

Science

Prep.2

First Term 2025 - 2026

November Revision

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Unit 1 (L4) + Unit 2

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



November Revision

Mr. Ahmed ElBasha

✱ (1) **Write the scientific term:**

- 1) Energy transferred from one system to another due to the difference in their temperatures. (.....)

- 2) Thermal energy transfer through solid objects without particles change their position. (.....)

- 3) A measure of the ability of materials to conduct heat through them. (.....)

- 4) Thermal energy transfer in fluids with the movement of their particles. (.....)

- 5) Cool air blowing from the sea towards land during the daytime. (.....)

- 6) Waves propagate in space in all directions at a speed reaching 300,000 km/s (.....)

- 7) Transfer of infrared rays from the surfaces of hot objects without the need for material particles. (.....)

- 8) A change in the state or shape of a substance without changing its chemical composition. (.....)

- 9) A change that results in formation of new substances with properties different from those of the original substances. (.....)

- 10) A gas produced by the reaction of sodium bicarbonate with dilute acetic acid. (.....)

- 11) Breaking the bonds between the atoms of the reacting substances (reactants) and forming new bonds between atoms of the produced substances (products). (.....)

- 12) A solid substance produced from the reaction of oil with caustic soda solution. (.....)

- 13) Change the colour of iron when it is exposed to moist atmospheric oxygen. (.....)

- 14) A substance that increases the speed of a reaction without being consumed or changed. (.....)
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- 15) The law which states that matter is neither destroyed nor created from nothing, but it is transformed from one form to another. (.....)
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- 16) A symbolic chemical equation in which the number of atoms of each element of the reactants is equal to the number of atoms of the same element in the products. (.....)
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- 17) The branch of chemistry that interested in studying the types of nutrients in meals. (.....)
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- 18) The simplest forms of carbohydrates. (.....)
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- 19) Sugars that are composed of two monosaccharide units. (.....)
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- 20) Sugars that are composed of 2 to 10 monosaccharide units. (.....)
-
- 21) Sugars that consist of more than 10 monosaccharide units. (.....)
-
- 22) The disease resulting from a deficiency in the secretion of the insulin hormone and the accumulation of glucose sugar in the blood. (.....)
-
- 23) Polysaccharide that form the cell walls of plant cells. (.....)
-
- 24) Organic nutritional substances their composition includes the same elements as carbohydrates. (.....)
-
- 25) A fatty substance whose deposition leads to blockage of the arteries. (.....)

13. The formation of gas bubbles when baking soda is added to dilute acetic acid, is as an evidence of all the following , except

- a. the formation of a new substance.
- b. changing properties of baking soda and acetic acid.
- c. a physical change.
- d. a chemical change.

14. In the balanced equation : $\text{PCl}_5 + 4\text{H}_2\text{O} \longrightarrow \text{H}_3\text{PO}_4 + 5\text{HCl}$

What is the total number of coefficients of reactants molecules and the total number of subscripts of the products respectively?

- a. 5, 7
- b. 5, 10
- c. 9, 5
- d. 6, 5

15. Which of the following expresses the physical state of the substances of the reaction between magnesium metal and hydrochloric acid to form magnesium chloride solution and hydrogen gas?

- a. $\text{Mg}_{(g)} + \text{HCl}_{(l)} \longrightarrow \text{MgCl}_{2(aq)} + \text{H}_{2(g)}$
- b. $\text{Mg}_{(g)} + \text{HCl}_{(aq)} \longrightarrow \text{MgCl}_{2(l)} + \text{H}_{2(g)}$
- c. $\text{Mg}_{(s)} + \text{HCl}_{(l)} \longrightarrow \text{MgCl}_{2(l)} + \text{H}_{2(l)}$
- d. $\text{Mg}_{(s)} + 2\text{HCl}_{(aq)} \longrightarrow \text{MgCl}_{2(aq)} + \text{H}_{2(g)}$

16. The symbol (v) is written below to the right of the molecular formula of the compound that exists in the state.

- a. solid
- b. liquid
- c. vapour
- d. aqueous solution

17. What is the symbol that is written below to the right of the molecular formula of the aqueous solution of sodium hydroxide?

- a. (s)
- b. (t)
- c. (aq)
- d. (g)

18. All the following describe the reaction: $2\text{Mg} + \text{O}_2 \longrightarrow 2\text{MgO}$, except

- a. the reaction does not occur without heating.
- b. the reaction is followed by the formation of new bonds.
- c. a white substance forms at the end of the reaction.
- d. the mass of the reactants is greater than the mass of the products.

19. According to the law of conservation of mass, the total mass of the reactants in a reaction is

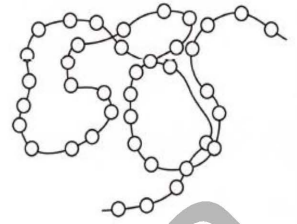
- a. double the total mass of the products.
- b. greater than the total mass of the products.
- c. equal to the total mass of the products.
- d. less than the total mass of the products.

20. What type of food give a violet colour when mixed with Biuret solution?

- a. Glucose.
- b. Protein.
- c. Starch.
- d. Fats.

21. The opposite figure represents a protein molecule. What do the balls in the figure represent?

- a. Amino acids.
- b. Monosaccharides.
- c. Starch molecules.
- d. Fatty acids.



22. Which of the following describes fructose?

- a. One of monosaccharides.
- b. One of polysaccharides.
- c. One of oligosaccharides.
- d. Extracted from cane.

23. are oligosaccharides.

- a. Sucrose and glucose
- b. Glucose and fructose
- c. Fructose and maltose
- d. Sucrose and maltose

24. are polysaccharides.

- a. Sucrose and maltose
- b. Starch and maltose
- c. Starch and cellulose
- d. Cellulose and glucose

25. Which of these carbohydrates can not be decomposed into simpler substances by water?

- a. Glucose and fructose.
- b. Glucose and sucrose.
- c. Sucrose and maltose.
- d. Maltose and glucose.

26. The excess glucose in the body is stored in the form of

- a. fats in muscles.
- b. fats in the body's cells.
- c. proteins in muscles.
- d. proteins in the body's cells.

27. Iodine solution is used to detect

- a. starch.
- b. proteins.
- c. fats.
- d. glucose.

28. The accumulation of glucose in the blood is due to

- a. increase in secretion of insulin hormone.
- b. decrease in secretion of insulin hormone.
- c. increase in secretion of thyroxine hormone.
- d. decrease in secretion of thyroxine hormone.

29. Low concentrated glucose sugar forms colour with solution.

- a. red/ Benedict's.
- b. red/ Biuret.
- c. green / Biuret.
- d. green / Benedict's.

30. Eggs are rich in

- a. fats and fibers.
- b. proteins and fats.
- c. starch and fats.
- d. carbohydrates and fibers.

31. The non-essential element which may be found in proteins is

- a. phosphorus.
- b. carbon.
- c. nitrogen.
- d. oxygen.

*(3) Complete the following :

1. Heat is transferred in three different methods, which are conduction and
2. Cooking pot handles are made of or
3. Heat transfers in iron by while it transfers in water by
4. The density of hot water is while the density of cold water is
5. The phenomenon of sea breeze is based on heat transfer by
6. Heat transfers in gases by and
7. The heat of the Sun reaches us by
8. Dissolving sugar in water is a change, while burning the sugar is a change.
9. The scientific name of baking soda is while the scientific name of vinegar is
10. The reaction of baking soda with vinegar is indicated by the formation of gas.
11. The combustion of a magnesium strip in the air is accompanied by the emission of and
12. The clear limewater turns when gas passes through it.
13. In the symbolic chemical equation, the symbol (dil.) indicates the use of acid, while the symbol (conc.) indicates the use of acid.
14. The chemical equation must be to verify the law of
15. In the balanced chemical equation, the total mass of the must be equal to the total mass of the
16. Nutrients are classified into, fats and
17. and are disaccharides. Cane sugar is known as and it consists of one glucose unit and one unit.
18. Benedict's solution colour is, and it turns in the highly concentrated glucose sugar solution to colour.
19. Paper is made of which forms of plant cells.
20. Stability of cholesterol levels in blood can be maintained by reducing the intake of
21. Albumen (egg whites) is rich in, while egg yolk is rich in

*(4) Correct the underlined words:

1	Heat transfers through solid objects from one end to another by <u>convection</u> .	(.....)
2	When heat transfers <u>by radiation</u> , hot water particles rise up and cold water particles go down.	(.....)
3	Infrared rays have a <u>chemical</u> effect.	(.....)
4	The idea of wearing dark clothes in winter is based on heat transfer by <u>conduction</u> .	(.....)
5	When standing in front of a lit bulb, heat transfers to us by <u>conduction</u> .	(.....)
6	The scientific name of caustic soda is <u>sodium bicarbonate</u> .	(.....)
7	<u>Copper</u> rusts when exposed to moist atmospheric oxygen.	(.....)
8	<u>Plant</u> chemistry is interested in the study of types of nutrients.	(.....)
9	<u>Glucose</u> is fruit sugar.	(.....)
10	When one molecule of <u>oxygen</u> is removed from two monosaccharide units, a disaccharide unit is formed.	(.....)
11	The <u>yellow</u> colour of Benedict's solution changes in glucose solutions according to their concentrations.	(.....)
12	<u>Fatty</u> acids are the basic constituent units of proteins.	(.....)

*(5) Put (√) or (X) :

1. Thermal energy transfer from one system to another depending on the difference in temperature between them. ()
2. Heat transfers from the colder object to the hotter object. ()
3. A spoon becomes cold after it is used in stirring iced water because it loses heat to the ice water. ()
4. When a cube of metal at a temperature of 60°C is put in a basin of water at a temperature of 90°C, no change occurs in the temperature of water. ()
5. Metals are thermal conductors. ()
6. Copper has greater thermal conductivity than silver. ()
7. Thermal conductivity of solid clay bricks is better than that of hollow clay bricks. ()

8. When air cools, its density decreases and it moves downwards. ()
9. The electric space heater is placed on the floor of the room to heat ()
10. Physical changes do not change the chemical composition of the substance. ()
11. The melting of the wax results in a new substance. ()
12. Chemical changes result in new substances whose properties differ from those of the original substances. ()
13. The change of milk into yogurt is a physical change. ()
14. The odors that appear during the process of cooking food are evidence of physical changes. ()
15. The change of colour and texture over time indicate a chemical reaction. ()
16. In a chemical equation, the symbol - is placed between each two reactants. ()
17. In the symbolic chemical equation, the symbol (g) refers to the matter that is in its solid state. ()
18. In the equation of the reaction of magnesium with dilute hydrochloric acid, the symbol (cat.) is placed above the arrow. ()
19. Chemical equation must be balanced to verify the law of conservation of energy. ()
20. The mass of a molecule of CO_2 is greater than the mass of a molecule of CO ()
21. The total mass of the substances before the reaction is always greater than the total mass of the substances after the reaction. ()
22. The subscript of ammonium group in NH_4Cl is equal to 4 ()
23. In the equation: $\text{N}_2 + 3\text{H}_2 \longrightarrow 2\text{NH}_3$ the total sum of subscripts of atoms of reactants and products is 6 ()
24. Grapes and potatoes are fruits rich in carbohydrates. ()
25. Sucrose is a monosaccharide sugar that found in grapes. ()
26. Increased urination may be a sign of insulin disease. ()
27. Medicine capsules are made of fats. ()
28. Biuret solution is used to detect proteins in egg yolk. ()

✱ **(6) Give reasons for each of the following :**

1. Placing polystyrene panels between the bricks of the walls.

.....

2. The temperature of a hot piece of iron decreases when placed in a beaker containing cold water.

.....

3. Cooking pans are made of aluminum with wooden handles.

.....

4. It is preferred to use hollow clay bricks during constructing walls.

.....

5. The freezer is installed at the top of the refrigerator.

.....

6. The occurrence of sea breeze.

.....

7. The sand on the beach is hotter than the sea water at noon.

.....

8. The Sun's heat transfers to us through radiation.

.....

9. Firefighters wear shiny silver clothes.

.....

10. Ice melting is a physical change.

.....

11. Wood combustion is a chemical change.

.....

12. Effervescence occurs when sodium bicarbonate is added to acetic acid.

.....

13. The rotting of an orange when left for a long time is a chemical reaction.

.....

14. A strong odour is emitted when sugar is burned.

.....

15. The chemical equation must be balanced.

.....

16. The mass of the reactants must be equal to the mass of the products.

.....

17. Glucose is one of the simplest forms of carbohydrates.

.....

18. Maltose is a disaccharide.

.....

19. Starch is a polysaccharide.

.....

20. Diabetes is caused by a hormonal deficiency.

.....

21. Similarity of carbohydrates and fats in the constituent elements.

.....

22. Cholesterol increases the risk of heart diseases.

.....

23. The two components of the egg contain two main types of nutrients.

.....

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

1. Two objects with the same temperature come into contact.

.....

2. Two non-isolated systems with different temperatures come into contact with each other.

.....

3. A hot drink at 70°C is mixed with another drink at 20°C.

.....

4. A metal spoon is placed in a cup of hot tea.

.....

5. The end of a metal rod with small pins fixed on it with wax is heated.

.....

6. Baking soda is added to dilute sulphuric acid.

.....

7. A piece of zinc is added to the copper sulphate solution.

.....

8. Hydrochloric acid is added to a strip of magnesium.

.....

9. A strip of magnesium is burnt in the air.

.....

10. A fruit is left in the moist air for a long time.

.....

11. Sugar is burnt.

.....

12. An iron nail is exposed to moist air.

.....

13. Quantities of carbohydrates that exceed the body's needs are consumed.

.....

✳️(8) **Mention one importance for each of the following:**

1. Potatoes in nutrition.

2. Benedict's solution.

3. Iodine solution.

4. Pancreas.

5. Carbohydrates for the brain.

6. Carbohydrates for plant cells.

7. Carbohydrates for flowers.

8. Carbohydrates for the manufacture of medicine.

9. Eggs yolk in nutrition.

10. Egg whites (albumen) in nutrition.

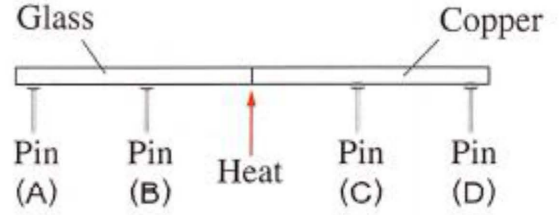
11. Sudan (IV) solution.

12. Biuret solution.

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***(9) Problems:**

1 The opposite figure shows four pins fixed with wax in two copper and glass rods that are heated by a single heat source.



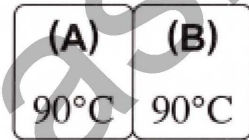
Which pin will fall first? Explain your answer.

.....

.....

2 In the opposite figure :

Does heat transfer from object (A) to object (B)?



Explain your answer.

.....

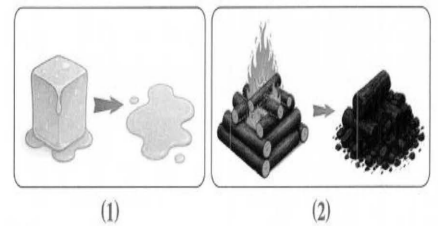
.....

3 From the two opposite figures:

(1) Which of them represents a chemical change?

Give reasons.

(2) In which of them there is no change in the chemical



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Model Answer

* (1) Write the scientific term:

- | | | |
|--------------------------|-----------------------------------|---------------------------|
| 1. Heat | 10. Carbon dioxide | 17. Nutritional chemistry |
| 2. Conduction | 11. Chemical reaction | 18. Monosaccharides |
| 3. Conductivity | 12. Soap | 19. Disaccharides |
| 4. Convection | 13. Rusting | 20. Oligosaccharides |
| 5. Sea breeze | 14. Catalyst | 21. Polysaccharides |
| 6. Electromagnetic waves | 15. Law of conservation of matter | 22. Diabetes |
| 7. Radiation | 16. Balanced chemical equation | 23. Cellulose |
| 8. Physical change | | 24. Fats |
| 9. Chemical change | | 25. Cholesterol |

* (2) Choose the right answer:

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

* (3) Complete the following

- | | | |
|----------------------------|---------------------------------------|--|
| 1. Conduction – radiation | 9. Sodium bicarbonate – acetic acid | 15. Reactant – product |
| 2. Plastic or wood | 10. Carbon dioxide | 16. Carbohydrate – protein |
| 3. Conduction – convection | 11. Heat – light | 17. Sucrose & maltose – sucrose – fructose |
| 4. Low – high | 12. Milky – carbon dioxide | 18. Blue – red |
| 5. Convection | 13. Dilute – concentrated | 19. Cellulose – cell wall |
| 6. Convection – radiation | 14. Balanced – conservation of matter | 20. Fats |
| 7. Radiation | | 21. Protein – fats |
| 8. Physical – chemical | | |

* (4) Correct the underlined words:

- | | |
|---------------------|----------------|
| 1. Conduction | 7. Iron |
| 2. Convection | 8. Nutritional |
| 3. Thermal | 9. Fructose |
| 4. Radiation | 10. Water |
| 5. Reduction | 11. Blue |
| 6. Sodium hydroxide | 12. Amino |

* (5) Put (√) or (X) :

- | | | | | |
|--------|---------|---------|---------|---------|
| 1. (√) | 7. (√) | 13. (X) | 19. (X) | 25. (X) |
| 2. (X) | 8. (X) | 14. (X) | 20. (√) | 26. (X) |
| 3. (√) | 9. (√) | 15. (√) | 21. (X) | 27. (X) |
| 4. (X) | 10. (√) | 16. (X) | 22. (X) | 28. (√) |
| 5. (√) | 11. (X) | 17. (X) | 23. (X) | |
| 6. (X) | 12. (√) | 18. (X) | 24. (√) | |

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

1. to avoid rapid temperature changes inside buildings when temperatures change outside that leads to reducing air conditioning costs within the buildings.
2. Because iron loses temperature to water.
3. Because aluminum is a thermal conductor, while wood is a thermal insulator.
4. Because the thermal conductivity of the air present in the hollow spaces of hollow bricks is approximately 20 times less than that of the clay brick substance.
5. Because cold air has high density and fall down.
6. Due to the fact that land heats up more quickly than water during the day.
7. Because the specific heat of the sand is lower than that of water.
8. Because heat transfer by radiation does not require the presence of material particles.
9. Because shiny objects reflect infrared rays well.
10. Because it is not accompanied by a change in chemical composition.
11. Because it is accompanied by a change in chemical composition.
12. Due to the occurrence of a chemical reaction, accompanied by the evolution of carbon dioxide gas.
13. Because it is accompanied by a change in chemical composition.
14. Due to the occurrence of a chemical reaction that results in the formation of caramel.
15. To verify the law of conservation of matter (conservation of mass).
16. To verify the law of conservation of matter (conservation of mass).
17. Because it cannot be decomposed (by water) into simpler substances.
18. Because it consists of two glucose units.
19. Because it consists of many monosaccharide units.
20. It results from a deficiency in the secretion of the insulin hormone.
21. Because both of them consist of C , H and O
22. It deposits inside the arteries, causing their blockage.
23. Because egg yolk is rich in fats, and egg whites is rich in proteins.

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

1. No heat transfer between them will take place.
2. Heat transfers from the system at a higher temperature to the system at a lower temperature until they reach thermal equilibrium.
3. The temperature of the hot drink decreases while the temperature of the cold drink increases, until their temperatures are equal when thermal equilibrium is reached.
4. Heat transfers from the hot tea to the spoon by conduction.
5. The pins fall one by one from the closest end to the heating source to the furthest end.
6. Effervescence occurs with evolution of gas bubbles of carbon dioxide gas.
7. The blue colour of the copper sulphate solution disappears, and reddish-brown copper is deposited over the zinc plate.
8. Formation of gas bubbles of hydrogen gas.
9. The strip glows with a bright light accompanied by heat emission, and converts into a white powder.
10. The color and taste of fruit till change
11. A solid black substance (carbon) is formed, with smoke and a strong odour.
12. The nail rusts due to its reaction with moist atmospheric oxygen.
13. Part of it is stored in the liver and muscles in the form of glycogen, and another part is stored in the body's cells in the form of fats.

*(8) **Mention one importance for each of the following:**

- | | | |
|---|---|---|
| <ol style="list-style-type: none"> 1. Source of energy 2. Detection of carbohydrate 3. Detection of starch 4. Secretion of insulin 5. Support the brain functions. | <ol style="list-style-type: none"> 6. Formation of plant cell walls from cellulose. 7. They participate in forming the nectar of flowers. | <ol style="list-style-type: none"> 8. Manufacture of medicine capsules. 9. It is rich in fats 10. It is rich in protein 11. Detection of fats 12. Detection of protein |
|---|---|---|

*(9) **Problems:**

1. C&D because copper is heat conductor.
2. no heat transfer between them because there is no temperature difference between them.
3.
 1. chemical change occur in fig.2 because it produces new substance.
 2. physical change occur in fig.1

1

تطبيق



مذكرات جاهزة للطباعة

لتحميل الملفات التعليمية مجاناً للمعلم والطالب

مذكرات وملازم / مراجعات وملخصات / امتحانات / كتب الوزارة /
أدلة المعلم / دفاتر التحضير / سجلات مدرسية / أوراق تأسيس

امسح الكود بموبايلك علشان تقدر تثبت التطبيق

وتقدر ف أي وقت تحمّل ال نفسك فيه ببلاش

هيغنيك عن البحث والجروبات والقنوات الكثيرة

