

## Chapter 01 Humans and the Geologic Environment

### Multiple Choice Questions

1. Which trend best describes human population growth?
- A. Exponential
  - B. Linear
  - C. Tangential
  - D. Planar
  - E. Unpredictable

*Blooms Level: 1. Remember*

*Learning Outcome: Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.*

*Section: 01.06*

*Topic: Investigating Geologic Questions*

2. Which of the following measures do environmentalists suggest may be necessary in order for humans to live in a sustainable manner?

- A. All of the answers listed here
- B. Stabilize the population
- C. Conserve resources
- D. Reduce per capita consumption of resources
- E. Develop renewable energy resources

*Blooms Level: 2. Understand*

*Learning Outcome: Define the concept of sustainability in terms of the living standard of developed nations and also in terms of the human impact on the biosphere.*

*Learning Outcome: Describe the major focus of the discipline called environmental geology.*

*Section: 01.06*

*Topic: Investigating Geologic Questions*

3. The tragedy of the commons is an important concept related to environmental degradation and human behavior. Which of the following best describes this concept?

- A. When the self interest of individuals destroys natural resources being shared by society.
- B. When a common disease spreads through society due to poor sanitation.
- C. When over population creates living conditions that lower the quality of life.
- D. When humans act irrationally during a large-scale natural disaster.
- E. When humans overreact to an environmental threat and then limit economic growth.

*Blooms Level: 1. Remember*

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*Learning Outcome: Describe how Earth operates as a system and why humans are an integral part of the system.*

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*Section: 01.06*

*Topic: Investigating Geologic Questions*

4. Which of the following refers to the process by which the physical world is examined in a logical manner?

- A.** Scientific Method
- B. Elemental Method
- C. Plausibility Theory
- D. Inquiry Theory
- E. Intelligent Design

*Blooms Level: 1. Remember*

*Learning Outcome: Characterize how scientists develop hypotheses and theories as a means of understanding the natural world.*

*Section: 01.02*

*Topic: Investigating Geologic Questions*

5. Which term refers to a scientific explanation of data that can be tested in such a way that shows it to be false?

- A.** Hypothesis
- B. Uncertainty
- C. Plausibility
- D. Educated Guess
- E. All of the answers listed here

*Blooms Level: 1. Remember*

*Learning Outcome: Characterize how scientists develop hypotheses and theories as a means of understanding the natural world.*

*Section: 01.02*

*Topic: Nature of Geology*

6. Which of the following is NOT an attribute of a good scientific explanation?

- A. Sustainable
- B. Falsifiable
- C. Peer-Reviewed
- D. Consistent with all the data available
- E.

All of the answers listed here

*Blooms Level: 2. Understand*

*Learning Outcome: Characterize how scientists develop hypotheses and theories as a means of understanding the natural world.*

*Section: 01.02*

*Topic: Nature of Geology*

7. About how many years old is the Earth as shown by science?

- A. 4.6 billion
- B. 4.6 million
- C. 4.6 thousand
- D. 4.6 trillion
- E. 10 thousand

*Blooms Level: 1. Remember*

*Learning Outcome: Describe the concept of geologic time and how the geologic time scale was constructed.*

*Learning Outcome: Explain how geologic time and the rate at which natural processes operate affect how humans respond to environmental issues.*

*Section: 01.04*

*Topic: Geologic Time*

8. Which of the following terms refers to the use of resources in such a way that future generations will have a fair share and inherit a quality environment?

- A. Sustainability
- B. Renewability
- C. Catastrophism
- D. Environmentalism
- E.

All of the answers listed here

*Blooms Level: 2. Understand*

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*Section: 01.06*

*Topic: Investigating Geologic Questions*

9. This type of dating uses radioactive elements and their decay products to determine an absolute age for an earth material.

- A. Radiometric Dating
- B. Relative Dating
- C. Fossilization Timing
- D. Petrographic Dating
- E. Superposition

*Blooms Level: 1. Remember*

*Learning Outcome: Describe the concept of geologic time and how the geologic time scale was constructed.*

*Section: 01.04*

*Topic: Geologic Time*

10. How does the ecological footprint for people living in developed (industrialized) nations compare to that of people living in still developing nations?

- A. It is greater
- B. It is smaller
- C. It is equivalent
- D. This is not a plausible comparison
- E. It is not defined for developing nations

*Blooms Level: 5. Evaluate*

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*Section: 01.06*

*Topic: Investigating Geologic Questions*

11. How was the geologic time scale developed?

- A. By correlating exposed rock sections from around the world.
- B. By systematically dividing all of earth history into equally spaced time intervals, similar to the hours and minutes on a clock.
- C. By radiometrically dating successive intervals in rock layers.
- D. By compiling Biblical and historical records to reconstruct Earth's history.
- E. All of the answers listed here.

*Blooms Level: 2. Understand*

*Learning Outcome: Describe the concept of geologic time and how the geologic time scale was constructed.*

*Section: 01.04*

*Topic: Geologic Time*

12. When defining environmental risks, scientists must primarily consider which of the following components?

- A.** The probability that an event will occur and the expected consequences of that event.
- B. The consequences of an event only.
- C. The magnitude and consequences of an event.
- D. The measures necessary to prevent environmental risks from occurring.
- E. Whether an event is even possible.

*Blooms Level: 2. Understand*

*Learning Outcome: Describe the major focus of the discipline called environmental geology.*

*Learning Outcome: Explain how geologic time and the rate at which natural processes operate affect how humans respond to environmental issues.*

*Section: 01.04*

*Topic: Investigating Geologic Questions*

13. Which of the following is NOT true of incremental processes?

- A.** They take place somewhat randomly as discrete events.
- B. They generate very small changes with time.
- C. They can be difficult to recognize.
- D. Deforestation is an example of an incremental process.
- E. Climate change is an example of an incremental process.

*Blooms Level: 2. Understand*

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*Section: 01.04*

*Topic: Nature of Geology*

14. Which of the following statements is NOT true regarding the Earth system?

- A.** Humans are not capable of affecting the system.
- B. It consists of several sub-systems.
- C. It is dynamic and interactive.
- D. It is affected by other bodies in the solar system.
- E. Earth's life forms are dependent on the system.

*Blooms Level: 2. Understand*

*Learning Outcome: Describe how Earth operates as a system and why humans are an integral part of the system.*

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*Section: 01.05*

*Topic: Nature of Geology*

15. Which term is used to describe the amount of biologically productive land/sea area necessary to support the lifestyle of an individual?

- A.** Ecological Footprint
- B. Sustainable Square
- C. Environmental Area
- D. Geologic Commons
- E.

Consumption Rate

*Blooms Level: 1. Remember*

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*Section: 01.06*

*Topic: Nature of Geology*



16. Which of the following are potentially limiting factors associated with food production and distribution?

- A.** All of the answers listed here
- B. Water supply and resources
- C. Mineral resources
- D. Energy resources
- E. Topsoil erosion

*Blooms Level: 5. Evaluate*

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*Section: 01.06*

*Topic: Investigating Geologic Questions*

17. Almost all of the environmental problems discussed in class were ultimately tied to one factor. Which of the following is the root cause of most of our problems?

- A.** Human population
- B. Air pollution
- C. Food production
- D. Energy production
- E. Water pollution

*Blooms Level: 2. Understand*

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### **True / False Questions**

18. The biggest environmental issue facing the human race is sustainability.

**TRUE**

As the human population continues to grow, our ability to make use of Earth's limited resources in a sustainable manner will determine whether or not our planet will be able to continue supporting the life of our species. Thus, sustainability is the greatest environmental concern for the human race as it determines our existence.

*Blooms Level: 5. Evaluate*

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*Section: 01.06*

*Topic: Investigating Geologic Questions*

19. A scientific law describes the relationship between several different hypotheses.

**FALSE**

A theory describes the relationship between several different hypotheses. A law describes natural phenomena in which the relationship between different data occurs regularly and with little deviation.

*Blooms Level: 1. Remember*

*Learning Outcome: Characterize how scientists develop hypotheses and theories as a means of understanding the natural world.*

*Section: 01.02*

*Topic: Nature of Geology*

Chapter 01 - Humans and the Geologic Environment

20. As one of many species living on Earth, humans are very limited in their ability to impact the environment.

**FALSE**

Humans are an integral part of the Earth system, and the way we interact with this system can have profound impacts on the environment upon which we depend.

*Blooms Level: 2. Understand*

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*Topic: Investigating Geologic Questions*

21. In geologic time, humans have existed for only a very brief amount of Earth's history.

**TRUE**

Geologic time is immense. The Earth is 4.6 billion years old, and humans have been in existence for only 200,000 years, a very short amount of geologic time.

*Blooms Level: 2. Understand*

*Learning Outcome: Describe the concept of geologic time and how the geologic time scale was constructed.*

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*Section: 01.04*

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