



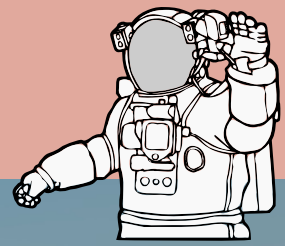
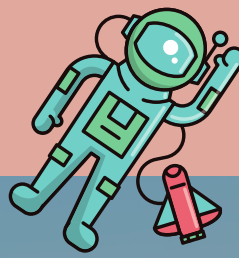
English XI

Explanation texts

3.8 membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks explanation lisan dan tulis dengan memberi dan meminta informasi terkait gejala alam atau sosial yang tercakup dalam mata pelajaran lain di kelas XI, sesuai dengan konteks penggunaannya
4.8 menangkap makna secara kontekstual terkait fungsi sosial, struktur teks, dan unsur kebahasaan teks explanation lisan dan tulis, terkait gejala alam atau sosial yang tercakup dalam mata pelajaran lain di kelas XI

Learning objective

In this chapter, you will learn about Explanation Text and vocabularies. Practicing is needed to enhance your understanding on the social function of Explanation Texts.



BEFORE LEARNING

To begin this lesson, please read this short passage below and tell what it is about!

THE EMERGENCE OF MATTER About 1 microsecond (10^{-6} or one millionth of a second) after the Big Bang, the young Universe contained, in addition to vast quantities of radiant energy, or photons, a seething “soup” of quarks, antiquarks, and gluons. Also present were the class of fundamental particles called leptons (mainly electrons, neutrinos, and their antiparticles) forming from energy and then annihilating back to energy. The stage was set for the next processes of matter formation that led to our current Universe. First, quarks and gluons met to make heavier particles – particularly protons and a smaller number of neutrons. Next, the neutrons combined with some of the protons to form atomic nuclei, mainly those of helium. The remaining protons, destined to form the nuclei of hydrogen atoms, stayed uncombined. Finally, after half a million years, the Universe cooled sufficiently for electrons to combine with the free protons and helium nuclei – so forming the first atoms.

THE NEXT HALF-MILLION YEARS The timeline on these two pages shows events from 1 microsecond to 500,000 years after the Big Bang. The temperature dropped from 10^{13}K (10 trillion $^{\circ}\text{C}$ / 18 trillion $^{\circ}\text{F}$) to $2,500^{\circ}\text{C}$ ($4,500^{\circ}\text{F}$). Today’s observable Universe expanded from 100 billion km (about 50 light-hours) to many millions of light-years wide

Source: Encyclopedia of Human Body System by Julie McDowell, Editor

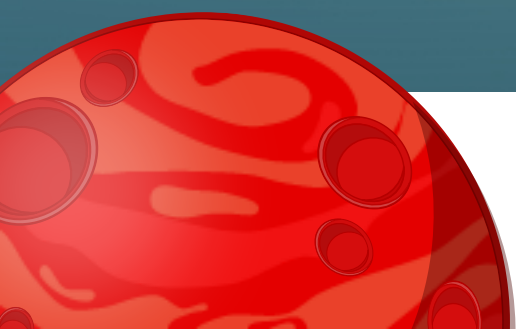
**DO YOU
EVER
READ
SUCH
TEXT?**

**WHAT DO
YOU
THINK
ABOUT
THE
GENRE
OF THE
TEXT?**

WHILST LEARNING

ACTIVITY ONE

Read the texts below and answer the questions that follow!

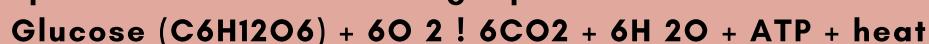


Text One

We are continuously inhaling the gas known as oxygen—without it, we would die. Oxygen plays a vital role in breaking down nutrients such as glucose that need to be transported to various locations to provide the body with energy. This process is known as cell respiration. The energy produced through cell respiration is contained in a molecule that is called ATP, which stands for adenosine triphosphate. ATP can be thought of as the fuel required for various cellular processes to occur throughout the body. In addition to producing ATP, cell respiration also produces carbon dioxide. So while oxygen is inhaled, carbon dioxide is exhaled, and is considered a waste product. It is exhaled because it is a waste product of cell respiration. Like other waste products that are covered throughout this book, carbon dioxide must leave the body. If carbon dioxide builds up in the body, it can disrupt the chemical balance in the body. This can cause acidosis, when fluid becomes too acidic, which can result in calcium deposits in the body's soft tissue. Carbon dioxide built up in the body is toxic to the heart.

Cell Respiration: How the Body Produces Energy

The body relies on the chemical reaction known as cell respiration to produce energy, and involves both oxygen and carbon dioxide. The chemical reaction is spelled out in the following equation:



Glucose comes from food, which is broken down with the help of oxygen. This reaction results in carbon dioxide, which, because it is a waste product, is exhaled. Water, energy (ATP), and heat are also produced. In addition to carbon dioxide, these other substances perform key functions in the body. Water becomes part of the body's fluid system, acting like a solvent and lubricant, while the heat helps to maintain the body's temperature. ATP is energy used for processes vital for the body to function, including digestion and muscle contraction.

Source: Encyclopedia of Human Body System by Julie McDowell,
Editor

Number 1 to 5, choose the correct answer!

1. Which shows the vital role of O₂?

- A. O₂ is inhaled without stopping.
- B. Glucose is transported by O₂ to various locations.
- C. O₂ provides the body with energy.
- D. O₂ breaks down nutrients to provide energy.

2. ATP is in the form of ...

- A. Molecule
- B. Cell
- C. Energy
- D. Gas

3. What is cell respiration the process of?

- A. Providing the body with energy through breaking nutrients by O₂
- B. Inhaling a life-giving gas to provide body with much energy.
- C. Producing Carbon dioxide
- D. Transporting O₂ to various locations

4. “....., it can disrupt the chemical balance..”

What best replaces the word “disrupt”?

- A. Change
- B. Prevent
- C. Disturb
- D. Convert

5. Which word is explained by this description: “a group of cell with similar structure to perform specific functions”?

- A. Tissue
- B. Solvent
- C. Calcium
- D. Cell

For 6 to 10, choose two answers based on text one!

6. Which are produced by cell respiration?

- A. Adenosine Triphosphate
- B. Cellular processes
- C. Waste product
- D. Broken glucose

7. When CO₂ stays in our body,

- A. it influences the balance of chemical reactions in our body
- B. the amount of calcium deposits is affected
- C. it can harm the heart
- D. the amount of acid in the body liquid decreases

8. Which products are functional to our body as the result of cell respiration?

- A. Heat
- B. H₂O
- C. CO₂
- D. Chemicals

9. Which process don't need ATP?

- A. Digestion
- B. Muscle contraction
- C. Maintaining body's temperature
- D. Dissolving

10. Which words relate to the function of water in our body?

- A. Substances
- B. Solvent
- C. Lubricant
- D. Fluid

Text two

Platelets, plasma proteins, vitamin K, and calcium all take their place in a quick-acting series of chemical reactions that result in blood coagulation, or clotting. Clotting begins almost immediately after the wound occurs as platelets congregate at the site of the injury. Platelets, also known as thrombocytes, are not cells. Rather, they are sticky, disk-shaped fragments of large blood cells called megakaryocytes that reside solely in the bone marrow. These small cell fragments exist throughout the circulatory system, with tens of millions in every droplet of blood. Their primary role is blood-clot formation. Because so many exist in the blood, a good supply of platelets usually is not far from the wound site. The first step in blood clotting is the release by the damaged tissue of a substance known as thromboplastin. As platelets arrive at the wound site, they disintegrate and release additional thromboplastin. Thromboplastin and calcium are both required to trigger the beta globulin called prothrombin to produce the enzyme thrombin. For the next step, the thrombin, platelets, and fibrinogen, a soluble plasma protein, work together to help make a tight web of insoluble fibrin threads that stick together and to the blood vessel wall. When blood cells encounter the web, they become trapped and form a blood clot. A scab is a dry, external clot. A bruise is a blood clot, too, but an internal one. Although the coagulation process may seem complex, it happens very quickly. Small cuts are usually sealed within a couple of minutes, with an external scab hardening in place not long afterward. The yellowish fluid sometimes remaining at the injury site is called serum. Although the term serum is sometimes used interchangeably with plasma, serum actually refers to plasma that no longer contains fibrinogen or other clotting factors. Normally, blood clots promote injury recovery by stopping blood loss, but that is not always the case.

Clots that form within the blood vessels can be dangerous, because they can block blood flow and oxygen transport. A stroke, for example, is the result of a blood clot in the brain. Fortunately, platelets normally do not stick to the smooth walls of healthy, undamaged vessels. Other fail-safes are heparin, which is found in basophils, and substances called antithrombins that turn off thrombin activity, effectively shutting down the coagulation machinery and preventing unnecessary blood clotting.

Source: Encyclopedia of Human Body System by Julie McDowell, Editor

State whether the sentences below are true or false! Give the proof for the true one and correct the false one.

1. The chemical mixture of platelets, plasma proteins, vitamin K and Calcium is needed during the process of coagulation.
2. Platelets are the small fragments of large blood cells.
3. Megakaryocytes exist throughout the circulatory system.
4. One droplet of blood contains tens millions of platelets.
5. The additional thromboplastin from platelets help beta globulin to produce enzyme thrombin.
6. Fibrinogen, one of the plasma proteins, is used to make a tight web of insoluble fibrin threads.
7. The blood clot happens because the fibrin threads cannot block the blood cells.
8. The difference between a scab and a bruise is due to the process of forming the blood clot.
9. The coagulation process is shown by hardening the external scab not long after small cut.
10. The yellowish fluid remaining at the injury site is the effect of the coagulation.
11. Clotting can only be dangerous if it occurs in the blood vessels.
12. We shouldn't worry on the process of clotting everywhere in the body because of the existence of heparin.

Text three

Weathering describes the breaking down or dissolving of rocks and minerals on the surface of the Earth. Water, ice, acids, salts, plants, animals, and changes in temperature are all agents of weathering.

Mechanical Weathering

Mechanical weathering, also called physical weathering and disaggregation, causes rocks to crumble.

Water, in either liquid or solid form, is often a key agent of mechanical weathering. For instance, liquid water can seep into cracks and crevices in rock. If temperatures drop low enough, the water will freeze. When water freezes, it expands. The ice then works as a wedge. It slowly widens the

cracks and splits the rock. When ice melts, liquid water performs the act of erosion by carrying away the tiny rock fragments lost in the split. This specific process (the freeze-thaw cycle) is called frost weathering or cryofracturing.

Temperature changes can also contribute to mechanical weathering in a process called thermal stress. Changes in temperature cause rock to expand (with heat) and contract (with cold). As this happens over and over again, the structure of the rock weakens. Over time, it crumbles. Rocky desert landscapes are particularly vulnerable to thermal stress. The outer layer of desert rocks undergo repeated stress as the temperature changes from day to night. Eventually, outer layers flake off in thin sheets, a process called exfoliation.

Exfoliation contributes to the formation of bornhardts, one of the most dramatic features in landscapes formed by weathering and erosion. Bornhardts are tall, domed, isolated rocks often found in tropical areas. Sugarloaf Mountain, an iconic landmark in Rio de Janeiro, Brazil, is a bornhardt.

Changes in pressure can also contribute to exfoliation due to weathering. In a process called unloading, overlying materials are removed. The underlying rocks, released from overlying pressure, can then expand. As the rock surface expands, it becomes vulnerable to fracturing in a process called sheeting.

Another type of mechanical weathering occurs when clay or other materials near rock absorb water. Clay, more porous than rock, can swell with water, weathering the surrounding, harder rock.

Salt also works to weather rock in a process called haloclasty. Saltwater sometimes gets into the cracks and pores of rock. If the saltwater evaporates, salt crystals are left behind. As the crystals grow, they put pressure on the rock, slowly breaking it apart.

Honeycomb weathering is associated with haloclasty. As its name implies, honeycomb weathering describes rock formations with hundreds or even thousands of pits formed by the growth of salt crystals. Honeycomb weathering is common in coastal areas, where sea sprays constantly force rocks to interact with salts.

Haloclasty is not limited to coastal landscapes. Salt upwelling, the geologic process in which underground salt domes expand, can contribute to weathering of the overlying rock. Structures in the ancient city of Petra, Jordan, were made unstable and often collapsed due to salt upwelling from the ground below.

Plants and animals can be agents of mechanical weathering. The seed of a tree may sprout in soil that has collected in a cracked rock. As the roots grow, they widen the cracks, eventually breaking the rock into pieces. Over time, trees can break apart even large rocks. Even small plants, such as mosses, can enlarge tiny cracks as they grow.

Animals that tunnel underground, such as moles and prairie dogs, also work to break apart rock and soil. Other animals dig and trample rock above ground, causing rock to slowly crumble.

Source:

<https://www.nationalgeographic.org/encyclopedia/weathering/#:~:text=Weathering%20is%20the%20breaking%20down,agents%20of%20weathering%20and%20erosion.>

Arrange the process of weathering by water in order!

- a. The frozen water melts in high temperatures.
- b. Liquid water seeps into the rock cracks.
- c. The water expands and widens the crack.
- d. The melting water carries away the tiny rock fragments.
- e. The water freezes in low temperature.

Put the sentences into the correct agent of weathering!

1. The more salt crystals are left, the more pits are formed.
2. The structure of rock is weakened by the thermal stress.
3. The salt growing crystals breaks the rock by its pressure on the rock
4. The rock with more cracks and pores are easily damaged by the process of haloclasty.
5. The surface of the desert rock of exfoliated.
6. Coastal rocks get the greatest impact of the seawater causing thousands of pits.
7. Exfoliation is able to form a mountain.



Answer the questions well!

1. What made a city collapse?
2. How do plants crack a rock?
3. How do animals break apart rock?

ACTIVITY TWO

PRACTICE YOUR VOCABULARY!

A. Find the word replaces the underlined word best!

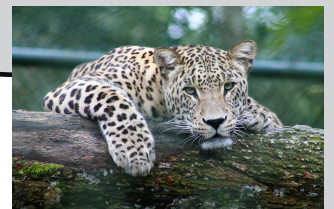
1. We are continuously inhaling the gas known as oxygen.
2. Oxygen plays a vital role in breaking down nutrients.
3. Carbon dioxide built up in the body is toxic to the heart.
4. Water becomes part of the body's fluid system, acting like a solvent and lubricant.
5. These small cell fragments exist throughout the circulatory system.
6. The thrombin, platelets, and fibrinogen work together to help make a tight web of insoluble fibrin threads.
7. When blood cells encounter the web, they become trapped and form a blood clot.
8. Small cuts are usually sealed within a couple of minutes.
9. Normally, blood clots promote injury recovery by stopping blood loss.
10. Mechanical weathering, also called physical weathering and disaggregation, causes rocks to crumble.
11. When water freezes, it expands.
12. Temperature changes can also contribute to mechanical weathering in a process called thermal stress.
13. Rocky desert landscapes are particularly vulnerable to thermal stress.
14. Clay, more porous than rock, can swell with water.
15. Honeycomb weathering is associated with haloclasty.
16. Honeycomb weathering describes rock formations with hundreds or even thousands of pits formed by the growth of salt crystals.
17. Honeycomb weathering is common in coastal areas, where sea sprays constantly force rocks to interact with salts.
18. The seed of a tree may sprout in soil that has collected in a cracked rock
19. As the roots grow, they widen the cracks, eventually breaking the rock into pieces.
20. Other animals dig and trample rock above ground

B. Fill in the blank with the correct word in the box.

tissues, exhale, bruise, require, recovery, solvent,
serum, resides, primary, clot

1. Food-chewing animals ... digestive enzymes and stomach acid to chemically digest the molecules in food.
2. The digested lipids, carbohydrates, protein, and nuclei acids are transformed into usable energy for
3. Water is the most important ... in everyday life.
4. What we ... is the waste product of the respiration process.
5. The ... we think of as a blue and black mark results from the damaged blood cells deep beneath the skin collected near the surface of the skin.
6. The ... of someone's illness depends on the patient's desire to get well.
7. Our life is in danger if the blood ... happens in the lungs.
8. The ... animal instincts are territorial marking and defense to survive.
9. ... is blood plasma without fibrinogen and doesn't have a role in clotting.
10. The waste product which ... in a certain part of the body can poison it.

Prairie, moss, thermal water, pressure, flaking off, evaporating, crystal, agents, erosion, pores



11. Plants are able to adapt themselves from the drought by ... water from the leaves.
12. The tree trunk in my house is covered by ... as it has been about 20 years old.
13. Human's activities contribute to shaping the surface of the Earth. They are the most significant geomorphic
14. Due to some substances in ..., it has been used for thermal baths for medical purposes.
15. The temperature of the enormous stretches of flat grassland called ... is moderate.
16. The Earth's surface wears away because of the action of water and wind. This ... is environmental condition.
17. The high blood ... triggers the heart attack if it is not controlled well.
18. Most stones have tons of microscopic ... as the consequence of the slow compacting of tiny grains of organic matter.
19. The paint chips are ... the wall due to the extreme change of the temperature through this year.
20. The ... structure of sugar is due to Hydrogen bonds where one Oxygen atom from the molecule on the left and one Hydrogen atom from the molecule on the right attract each other.



C. Tell the meaning of the red words!

1. We have checked **quite a number** of children with myopia since few months ago.
2. They spend **quite a while** on their phone without any rest.
3. Although their parents have them **quite a bit** rest their eyes, the children ignore it.
4. Many springs in the mountain have supplied the villagers fresh water abundantly **for ages**.
5. They are so **well off** that they can buy an island and build their palace.
6. With the fast technology development, the young generation is **well off**. Unfortunately, they don't prepare themselves for those opportunities.
7. Parents are **better off** aware of the importance of building literacy in their family so that the children are able to filter the bad or fake information that may make them in danger.
8. Have you ever **heard of** a business without profit?
9. The lovers of horror fiction must **hear of** Stephen King with his incredible novels.
10. We haven't **heard about** the kidnapped journalists since the kidnapper broke the contact two days ago.
11. I **hear** quite a bit **about** how he treats his employees. He considers them as his family.
12. Don't worry! We will **hear from** the sent person as soon as he arrives there and meets the leader of the gang.
13. He is such a **fussy** one. Why doesn't he try to understand our situation? Ask him what he wants for dinner.
14. The president makes his people vaccinated for free, but there are still some people keeping **making a fuss**. They doubt the efficacy of the vaccines and persuade others to refuse it.
15. Girls commonly like being **fussed over**. They will be stressed when their uploaded photos get only few likes.
16. This bread is **stale**. Touch the edge of the bread. It is hardened.
17. This room has been closed since the pandemic began. It must be quite **stale**.
18. I can't understand why they make a fuss. This food doesn't **go off** at all.
19. What time did you set the alarm at? It didn't **go off** this morning. As the consequence, we are all late.
20. The bomb **going off** in front of the police station injured some pedestrians.
21. Is the air conditioner of or **going off**? O.., sorry, I forgot that the power station nearby is being fixed.
22. The minister is **going off** to visit the forest people. She has only five assistants and one journalist with her.
23. They **may as well** check the food supply again while waiting for the next instruction.

24. I think I **might as well** take this test despite a quite number of tests I have taken already.

25. Some hotels were closed when we got at that small beautiful city. We **might as well** have stayed at the people's houses.

D. Make your own sentences by using those red words!

CLOSING

To review what you have learnt, answer the questions below!

1. What is explanation test?
2. What is the functional purpose of explanation test?
3. What is the generic structure of explanation test?

