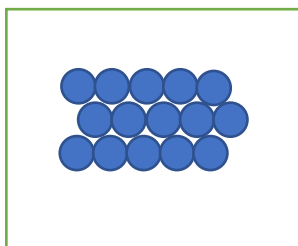

7. MASS, VOLUME & PRESSURE - WORKSHEET

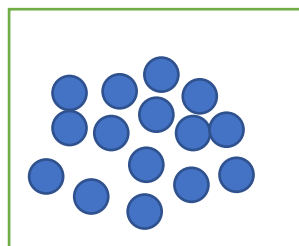
QUESTION 1:

1.1 g(✓) or (✓).
(2)

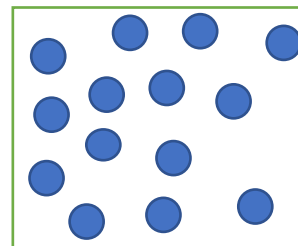
1.2



SOLID(✓)



LIQUID(✓)



GAS(✓)

1.3 g.dm⁻³ or kg.m⁻³. (✓) (1)

1.4 The density of ice is less than the density of water. (✓) (1)
[7]

QUESTION 2:

2.1 Powder or foam. (✓✓) (2)

2.2 Oil floats on water. (✓✓) (2)

2.3 Vibrate. (✓✓) (2)

2.4 The temperature of the molecules increases. (✓) Thus the kinetic energy of the molecules increases and the molecules start moving faster and faster as the temperature increases. (✓) The temperature will increase until the liquid boils. The kinetic energy is directly proportional to the temperature. (✓) (3)

2.5 The particles of a liquid are visible and those of a gas are not. (✓) The particles of a liquid move more slowly than those of a gas. (✓) Thus the liquid has less kinetic energy than that of a gas. (✓) The volume of a gas is greater than that of a liquid. (✓) (4)

2.6 Lose volume (shrink in). (✓) (1)

2.7 The volume will expand until it is converted(✓) into a liquid. (✓) (2)

2.8 Railway track. (✓) There are gaps between the iron bars so that the iron bars can expand in the summer.(✓) (2)
[18]

QUESTION 3:

3.1 Pressure is exerted due to the collisions between particles. (✓) Gas will exert pressure on a container when the particles collide with each other and with the wall of the container in which the gas is. (✓) (2)

3.2 Reduce the volume of the container (✓) or increase the temperature of the gas in the container.(✓) (2)

3.3.1 Particles will take the shape of the container and will change to a liquid or solid if the attractive forces between the particles are strong enough. (✓) However, the volume of the substance is smaller because the particles will be closer together and will move

around less. (✓) The pressure will decrease as well as the temperature will decrease. (✓)
(3)

- 3.3.2 The particles will move further apart. (✓) The pressure on the container will increase.
(✓) Particles will move faster and the temperature will rise. (✓) (3)

4

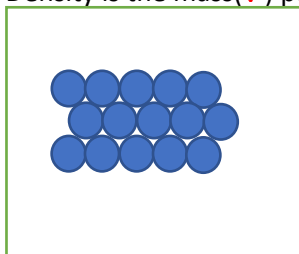
- 4.1.1 The forces between the particles are very large in a solid. (✓)
In liquids, the forces between the particles are smaller. (✓)
In gases, the forces between the particles are the weakest. (✓) (3)
- 4.1.2 Solids: almost no movement. The particles vibrate in one position. (✓)
The movement of atoms in liquids are freer and molecules slide over each other. (✓)
Gases' molecules move around freely. (✓) (3)
- 4.1.3 Solids: spaces between particles are very small. (✓)
Liquids: Spaces between particles are larger. (✓)
Gases: particles are very far apart. (✓) (3)
- 4.2 The atmospheric pressure in Cape Town is much higher than in Johannesburg. (✓) So the
pressure on the ball will be much higher. (✓) The ball must therefore be pumped much
tighter. (✓) (2)

[21]

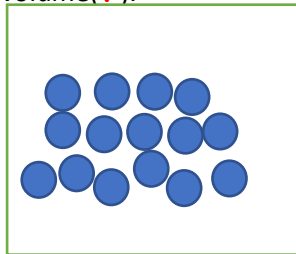
QUESTION 4:

- 5.1 m^3 (✓) or cm^3 . (✓) (2)
- 5.2 Pour enough water into a measuring cup it will cover the object (✓). Measure the
volume of the water. (✓) Put the irregular object in the water. Now measure the
volume. (✓) (3)
- 5.3 Density is the mass (✓) per (✓) volume (✓). (3)

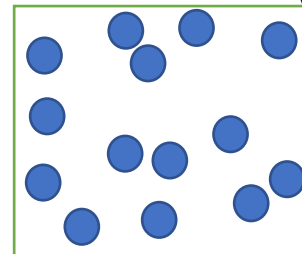
5.4



SOLID (✓)



LIQUID (✓)



GAS (✓)

- 5.5 g/cm^3 (or $\text{g}\cdot\text{cm}^{-3}$) (✓) (1)

[11]

QUESTION 5:

- 6.1 Cream floats on top of milk. Therefore, it can be easily separated from the milk. (✓) (1)
- 6.2 Particles in a solid vibrate in one fixed place. (✓) (1)
- 6.3 The particles start to vibrate faster and faster. (✓) If the solid is heated enough, the
particle will come loose from the crystal and move around freely in a liquid. (✓) (2)
- 6.4 The forces between the liquid particles are quite strong. The molecules will slide over
each other. (✓) In a gas the particles move around freely because the forces between
the gas particles are very weak? (✓) (2)
- 6.5 When hot in solids, the particles will vibrate very badly. (✓) As the solid cools, the kinetic
energy decreases and the vibration decreases. (✓) (2)

- 6.6 Train tracks are directly exposed to the sun. In summer the train tracks expand and in winter they shrink. (✓) If the train tracks are laid, spaces must therefore be left between the train tracks for expansion and shrinkage. (✓) (2)

[10]

QUESTION 6:

- 7.1 Pressure is the number of collisions of particles(✓), as well as the speed (✓)of the collisions, against each other and against the wall of the container. (2)
- 7.2 The pressure is exerted on the container by the collisions of the particles against the wall of the container. (✓) The speed with which the collisions against the wall are exerted also plays a role in the pressure on the wall of the container. (✓) (2)
- 7.3 Increase temperature(✓) and increase the particles(✓) in the container. (2)
- 7.4.1 If there are strong forces between the particles, the particles will be in a solid form and the substance will take its own form(✓). The particles will vibrate in one place. (✓) (2)
- 7.4.2 If there are weak forces between the particles, (✓) the particles in gaseous form will move around freely in a container. (✓) (2)

[10]