Science Focus 8

Mix and Flow of Matter

Pop Quiz Master
(5 questions) for each Topic

Answer Key

Science Focus 8 Topics	Questions				
	1.	2.	3.	4.	5.
Topic 1 - Matter on the Move	A	B	B	C	D
Topic 2 - Mixing & Dissolving	C	D	D	C	D
Topic 3 - Separating Mixtures	D	B	A	C	B
Topic 4 - Flow Rate &Viscosity	C	A	B	C	A
Topic 5 – Density	C	D	B	A	B
Topic 6 - Buoyancy	C	C	A	D	C
Topic 7 - Fluid Pressure	C	A	B	D	A
Topic 8 - Fluid Systems	B	B	D	A	C

Mix and Flow of Matter
Topic 1 - Matter on the Move Practice Quiz

1. The particles are vibrating in place and the substance has a definite shape and volume. The state of matter is ...

- [ ] solid
- [ ] liquid
- [ ] gas
- [ ] plasma

2. The particle model involves all of these key ideas, EXCEPT ...

- [ ] All substances have tiny particles
- [ ] All particles in any substance are the same
- [ ] All particles have spaces between them
- [ ] All particles are attracted to one another

3. These particles do not form rigid clumps. They can slip past each other. Because of this the particles cannot hold their shape. The state of matter described is ...

- [ ] solid
- [ ] liquid
- [ ] gas
- [ ] plasma

4. When a substance, such as water, undergoes a change of state directly from a liquid to a gas, it is called ...

- [ ] sublimation
- [ ] condensation
- [ ] vaporization
- [ ] solidification

5. Every substance has its own freezing point and melting point. However, some substances can change directly from a solid to a gas. This transformation is called ...

- [ ] solidification
- [ ] condensation
- [ ] vaporization
- [ ] sublimation

Mix and Flow of Matter
Topic 2 - Mixing and Dissolving
Practice Quiz

1. Milk is a substance that is fairly common. It should be classified as ...

- **element**
- **compound**
- **homogenous**
- **heterogeneous**

2. A rock like material appears to be one color - at a distance - but, upon careful examination, it has many different colors. It should be classified as ...

- **element**
- **compound**
- **homogenous**
- **heterogeneous**

3. Homogenization helps the fat globules in milk stay dispersed longer than suspended particles. If a solution has particles which do not settle out, it is called a ...

- **phase mixture**
- **emulsion**
- **coagulant**
- **colloid**

4. When a substance, such as sugar, dissolves in water, the particles intermingle. This is possible because the particles of sugar ...

- **are pure**
- **have strong attractions to each other**
- **have spaces between them**
- **are vaporized**

5. Dissolving can be affected by a number of factors including all of the following, EXCEPT ...

- **temperature**
- **agitation**
- **pressure**
- **volume**

Mix and Flow of Matter
Topic 3 - Separating Earth's Mixtures
Practice Quiz

1. Separation methods are based on ...

- ☐ the attractive forces between particles
- ☐ differences in physical properties of components
- ☐ similarities in physical properties of components
- ☐ similarities in chemical composition of components

2. The 'desert tent' method of separation uses a process that involves evaporation and condensation. This process is called ...

- ☐ distillation
- ☐ desalination
- ☐ dehydration
- ☐ decomposition

3. The process of separating the different products of petroleum is known as fractional distillation. The reason that this method is able to separate the different fractions of the petroleum product is because each substance ...

- ☐ condenses at a different temperature
- ☐ evaporates at a different temperature
- ☐ condenses at the same temperature
- ☐ evaporates at the same temperature

4. Most underground mixtures are solid rock. To separate the different minerals from each other a number of steps are needed. To mine gold the following process must occur in the correct order. Which answer represents the correct order?

1. chemicals are then added to dissolve the ore
2. the ore is blasted and then crushed
3. the ore is mixed with water to create a fine suspension
4. the ore is released from the solution when zinc is added

☐ 1 2 3 4 ☐ 3 1 4 2 ☐ 2 3 1 4 ☐ 4 2 3 1

5. In the 'sugar production' process different types of sugar are collected at different points during the process. Using sugar cane, the producers was and chop it, then dissolve it. To get the crystals of white sugar ...

- ☐ the raw brown sugar is bleached
- ☐ the pale brown crystals are rinsed and dissolved and further refined
- ☐ the raw brown crystals come out of the centrifuge
- ☐ the white crystals are collected immediately after the crushed cane is dissolved

Mix and Flow of Matter
Topic 4 - Flow Rate and Viscosity Practice Quiz

1. The viscosity of liquids can be compared by observing their ...

- ☐ clarity
- ☐ volume
- ☐ resistance to flow
- ☐ resistance to acceleration

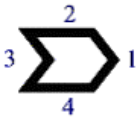
2. In order to increase the speed of flow of oil in a pipeline, the oil should be ...

- ☐ heated
- ☐ cooled
- ☐ expanded
- ☐ compressed

3. Fluid A has a flow rate of 10. 5 ml, per second. Fluid B has a flow rate of 11. 3 ml, per second. Compared to fluid A, fluid B is ...

- ☐ more viscous
- ☐ less viscous
- ☐ more dense
- ☐ less dense

4. Use the diagram below to answer the next question.



The shape shown here travels through a fluid. This shape would experience the most drag if it were moving in direction ...

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

5. When your dad or mom start the cold car in the morning, they may mention that the viscosity of the motor oil would be decreased by ...

- ☐ running the engine
- ☐ charging the battery
- ☐ changing the antifreeze
- ☐ replacing the thermostat

Mix and Flow of Matter
Topic 5 - Density Practice Quiz

1. An everyday situation, like a 'crowded' elevator, can represent the particle model, which helps us to visualize empty spaces between the particles. In this example a 'spacing box' is used in an elevator. Each person has his or her own individual 'spacing box'. The idea of spaces between the particles, in this example, helps us to understand the concept of density, if we consider ...

- the placement of the spacing boxes in the elevator
- the type of spacing box used
- the size of the spacing box
- the number of spacing boxes

2. The particles in a liquid cannot support the particles of a solid, unless ...

- the liquid is less dense
- the liquid particles have less attractive force between them
- the solid particles have more attractive force between them
- the solid is less dense

3. Which of the following statements best describes the correct difference, in terms of density?

- liquids are less dense than gases
- gases are less dense than liquids
- gases are more dense than solids
- liquids are more dense than solids

4. A Grade 8 student made the following statement, “All liquids are less dense than all solids and more dense than all gases”. Which of the following substances proves this student's statement to be incorrect?

- mercury
- wood
- iron
- helium

5. The formula for density is Density = Mass / Volume. If a substance has a volume of $100cm^3$ and has a mass of 1932 grams, what is the density of the substance?

- $193.20\ g/cm^3$
- $19.32\ g/cm^3$
- $1.932\ g/cm^3$
- $0.1932\ g/cm^3$

Mix and Flow of Matter
Topic 6 - Buoyancy Practice Quiz

1. Your friends collected rocks from a lake to build a perimeter for the fire pit. They noticed that the rocks weren't as heavy while they carried them partially submerged in the water. This is because of the ...

- mass of the rock
- density of the water
- buoyant force of the water
- buoyant force of the rock

2. Which of the following pools would give the most buoyancy?

- Banff Hot Springs pool at 40'C
- Southland Leisure Centre Hot Tub at 40'C
- Fairmount Hot Springs pool at 35'C
- West Edmonton Mall Wave pool at 35'C

3. Large ocean liners, like the Titanic, can float on the water because ...

- its average density is lower than saltwater
- the metal it was made of is less dense than water
- the metal is more dense and therefore can float
- saltwater is more dense and can hold up steel

4. Archimedes principle states that '*the buoyant force acting on an object equals* ...

- the mass of the fluid displaced by the object
- the force that holds the object afloat
- the weight of the object displaced by the fluid
- the weight of the fluid displaced by the object

5. Archimedes formulated his principle as a result of a very simple test about sinking and floating. He stepped into the bath and he sank, but when he stepped into the boat, on the water, he floated in the boat. The reason for this was because the buoyant force was ...

- less in the water
- less in the boat
- greater in the water
- greater in the boat

Mix and Flow of Matter
Topic 7 - Fluid Pressure Practice Quiz

1. A window washer notices that the spray hoses he uses are spraying water at too high a pressure and damaging the trim on the windows. The rate of flow of water coming out of the nozzle could be reduced by ...

- shortening the hoses
- lengthening the hoses
- increasing the nozzle opening
- decreasing the nozzle opening

2. A gas can be compressed if three conditions are met. They include all of the following EXCEPT ...

- the gas must be at room temperature
- the gas must be in a sealed container
- it will remain a gas even after it has been compressed
- a force is applied to push the particles closer together

3. When we suck on a straw in a tetra-pak juice container, the sides of the container collapse. This happens because ...

- we are increasing the pressure inside the container
- the atmospheric pressure is collapsing the walls of the container
- the pressure inside the container is increased and collapses from the added pressure
- we are lowering the strength of the container when we suck on the straw

4. There are advantages to compression because they can exert a counterforce. This counterforce can be useful in the following application - of a bicycle ...

- sprockets
- gears
- handlebars
- shocks

5. The atmosphere around the Earth is approximately 160 km thick. It is the force of gravity which keeps it in place. What effect does this layer of air have on us when we hike up a mountain?

- it weighs us down a lot less as we climb
- it weighs us down a lot more as we climb
- it has no effect, because our body is use to it
- it has no effect, because our body can adjust to it

Mix and Flow of Matter
Topic 8 - Fluid Systems Practice Quiz

1. Valves are devices used to regulate the flow of a fluid. In an aerosol product such as whipped cream the cream inside the can can be dispersed easily by bending the nozzle. This is possible because the particles always ...

- travel from lower pressure areas
- travel from higher pressure areas
- get more energy when they are released
- make foam when they are released

2. In a model hydraulic press model built by an apprentice, a pedal is used to push down the large piston, while the small piston lifts up a load. The apprentice's model didn't work. What is wrong with it?

- The pistons should have the same diameter.
- The load should be on the larger piston.
- Both pistons should be smaller.
- Both pistons should be larger

3. Two identical syringes are used to build a model of a hydraulic press. The press does not lift the loads you expect. To remedy the situation, you should use ...

- larger syringes
- longer syringes
- smaller syringes
- syringes with different diameters

4. Fluids, such as water have been transported from place to place using hydraulic systems. The aqueduct is an ancient device that transported water over great distances. It was able to do this because of ...

- the force of gravity
- a very rudimentary hydraulic system
- a very rudimentary pneumatic system
- simple pumps set up along the way

5. In terms of design, a pneumatic device (such as a compressor) resembles a hydraulic press. The distinguishing difference is that this pneumatic device uses ...

- compressed alcohol
- incompressible fluids
- compressed air
- an electrical current to operate it