c1

Student: _____

1. Which of the following levels of organization is/are correctly ordered?

   A. populations, ecosystem, landscape, individuals, community
   B. individuals, populations, community, ecosystem, landscape
   C. biosphere, landscape, individuals, community, populations
   D. ecosystem, landscape, region, biosphere, populations
   E. individuals, community, populations, landscape, ecosystem

2. MacArthur's conclusions that warblers can coexist by feeding in different zones of a single tree was based on:

   A. Lab experiments
   B. Natural history
   C. Quantitative observations
   D. Field manipulations
   E. None of these

3. Ecology is:

   A. a science
   B. a worldview
   C. a philosophy
   D. a lifestyle
   E. All of these

4. Which of the following is not true of a hypothesis?

A. It is a potential answer to a research question
B. It is the only answer to a research question
C. It is testable through experimentation
D. It can be verified by other researchers
E. None of these

5. David Schindler's work in the Experimental Lakes Area of northwestern Ontario showed the value of:

A. careful observational studies conducted at a large scale.
B. theoretical modeling of nutrients in lake ecosystems.
C. large (lake) scale manipulative experiments on ecosystems.
D. laboratory experiments in answering questions about nutrients in lakes.
E. extrapolating findings from small scale observational studies to a large scale

6. Schindler's studies in the Experimental Lakes Area showed that phosphorus:

A. is unimportant in determining the structure and function of a lake ecosystem.
B. is not found in household detergents.
C. is often found with CO_2 in the wind.
D. is often the limiting nutrient in lakes.
E. is not as important as CO_2 in controlling primary productivity in freshwater lakes.

7. Ecosystem ecology includes:

   A. Biological and physical processes and interactions
   B. Physical and chemical processes and interactions
   C. Biological, physical, and chemical processes
   D. Biological, physical, and chemical processes and interactions
   E. Populations and their environments

8. Physiological ecologists study:

   A. nutrient cycling and energy flow through ecosystems.
   B. exchanges of materials, energy, and organisms between communities.
   C. physiological and anatomical mechanisms by which organisms deal with variation in their physical and chemical environment.
   D. physiological and anatomical mechanisms by which organisms deal with variation in their social environment.
   E. mechanisms that influence population structure and dynamics.

9. Marie-Josée Fortin uses advanced statistical methods on empirical data to detect:

   A. change caused by excess nutrients in lakes.
   B. pollen from long ago in lake sediments.
   C. declining populations of fish.
   D. behavioural changes in populations.
   E. spatial and temporal patterns in ecosystems.

10. Platt and his colleagues at DFO were not able to sample phytoplankton directly because of the large size of the marine systems. What method did they develop instead to estimate changes in phytoplankton abundance?

    A. random sampling of a section of ocean
    B. statistical analysis of a section of ocean
    C. patterns of spectral reflectance
    D. aerial photographs of sea surface
    E. directly measuring marine productivity

11. An ecosystem is defined as:

    A. all the organisms that live in an area.
    B. the physical environment with which organisms interact.
    C. an association of interacting species.
    D. all of the organisms that live in an area and the physical environment with which they interact.
    E. all of the individuals of a single species that live in an area and the physical environment with which they interact.

12. The raw materials that an organism must acquire from the environment to live are called:

    A. resources.
    B. minerals.
    C. reserves.
    D. substrates.
    E. nutrients.

13. According to Margaret Davis, who studied pollen contained within lake sediments, the vegetation landscape of the Appalachian Mountains from 12,000 years ago until approximately 100 years ago changed as follows:

A. spruce, chestnut, beech.
B. chestnut, spruce, beech.
C. beech, spruce, chestnut.
D. spruce, beech, chestnut.
E. chestnut, beech, spruce.

14. _____ ecology involves the study of nutrient cycling and energy flow through a given system, whereas _____ ecology is the study of materials, energy, and organisms exchanges across systems.

A. Landscape; ecosystem
B. Population; landscape
C. Ecosystem; landscape
D. Ecosystem; population
E. Population; community

15. The areas between different types of ecosystems are referred to as _____.

A. ecological boundaries
B. ecotones
C. transition zones
D. ecosystem transitions
E. ecosystem boundaries

16. The process of _____ results in greening of previously clear lakes.

A. acidification
B. sedimentation
C. fragmentation
D. fertilization
E. eutrophication

17. Which of the following statements would **not** be considered a hypothesis?

A. Numerous warbler species are able to coexist in spruce forests because each species feeds on insects living in different zones within trees.
B. Increased phosphorus, not nitrogen, is responsible for eutrophication in lakes.
C. How can several species of insect-eating warblers live in the same forest without one species eventually excluding the others through competition?
D. Several warbler species are able to coexist because each species feeds on insects at different times within trees.
E. Increased primary productivity in freshwater lakes is driven by increased nitrogen.

18. Which of the following is the correct sequence of the scientific method?

A. ask questions, develop hypothesis, collect data to test hypothesis
B. ask questions, develop prediction, collect data to test prediction
C. ask questions, develop hypothesis, develop prediction, collect data to test hypothesis
D. ask questions, develop prediction, develop hypothesis, collect data to test prediction
E. ask questions, develop prediction, develop hypothesis, collect data to test hypothesis

19. Which of the following is incorrect about the Experimental Lake Area?

A. It was established in the 1980s.
B. It houses 46 lakes within 17 watersheds, many of which are used for whole lake manipulations.
C. Dr. David Schindler was the leader of experimental investigations upon establishment of the facility.
D. The first experiments in ELA were manipulations of whole lakes to determine which nutrients are linked to eutrophication effects.
E. Dr. Schindler's research in ELA illustrated that phosphorus is the driver of eutrophication effects.

20. Pollen cores from lake sediments can be used to reconstruct the paleoecological record.

True False

21. Natural history is about knowing the history of a biome.

True False

22. MacArthur observed that warblers maintain differences in feeding zones.

True False

23. Field studies and laboratory studies are mutually exclusive.

True False

24. The word ecology comes from the Greek word for world.

True False

25. Stable isotopes decay radioactively.

    True False

26. Margaret Davis' studies on lake pollen sediments indicate that the forests of eastern North America did not change with the changing climate.

    True False

27. The scientific method deals with absolute truths.

    True False

28. Ecology can be defined as the study of the impact of human activity on the environment.

    True False

29. The Experimental Lakes Area (ELA) is like a real-world laboratory where the natural system can be manipulated.

    True False

30. David Schindler showed that the link between how natural lakes function and humans affect lakes with their waste water is often by adding excess nutrients.

    True False

31. The research done by Ryan Norris on American redstart indicated that sex and age are two important determinants of where an individual will overwinter in Jamaica.

    True False

c1 Key

1. Which of the following levels of organization is/are correctly ordered?

A. populations, ecosystem, landscape, individuals, community

B. individuals, populations, community, ecosystem, landscape

C. biosphere, landscape, individuals, community, populations

D. ecosystem, landscape, region, biosphere, populations

E. individuals, community, populations, landscape, ecosystem

Accessibility: Keyboard Navigation

Bloom's: Knowledge

Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes

Molles - Chapter 01 #1

2. MacArthur's conclusions that warblers can coexist by feeding in different zones of a single tree was based on:

A. Lab experiments

B. Natural history

C. Quantitative observations

D. Field manipulations

E. None of these

Accessibility: Keyboard Navigation

Bloom's: Comprehension

Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools

Molles - Chapter 01 #2

3. Ecology is:

A. a science
B. a worldview
C. a philosophy
D. a lifestyle
E. All of these

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #3

4. Which of the following is not true of a hypothesis?

A. It is a potential answer to a research question
B. It is the only answer to a research question
C. It is testable through experimentation
D. It can be verified by other researchers
E. None of these

Accessibility: Keyboard Navigation
Bloom's: Comprehension
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #4

5. David Schindler's work in the Experimental Lakes Area of northwestern Ontario showed the value of:

A. careful observational studies conducted at a large scale.
B. theoretical modeling of nutrients in lake ecosystems.
C. large (lake) scale manipulative experiments on ecosystems.
D. laboratory experiments in answering questions about nutrients in lakes.
E. extrapolating findings from small scale observational studies to a large scale

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #5

6. Schindler's studies in the Experimental Lakes Area showed that phosphorus:

A. is unimportant in determining the structure and function of a lake ecosystem.
B. is not found in household detergents.
C. is often found with CO_2 in the wind.
D. is often the limiting nutrient in lakes.
E. is not as important as CO_2 in controlling primary productivity in freshwater lakes.

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #6

7. Ecosystem ecology includes:

A. Biological and physical processes and interactions
B. Physical and chemical processes and interactions
C. Biological, physical, and chemical processes
D. Biological, physical, and chemical processes and interactions
E. Populations and their environments

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #7

8. Physiological ecologists study:

A. nutrient cycling and energy flow through ecosystems.
B. exchanges of materials, energy, and organisms between communities.
C. physiological and anatomical mechanisms by which organisms deal with variation in their physical and chemical environment.
D. physiological and anatomical mechanisms by which organisms deal with variation in their social environment.
E. mechanisms that influence population structure and dynamics.

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #8

9. Marie-Josée Fortin uses advanced statistical methods on empirical data to detect:

A. change caused by excess nutrients in lakes.
B. pollen from long ago in lake sediments.
C. declining populations of fish.
D. behavioural changes in populations.
E. spatial and temporal patterns in ecosystems.

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #9

10. Platt and his colleagues at DFO were not able to sample phytoplankton directly because of the large size of the marine systems. What method did they develop instead to estimate changes in phytoplankton abundance?

A. random sampling of a section of ocean
B. statistical analysis of a section of ocean
C. patterns of spectral reflectance
D. aerial photographs of sea surface
E. directly measuring marine productivity

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #10

11. An ecosystem is defined as:

A. all the organisms that live in an area.
B. the physical environment with which organisms interact.
C. an association of interacting species.
D. all of the organisms that live in an area and the physical environment with which they interact.
E. all of the individuals of a single species that live in an area and the physical environment with which they interact.

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #11

12. The raw materials that an organism must acquire from the environment to live are called:

A. resources.
B. minerals.
C. reserves.
D. substrates.
E. nutrients.

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #12

13. According to Margaret Davis, who studied pollen contained within lake sediments, the vegetation landscape of the Appalachian Mountains from 12,000 years ago until approximately 100 years ago changed as follows:

A. spruce, chestnut, beech.
B. chestnut, spruce, beech.
C. beech, spruce, chestnut.
D. spruce, beech, chestnut.
E. chestnut, beech, spruce.

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #13

14. _____ ecology involves the study of nutrient cycling and energy flow through a given system, whereas _____ ecology is the study of materials, energy, and organisms exchanges across systems.

A. Landscape; ecosystem
B. Population; landscape
C. Ecosystem; landscape
D. Ecosystem; population
E. Population; community

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #14

15. The areas between different types of ecosystems are referred to as _____.

A. ecological boundaries

B. ecotones

C. transition zones

D. ecosystem transitions

E. ecosystem boundaries

Accessibility: Keyboard Navigation

Bloom's: Knowledge

Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools

Molles - Chapter 01 #15

16. The process of _____ results in greening of previously clear lakes.

A. acidification

B. sedimentation

C. fragmentation

D. fertilization

E. eutrophication

Accessibility: Keyboard Navigation

Bloom's: Knowledge

Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools

Molles - Chapter 01 #16

17. Which of the following statements would **not** be considered a hypothesis?

A. Numerous warbler species are able to coexist in spruce forests because each species feeds on insects living in different zones within trees.
B. Increased phosphorus, not nitrogen, is responsible for eutrophication in lakes.
C. How can several species of insect-eating warblers live in the same forest without one species eventually excluding the others through competition?
D. Several warbler species are able to coexist because each species feeds on insects at different times within trees.
E. Increased primary productivity in freshwater lakes is driven by increased nitrogen.

Accessibility: Keyboard Navigation
Bloom's: Comprehension
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #17

18. Which of the following is the correct sequence of the scientific method?

A. ask questions, develop hypothesis, collect data to test hypothesis
B. ask questions, develop prediction, collect data to test prediction
C. ask questions, develop hypothesis, develop prediction, collect data to test hypothesis
D. ask questions, develop prediction, develop hypothesis, collect data to test prediction
E. ask questions, develop prediction, develop hypothesis, collect data to test hypothesis

Accessibility: Keyboard Navigation
Bloom's: Comprehension
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #18

19. Which of the following is incorrect about the Experimental Lake Area?

A. It was established in the 1980s.
B. It houses 46 lakes within 17 watersheds, many of which are used for whole lake manipulations.
C. Dr. David Schindler was the leader of experimental investigations upon establishment of the facility.
D. The first experiments in ELA were manipulations of whole lakes to determine which nutrients are linked to eutrophication effects.
E. Dr. Schindler's research in ELA illustrated that phosphorus is the driver of eutrophication effects.

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #19

20. Pollen cores from lake sediments can be used to reconstruct the paleoecological record.

TRUE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #20

21. Natural history is about knowing the history of a biome.

FALSE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #21

22. MacArthur observed that warblers maintain differences in feeding zones.

TRUE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #22

23. Field studies and laboratory studies are mutually exclusive.

FALSE

Accessibility: Keyboard Navigation
Bloom's: Comprehension
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #23

24. The word ecology comes from the Greek word for world.

FALSE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #24

25. Stable isotopes decay radioactively.

FALSE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #25

26. Margaret Davis' studies on lake pollen sediments indicate that the forests of eastern North America did not change with the changing climate.

FALSE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #26

27. The scientific method deals with absolute truths.

FALSE

Accessibility: Keyboard Navigation
Bloom's: Comprehension
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #27

28. Ecology can be defined as the study of the impact of human activity on the environment.

FALSE

Accessibility: Keyboard Navigation
Bloom's: Comprehension
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes
Molles - Chapter 01 #28

29. The Experimental Lakes Area (ELA) is like a real-world laboratory where the natural system can be manipulated.

TRUE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools

30. David Schindler showed that the link between how natural lakes function and humans affect lakes with their waste water is often by adding excess nutrients.

TRUE

Accessibility: Keyboard Navigation
Bloom's: Knowledge
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #30

31. The research done by Ryan Norris on American redstart indicated that sex and age are two important determinants of where an individual will overwinter in Jamaica.

TRUE

Accessibility: Keyboard Navigation
Bloom's: Comprehension
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools
Molles - Chapter 01 #31

c1 Summary

Category	*# of Questions*
Accessibility: Keyboard Navigation	31
Bloom's: Comprehension	8
Bloom's: Knowledge	23
Learning Objective: 01-01 Ecologists study environmental relationships ranging from those of individual organisms to factors influencing global scale processes	9
Learning Objective: 01-02 Ecologists design their studies based on their research questions; the temporal and spatial scale of their studies; and available research tools	22
Molles - Chapter 01	31