

Biology Standard 3 (BiologyStandard3)

Name: _____

Date: _____

1.

Which of the following are prokaryotic organisms?

- A. bacteria
 - B. oak trees
 - C. mushrooms
 - D. brown algae
-

2.

Which of the following describes homeostasis?

- A. A cat chases a ball of string.
 - B. A dog barks at a television set.
 - C. A child inherits brown hair color.
 - D. A boy's heart rate increases when running.
-

3. When a bee transports pollen from the anther of one flower to the stigma of another, what has occurred?

- A. cross-pollination
 - B. gametization
 - C. germination
 - D. mitosis
-

4.

Which of the following is a seed-producing plant?

- A. mushroom
 - B. maple tree
 - C. lichen on rocks
 - D. moss with sporophyte stalk
-

5. Some decomposers get their energy by breaking down glucose in the absence of oxygen. This type of cellular respiration is a form of

- A. electrolysis.
 - B. fermentation.
 - C. photosynthesis.
 - D. inorganic decomposition.
-

6. Zoology is the study of

- A. animals.
 - B. bacteria.
 - C. plants.
 - D. viruses.
-

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7. Which explains the relationships among an embryo, a seed, and a fruit?

- A. An embryo is a part of a seed, and the seed is found inside the fruit.
 - B. The embryo is found in the ovum, and a fruit is a swollen ovum.
 - C. The fruit comes from a seed, while the ovum comes from the fruit.
 - D. The ovum surrounds the seed, while the fruit is a part of the ovum.
-

8. Which is the female part of a flower?

- A. nectar
 - B. petal
 - C. pistil
 - D. pollen
-

9. The parts of a flower that cover and protect the flower bud are the

- A. petals.
 - B. sepals.
 - C. stalks.
 - D. stamens.
-

10. The three parts of a flowering plant's pistil are the

- A. ovary, style, and stigma.
 - B. anther, stamen, and stalk.
 - C. calyx, corolla, and pollen.
 - D. sepals, petals, and corolla.
-

11. The mature ovary of a flower becomes the

- A. fruit.
 - B. ovules.
 - C. pollen.
 - D. sperm.
-

12. The first stage of plant germination involves emergence of the

- A. leaf.
 - B. root.
 - C. seed.
 - D. stem.
-

13. A condition that must occur in many types of seeds before germination can begin is

- A. aeration.
 - B. dormancy.
 - C. hibernation.
 - D. pollination.
-

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14. Food for a developing seed is stored in the

- A. cotyledons.
 - B. hypocotyl.
 - C. leaves.
 - D. roots.
-

15. From which part of a flower do insects pick up pollen during feeding?

- A. anther
 - B. sepal
 - C. stamen
 - D. stigma
-

16. Which is NOT necessary for germination of a plant seed?

- A. water
 - B. proper temperature
 - C. oxygen
 - D. sunlight
-

17. Pollination is the transfer of pollen to the stigma. Some pollen is transferred for miles to the stigma of other flowers. Which is NOT a carrier of pollen?

- A. birds
 - B. rain
 - C. insects
 - D. wind
-

18. Molds often spread by contaminating food that is left exposed to air. Which type of reproductive process is **most likely** to spread organisms by air?

- A. budding
 - B. binary fission
 - C. spore formation
 - D. vegetative propagation
-

19. Animals that produce large numbers of eggs at one time usually fertilize them

- A. externally.
 - B. inadequately.
 - C. internally.
 - D. repeatedly.
-

20. An advantage of external fertilization is that

- A. Females do not need to be present.
 - B. Males do not need to use as much energy.
 - C. Sperm cells will reach most of the eggs.
 - D. Males can fertilize eggs at their convenience.
-

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21. Which describes pollination?

- A. pollen landing on the stigma
 - B. pollen forming a pollen tube
 - C. pollen fertilizing an egg cell
 - D. pollen forming the seed
-

22. Which is NOT true of internal fertilization?

- A. Fewer eggs are produced.
 - B. The eggs have greater protection.
 - C. Adults return to water for reproduction.
 - D. The young are more fully developed at birth.
-

23. For which group of organisms is binary fission the **most** common type of asexual reproduction?

- A. simple plants like mosses and ferns
 - B. advanced flowering plants
 - C. invertebrates such as worms
 - D. unicellular organisms like amoebae
-

24. Which is NOT an example of asexual reproduction?

- A. gamete formation
 - B. binary fission
 - C. spore formation
 - D. vegetative propagation
-

25. Which is an example of asexual reproduction?

- A. Fruit develops around a seed.
 - B. The offspring of plants have a variety of traits.
 - C. A neighbor's tulip bulbs can be split and shared with others.
 - D. Pollen is transported from pistils to stamens in flowers.
-

26. A fungus has a wall composed of a polysaccharide similar to cellulose, which is also found in the exoskeleton of insects. This material is

- A. chitin.
 - B. hemicellulose.
 - C. leucine.
 - D. protein-lipid layers.
-

27. Which of the following uses light energy to convert CO₂ and H₂O to organic compounds?

- A. fungi
 - B. arthropod
 - C. yeast
 - D. algae
-

28.

Sunlight, together with which of the following, would **best** illustrate that electromagnetic waves carry energy and can interact with matter?

- A. fungi
 - B. mRNA
 - C. chloroplasts
 - D. mitochondria
-

29.

In photosynthesis, light energy is converted to

- A. nuclear energy.
 - B. chemical energy.
 - C. convection energy.
 - D. electromagnetic energy.
-

30.

Binary fission is a type of asexual reproduction, and is **most** common in

- A. fungi.
 - B. amoebae.
 - C. vascular plants.
 - D. gymnosperms.
-

31.

Bread molds, a type of fungi, reproduce sexually by conjugation and asexually by

- A. spores.
 - B. budding.
 - C. cloning.
 - D. meiosis.
-

32.

Symbiosis involving a fungi and algae is seen in which of the following?

- A. moss
 - B. lichen
 - C. mildew
 - D. bread mold
-

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33. Pollination characteristically occurs in which of the following?

- A. angiosperms and gymnosperms
 - B. angiosperms and slime molds
 - C. bryophytes and angiosperms
 - D. yeasts and bryophytes
-

34.

The oxygen given off by plants is a result of

- A. photosynthesis.
 - B. nitrogen reduction.
 - C. aerobic respiration.
 - D. anaerobic respiration.
-

35.

To which phylum do earthworms and leeches belong?

- A. Annelida
 - B. Arthropoda
 - C. Protozoans
 - D. Echinodermata
-

36.

A similarity between millipedes and lobsters is that both

- A. have a notochord.
 - B. belong to the phylum Arthropoda.
 - C. reproduce both sexually and asexually.
 - D. have specialized claws for protection.
-

37.

The overall organization of the human body follows which general pattern?

- A. tissues, cells, organs, organ systems
 - B. organ systems, organs, cells, tissues
 - C. cells, tissues, organs, organ systems
 - D. cells, organs, organ systems, tissues
-

38. Which is the **best** biological definition of a flower?

- A. vascular plant
 - B. ornamental structure
 - C. vegetative plant organ
 - D. sex organ of a plant
-

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39. Which reproductive plant structure traps the pollen needed for fertilization?

- A. anther
 - B. ovule
 - C. petal
 - D. stigma
-

40. Which is required for germination of a seed?

- A. organic fertilizer
 - B. enough water to soak the seeds
 - C. other seeds of the same species
 - D. a grow light shining on the planting area
-

41. Which is the female reproductive organ in plants?

- A. anther
 - B. filament
 - C. pistil
 - D. stamen
-

42. Where in a flower does fertilization occur?

- A. pistil
 - B. sepal
 - C. stamen
 - D. stigma
-

43. Which is considered to be the male part of a flower?

- A. calyx
 - B. pistil
 - C. sepal
 - D. stamen
-

44. Which part of a flower is considered to be the female reproductive organ?

- A. anther
 - B. corolla
 - C. pistil
 - D. sepal
-

45. Which is an example of sexual reproduction?

- A. budding
 - B. conjugation
 - C. fission
 - D. mitosis
-

46. Which is an example of cloning?

- A. taking leaf cuttings from a houseplant and growing new plants from them
 - B. transferring pollen from one flower to another
 - C. conjugation of two paramecia
 - D. none of these
-

47.

Which characteristic is shared by **most** members of Insecta?

- A. hard scales which protect and camouflage
 - B. metamorphosis from larvae to adult
 - C. a two-part shell that encloses a soft body
 - D. an endoskeleton that supports internal organs
-

48. Echinoderms, such as starfish, get their name from their

- A. way of moving.
 - B. tube feet.
 - C. water-vascular system.
 - D. spiny skin.
-

49. What is the economic impact of earthworms?

- A. Positive, because they improve the soil for agriculture.
 - B. Positive, because they are a major food source for domestic animals.
 - C. Negative, because they devour crops.
 - D. Negative, because they cause disease.
-

50. Earthworms are often found on the surface of the ground after a rain. Which of these statements **best** explains this fact?

- A. They are looking for food.
 - B. They are laying their eggs on the damp grass.
 - C. They can't get enough oxygen in wet soil.
 - D. They are sunning themselves to raise their body temperatures.
-

51. Insects molt so that they can

- A. eat.
 - B. reproduce.
 - C. breathe.
 - D. grow.
-

52. In what way are all invertebrates alike?

- A. They lack blood cells.
 - B. They lack internal backbones.
 - C. They have an exoskeleton.
 - D. They can reproduce asexually.
-

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53. Which of the following phyla of worms are the simplest from an evolutionary standpoint?

- A. true worms
 - B. roundworms
 - C. ribbon worms
 - D. flatworms
-

54. Oyster farmers used to remove starfish from their oyster beds, chop up the starfish, and throw the pieces back in the water. Why was this a poor practice?

- A. It polluted the water.
 - B. The starfish carried parasites which infested the oysters.
 - C. The pieces could regenerate.
 - D. It upset the oxygen balance in the water.
-

55. Which of these statements is true of all arthropods?

- A. They live primarily in warm environments.
 - B. They have an outer skeleton.
 - C. They have two body segments.
 - D. They reproduce both sexually and asexually.
-

56. By what process is food moved through the digestive system?

- A. filtration
 - B. peristalsis
 - C. vascular constriction
 - D. intramural pressure
-

57. Which of the following functions is associated with the stomach?

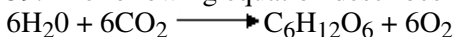
- A. bile production
 - B. acid production
 - C. insulin production
 - D. hormone production
-

58.

Which of the following are products of cellular respiration?

- A. ADP and oxygen
 - B. glucose and oxygen
 - C. ATP and carbon dioxide
 - D. oxygen and carbon dioxide
-

59. The following equation describes which process?



- A. reduction
 - B. oxidation
 - C. photosynthesis
 - D. cell respiration
-

60.

On which of its structures will a flower's pollen be formed?

- A. anther
 - B. ovary
 - C. pistil
 - D. petal
-

61. When a virus infects a bacterium, what does the virus inject into the cell?

- A. viral nucleic acid
 - B. capsid proteins
 - C. hormones
 - D. tail fibers
-

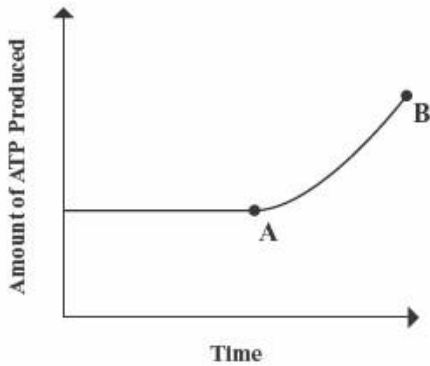
62. What part of a plant functions as an anchor and as an absorption and storage unit?

- A. flower
 - B. leaf
 - C. root
 - D. stem
-

63. Homeostasis is the maintenance of stable conditions within the body. Which of the following is a method of maintaining homeostasis in the human body?

- A. working in air conditioning
 - B. shivering when cold
 - C. eating balanced meals
 - D. sleeping regularly
-

64. The graph below shows the amount of ATP produced in a cell during a period of time.



According to the graph, which of the following processes **must** have increased between points A and B?

- A. cellular respiration
- B. cytokinesis
- C. DNA replication
- D. meiosis

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65. In one of the steps of the carbon cycle, a person exhales a molecule of carbon dioxide (CO_2) into the atmosphere. Which of the following is **most likely** to happen next to the atom of carbon in this molecule?

- A. It may be used as part of a sugar in a plant.
- B. It may become part of a protein in an animal.
- C. It may be consumed as a fossil fuel is burned.
- D. It may be decomposed into carbon and oxygen by a bacterium.

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66. Which of the following is **more likely** to occur in a plant cell than in an animal cell?

- A. synthesis of enzymes
- B. formation of cellulose
- C. breakdown of glucose
- D. active transport of ions

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67. Which of the following occurs during photosynthesis?

- A. CO₂ is used to produce water.
- B. CO₂ is absorbed by mitochondria.
- C. CO₂ and H₂O are converted to carbohydrates.
- D. CO₂ and H₂O are combined into carbonic acid.

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68. Which of the following distinguishes the organisms in the kingdom Fungi from other eukaryotic organisms?

- A. Fungi are unicellular.
- B. Fungi reproduce sexually.
- C. Fungi obtain nutrients by absorption.
- D. Fungi make food through photosynthesis.

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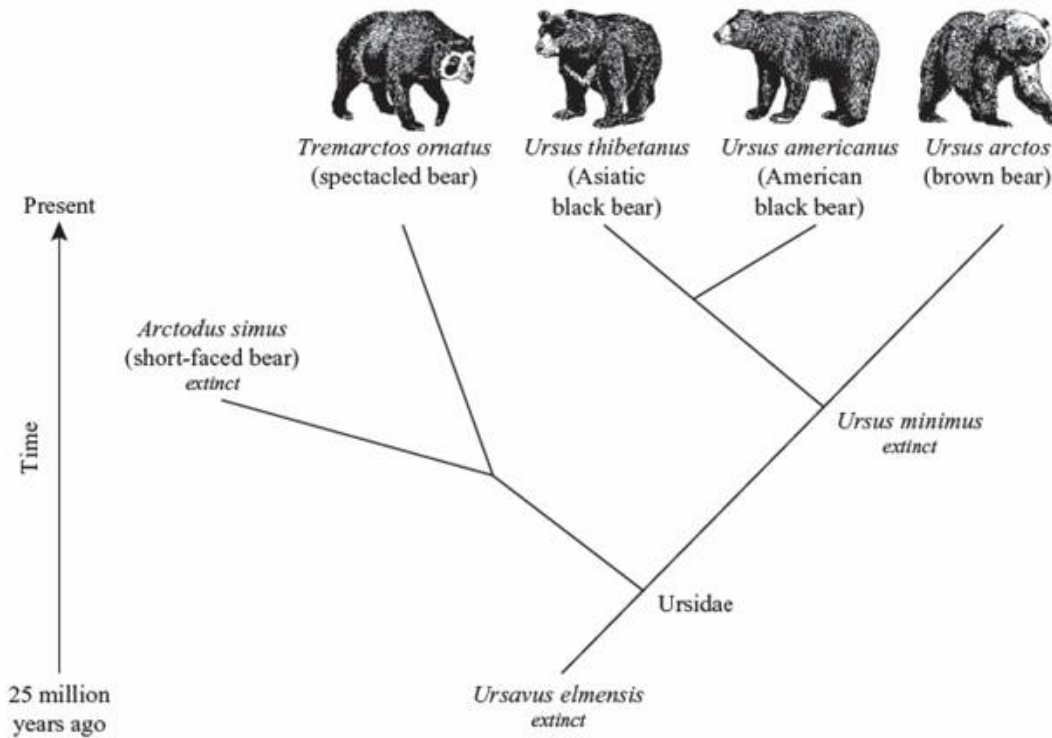
69. In which of the following ways are photosynthesis and cellular respiration alike?

- A. Both processes produce glucose.
- B. Both processes consume carbon dioxide.
- C. Both processes take place in chloroplasts.
- D. Both processes involve energy transformations.

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70. A student researching bears found the chart below in a textbook. The chart shows the classifications of several types of bears.



Which of the following conclusions is **best** supported by the data given in this chart?

- A. Modern bears evolved from species that are now extinct.
- B. The short-faced bear was the ancestor of the Asiatic black bear.
- C. Present day bear species are more closely related than their ancestors were.
- D. Natural selection favored the brown bear over the American black bear.

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71. Students are studying the process of photosynthesis in plants. Which of the following is a product of photosynthesis?

- A. carbon dioxide
- B. nitrogen
- C. sodium chloride
- D. sugar

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72.

Which of these kingdoms includes prokaryote organisms that were among the first forms of life to evolve?

- A. Fungi
 - B. Algae
 - C. Plantae
 - D. Archaeobacteria
-

73.

A microbiologist notices a strange organism growing on the leftover lasagna that he has left in the lab refrigerator for 2 months. He removes a sample of the organism and places it under an electron microscope. He notes that the organism has no nuclear membrane and no mitochondria in its cells. Though very small in size, a cell wall is present. He notes that the organism seems to be strictly single-celled. Based on the structure of the cells, what type of organism is this likely to be?

- A. a eukaryote in kingdom fungi
 - B. a eukaryote in kingdom protista
 - C. a prokaryote in kingdom plantae
 - D. a prokaryote in kingdom eubacteria
-

74.

Which statement describes how single-celled eukaryotes, such as amoebas, eliminate waste from their cells?

- A. Amoebas excrete urine to eliminate waste materials.
 - B. Amoebas use pseudopodia to eliminate waste materials.
 - C. Amoebas use exocytosis to eliminate waste materials.
 - D. Amoebas use a contractile vacuole to eliminate waste materials.
-

75.

A certain kingdom contains heterotrophic, eukaryotic organisms with cell walls. Organisms in this kingdom are usually multi-celled, but a few single-celled exceptions do exist. No organism in this kingdom can photosynthesize or move on its own. What kingdom is this?

- A. plantae
 - B. eubacteria
 - C. fungi
 - D. animalia
-

76.

Which of the organisms uses a single, two-chambered heart attached to a closed circulatory system, in order to circulate blood throughout its organ systems?

- A. an earthworm
 - B. a catfish
 - C. a bullfrog
 - D. a grasshopper
-

77.

Four clear glass jars are filled half-way with water and half-way with a mixture of carbon dioxide and oxygen. No food is placed in the jars. Organisms from four different kingdoms are placed separately into the four jars. The jars are sealed and placed in direct sunlight for six months. After this period the jars are checked to see if there are living inhabitants. Which classification of organisms lacks the characteristics necessary to survive the conditions in the jar for six months?

- A. fungi
 - B. plantae
 - C. photosynthetic eubacteria
 - D. algae (plant-like protists)
-

78.

An organism is found to have a long tube-like digestive tract with a mouth and an anus. This newly discovered organism lacks appendages, has no circulatory system, and has organs that seem to float inside the body. What group of organisms does it likely belong to?

- A. segmented worms
 - B. roundworms
 - C. flatworms
 - D. cnidarians
-

79.

Identify the correct pairing of animals with adaptive features and organs.

- A. arachnids: jointed appendages and paired antennae
 - B. insects: book lungs, venom glands, and spinnerets
 - C. mollusks: a segmented body and a closed circulatory system
 - D. cnidarians: radial symmetry, stinging cells, and a one-way gut pouch.
-

80.

Which example lacks the basic structures of a living organism and cannot metabolize or maintain homeostasis?

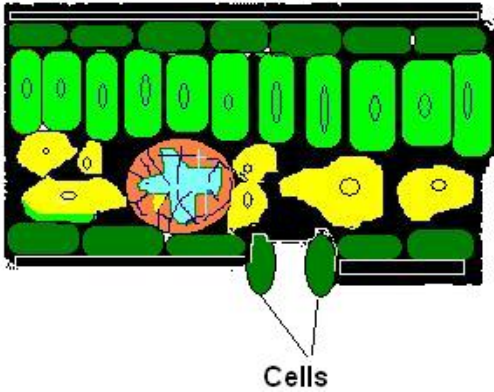
- A. a strep throat bacteria
 - B. a cold virus
 - C. a green algae
 - D. a yeast
-

81.

A researcher discovers a plant that reproduces from spores on the back of the leaves. He notes that it does not produce pollen or flowers. The plant, however, does have xylem and phloem in the stem, and is relatively large. What type of plant could this have been?

- A. a moss
 - B. a fern
 - C. a gymnosperm
 - D. an angiosperm
-

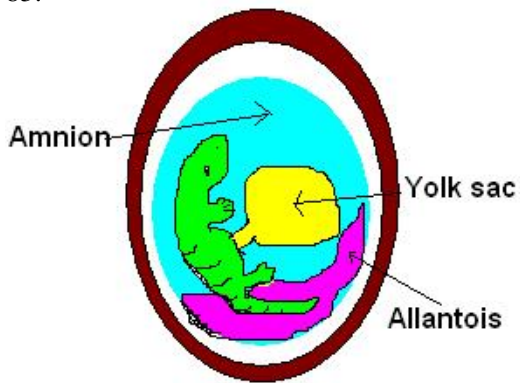
82.



The image shows a diagram of a leaf cross-section. Identify the cells pictured in the diagram and give their purpose.

- A. xylem; to move water into the plant
 - B. phloem; to move sugars into the plant
 - C. cuticle; to collect oxygen for photosynthesis
 - D. stomata; to collect carbon dioxide for photosynthesis
-

83.



What was the first group of vertebrate animals to develop eggs with their own supply of moisture, like the amniotic egg shown?

- A. amphibians
 - B. birds
 - C. fish
 - D. reptiles
-

84.

A certain kingdom's members are always multi-celled autotrophs, and thus, have chloroplasts for sugar production. Cell walls, composed of cellulose, surround the cells of these organisms. Identify this kingdom.

- A. Algae
 - B. Fungi
 - C. Plantae
 - D. Protista
-

85.

Which of these criterion is used to classify organisms into the modern classification system?

- A. diet
 - B. life span
 - C. similarities to fossils
 - D. the habitat in which they live
-

86.

Under the modern classification system, the scientific name of an animal, such as the house cat, *Felis domesticus* , is actually what two levels of classification?

- A. the kingdom and phylum
 - B. the family and species
 - C. the genus and species
 - D. the class and order
-

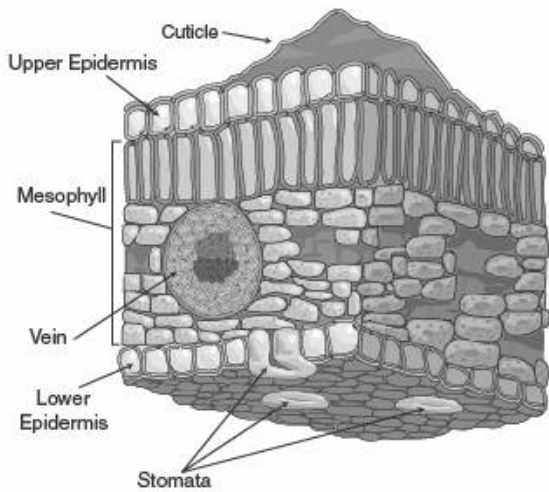
87.

While many people call protozoans, such as amoebas, ciliates and flagellates, 'single-celled animals', this is actually incorrect. Why is this?

- A. Animals are always multi-celled, while protozoans are always single celled.
 - B. Animals are always mobile, while protozoans usually cannot move.
 - C. Animals are heterotrophs, while protozoans are autotrophs.
 - D. Animals have organs and tissues, while protozoans have only tissues.
-

88. **The process of photosynthesis ultimately converts light energy into —**

- A. mechanical energy.
- B. electrical energy.
- C. chemical energy.
- D. nuclear energy.



89.

Which area of the leaf is most responsible for protecting the leaf from the drying effects of the air?

- A. The epidermis
- B. The mesophyll
- C. The vein
- D. The cuticle

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90. What structure is common to all five kingdoms of living organisms?

- A. DNA
- B. Nucleus
- C. Cell wall
- D. Mitochondria

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91. **An important difference between viruses and living cells is that viruses —**

- A. cannot reproduce outside of cells.
- B. contain more nuclei than cells.
- C. cannot mutate but cells can.
- D. need an energy source but cells do not.

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Experimental Observations

1. Nucleus is present.
2. Cell wall is present.
3. Chloroplasts and mitochondria are both present.

92.

The eukaryotic organism described above should be classified as —

- A. an animal.
- B. a bacterium.
- C. a fungus.
- D. a plant.

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93. **Which of the following is produced as a result of photosynthesis?**

- A. Heat
- B. Water
- C. Oxygen
- D. Carbon dioxide

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94. The energy in the food produced by autotrophs or taken into the bodies of heterotrophs must be changed into a form that cells can use. The energy-transferring molecule used by cells is —

- A. DNA
- B. RNA
- C. ATP
- D. CO₂

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Structures Present in Vertebrate Embryos							
Stage of Development	Structure	Frog	Fish	Pig	Bird	Turtle	Human
early	tail	✓	✓	✓	✓	✓	✓
early	gill slits	✓	✓	✓	✓	✓	✓
early	notochord	✓	✓	✓	✓	✓	✓
late	external ears			✓			✓
late	limbs	✓		✓	✓	✓	✓

95. According to the table, as vertebrate embryos develop —

- A. amphibians and humans develop the same structures.
- B. only mammals develop both limbs and external ears.
- C. reptiles and amphibians grow external ears.
- D. limbs and external ears grow on mammals and birds.

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96. Unlike plants, fungi cannot make their own food because they do not have —

- A. roots.
- B. hyphae.
- C. spores.
- D. chlorophyll.

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97. Which pair of structures *best* shows that plant cells have functions different from animal cells?

- A. Cytoplasm and mitochondria
- B. Chloroplasts and cell walls
- C. Nuclei and centrioles
- D. Ribosomes and cell membranes

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98. When an animal eats, food stays in the stomach for a period of time. When a unicellular organism, such as *Paramecium*, takes in food, the food is contained in which organelle?

- A. Chloroplast
- B. Mitochondrion
- C. Nucleus
- D. Vacuole

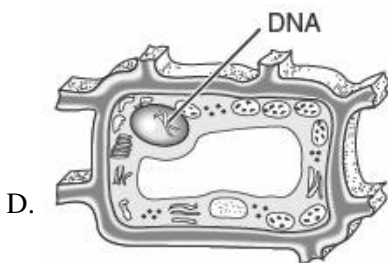
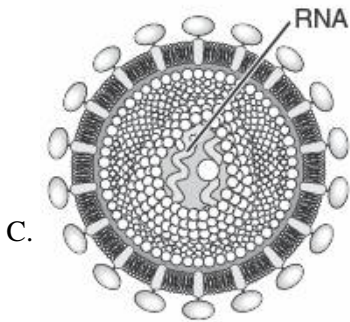
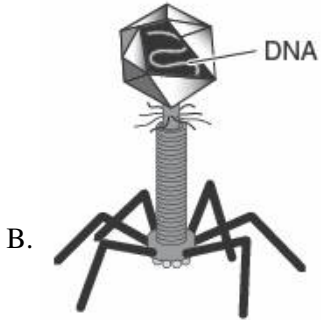
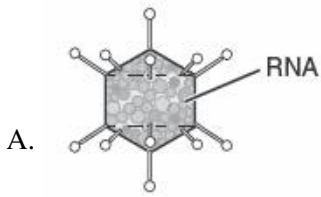
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99. A mushroom and a humpback whale are alike because both are —

- A. Motile.
- B. Heterotrophic.
- C. Prokaryotic.
- D. Unicellular.

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100. Which of these could *not* be a virus?

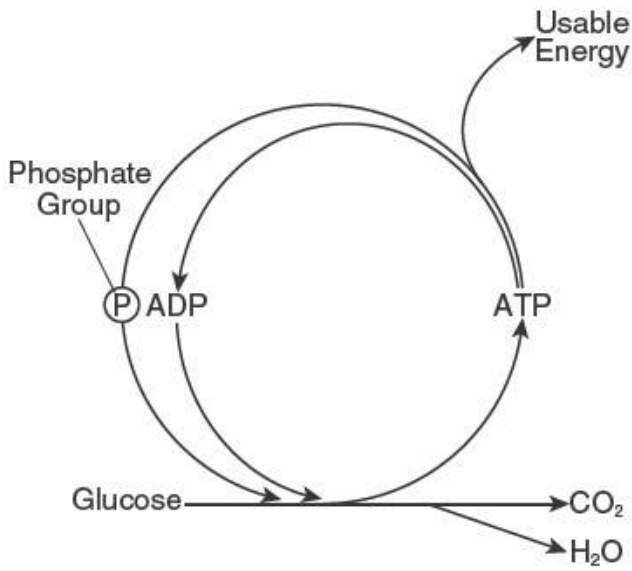


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101. Cells from which of the following organisms would be expected to contain cell walls?

- A. Sponge
- B. Cricket
- C. Water lily
- D. Paramecium

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102.

The picture models a cellular metabolic process. The *main* purpose of this process is to produce —

- A. phosphate groups
- B. usable energy
- C. ADP
- D. H₂O

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