Science

Prep.2

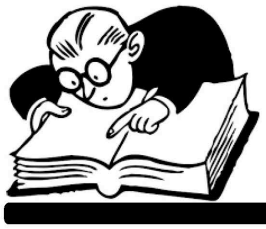
First Term 2025 - 2026

October Revision

Mr. Ahmed Elbasha

Unit 1
(Lesson 1 – 3)

*** طبقاً لأخر تعديل في المادة للعام الدراسي 2025-2026**



October Revision

Mr. Ahmed Elbasha

(1) Write the scientific term:

1) Everything that has mass and occupies space. (.....)

2) Substances that have fluidity property and take the shape of their container. (.....)

3) The ability of fluids to flow easily. (.....)

4) The possibility of reducing the volume of a gas by increasing the pressure exerted on it. (.....)

5) The movement of particles of matter from a region of high concentration to a region of low concentration. (.....)

6) Random motion of relatively large molecules suspended in a fluid in all directions as a result of their continuous collision with the fluid molecules. (.....)

7) The fourth state of matter. (.....)

8) The state in which gas is in the form of a mixture of positively charged ions and negatively charged free electrons. (.....)

9) The point at which the temperature of the substance remains constant during its conversion from the solid state to the liquid state. (.....)

10) The temperature at which all the particles of a liquid overcome the forces of attraction between them and change into gas particles. (.....)

11) Atmospheric air pressure at sea level. (.....)

12) The process of changing matter from the solid state to the gaseous state directly without passing through the liquid state. (.....)

13) The process of changing matter from the gaseous state to the solid state directly without passing through the liquid state. (.....)

14) Solid carbon dioxide. (.....)

15) Any part of the universe that is under study, where the changes in energy and matter are observed. (.....)

16) The space surrounding the system which can exchange energy or matter or both with the system. (.....)

17) A system in which energy and matter are exchanged with the surroundings. (.....)

18) A system in which only energy is exchanged with the surroundings while matter is not exchanged. (.....)

19) A system in which neither energy nor matter is exchanged with the surroundings. (.....)

20) A measure of the average kinetic energy of the system's particles. (.....)

21) The summation of the potential and the kinetic energies of the system's particles. (.....)

22) The quantity of heat required to raise the temperature of 1 kg of a substance by 1 °C. (.....)

23) A cooling system connected to car engines. (.....)

✹(2) Choose the right answer:

1. Air and water are similar in that they both .....

a. have mass. b. can be seen.

c. have a fixed shape. d. have a fixed volume.

2. Which of the following materials have fluidity property ?

a. Wood and iron. b. Wood and oil.

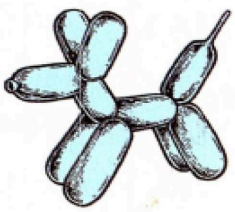
c. Water and oxygen. d. Iron and air.

3. Which of the following materials are fluids?

a. Ice and liquid water. b. Iron and water vapour.

c. Oil and iron. d. Water vapour and liquid water.

4. The opposite figure: shows a long balloon inflated with air, and shaped like a dog. Which of the following can be concluded about air?



a. It has no mass.

b. It has a definite volume.

c. It does not have a definite shape.

d. It does not occupy space.

5. Solid matter is characterized by having .....

a. indefinite volume and shape. b. a definite volume and shape.

c. a definite shape and indefinite volume. d. a definite volume and indefinite shape

6. The common property of solids and liquids is that they both .....

a. have a definite volume. b. have fluidity property.

c. have a definite shape. d. can be compressed.

7. Compression of matter means to .....

a. convert it from one state to another. b. change its mass.

c. reduce its volume. d. change the volume of its molecules.

8. The particles of a matter can not be seen with the naked eye, because they .....

a. are very small. b. vibrate.

c. move freely. d. move randomly.

9. The interparticle spaces are greatest in .....

a. iron. b. oxygen. c. water. d. oil.

10. All the following are correct according to the particle theory of matter, except .....

a. particles of solid matter have attraction forces between them.

b. particles of gaseous matter move randomly in straight lines.

c. particles of liquid matter are separated by interparticle spaces.

d. particles of any matter can be seen with the naked eye.

11. It is difficult to bend an iron rod because of .....

a. its compressibility.

b. its fluidity.

c. the absence of the interparticle spaces between its molecules.

d. the strong attraction forces between its molecules.

12. The movement of gas particles is .....

a. circular. b. vibrating. c. random. d. wavey.

13. Upon comparing water molecules with oxygen molecules, water molecules are .....

a. slower and more distant from each other. b. faster and more distant from each other.

c. slower and closer to each other. d. faster and closer to each other.

14. The same change in physical state occurs in the processes of .....

a. boiling and condensation. b. boiling and evaporation.

c. freezing and condensation. d. freezing and evaporation.

15. The speed of the matter particles increases during .....processes.

a. condensation and evaporation c. evaporation and melting

b. condensation and freezing d. freezing and melting

16. A solid substance, its melting point is 1500°C, changes into its liquid state at .....

a. 1000°c b. 1500°C c. 1550°C d. 2000°C

17. The boiling point of water at the top of a mountain its height equals 3000 m is .....

a. 100°c b. 94°C c. 90°C d. 84°C

18. When sodium chloride dissolves in water, ...

a. the melting point of the solution increases.

b. the boiling point of the solution increases.

c. the boiling point of the solution decreases.

d. the melting point of the solution does not change.

19. All the following describe the changes in the states of water, except that they are .....

a. reversible processes. b. physical processes.

c. chemical processes. d. accompanied by heat change.

20. All the following processes require gaining of heat, except .....

a. boiling. b. melting. c. evaporation. d. freezing.

21. The reverse process of melting is the ..... process.

a. deposition b. condensation c. freezing d. sublimation

22. Frost formation is a ..... process.

a. evaporation. b. sublimation. c. deposition. d. condensation.

23. Wet clothes dry when exposed to the sun as a result of the process of .....

a. melting. b. evaporation.

c. boiling. d. condensation.

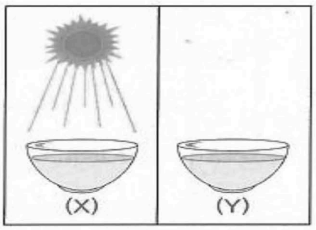
24. In the opposite figure: The rate of evaporation is .....

a. very fast in both containers (X) and (Y).

b. very slow in both containers (X) and (Y).

c. greater in container (Y) than in container **(X).**

d. slower in container (Y) than in container **(X).**



25. The rate of evaporation increases by increasing all the following, except .....

a. temperature. b. surface area of liquid exposed to evaporation.

c. humidity percentage. d. air currents.

26. What is the relation between the closed system and the surroundings ?

a. Matter and energy are exchanged between them.

b. Matter is exchanged between them but not energy.

c. Energy is exchanged between them but not matter.

d. Neither matter nor energy is exchanged between them.

27. What is the relation between the isolated system and the surroundings?

a. Only heat exchange takes place between them.

b. Both matter and heat are exchanged between them.

c. Only matter is exchanged between them.

d. Neither matter nor heat is exchanged between them.

28. The internal energy of the system increases, when .....

a. the potential energy of its particles increases.

b. the kinetic energy of its particles decreases.

c. both of its potential energy and kinetic energy decrease.

d. its particles stop moving.

29. When a substance is heated, its particles, ...

a. average kinetic energy decreases. b. average kinetic energy increases.

c. potential energy increases. d. internal energy decreases.

30. When equal masses of water and ice are heated over a steady flame, the elevation in the temperature of .....

a. water is the greatest.

b. ice is the greatest

c. each of water and ice is the same in both cases.

d. water is twice as that in the case of ice.

31. Which of the following substances has the highest specific heat?

a. Water. b. Iron. c. Aluminum. d. Mercury.

✹(3) Complete the following :

1. ..... matter has fluidity property and is compressible, while ..... matter has fluidity property, but it is incompressible.
2. Diffusion through ..... is very fast, while diffusion through ..... is very slow.
3. The particles of the same substance are ....., but they are ..... from one substance to another.
4. Particles of matter have ..... energy due to their continuous motion, and they have ..... energy due to the presence of attraction forces between them.
5. The interparticle spaces between iron molecules are ....., while the interparticle spaces between hydrogen molecules are .....
6. The attraction forces between particles are the greatest in ..... matter, while they are almost non-existent in ..... matter.
7. The scientist ..... discovered the random motion of the large particles suspended in fluids, which is known as .....
8. At normal atmospheric pressure, the melting point of ice is ..... ^{0}c while the boiling point of water is ..... ^{0}c
9. The temperature at which ice starts to convert into water is called ....., while the temperature at which water in all its parts starts to convert into water vapour is called .....
10. When the atmospheric pressure decreases, the boiling points of liquids .....
11. The ..... and ..... processes are accompanied by losing thermal energy during matter conversions.

12. The ..... and ..... processes are accompanied by gaining thermal energy during matter conversions.

13. Evaporation is the reverse process of ....., while sublimation is the reverse process of .....

14. The ..... process occurs only to the molecules of the surface of a liquid, while the ..... process occurs to all parts of the liquid.

15. The evaporation process takes a relatively ..... period of time, while the boiling process takes a relatively ..... period of time.

16. Systems are classified according to their ability to exchange energy and matter with the surroundings into ....., closed system or .....

17. Energy exchange occurs in both ..... and ..... systems.

18. Matter exchange does not occur in both ..... and ..... systems.

19. When a matter gains a quantity of thermal energy, the average kinetic energy of its particles ....., and therefore its temperature .....

20. The potential energy of a ..... matter is at its maximum, while it is almost zero in ..... matter.

21. Gaining thermal energy by an object ..... its temperature, while losing thermal energy ..... its temperature.

22. When two equal masses of water and oil are heated over a steady flame, the elevation in the temperature of ..... is greater than that of .....

23. When the specific heat of a substance is high, the amount of energy required to raise its temperature is....., and it takes ..... time to lose the energy it gained.

✹(4) Correct the underlined words:

1	The flow of liquids differs according to their **density**.	(.....)
2	**Liquids** do not have a definite shape or volume.	(.....)
3	**Solids** have the ability to flow but not to be compressed.	(.....)
4	The speed of diffusion through solids is **equal to** the speed of diffusion through gases.	(.....)
5	The interparticle spaces between liquid molecules are **equal to** the interparticle spaces between gas molecules.	(.....)
6	The **open** system only exchanges energy with the surroundings.	(.....)
7	Cans of soft drinks represent **isolated** systems.	(.....)
8	**Heat** is a measure of the average kinetic energy of matter's particles.	(.....)
9	A decrease in the average speed of the particles of a matter leads to **a stability** in their temperature.	(.....)
10	**Mercury** is an excellent cooling liquid.	(.....)
11	The specific heat of ice is **equal to** the specific heat of liquid water.	(.....)

✹(5) Put (√) or (X) :

1. Solids and liquids are called fluids. ( )
2. The shape of a fluid changes according to the shape of the path in which it moves. ( )
3. The ability of a fluid to flow increases with the increase of the viscosity. ( )
4. The particles of the same substance are different from each other. ( )
5. Interparticle spaces between particles of matter vary depending on physical state. ( )
6. Attraction forces between particles of solids are almost non-existent. ( )
7. The movement of gas particles is limited. ( )
8. Pure water boils at 0°C at normal atmospheric pressure. ( )
9. When water boils, the forces of attraction between the particles increase and the interparticle spaces between them decrease. ( )
10. The melting point of wax is equal to that of table salt. ( )
11. Water freezes in polar regions as a result of gaining thermal energy. ( )
12. Dry ice is nitrogen in its solid state. ( )
13. Increasing the humidity percentage leads to increasing the rate of evaporation. ( )
14. An open system only exchanges matter with the surroundings. ( )
15. The thermos flask represents a closed system. ( )
16. Temperature of a substance is a measure of average kinetic energy of its particles. ( )
17. The average kinetic energy of hot water particles is equal to the average kinetic energy of cold water particles. ( )
18. The amount of change in the temperature of an object increases as its mass increases when it gains an amount of heat. ( )

✹(6) Give reasons for each of the following :

1. Solids have a definite shape and volume.

2. Gaseous matter does not have a definite shape or volume.

3. The diffusion of candle smoke in the air.

4. Formation of water droplets on the outer surface of a cup containing iced water.

5. Evaporation rate increases by increasing the temperature.

6. Evaporation rate increases when the air currents increases.

7. A cup of hot tea represents an open system.

8. The temperature of the liquid decreases when it loses a quantity of thermal nergy.

9. The specific heat is a characteristic property of a substance.

10. Water is an excellent cooling liquid.

✹(7) What are the results of the following :

1. Gases are heated to extremely high temperatures in a research laboratory.

2. The liquid substance gains thermal energy.

3. A piece of ice is left in the air for a period of time.

4. Heating solid iodine.

5. The system gains thermal energy from the surroundings.

6. Heating two equal masses of water and ice separately for an equal period of time using a steady flame.

✹(8) Problems:

1 From the opposite figure:

(1) Which of the two figures represents a fluid, and what is its state?

(2) Compare the states of matter shown in the two figures, in terms of :

1- The forces of attraction between particles.

2- The movement of particles.

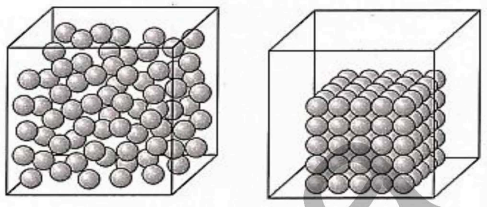


Figure (1) Figure (2)

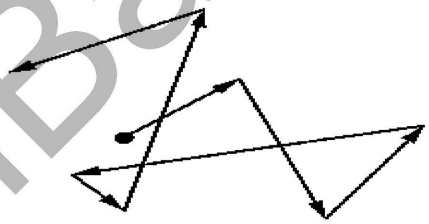
.....

.....

.....

2 The opposite figure: shows the path taken by one particle of smoke in the air.

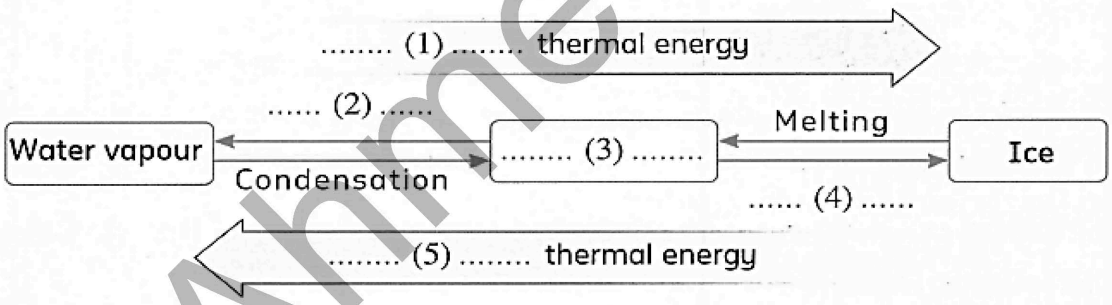
Explain why the smoke particle moves in this manner?



.....

.....

3 Complete the following chart:

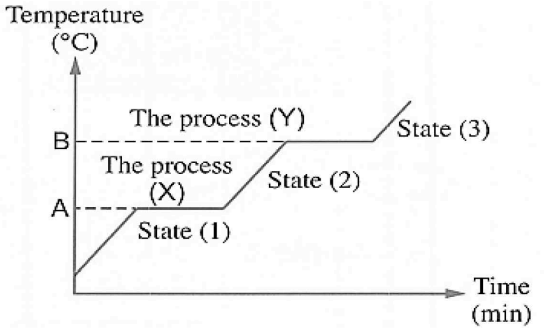


4 Name each of the following:

(1) States of matter (1), (2) and (3).

(2) Processes (X) and (Y).

(3) Points (A) and (B).



.....

.....

.....

Model Answer

(1) Write the scientific term:

1. Matter
2. Fluids
3. Fluidity
4. Compressibility
5. Diffusion
6. Brownian motion
7. Plasma
8. Plasma
9. Melting point
10. Boiling point
11. Normal atmospheric pressure
12. Sublimation
13. Deposition
14. Dry ice
15. System
16. Surrounding
17. Open system
18. Closed system
19. Isolated system
20. Temperature
21. Internal energy
22. Specific heat
23. Radiator

(2) Choose the right answer:

1. A	5. B	9. B	13. C	17. C	21. C	25. C	29. B
2. C	6. A	10. D	14. B	18. B	22. C	26. C	30. B
3. D	7. C	11. D	15. C	19. C	23. B	27. D	31. A
4. C	8. A	12. C	16. B	20. D	24. D	28. A	

(3) Complete the following :

1. gas – liquids
2. gases – solids
3. Similar – different
4. Kinetic – potential
5. Small – large
6. Solid – gas
7. Brown – Brownian motion
8. 0 – 100
9. Melting point – boiling point
10. Decrease
11. Freezing – condensation
12. Evaporation – melting
13. Condensation – deposition
14. Evaporation – boiling
15. Long – short
16. Open – isolated
17. Open – closed
18. Closed – isolated
19. Increase – increase
20. Solid – gas
21. Increase – decrease
22. Oil – water
23. Increase – longer

(4) Correct the underlined words:

1. Viscosity
2. Gas
3. Liquid
4. Slower than
5. Less than
6. Closed
7. Closed
8. Temperature
9. Decrease
10. Water
11. Less than

(5) Put (√) or (X) :

1. (X)	5. (√)	9. (X)	13. (X)	17. (X)
2. (√)	6. (X)	10. (X)	14. (X)	18. (√)
3. (X)	7. (X)	11. (X)	15. (X)	
4. (X)	8. (X)	12. (X)	16. (√)	

✹(6) Give reasons for each of the following :

1. Because the forces of attraction between its particles are very strong, and the interparticle spaces between them are very small.
2. Because the forces of attraction between its particles are very weak, and the interparticle spaces between them are very large.
3. Because the forces of attraction between the particles of air are very weak, and the interparticle spaces between them are very large, so smoke particles diffuse in it.
4. Because the water vapour in the air condenses into water droplets on the outer surface of the iced water cup as a result of losing thermal energy.
5. Due to increasing of the number of molecules that have sufficient thermal energy from the surrounding medium to escape from the surface of the liquid.
6. Because it increases evaporation of more water molecules from the surface of the liquid.
7. Because energy and matter are exchanged with the surroundings.
8. Because when the system (liquid) loses thermal energy, the average kinetic energy of its particles decreases.
9. Because it varies according to the type of substance and it is a constant value for each substance.
10. Due to its high specific heat, it absorbs large quantities of thermal energy without a significant increase in its temperature.

✹(7) What are the results of the following :

1. The gases become ionized, forming plasma (the fourth state of matter).
2. The kinetic energy of its particles increases, so its temperature increases and the attraction forces between the particles decreases, and at the boiling point it converts into gaseous state.
3. Ice melts and converts into water as a result of gaining thermal energy from the surrounding medium.
4. Solid iodine sublimes to iodine vapour when it is heated.
5. The average kinetic energy of its particles increases, resulting in a rise in the temperature of the system.
6. The temperature of ice rises more than the temperature of water.

✹(8) Problems:

1	**1.** Fig(1) **2.** 1. Medium – vibration 2. large - vibration	**3**	**1.** Lose **2.** Evaporation **3.** Water **4.** Freezing **5.** Gain
2	Due to collision of smoke particles with air particles	**4**	**1.** 1-solid – liquid 2- liquid 3- liquid – gas **2.** X – melting Y - boiling **3.** Melting point Boiling point