

# Advanced Environmental Science Mastery

Environmental Science · Answer Key · 11 Questions

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**1. Which gas is the third most abundant in Earth's atmosphere by volume?**

- A) Carbon dioxide
- B) Argon**
- C) Neon
- D) Helium

**2. In the context of ocean acidification, the reduction of which ion's concentration most directly impacts the ability of calcifying organisms to build shells?**

- A) Bicarbonate
- B) Hydroxyl
- C) Carbonate**
- D) Sulfate

**3. According to the 10% rule in ecological energetics, if a primary producer captures 10,000 Joules of solar energy, how much energy is typically available to the tertiary consumer?**

- A) 1,000 J
- B) 100 J
- C) 10 J**
- D) 1 J

**4. Which molecule is recognized by the IPCC as having the highest Global Warming Potential (GWP) over a 100-year period?**

- A) Methane
- B) Nitrous oxide
- C) Sulfur hexafluoride**
- D) Carbon tetrachloride

**5. What is the primary limiting nutrient in most freshwater lake ecosystems that triggers eutrophication?**

- A) Phosphorus**
- B) Nitrogen
- C) Iron
- D) Potassium

**6. Approximately what percentage of the Earth's total freshwater is stored in glaciers and ice caps?**

- A) 30.1%
- B) 1.2%
- C) 97.5%
- D) 68.7%**

**7. The 'Keeling Curve' is a famous graph that represents the continuous measurement of which atmospheric component since 1958?**

- A) Methane
- B) Ozone
- C) Carbon dioxide**
- D) Nitrogen dioxide

**8. Which specific process in the nitrogen cycle involves the conversion of ammonia (NH<sub>3</sub>) into nitrates (NO<sub>3</sub><sup>-</sup>)?**

- A) Nitrogen fixation
- B) Nitrification**
- C) Denitrification
- D) Ammonification

**9. What is the standard unit of measurement used to express the concentration of atmospheric ozone in a vertical column?**

- A) Pascal
- B) Parts per billion
- C) Dobson Unit**
- D) Roentgen

**10. To be classified as a 'Biodiversity Hotspot' by Conservation International, a region must contain at least how many endemic species of vascular plants?**

- A) 500
- B) 1,000
- C) 1,500**
- D) 5,000

**11. Which atmospheric layer contains the 'thermal inversion' responsible for trapping pollutants near the Earth's surface during specific weather conditions?**

- A) Troposphere**
- B) Stratosphere
- C) Mesosphere
- D) Thermosphere