

Multiple Choice

Write the letter that best answers the question or completes the statement on the line provided.

- ____ 1. Which of the following is NOT science?
- deciding that human cloning will benefit society
 - observing the courtship behavior of geese
 - collecting and cataloging plant specimens from the rain forest
 - inferring that water from a reservoir is safe to drink
- ____ 2. Secondary succession occurs when
- pioneer species move in to populate an area.
 - species migrate to find abundant food sources.
 - plants begin to grow in areas where no soil existed.
 - land cleared for farming is abandoned.

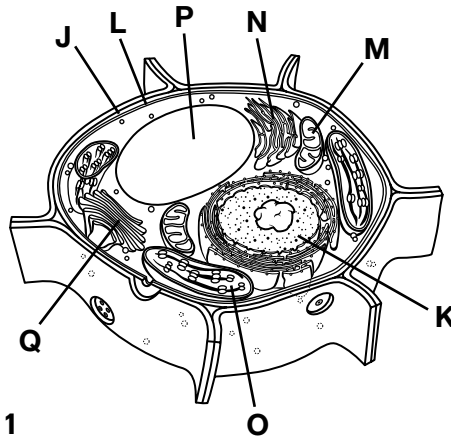


Figure 1

- ____ 3. The cell illustrated in Figure 1 is a
- eukaryotic animal cell.
 - prokaryotic animal cell.
 - eukaryotic plant cell.
 - prokaryotic plant cell.
- ____ 4. Photosynthesis occurs in
- consumers.
 - autotrophs.
 - mitochondria.
 - plant roots.
- ____ 5. During cellular respiration,
- glucose is produced with the sun's energy.
 - oxygen is exchanged with carbon dioxide.
 - energy is released when glucose is broken down.
 - glucose is broken down in the absence of oxygen.

- ___ 6. Mitosis differs from meiosis in that mitosis results in
- two genetically identical diploid cells.
 - four genetically identical haploid cells.
 - two genetically different diploid cells.
 - four genetically different haploid cells.
- ___ 7. If a cross between two black guinea pigs produces three black and one white offspring, then
- the genes for coat color are linked to different chromosomes.
 - a mutation occurred.
 - the alleles for coat color did not assort independently.
 - the parents were heterozygous for coat color.
- ___ 8. Which of the following is NOT evidence of evolution?
- fossil record
 - homologous body structures
 - genetic variation within a population
 - similarities in embryology
- ___ 9. In which pattern of evolution are long stable periods interrupted by brief periods of rapid change?
- adaptive radiation
 - convergent evolution
 - coevolution
 - punctuated equilibrium
- ___ 10. What characteristics do green algae share with plants?
- photosynthetic pigments and cell wall composition
 - photosynthetic pigments and accessory pigment composition
 - accessory pigments and cell wall composition
 - accessory pigments and cell membrane composition
- ___ 11. An important trend in plant evolution is
- reduction of the gametophyte and increased size of the sporophyte.
 - increased reliance on water for reproduction.
 - appearance of a life cycle with only a diploid generation.
 - use of spores for reproduction.
- ___ 12. Which of the following describes the most complex invertebrate?
- radial symmetry, cephalization, pseudocoelom
 - bilateral symmetry, cephalization, true coelom
 - radial symmetry, no cephalization, true coelom
 - bilateral symmetry, no cephalization, pseudocoelom

- ___ 13. All vertebrates
 - a. are chordates.
 - b. have bilateral symmetry.
 - c. have tails.
 - d. all of the above
- ___ 14. How does the endocrine system maintain homeostasis in the human body?
 - a. helps protect the body from disease
 - b. eliminates waste products from the body
 - c. coordinates the body's response to changes in the environment
 - d. produces hormones that control growth and development
- ___ 15. Which of the following is NOT a healthful behavior?
 - a. wearing sunscreen
 - b. exercising regularly
 - c. eating a high-fat diet
 - d. abstaining from drugs and alcohol

Completion

Complete each statement on the line provided.

- 16. As resources become less available, the population growth rate _____ .
- 17. During the process of _____ , RNA polymerase uses DNA to produce a strand of RNA.
- 18. Eukaryotic heterotrophs that have cell walls made of chitin are classified as _____ .
- 19. As angiosperm seeds mature, the ovary walls thicken to form a(an) _____ that encloses the developing seeds.
- 20. A soft-bodied invertebrate that usually has an internal or external shell is a(an) _____ .

Short Answer

In complete sentences, write the answers to the questions on the lines provided.

- 21. Design an experiment that tests whether plants grow faster with fertilizer. Identify the variables in the experiment.

22. Describe the role of plants in the water cycle.

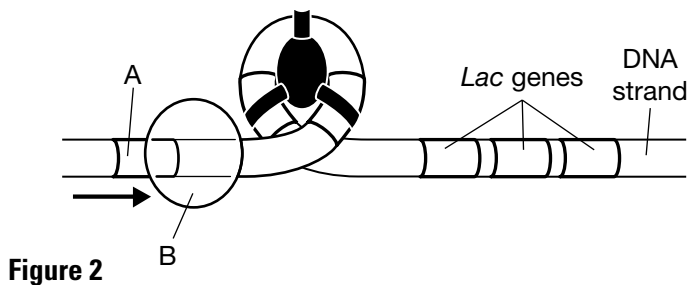
23. Give two reasons why cells divide.

24. Why is genetic diversity important to plant and animal breeders?

25. Explain how scientists currently think human evolution occurred?

Using Science Skills

Use the diagram below to answer the following questions on the lines provided.



26. **Interpreting Graphics** In the operon in Figure 2, what is the function of the DNA sequence labeled A?

27. **Interpreting Graphics** In the operon in Figure 2, why can't the *lac* genes be transcribed when the repressor is bound to the operator?

28. Applying Concepts How does the shape of the repressor protein affect its function?

29. Inferring In the operon illustrated in Figure 2, when are the *lac* genes turned on?

30. Applying Concepts Why do *E. coli* cells have a *lac* operon? How is it useful to the cell?

Essay

Write the answer to each question in the space provided.

31. How would a climate change affect the biotic and abiotic factors in an ecosystem?

32. What would happen to life on Earth if plants suddenly became extinct? Explain.

Name _____ Class _____ Date _____

33. Explain how to construct a bacterial cell that produces human insulin.

34. Explain how changes in DNA relate to the evolution of species.

35. Describe the levels of organization involved in the human stomach.