GIMNASIO FONTANA
ECOSYSTEM WORKSHOP 5th GRADE
STANDARDIZED TEST 4th QUARTER 2021-2022
TEACHER: JULIAN PEDRAZA

NAME: _____ **GROUP: 5___ DATE:** _____

The test includes the following topics: Atmosphere's composition, atmospheric dynamics such as greenhouse effect and climate change.

INSTRUCTIONS:
- Please read the instruction carefully, stay focused in your answers and spelling.
- Materials you will need: BLACK OR BLUE PEN, colors, dictionary and highlighter.
- You will not be allowed to borrow any material.
- Materials that are not allowed: written notes, notes in dictionaries, paper or correction tape.
- You cannot talk to another student once the evaluation starts.
- The time to solve this test is 50 minutes.

GOALS:
- Relate causes and consequences of climate change with the atmosphere's composition

Part 1: Atmosphere composition

Use the information from the reading to answer question 1.

The Earth's atmosphere is mostly composed of a mixture of gases. More than half of Earth's atmosphere is composed of nitrogen (approximately 78%) with less oxygen (about 21% of the atmosphere). The remaining gases in Earth's atmosphere are called trace gases because these gases make up a very small percentage of the total. By far the most abundant of these trace gases are carbon dioxide, water vapor and argon (close to 1% of the total). The gases that make up the atmosphere are in the following pie chart.

Text taken from: http://www.atmo.arizona.edu/students/courselinks/fall16/atmo336/lectures/sec1/composition.html

1. What gases are the main components in Earth's atmosphere?

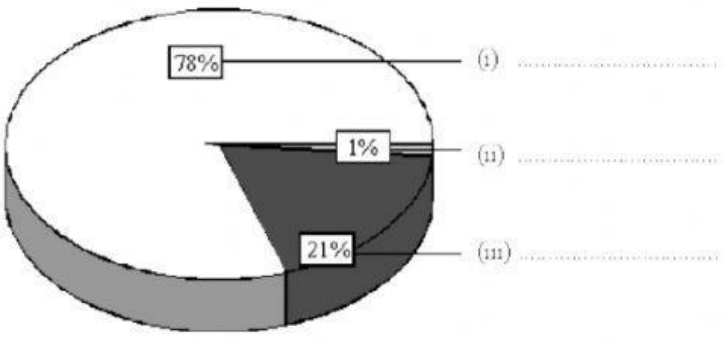


Image taken from: *https://mathsmadeeasy.co.uk/*

Using information from the reading, answer question 2 to 4.

Sunlight makes the earth habitable. While 30% of the solar energy that reaches our planet is reflected to space, approximately 70% passes through the atmosphere to the earth's surface, where it is absorbed by the land, oceans, and atmosphere, and heats the planet.

This heat is then radiated back up in the form of invisible infrared light. While some of this infrared light continues into space, the vast majority gets absorbed by atmospheric gases, known as greenhouse gases, and redirected back toward the earth, causing more warming.

The main gases responsible for the greenhouse effect include carbon dioxide, methane, nitrous oxide, and water vapor (which all occur naturally), and fluorinated gases (which are synthetic).

Text taken from: https://www.nrdc.org/stories/greenhouse-effect-101#gases

2. **What do greenhouse gases do?**

_____

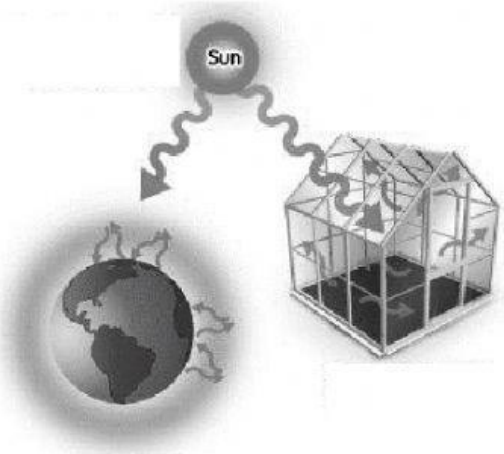
_____

_____

3. **Greenhouse gases affect the temperature of the Earth. Which of the following is a greenhouse gas?**

A. Argon
B. Carbon dioxide
C. Nitrogen
D. Oxygen

4. **How does this figure show the greenhouse effect of Earth's atmosphere?**



A. The leaves of the plants in the greenhouse soak up the sun's energy.
B. Radiant energy is trapped by the roof of the greenhouse allowing the air inside to become warm.
C. The energy entering the greenhouse bounces around causing the plants to grow.
D. The rays of the sun are trapped for the plants to use for photosynthesis.

Part 2: Climate change, causes and consequences

5. On the line before each definition, write the letter of the concept that matches it correctly. Each term is used only once.

___	1. The rise in Earth's average surface temperature during the past 100 years	A. deforestation
___	2. Gases in the atmosphere that absorb Earth's outgoing infrared radiation	B. global warming
___	3. The massive cutting or burning of forests	C. climate change
___	4. Long-term shifts in temperatures and weather patterns	D. greenhouse gases

Use the graph to answer question 6 and 7.

The following graph shows Earth's change in air temperature and the concentration of carbon dioxide (CO_2) in the atmosphere since the year 1880.

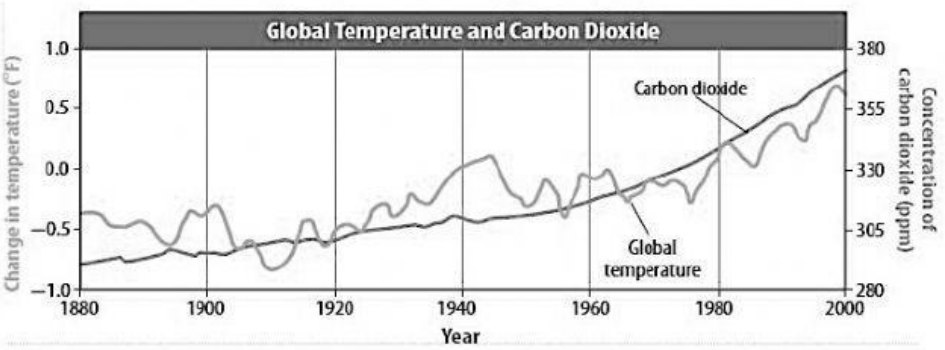


Image taken from: *Integrated Science Course 2. (2017). New York: McGraw-Hill*

6. Observe the graph and answer over the lines:

A. What was the approximate temperature change in the year 1920? _____
B. What was the approximate carbon dioxide concentration in the year 1960? _____

7. How has the Earth's temperature changed since 1880?

A. It has remained constant.
B. It has gotten warmer with some fluctuations.
C. It has gotten constantly warmer every year.
D. It gas gotten colder with some fluctuations.

8. What seems to be the connection between Earth's air temperature and levels of carbon dioxide in the atmosphere?

_____

_____

_____

_____

Read the following text, then answer question 4 to 9.

Can carbon dioxide in the atmosphere come from natural sources?

Apart from being created by human activities, carbon dioxide is also released into the atmosphere by natural processes. For example, 43% of all naturally produced carbon dioxide emissions come from ocean and atmosphere exchange. Other important natural sources include plant and animal respiration (29%) as well as decomposition of organic matter (28%). A minor amount is also created by volcanic eruptions (0.03%).

On the other hand, since the Industrial Revolution, human sources of carbon dioxide emissions have been growing. 87% of all human-produced carbon dioxide emissions come from the burning of fossil fuels like coal, natural gas and oil. The remainder results from deforestation (9%), as well as some industrial processes such as cement fabrication (4%).

As greenhouse gas emissions from human activities increase, they build up in the atmosphere and warm the climate, causing many other changes around the world, including the atmosphere, land, and ocean changes. For example, climate change is expected to affect tropical cyclones by increasing sea temperatures, a key factor that influences cyclone formation and behavior. With temperature rise it is predicted that extreme weather events such as heat waves, heavy rains and large storms are likely to become more frequent or more intense.

Text adapted from: https://whatsyourimpact.org/greenhouse-gases/carbon-dioxide-emissions
https://www.epa.gov/climate-indicators/

9. Which is not a source of carbon dioxide?

A. Deforestation B. Volcanoes C. Glaciers D. Burning of fossil fuels

10. Which of the following activities will result in carbon dioxide emission caused by human activity?

A. Burning of oil or gasoline
B. Plants releasing oxygen during the photosynthesis process
C. Volcanoes erupting
D. Ocean release of gas to the atmosphere

11. Use information from the reading to propose and support two ways that people in your community could help to reduce greenhouse gas emissions to the atmosphere

- _____
  _____
  _____

- _____
  _____
  _____

Use the previous reading and the next graph to answer questions 12 and 13.

The next figure represents the sea surface temperature and cyclone activity in the tropical Atlantic ocean.

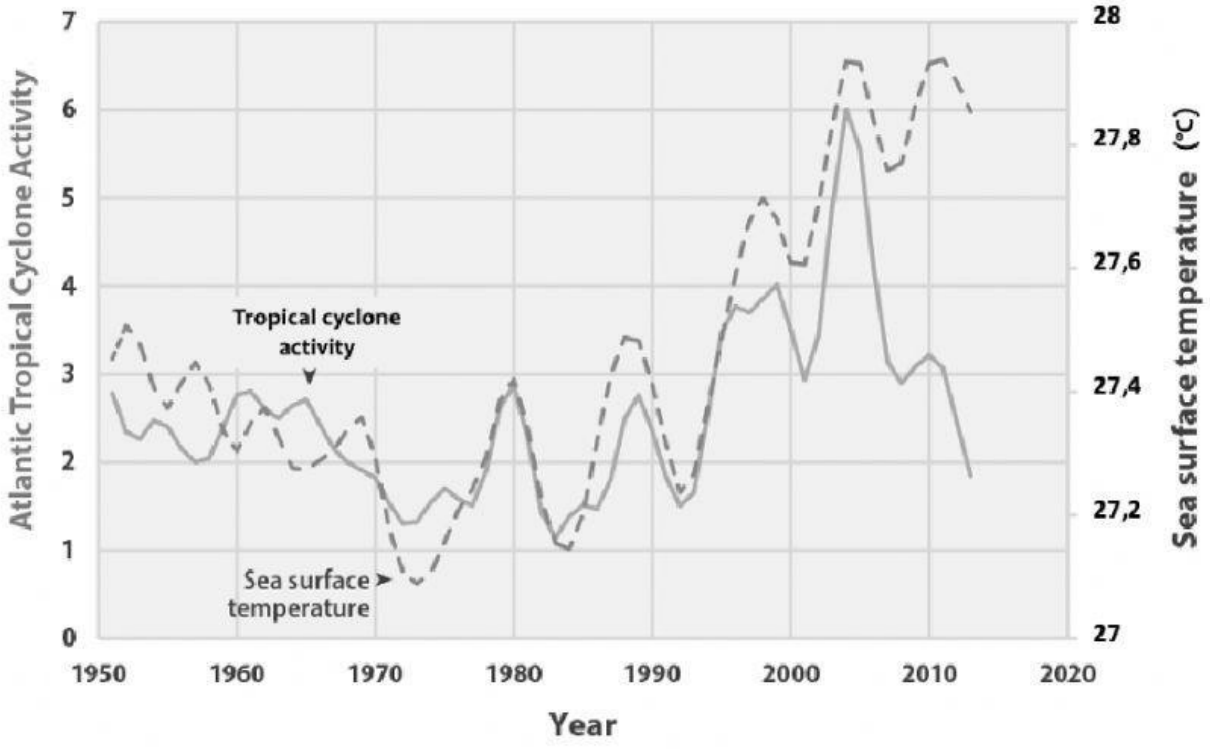


Image taken from: https://www.epa.gov/climate-indicators/

12. What does the graph illustrate? Explain your answer in the lines below

A. That the sea temperature and tropical cyclone activity are not related
B. That the sea temperature and tropical cyclone activity are related
C. That the sea temperature increases when the tropical cyclone activity decreases
D. That the sea temperature decreases when the tropical cyclone activity increases

Explain your answer to questions 12 in the lines below

_____

_____

_____

13. Complete the sentences about the impacts of warmer temperatures around earth.

Warmer temperatures:

a. Cause water to _____, producing _____ and _____storms

b. Cause _____ weather events to become _____