

## HESI A2 Reading Version 2

### THE WATER CYCLE

Water is needed to sustain practically all life functions on planet Earth. A single drop of this compound is composed of an oxygen atom that shares its electrons with each of the two hydrogen atoms. The cycle starts when precipitation, such as rain, snow, sleet, or hail, descends from the sky onto the ground. Water that is not absorbed immediately from the precipitation is known as runoff. The runoff flows across the land and collects in groundwater reservoirs, rivers, streams, and oceans. Evaporation takes place when liquid water changes into water vapor, which is a gas. Water vapor returns to the air from surface water and plants. Ultimately, condensation happens when this water vapor cools and changes back into droplets of liquid. In fact, the puffy, cotton clouds that we observe are formed by condensation. When the clouds become heavily laden with liquid droplets, precipitation ensues.

1. What is the meaning of the word composed in the first paragraph?
  - A. **To consist of (CORRECT)**
  - B. To be uniquely discovered
  - C. To be set apart
  - D. To be surprised
2. What is the main idea of this passage?
  - A. Water is formed from the joining of two hydrogen atoms to one atom of oxygen.
  - B. Water is a versatile and important universal solvent.
  - C. **The different components of the water cycle are precipitation, evaporation, and condensation. The explanation of the different components of the water cycle (CORRECT)**
  - D. Rain is a trivial part of the life cycle.
3. Which statement is **NOT** a detail from the passage?
  - A. A single drop of water is made of a couple of hydrogen atoms and oxygen atoms.
  - B. Evaporation takes place when liquid water changes into water vapor.
  - C. Water that is not absorbed is called runoff.
  - D. **Condensation fails to happen when water vapor cools and changes back into droplets of liquid. (CORRECT)**
4. What was the author's primary purpose for writing this essay?
  - A. To persuade the reader to conserve water
  - B. To persuade the reader that runoff is not the best way to collect water
  - C. To analyze different types of runoff
  - D. **To inform the reader about the stages of the water cycle (CORRECT)**
5. What can the reader conclude from this passage about ponds and lakes?
  - A. **They are examples of groundwater reservoirs. (CORRECT)**
  - B. They are not important in the collection of runoffs.
  - C. They do not play a role in water collection.
  - D. They consist of only water collected through precipitation.

6. Knowing that the cooling of water vapor results in condensation, one could conclude that \_\_\_\_\_ is/are a factor in the evaporation process.
- A. Humidity
  - B. Heat (CORRECT)
  - C. Electrons
  - D. Runoff
7. What does the word Laden mean in the passage?
- \*Loaded or weighed down (CORRECT)

## AMAZON RAINFOREST

About 6% of the earth is covered by rainforests. The largest rainforest in the world is the Amazon Basin, which stretches over 2.3 million square miles in nine different South American countries. This area is double the length of all the other remaining rainforests in the world. Brazil contains 60% of the Amazonian rainforest, since it lies at the mouth of the river Amazon. This river is the second largest in the world and contains more than one-fifth of the world's fresh water. The Amazon rainforest is a type of wet broadleaf forest. The weather there is very humid and warm as it rains quite a bit. Because of the high rainfall, the forest is very rich and green. The tree leaves are pointed and narrow so that the raindrops can easily drop off wet plants. This tropical rainforest has more living species than the entire European continent. There are over 400 types of insects living in one single rainforest tree for a total of 2.5 million species. One square kilometer of rainforest may contain over 75,000 types of trees and approximately 438,000 different kinds of plants, which comes to a total of 90,000 tons of greenery overall. The Amazon rainforest is home to 2,000 birds and mammals, with one in every five birds in the world living there. Local farmers have lived off this rich and diverse land for thousands of years. They have been able to find food and water here without destroying the land. The Kayapo people of Brazil farm in an environmentally-friendly way. Instead of chemicals, they use burned wood to enrich the soil, and plant banana trees, which attract wasps. These wasps then feed on leafcutter ants and get rid of these harmful insects.

The rainforest also offers a lot of tropical fruits, such as bananas and coconuts, as food. Cinnamon is made from the bark of a rainforest tree. Amazonian Indians use the fruit and stem of the Buruti plant as a drink, to make bread and to build houses. Many other plants are used as medicine. But the Amazon rainforest is in very big danger of disappearing. 9,169 square miles of forest have been cut down in 2003 in Brazil alone. An area of the size of a football field is burned down basically every minute, which means that the rain forest may be gone by the year 2030. The dangers related to this type of activity are obvious. Trees take in poisonous carbon dioxide from the air and give off oxygen. There is more oxygen and less carbon dioxide around a rainforest. When trees are cut down, however, the amount of carbon dioxide increases, and the air gets warmer. This leads to global warming, which is extremely harmful to the environment. It is estimated that the burning of Brazilian rainforests alone produces 200 million metric tons of carbon dioxide a year. Another danger connected with destroying the rainforest is the disappearance of plants and animals. When trees are cut down, plants and animals have no more food left and slowly die out. Killing wild animals is illegal in Brazil, but there is plenty of stealing going on. 38 million animals are stolen and sold illegally each year. The most hunted animals are birds, especially parrots, followed by snakes and the jaguar.

1. According to paragraph 1, which of the following is **NOT** mentioned about the Amazon Rainforest?
- (A) Its gross area
  - (B) Its body of water
  - (C) Its precipitation (CORRECT)
  - (D) Its extinct animals

2. How can you describe the Amazon rainforest? (*Choose 2 answers*)
- (A) It rains all time there so the forest is always green. (CORRECT)
  - (B) The weather is so hot that not many tourists come to visit.
  - (C) The plants are shaped so that rainwater can pour off them. (CORRECT)
  - (D) There is a lot of fresh water coming from the Amazon River.
3. Which of the following is true about the Amazon Basin?
- (A) It is not much larger than all the other rainforests in the world combined.
  - (B) It is more than one-fifth of all the other rainforests in the world. (CORRECT)
  - (C) The tree leaves there are purposely shaped as they are.
  - (D) It is a habitat for many reptiles and plants.
4. Look at the end of paragraph 2. What does the author refer to when he says “rich and diverse land” at the beginning of paragraph 3?
- (A) 400 types of insects in the Amazon rainforest
  - (B) 2,000 birds and mammals in the Amazon rainforest (CORRECT)
  - (C) The many kinds of plants growing in the Amazon rainforest
  - (D) The large variety of Amazonian plants and animals
5. What does the sentence “people of Brazil farm in an environmentally friendly way” mean in paragraph 3?
- (A) They do not poison the soil when farming (CORRECT).
  - (B) They use natural chemicals to make the soil rich.
  - (C) They plant and don’t cut down banana trees.
  - (D) They do not kill insects even if they are harmful.
6. Which rainforest plant has more than one use?
- (A) The banana
  - (B) The coconut
  - (C) Cinnamon
  - (D) The Bruti plant (CORRECT)
7. What is the biggest problem related to the disappearance of the rainforest?
- (A) Global warming
  - (B) Poisoning the air
  - (C) Burning the field
  - (D) Cutting down trees (CORRECT)

## THE BICYCLE

Today, bicycles are so common that it’s hard to believe they haven’t always been around. But two hundred years ago, bicycles didn’t even exist, and the first bicycle, invented in Germany in 1818, was nothing like our bicycles today. It was made of wood and didn’t even have pedals. Since then, however, numerous innovations and improvements in design have made the bicycle one of the most popular means of recreation and transportation around the world.

In 1839, Kirkpatrick Macmillan, a Scottish blacksmith, dramatically improved upon the original bicycle design. Macmillan’s machine had tires with iron rims to keep them from getting worn down. He also used foot-operated

cranks like pedals, so his bicycle could be ridden at a quick pace. It didn't look much like a modern bicycle, though, because its back wheel was substantially larger than its front wheel.

In 1861, the French Michaux brothers took the evolution of the bicycle a step further by inventing an improved crank mechanism. Ten years later, James Starley, an English inventor, revolutionized bicycle design. He made the front wheel many times larger than the back wheel, put a gear on the pedals to make the bicycle more efficient, and lightened the wheels by using wire spokes. Although this bicycle was much lighter and less tiring to ride, it was still clumsy, extremely top heavy, and ridden mostly for entertainment.

It wasn't until 1874 that the first truly modern bicycle appeared on the scene. Invented by another Englishman, H.J. Lawson, the "safety bicycle" would look familiar to today's cyclists. This bicycle had equal-sized wheels, which made it less prone to toppling over. Lawson also attached a chain to the pedals to drive the rear wheel. With these improvements, the bicycle became extremely popular and useful for transportation. Today they are built, used, and enjoyed all over the world.

1. Highlight the passage. Which words and ideas should be underlined? **(READ PASSAGE and COMPARE TO AVAILABLE/GIVEN CHOICES)**
2. The main idea of this passage is best expressed in which sentence?
  - A. Sentence (1): Today, bicycles are so common that it's hard to believe they haven't always been around.
  - B. Sentence (13): It was 't until 1874 that the first truly modern bicycle appeared on the scene.
  - C. Sentence (4): Since then, however, numerous innovations and improvements in design have made the bicycle one of the most popular means of recreation and transportation around the world. **(CORRECT)**
  - D. Sentence (18): Today they are built, used, and enjoyed all over the world.
3. Which of the following would be the best title for this passage?
  - A. Bicycles Are Better
  - B. A Ride through the History of Bicycles **(CORRECT)**
  - C. Cycle Your Way to Fitness
  - D. The Popularity of Bicycles
4. Which sentence best expresses the main idea of paragraph 3?
  - A. Macmillan was a great inventor.
  - B. Macmillan's bike didn't look much like our modern bikes.
  - C. Macmillan's bike could be ridden quickly.
  - D. Macmillan made important changes in bicycle design **(CORRECT)**
5. An innovation, as it is used in Sentence (4), is
  - A. A new way of doing something. **(CORRECT)**
  - B. A design.
  - C. An improvement.
  - D. A clever person.
6. Revolutionized, as it is used in Sentence (10), most nearly means
  - A. Cancelled.
  - B. Changed drastically. **(CORRECT)**
  - C. Became outdated.
  - D. Exercised control over.
7. The word prone, as it is used in Sentence (15), means
  - A. Lying down. **(CORRECT)**

- B. Unbalanced.
  - C. Incapable of doing something.
  - D. Likely to do something.
8. Which of the following sentences from the passage represents the writer's opinion?
- A. **Sentence (1) The safety bicycle would look familiar to today's cyclists. (CORRECT)**
  - B. Sentence (6)
  - C. Sentence (9)
  - D. Sentence (16)
9. Sentence (8), "It didn't look much like a modern bicycle, though, because its back wheel was substantially larger than its front wheel," follows which pattern?
- A. Fact, fact
  - B. Fact, opinion
  - C. **Opinion, fact (CORRECT)**
  - D. Opinion, opinion
10. Macmillan added iron rims to the tires of his bicycle to
- A. Add weight to the bicycle.
  - B. **Makes the tires last longer. (CORRECT)**
  - C. Makes the ride less bumpy.
  - D. Makes the ride less tiring.
11. The first person to use a gear system on bicycles was
- A. H.J. Lawson.
  - B. Kirkpatrick Macmillan.
  - C. The Michaux brothers.
  - D. **James Starley. (CORRECT)**
12. Starley's addition of wire spokes made the bicycle
- A. **Lighter. (CORRECT)**
  - B. Less likely to tip over.
  - C. More efficient.
  - D. Safer.

## DAYLIGHT SAVINGS TIME

It is a well-known fact that it takes the Earth approximately 365 days to move around the sun. At the same time, the Earth revolves or spins around itself over the course of 24 hours, which explains why there is day and night. One half of the Earth is always facing the Sun and the other half is facing away from it. As a result, there are different time zones dividing the globe. Moving suddenly from one time zone into the other, as when flying for example from Asia to North America, causes jet lag. People feel tired, they wake up suddenly during the night and cannot go back to sleep. It takes time to get used to a new time zone. Another thing to consider is the slight tilting of the Earth towards the sun. The Earth does not stand straight but leans a little to one side. Therefore, when it revolves around the Sun, the middle part of the Earth is always closer to the Sun and gets more heat. This part is called the equator, and above it lathes tropics. Countries at the tropics get the same amount of daylight all the time. The sun always rises at 6 am and sets at 6 pm. In contrast, the tips of the Earth or the Poles get hardly any light at all because they are so far away from the sun. There are two main seasons at the Poles. There are 6 months of summer, when the sun is always shining, even at night, and there are 6 months of winter, when there is constant darkness. In between the tropics and the Poles lies the temperate zone, where there are 4 seasons. The sun rises and sets at different times throughout the year. In the spring and summer, it gets light earlier; in the fall and winter it gets dark earlier. People who live in temperate zones take advantage of that fact to get more daylight. At the beginning of spring, countries in Europe and North America readjust their clocks. They change the time on their clocks and watches by moving them an hour ahead. As a result, the