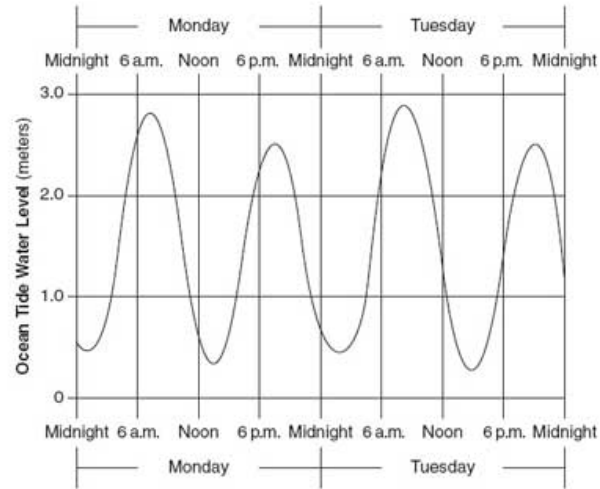
The tidal fluctuations show cyclic changes over the time.

6 Water is most dense at 4°C, when it is a liquid.
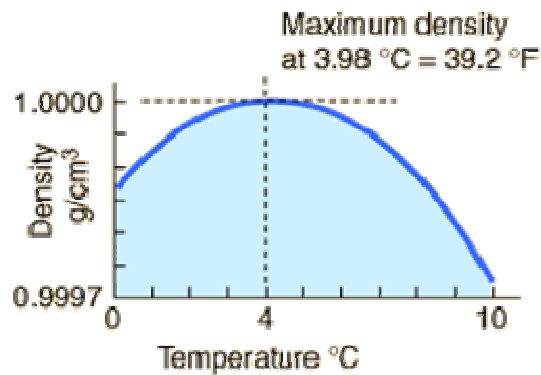
Properties of Water

Energy gained during melting .... 80 calories/gram

Energy released during freezing .... 80 calories/gram

Energy gained during vaporization .... 540 calories/gram

Energy released during condensation ..... 540 calories/gram

Density at 3.98°C .... 1.00 gram/milliliter
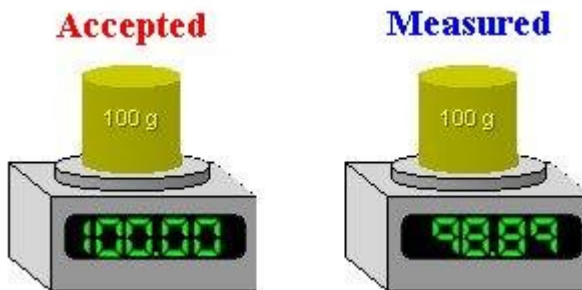
7 The closer the isolines are the steeper the slope or gradient.
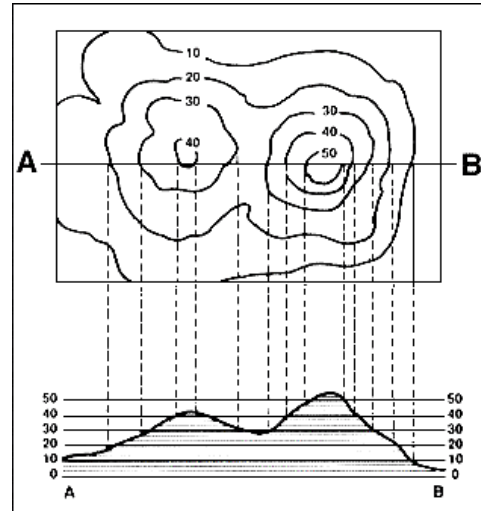
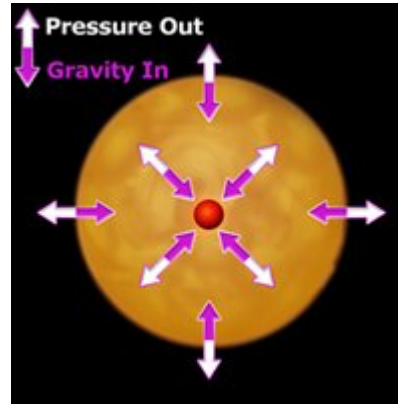Gradient $\qquad$ gradient $= \dfrac{\text{change in field value}}{\text{distance}}$

8 When calculating percent deviation, the accepted value is the correct answer while the measured value is subject to error.
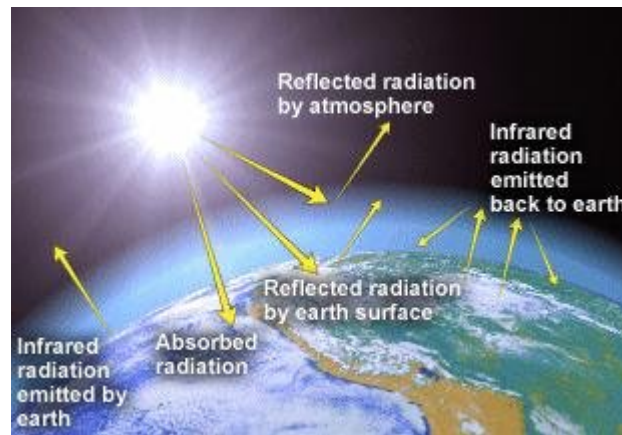

Percent deviation from accepted value $\qquad$ deviation (%) $= \dfrac{\text{difference from accepted value}}{\text{accepted value}} \times 100$

9   Dynamic equilibrium means balance.

10   Earth absorbs short waves (visible light) and radiates long waves (infrared energy).