

Student name		Science department
Grade	Grade7 term 2 2023-2024	

Q1. Differentiate between the states of matter (solid, liquid, and gas), their properties and particles movement, and compare between energy content in different states of matter (14, 15, 17) (Textbook, figures, tables, 3D)

Solid	Liquid	Gas
Particles are very close to one another in a rigid structure.	Particles are close to each other	Particles are widely spaced .
Particles vibrate around a fixed position.	Particles move around each other.	Particles move quickly in all directions.
Low energy	Greater energy	Highest energy

Which of the following has greatest amount of energy:

1. An ice cube at 0°C or a recently melted ice cube at 0°C.




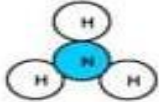




The melted ice cube because liquids have more potential energy than solids

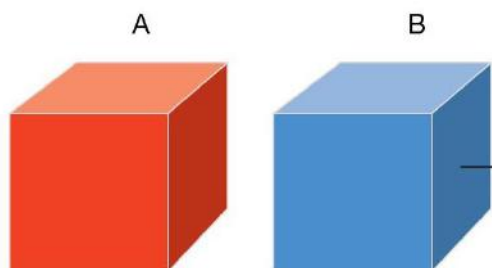
2. A puddle of isopropyl alcohol or evaporated isopropyl alcohol (both are at the same temperature).

The evaporated isopropyl alcohol because gases have more potential energy than liquids .

Element Percentage of Atoms	Ratio	Ratio Compound Model
Compound A 67% oxygen, 33% carbon	2:1	2 oxygen atoms to 1 carbon atom
Compound B 80% hydrogen, 20% carbon	4:1	4 hydrogen atoms to 1 carbon atom
Compound C 50% magnesium, 50% oxygen	1:1	2 magnesium atom to 1 oxygen atom
Compound D 40% hydrogen, 40% oxygen, 20% magnesium	2:2:1	2 hydrogen atoms to 2 oxygen atoms to 1 magnesium atom

Fill in the missing spaces in the table below: -

Name of substance	Diagram of molecule	Chemical formula	Element or compound?
Water		H_2O	2 hydrogen atoms and 1 oxygen
Nitrogen		N_2	2 nitrogen atoms
Carbon dioxide		CO_2	2 oxygen atoms and 1 carbon
Ammonia		NH_3	1 nitrogen atom and 3 hydrogen
Sulfur dioxide		SO_2	2 oxygen atoms and 1 sulfur
Hydrogen		H_2	2 hydrogen atoms
Hydrogen chloride		HCL	1 hydrogen atom and 1 chloride
Oxygen		O_2	2 oxygen atoms

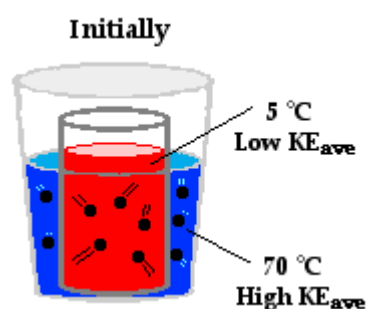


1) Which object has more thermal energy ?

B

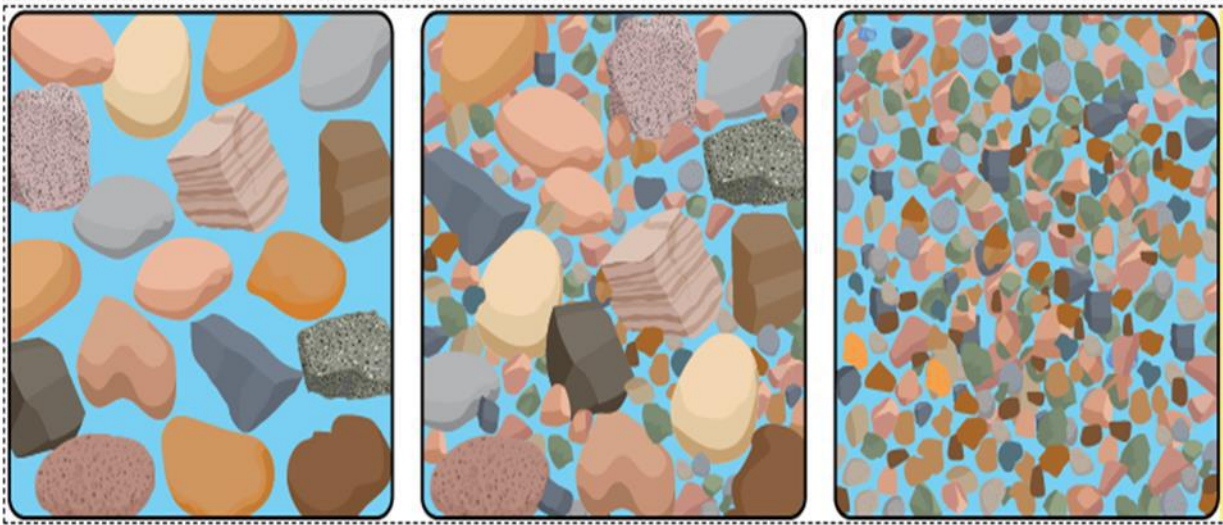
2) Thermal energy transfer from object B to

A



Q1. Define porosity and label sediment samples according to their porosity and compare it to permeability.

2. Analysis of world map for resource locations and areas and explain this pattern.

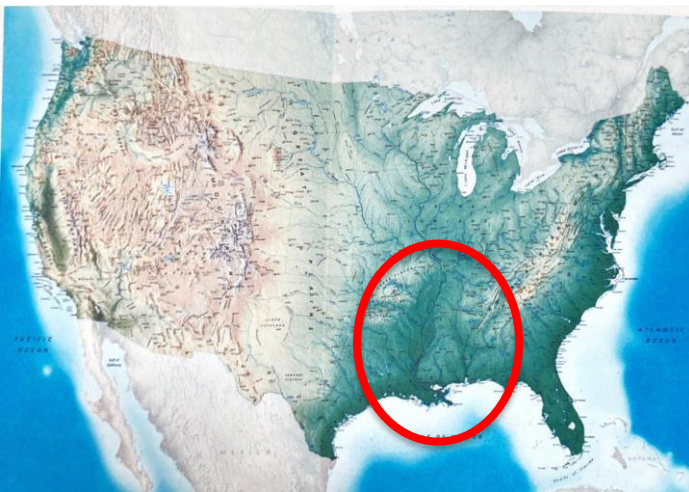


Which sample has the greatest porosity? Explain.

The well – sorted , large sediment has slightly higher porosity than the well-sorted, small sediment. The unsorted sample in the middle has the lowest porosity as the smaller grains fill the spaces between the larger grains.

What do you think the difference between well-sorted and poorly sorted sediment?

Well- sorted sediment is all about the same size. Poorly sorted sediment has a wide range of sizes.



Q2. Identify the general areas you think would contain the most groundwater resources by circling, Explain your reasoning?

Q2.

I think that the areas containing the most groundwater would be areas where the sediment has high porosity and high permeability . There would also be more groundwater in areas with high precipitation and abundant surface water .

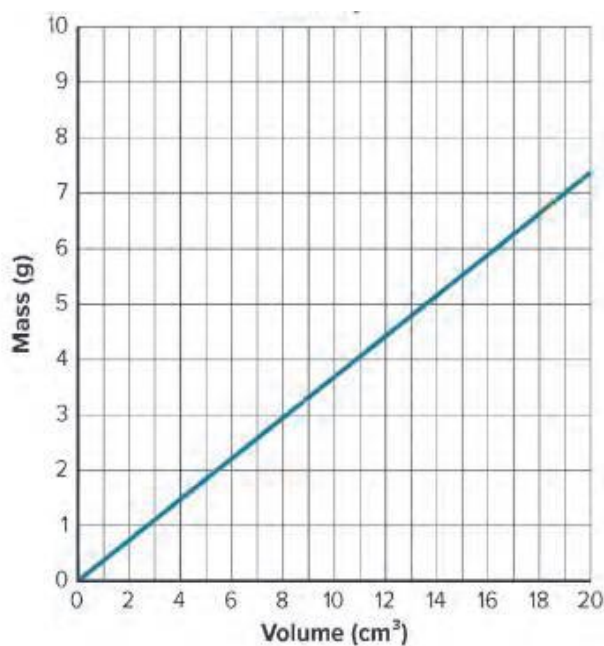
Q3. List natural resources and how humans depends on each?

1. **Soils:** Healthy soils support agriculture by providing nutrients and water to crops.
2. **Minerals:** Minerals such as iron, copper and aluminum, are essential for manufacturing industries, construction, and technology. They are used in the production of vehicles, buildings, electronic devices, and much more.
3. **Freshwater:** Freshwater is essential for drinking, irrigation, and various industrial processes.

Q4. Difference between renewable and non-renewable resources

RENEWABLE	NONRENEWABLE
Resources that can be replaced by natural processes in a relatively short amount of time.	Natural resources that are being used up faster than they can be replaced by natural processes.

Q5.



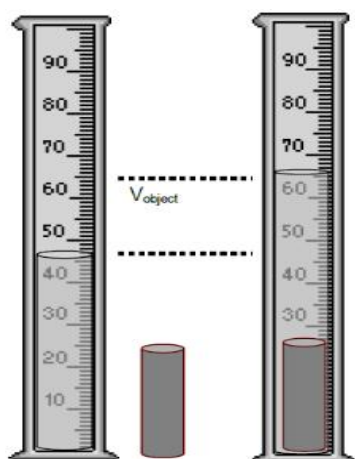
Calculate Density from the given graph?

$$\text{Volume} = 1 \text{ cm}^3$$

$$\text{mass} = 0.36 \text{ g}$$

$$\text{Density} = 0.36 \text{ g/cm}^3$$

Calculate the density of hammer of mass 350 grams with the following picture?



$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$\frac{350}{20} = 17.5$$