

Climate Change: A Cosmic Perspective

Climate Change · Answer Key · 12 Questions

1. Which celestial body is the primary source of energy that drives Earth's climate system?

- A) The Moon
- B) The Sun**
- C) Jupiter
- D) The Milky Way Galaxy

2. What is the approximate distance of Earth from the Sun, influencing the amount of solar radiation it receives?

- A) 15 million kilometers
- B) 150 million kilometers**
- C) 1.5 billion kilometers
- D) 15 trillion kilometers

3. Venus, a planet in our solar system, experiences a runaway greenhouse effect. What is the main gas responsible for this extreme warming?

- A) Nitrogen
- B) Oxygen
- C) Carbon Dioxide**
- D) Helium

4. Earth's atmosphere contains gases that trap heat, similar to how glass traps heat in a greenhouse. What is this phenomenon called?

- A) The Aurora Effect
- B) The Doppler Effect
- C) The Greenhouse Effect**
- D) The Tidal Effect

5. What is the main process by which the Sun generates its immense energy?

- A) Nuclear Fission
- B) Chemical Burning
- C) Nuclear Fusion**
- D) Geothermal Activity

6. The tilt of Earth's axis relative to its orbital plane is responsible for what seasonal phenomenon?

- A) Tides
- B) Eclipses
- C) Day and Night cycles

D) Seasons

7. Which layer of Earth's atmosphere is closest to space and is where weather primarily occurs?

- A) Stratosphere
- B) Mesosphere
- C) Thermosphere

D) Troposphere

8. The vast expanse beyond Earth, containing stars, planets, and galaxies, is known as the:

- A) Biosphere
- B) Atmosphere
- C) Hydrosphere

D) Universe

9. Which of these is a gas that is a significant greenhouse gas, contributing to the warming of Earth's atmosphere?

- A) Argon
- B) Methane
- C) Neon
- D) Hydrogen

10. The Sun is a star. What type of object is our Sun within the broader cosmic context?

- A) A Planet
- B) A Moon
- C) A Dwarf Star

D) A G-type main-sequence star (Yellow Dwarf)

11. Mars, a neighboring planet, has a much thinner atmosphere than Earth. What does this imply about its ability to trap heat?

- A) It traps more heat
- B) It traps significantly less heat
- C) It traps the same amount of heat
- D) It traps heat through magnetic fields

12. The presence of liquid water on Earth, crucial for life and climate, is largely due to its distance from the Sun, often referred to as the:

- A) Oort Cloud
- B) Kuiper Belt
- C) Habitable Zone**
- D) Asteroid Belt