Concepts of Biology 1st edition Fowler Test Bank

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Supplemental Test Items to accompany OpenStax College *Concepts of Biology*. Note that not all chapters of OpenStax College *Concepts of Biology* have accompanying test items. Building on the community-oriented nature of OpenStax College resources, we invite you to submit items to be considered for future inclusion.

Chapter 01: Introduction to Biology

1. A scientist observes that when she opens the back door of her house to let her cat out, the songs of a certain species of bird abruptly change. She wants to follow up on her observations with an informal experiment. Which of the following is the best hypothesis for explaining the birds' song changes? (Outcome #Ia) (DOK 2) (Paired Item 1)
    A. The bird species switches from song to warning call whenever it sees a potential predator.*
    B. The bird species has a variety of songs that it sings, regardless of what is happening in its environment.
    C. The scientist is mistaken and the songs do not change.
2. A scientist wants to test the hypothesis that a certain bird species in her back yard changes its songs to warning calls whenever it detects the presence of a potential predator. Which of the following most likely describes her initial observations? (Outcome #Ia) (DOK 2) (Paired Item 2)
    A. The scientist noticed that whenever she opened a door to her house, she heard birds beginning to sing.
    B. Each time the scientist let her cat outside, the birds abruptly changed their songs.*
    C. The scientist noticed that the birds only appeared at certain times of the day, always singing the same song during those times.
3. What is the main purpose of conducting experiments? (Outcome #Ib) (DOK 1) (Paired Item 1)
    A. proving a theory
    B. making initial observations
    C. disproving a hypothesis*
4. The attempt to disprove a hypothesis is accomplished by which of the following tasks? (Outcome #Ib) (DOK 1) (Paired Item 2)
    A. conducting experiments*
    B. making initial observations
    C. proposing a theory
5. A scientist wishes to test a new antibiotic's ability to treat stubborn bacterial infections. He tests his hypothesis that the antibiotic works better than existing treatments by giving bacterial infections to mice and treating them with the antibiotic. He then determines how many of the mice recover from their infections. What is missing from his experimental design? (Outcome #Ib) (DOK 3) (Paired Item 1)

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   A. He is missing a control group of mice that received a half dose of the new antibiotic.
   B. He is missing a control group of mice that did not receive the new antibiotic.*
   C. Nothing is missing—he has done everything he needs to do for this to be a successful experiment.

6. A scientist wants to determine whether a new chemical she isolated can cure a certain disease. To test her hypothesis that the new chemical cures the disease more effectively than current treatments, she infects mice with the disease and gives them the new chemical. She then assesses how many mice were cured of the disease. What is missing from her experimental design? (Outcome #Ib) (DOK 3) (Paired Item 2)
   A. She is not missing anything—her experimental design is adequate to test her hypothesis.
   B. She is missing a control group of mice that received a half dose of the new chemical.
   C. She is missing a control group of mice that did not receive the new chemical.*
7. A scientist believes that she has found a new life form. Which of the following conditions is not considered essential in determining whether the putative new life form is alive? (Outcome #Ic) (DOK 2) (Paired Item 1)
   A. The creature possesses purposeful anatomical structures that differ from one another.
   B. The creature's body is bilaterally symmetrical.*
   C. The creature seems to react to being touched.
8. A scientist discovers a putative new life form and notes that the creature's body is bilaterally symmetrical and consequently satisfies the criteria for defining life in which of the following categories? (Outcome #Ic) (DOK 2) (Paired Item 2)
   A. none, symmetry is not a basic characteristic of life*
   B. order
   C. growth and development
9. Which of the following lists correctly presents levels of organization from simplest to most complex? (Outcome #Ic) (DOK 2) (Paired Item 1)
   A. organs, organ systems, organelles, organisms
   B. biosphere, atoms, communities, organisms
   C. molecules, cells, populations, ecosystems*
10. Which of the following lists correctly presents levels of organization from most complex to simplest? (Outcome #Ic) (DOK 2) (Paired Item 2)
   A. cell, organelle, atom, molecule
   B. biosphere, community, organism, organ system*
   C. macromolecule, population, community, ecosystem
11. An "educated guess" as to what causes an observed phenomenon is known as a: (Outcome #1) (DOK 1)
   A. theory

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B. hypothesis*
C. control

12. Why are theories stronger and more reliable than hypotheses? (Outcome #1) (DOK 2)
A. because we believe in them more
B. because they have a control group
C. because they are based on many experimentally tested hypotheses*

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