

Principles of Environmental Science, 9e (Cunningham)

Chapter 1 Understanding Our Environment

1) Methods in environmental science include all of the following, except

- A) observations.
- B) qualitative reasoning.
- C) the scientific method.
- D) quantitative reasoning.
- E) critical and analytical thinking.

Answer: B

Section: 01.01

Topic: Scientific Thinking

Bloom's: 2. Understand

Chapter: 01

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2) If current trends continue, climate models indicate that by 2100 global mean temperature will probably increase by 2° to 6°C compared to today's temperatures. This would result in decreases in

- A) severe droughts.
- B) heat waves.
- C) storm intensity.
- D) flooding.
- E) glaciers and snowfields.

Answer: E

Section: 01.01

Topic: Climate Change

Bloom's: 2. Understand

Chapter: 01

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3) The Human Development Index (HDI) is a statistic to compare quality of life in different places. Why do some countries have low HDI values compared to others?

- A) People live longer and have greater incomes in these locations.
- B) Poverty, hunger, and health problems are greater in these places.
- C) The majority of the data is collected by U.S. agencies and is biased.
- D) Literacy and education is higher in these locations compared to others.
- E) The quality of life in these places is high.

Answer: B

Section: 01.01; 01.03

Topic: Data Analysis

Bloom's: 2. Understand; 3. Apply

Chapter: 01

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- 4) Environmental science is a
- A) narrowly defined set of physical, life, and social sciences.
 - B) theoretical approach in interpreting the environment.
 - C) way to see the world in scientific terms.
 - D) systematic approach learning about the environment.
 - E) special set of problem-solving skills.

Answer: D

Section: 01.01

Topic: Environmental Science

Bloom's: 2. Understand

Chapter: 01

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- 5) Most environmental problems result from
- A) excessive pollution.
 - B) complex, interrelated problems.
 - C) technological development problems.
 - D) global warming.
 - E) urban degradation.

Answer: B

Section: 01.01

Topic: Environmental Science

Bloom's: 1. Remember

Chapter: 01

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- 6) In explaining your choice of an environmental science major in college to your roommate, you would probably emphasize the fact that environmental science is a(n)
- A) applied interdisciplinary field concerning the environment with an emphasis on solving problems.
 - B) well-established field that has been in existence for a long time.
 - C) theoretical discipline that will help solve the problems created by human impact.
 - D) relatively new field that will identify remedies to environmental issues.
 - E) theoretical field with an emphasis on scientific understanding.

Answer: A

Section: 01.01

Topic: Environmental Science

Bloom's: 3. Apply

Chapter: 01

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- 7) Ideally, science
- A) is correct most of the time.
 - B) tells us what we expected to find.
 - C) uses new technology.
 - D) is methodical and logical.
 - E) proves that our hypotheses are correct.

Answer: D

Section: 01.04

Topic: Scientific Method

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 8) The best definition of a hypothesis is a(n)
- A) proof of a proposed theory.
 - B) proposed theory that has been tested numerous times.
 - C) theory based on experiments.
 - D) argument based on acute intuition.
 - E) proposed explanation based on observation.

Answer: E

Section: 01.04

Topic: Scientific Method

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 9) Of the following statements and questions, which is the best example of deductive reasoning?
- A) If all insects have six legs, then butterflies have six legs.
 - B) In repeated tosses of a coin, there is a 50/50 chance of each toss resulting in a "head."
 - C) How many times will the toss of coins turn "heads-up" if 100 people each toss a coin?
 - D) Since every insect I have examined so far has six legs, I conclude that all insects must have six legs.
 - E) All of these are examples of deductive reasoning.

Answer: A

Section: 01.04

Topic: Scientific Method

Bloom's: 4. Analyze

Chapter: 01

Accessibility: Keyboard Navigation

10) The statement, "Since every insect I have examined so far has six legs, I conclude that all insects must have six legs." is an example of

- A) inductive reasoning.
- B) deductive reasoning.
- C) hypothesis testing.
- D) reductive reasoning.
- E) parsimony.

Answer: A

Section: 01.04

Topic: Scientific Method

Bloom's: 3. Apply

Chapter: 01

Accessibility: Keyboard Navigation

11) Although your sister is not a scientist, she says that she uses scientific techniques in her everyday life. You do not believe her but she insists it is true. Which of the following examples could she use to best persuade you that science is used daily?

- A) When she cooks, she measures ingredients and puts them together to form something else (e.g., a cake).
- B) When she drives in her car, she hypothesizes about things (e.g., when the red light will turn green).
- C) She put some tomatoes in the sun and some in the shade to see if the sun causes them to ripen faster.
- D) She buys a brand of toothpaste based on statistical data (four out of five dentists recommend it).
- E) She cannot provide any example that would persuade you of using scientific techniques in her everyday life.

Answer: C

Section: 01.04

Topic: Scientific Method

Bloom's: 3. Apply

Chapter: 01

Accessibility: Keyboard Navigation

12) A group of concerned citizens are collecting water samples from a local river to detect the level of nitrogen in the water. They plan to take samples every day for a month and then will divide the sum by the number of days they sampled. Which of the following answers most completely describes what the group is trying to do?

- A) determine the mean level of nitrogen in the water
- B) determine the average level of nitrogen in the water
- C) determine the confidence level of the sample
- D) both determine the mean level of nitrogen in the water and determine the average level of nitrogen in the water
- E) both determine the average level of nitrogen in the water and determine the confidence level of the sample

Answer: D

Section: 01.04

Topic: Data Analysis

Bloom's: 4. Analyze

Chapter: 01

Accessibility: Keyboard Navigation

13) Which of the following is *not* an example of how statistics are used?

- A) assessing the general state of a group
- B) determining the context of how data was gathered
- C) estimating the confidence you can have in the data
- D) determining if your group is unusual
- E) evaluating the relationship between variables

Answer: B

Section: 01.04

Topic: Data Analysis

Bloom's: 3. Apply

Chapter: 01

Accessibility: Keyboard Navigation

14) Utilitarian conservationists, including Gifford Pinchot and Theodore Roosevelt, supported forest conservation in order to provide

- A) wildlife habitats in forested areas.
- B) untouched, unvisited wilderness areas.
- C) homes, jobs, and recreation for people.
- D) the scenic beauty found in natural areas.
- E) resources, such as natural habitats, for future generations.

Answer: C

Section: 01.06

Topic: Environmental History

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 15) Biocentric preservationists, first led by John Muir, advocate saving natural areas for their
- A) beauty and wildlife habitat.
 - B) hunting and fishing value.
 - C) wood and mineral resources for the future.
 - D) tourism and recreation potential.
 - E) economic value in cleaning the air and preventing soil erosion.

Answer: A

Section: 01.06

Topic: Environmental History

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 16) Environmentalism stemming from the publication of Rachel Carson's *Silent Spring* differed from earlier North American conservation perspectives by
- A) focusing on human population growth.
 - B) placing more emphasis on pollution problems.
 - C) emphasizing international problems.
 - D) encouraging energy efficiency.
 - E) emphasizing the value of natural resources.

Answer: B

Section: 01.06

Topic: Environmental History

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 17) At the end of the twentieth century, _____ has/have been added to environmental thinking.
- A) global concerns
 - B) urban problems
 - C) water supply and pollution problems
 - D) human population growth
 - E) air pollution problems

Answer: A

Section: 01.06

Topic: Environmental History

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 18) The point of critical thinking is to learn to
- A) weigh all the evidence and draw your own conclusions.
 - B) distrust all opinions other than your own.
 - C) trust only your own experimental results.
 - D) learn to accept the views of real authorities.
 - E) identify true experts in a field.

Answer: A

Section: 01.05

Topic: Critical Thinking

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 19) In reading a claim by an atmospheric scientist that ozone depletion is not an actual environmental problem, a critical thinker would
- A) ignore the claim because it does not align with his/her opinions.
 - B) feel relieved because ozone depletion was such an overwhelming problem.
 - C) look for evidence that is in line with past experience.
 - D) look for evidence and background of the source's reliability.
 - E) acknowledge the claim because an atmospheric scientist is an expert.

Answer: D

Section: 01.05

Topic: Critical Thinking

Bloom's: 3. Apply

Chapter: 01

Accessibility: Keyboard Navigation

- 20) One of the first steps in critical thinking is to
- A) decide whether conclusions follow premises.
 - B) decide if premises are true.
 - C) identify premises and conclusions.
 - D) identify whether premises are facts or values.
 - E) approach a problem in new and innovative ways.

Answer: C

Section: 01.05

Topic: Critical Thinking

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

- 21) Evidence of progress in dealing with increasing population problems is best illustrated by
- A) current evidence of a stable population in the developing and developed world.
 - B) a decrease in the average number of children born to each woman.
 - C) current evidence of a globally stable population growth.
 - D) the decreasing population growth rate in the United States.
 - E) current evidence of a stable population in the developing world.

Answer: B

Section: 01.03

Topic: Populations

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

- 22) Poverty is passed on from one generation to the next primarily through
- A) the lack of available opportunities.
 - B) genetic conditions.
 - C) improper care of natural resources.
 - D) the lack of motivation to change.
 - E) illnesses spread by viruses.

Answer: A

Section: 01.03

Topic: Populations

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

- 23) Proponents of sustainable development argue that
- A) all development has environmental costs.
 - B) development is less important than the environment.
 - C) development can proceed with minimal costs to the environment.
 - D) the environment is less important than development.
 - E) development does not cause environmental damage.

Answer: C

Section: 01.06

Topic: Sustainability

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

24) What is the probability of getting tails 4 times in a row when you flip a coin?

- A) 1 in 4
- B) 1 in 10
- C) 1 in 16
- D) 1 in 20
- E) 1 in 24

Answer: C

Section: 01.04

Topic: Data Analysis

Bloom's: 4. Analyze

Chapter: 01

Accessibility: Keyboard Navigation

25) When testing a new drug to treat arthritis what method should be used to avoid bias in the data?

- A) deductive reasoning
- B) inductive reasoning
- C) critical thinking
- D) statistics
- E) double-blind experiments

Answer: E

Section: 01.04

Topic: Experimental Design

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

26) Compared to poorer countries, which of the following is not true of richer nations?

- A) they have a higher per capita GDP
- B) they have higher fertility
- C) they have lower infant mortality
- D) they have higher adult literacy
- E) they have higher life expectancy

Answer: B

Section: 01.03

Topic: Populations

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

27) Sustainable development differs from traditional economic development in that it emphasizes economic development in the short term.

Answer: FALSE

Section: 01.06

Topic: Sustainability

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

28) Places in the world where indigenous people live tend to have high biodiversity.

Answer: TRUE

Section: 01.03

Topic: Populations

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

29) Parsimony is one of the basic principles of science.

Answer: TRUE

Section: 01.04

Topic: Scientific Method

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

30) If you heard that cultural diversity was disappearing in one of the most culturally diverse regions of the world, you would

A) deduce that biodiversity was disappearing as well, because the two tend to go hand in hand.

B) induce that biodiversity was disappearing as well, because the two tend to go hand in hand.

C) assume that this phenomenon is not related to any other environmental degradation.

D) assume that scientists had already studied their language and biodiversity, so there is no immediate threat to their continued existence.

Answer: A

Section: 01.03

Topic: Populations

Bloom's: 4. Analyze

Chapter: 01

Accessibility: Keyboard Navigation

- 31) Random samples are used
- A) to eliminate bias from a study.
 - B) only when large samples are not available.
 - C) to eliminate the need for a rigorous method of choice.
 - D) only in double-blind medical experiments.

Answer: A
Section: 01.04
Topic: Scientific Method
Bloom's: 2. Understand
Chapter: 01
Accessibility: Keyboard Navigation

- 32) What would be considered to be an area in environmental science where we are seeing progress toward sustainability?
- A) biodiversity loss
 - B) world hunger
 - C) climate change
 - D) renewable energy

Answer: D
Section: 01.02
Topic: Environmental Science
Bloom's: 2. Understand
Chapter: 01
Accessibility: Keyboard Navigation

- 33) Why is world hunger an environmental issue?
- A) Food production is global but the resources are unequally distributed.
 - B) Agriculture is only possible in developed nations.
 - C) There is not enough fresh water for irrigation.
 - D) There is not enough fertilizer to provide high yields for crops.

Answer: A
Section: 01.02
Topic: Environmental Science
Bloom's: 2. Understand
Chapter: 01
Accessibility: Keyboard Navigation

34) Plants capturing carbon dioxide from the atmosphere would be an example of

- A) sustainable development.
- B) environmentalism.
- C) ecosystem services.
- D) throughput.

Answer: C

Section: 01.03

Topic: Sustainability

Bloom's: 3. Apply

Chapter: 01

Accessibility: Keyboard Navigation

35) The concept that a resource that is degraded by the increasing populations that utilize the resource without any regulation of that resource is referred to as

- A) the tragedy of the commons.
- B) the population bomb.
- C) the lack of sustainable thinking.
- D) a paradigm shift.

Answer: A

Section: 01.03

Topic: Sustainability

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation

36) The amount of resource used and how much is thrown away is called

- A) throughput.
- B) ecosystem services.
- C) ecology.
- D) sustainability.

Answer: A

Section: 01.03

Topic: Resources

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

37) Which of the following would NOT be an indicator of good quality of life?

- A) high total fertility
- B) high life expectancy
- C) access to clean water
- D) high adult literacy
- E) low index of poverty

Answer: A

Section: 01.03

Topic: Sustainable Development

Bloom's: 1. Remember

Chapter: 01

Accessibility: Keyboard Navigation

38) Which of the following pioneers in the American conservation movement is most likely to have made the following statement: *Keep close to Nature's heart... and break clear away, once in a while, and climb a mountain or spend a week in the woods. Wash your spirit clean.*

- A) John Muir
- B) Gifford Pinchot
- C) Aldo Leopold
- D) President Roosevelt
- E) Rachel Carson

Answer: A

Section: 01.06

Topic: Environmental History

Bloom's: 2. Understand

Chapter: 01

Accessibility: Keyboard Navigation