Name:	Date:	

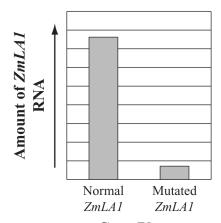
 A cell membrane has a double layer of molecules. These molecules are made up of a phosphorus-containing "head" and two long, fatty acid "tails."

Which of the following *best* explains why the molecules are classified as lipids?

- A. They contain phosphorus.
- B. They form a double layer.
- C. They are made up of fatty acids.
- D. They are found in the cell membrane.

2. All corn plants contain the *ZmLA1* gene. Some corn plants contain a certain mutation in the *ZmLA1* gene. The graph below shows the amount of *ZmLA1* RNA produced in plants with the normal gene and in plants with the mutated gene.

## Amount of ZmLA1 RNA in Corn Plants



**Corn Plants** 

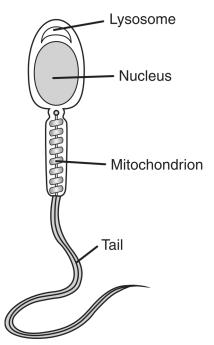
Based on the graph, what most likely happens in corn plant cells as a *direct* result of the mutated gene?

- A. DNA replication increases.
- B. Lipid production decreases.
- C. Glucose synthesis increases.
- D. Protein production decreases.

- 3. Why do eukaryotic cells require mitochondria?
  - A. to break down cell debris for recycling
  - B. to control division for cell reproduction
  - C. to release stored energy for cell activities
  - D. to package materials inside cells for transport

- 4. Which structure is outside the nucleus of a cell and contains DNA?
  - A. chromosome B. gene
  - C. mitochondrion D. vacuole

5. The diagram below shows a male gamete.



Which structure stores most of the genetic information?

- . mitochondrion B. lysosome
- . nucleus D. tail

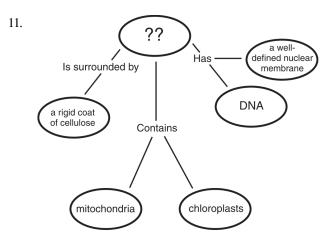
- 6. Which of the following organelles releases energy from sugars?
  - A. ribosomes B. vacuoles
  - C. chloroplasts D. mitochondria

- 7. Which of the following organelles use carbon dioxide to produce sugars?
  - A. vacuoles
- B. ribosomes
- C. chloroplasts
- D. mitochondria

- 8. Which of the following lacks a nucleus?
  - A. a plant cell
- B. an animal cell
- C. an amoeba
- D. a virus

- 9. The cell membrane of the red blood cell will allow water, oxygen, carbon dioxide, and glucose to pass through. Because other substances are blocked from entering, this membrane is called
  - A. perforated.
- B. semi-permeable.
- C. non-conductive.
- D. permeable.

- 10. The plasma membrane of a cell consists of
  - A. protein molecules arranged in two layers with polar areas forming the outside of the membrane.
  - B. two layers of lipids organized with the nonpolar tails forming the interior of the membrane.
  - C. lipid molecules positioned between two carbohydrate layers.
  - D. protein molecules with polar and nonpolar tails.



Which of these best completes this concept map?

- A. an animal cell
- B. a prokaryotic cell
- C. a virus
- D. a plant cell

12. Eukaryotic cells are differentiated from prokaryotic Which statement about plant and animal cells is cells because eukaryotic cells true? A. are much smaller. B. have permeable membranes. C. have a higher rate of reproduction. D. have nuclei. 13. Which cellular organelle is responsible for packaging the proteins that the cell secretes?

B. cell membrane

D. Golgi apparatus

B. mitochondria.

D. Golgi bodies.

14. A cell from heart muscle would probably have an

unusually high proportion of

A. lysosomes.

C. mRNA.

A. cytoskeleton

C. lysosome

- - Plant cells have a nucleus and a cell wall; animal cells do not have either of these structures.
  - B. Plant cells have a cell wall and chloroplasts; animal cells do not have either of these structures.
  - C. Plant cells have a cell wall and a cell membrane; animal cells have a cell wall but not a cell membrane.
  - D. Plant cells have chloroplasts and mitochondria; animal cells have chloroplasts but do not have mitochondria.

16. Blight is a plant disease caused by a fungus that affects potato plants. Some wild breeds of potato have natural resistance to the fungus. These wild potatoes contain chemical compounds that cause them to taste bad. Scientists are trying to produce potato plants that are resistant to blight but still produce potatoes that taste good.

Which of the following describes an important difference between a potato plant cell and a human cell?

- A. Plant cells have a cell wall, and animal cells do not.
- B. Animal cells store water inside, and plant cells do not.
- C. Plant cells have a cell nucleus, and animal cells do not.
- D. Animal cells perform respiration, and plant cells do not.

- Which structure is responsible for allowing materials into and out of an animal cell?
  - Nucleus A.
- B. Cell wall
- Mitochondrion
- D. Cell membrane

- 18. Depending on its electric charge, shape, and chemical properties, a substance may or may not be allowed to pass through a cell membrane. This function of the cell membrane is important because it \_
  - A. prevents cell division
  - prevents destruction of the cell wall
  - allows the cell to maintain homeostasis
  - D. allows amino acids to move into and out of the cell

- 19. In a cell with a high energy requirement, which organelles are found in a high concentration?
  - Chromosomes
- Lysosomes
- C. Mitochondria
- D. Vacuoles

Use the pictures below to answer the following question.









Paramecium

Hydra

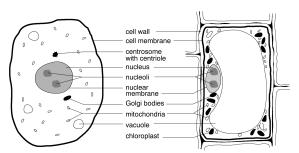
moss

lichen

Which of the following is an example of a single-celled organism?

- Paramecium
- Hydra
- C. moss
- D. lichen

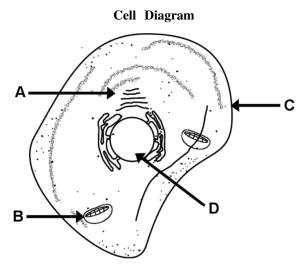
Use the diagrams below of an animal cell and a plant cell to answer the following question.



Features of plant cells that clearly make them different from animal cells are

- a larger nucleus and fewer chromosomes.
- a rigid cell wall and chloroplasts.
- more cytoplasm and smaller vacuoles.
- D. a changing size and indefinite shape.

22. Use the diagram to answer the question.



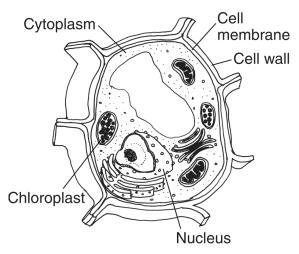
Which arrow indicates the location of the cell membrane?

- A. arrow A
- B. arrow B
- C. arrow C
- D. arrow D

- 23. The starch and water molecules in potato cells are stored in what organelle?
  - A. mitochondrion
- B. nucleus
- C. ribosome
- D. vacuole

- 24. Which cellular organelle uses oxygen and glucose to provide energy to the cell?
  - A. mitochondrion
- B. nucleus
- C. ribosome
- D. vacuole

25. The diagram below shows a cell.



Where would this cell most likely be found?

- A. bark
- B. frog
- C. leaf
- D. mushroom

- 26. What are the basic structural units of living organisms?
  - A. cells
- B. nuclei
- C. organs
- D. tissues

- 27. Which of the following structures is not present in animal cells?
  - A. cell membrane
- B. cell wall
- C. mitochondrion
- D. nucleus

- How is a skin cell from a mouse similar to an A cell has a defect that results in the loss of its amoeba? ability to regulate the passage of water, food, and wastes into and out of the cell. In which of the following cell structures is this defect most likely Both need energy. to be located? Both have cell walls. A. ribosomes Both move with pseudopodia. chloroplasts Both consume carbon dioxide. C. cell membrane endoplasmic reticulum Substances enter any plant or animal cell by passing through which of the following structures? 32. Many animals have internal or external skeletons that provide support and structure. Which of the A. nucleus cell membrane following parts of plant cells play a similar role? C. vacuole D. chloroplast cell membranes B. cell walls C. chloroplasts D. cytoplasm
- 30. A student prepared the following list of characteristics about a cellular organelle.
  - present in animal cells
  - present in plant cells
  - helps make energy available to the cell

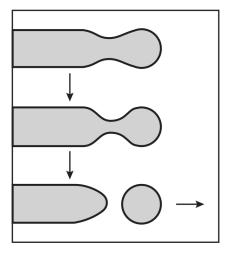
Which of the following cellular structures is the student describing?

- A. cell wall B. chloroplast
- C. mitochondrion D. nucleus

- 33. Some cells, such as human nerve and muscle cells, contain many more mitochondria than do other cells, such as skin cells. Why do some cells have more mitochondria than others?
  - A. The cells use more energy.
  - B. The cells store more nutrients.
  - C. The cells degrade more proteins.
  - D. The cells divide more frequently.

- 34. A single prokaryotic cell can divide several times in an hour. Few eukaryotic cells can divide as quickly. Which of the following statements *best* explains this difference?
  - A. Eukaryotic cells are smaller than prokaryotic cells.
  - B. Eukaryotic cells have less DNA than prokaryotic cells.
  - C. Eukaryotic cells have more cell walls than prokaryotic cells.
  - D. Eukaryotic cells are more structurally complex than prokaryotic cells.

35. A cross section of part of a Golgi complex is shown below.



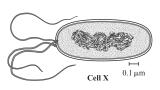
Part of the membrane of the Golgi complex pinches off and moves away. Which of the following is a function of this process?

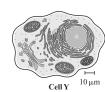
- A. to release energy from ATP
- B. to deliver proteins to other locations in the cell
- C. to collect amino acids for use in protein synthesis
- D. to send messages about cell requirements to the nucleus

- 36. Which of the following is a main function of the cell wall?
  - A. to store carbohydrates for later use
  - B. to give the cell a rigid structure
  - C. to package proteins for export
  - D. to carry out photosynthesis

- 37. Which of the following statements correctly matches a cell part with its function?
  - A. The cell membrane packages lipids for export.
  - B. The mitochondria perform photosynthesis.
  - C. The lysosome digests molecules.
  - D. The nucleus produces energy

38. The illustrations below represent two different cells.



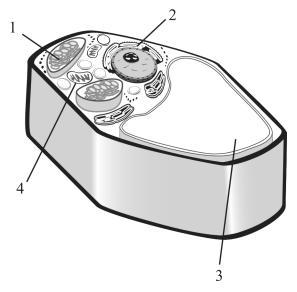


Which of the following statements *best* identifies these two cells?

- A. Cell X is a prokaryotic cell and cell Y is a eukaryotic cell.
- B. Cell X is an archae cell and cell Y is a eubacterial cell.
- C. Cell X is a red blood cell and cell Y is a muscle cell.
- D. Cell X is a plant cell and cell Y is an animal cell.

- 39. A biologist looks at an organism through a microscope. Which of the following observations tells the biologist that the organism is eukaryotic?
  - A. The organism is unicellular.
  - B. The organism moves with flagella.
  - C. The organism has a cell membrane.
  - D. The organism has membrane- bound organelles.

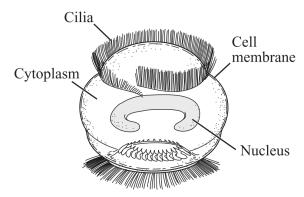
40. A diagram of a plant cell is shown below.



Which number identifies the organelle that functions to store water and dissolved salts?

- **A.** 1
- B. 2
- C. 3
- D. 4

41. The diagram below represents Trichodina.



*Trichodina* is a eukaryotic organism that attaches itself to fish and eats bacteria. Which of the following distinguishes *Trichodina* from all prokaryotes?

- A. Trichodina is unicellular.
- B. Trichodina has a nucleus.
- C. Trichodina has cytoplasm.
- D. Trichodina is heterotrophic.

- 42. In a cell, which of the following organelles *most likely* contains digestive enzymes?
  - A. centriole
- B. chloroplast
- C. lysosome
- D. ribosome

43. A lab technician needs to determine whether cells in a test tube are prokaryotic or eukaryotic. The technician has several dyes she could use to stain the cells. Four of the dyes are described in the table below.

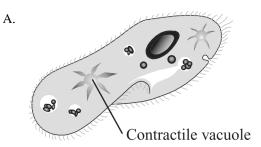
Dye	Test
acridine orange	stains DNA and RNA
osmium tetroxide	stains lipids
eosin	stains cell cytoplasm
Nile blue	stains cell nuclei

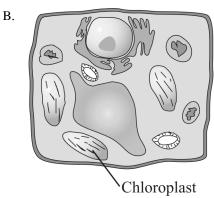
Which dye could the technician use to determine whether the cells are prokaryotic or eukaryotic?

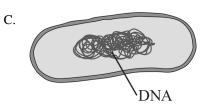
- A. acridine orange
- B. osmium tetroxide
- C. eosin
- D. Nile blue

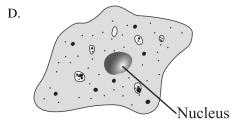
- 44. If a cell's lysosomes were damaged, which of the following would *most likely* occur?
  - A. The cell would produce more proteins than it needs.
  - B. The cell would have chloroplasts that appear yellow rather than green.
  - C. The cell would be less able to break down molecules in its cytoplasm.
  - D. The cell would be less able to regulate the amount of fluid in its cytoplasm.

- 45. A student is looking at a picture of a cell taken through a microscope. The presence of which of the following would indicate that the cell is eukaryotic?
  - A. cytoplasm
- B. DNA
- C. nucleus
- D. plasma membrane
- 46. Scientists believe that the first organisms that appeared on Earth were prokaryotic. Which of the following *best* represents what the cell structure of these organisms may have looked like?



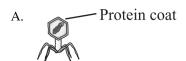


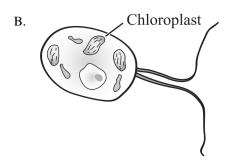


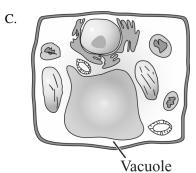


- 47. Which of the following matches a cell organelle with its function?
  - A. chloroplast—movement
  - B. nucleus—cell regulation
  - C. vacuole—energy production
  - D. mitochondrion—photosynthesis

48. Which of the following diagrams shows a prokaryotic cell?

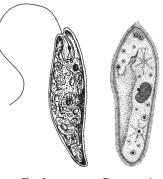








49. The illustration below represents two protists.



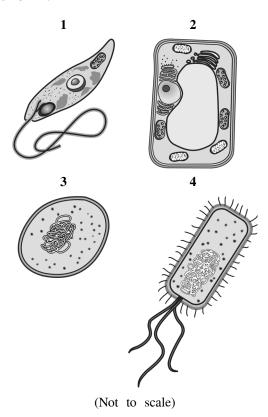
Euglena

Paramecium

What do these two organisms have in common?

- A. They are unicellular.
- B. They cause diseases.
- C. They live underground.
- D. They are photosynthetic.

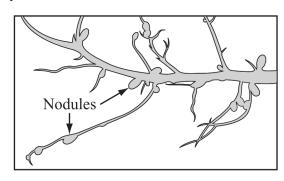
50. Each of the illustrations below shows either a prokaryotic cell or a eukaryotic cell. Each cell is numbered.



Which two cells should be classified as prokaryotic cells?

- A. 1 and 2
- B. 1 and 3
- C. 2 and 4
- D. 3 and 4

51. The illustration below shows part of a clover root system. Two root nodules are labeled.



The nodules contain which of the following to fix nitrogen for the plant?

- A. bacteria
- B. gases
- C. hormones
- D. worms

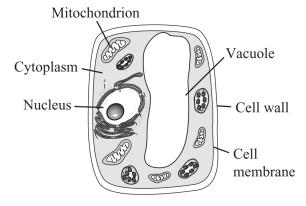
- 52. Which of the following organisms is a prokaryote?
  - A. Agaricus arvensis, horse mushroom
  - B. Rhizopus stolonifer, bread mold fungus
  - C. Saccharomyces cerevisiae, baker's yeast
  - D. Thiopedia rosea, purple sulfur bacterium

53. A student views cells from several different prokaryotic and eukaryotic organisms under a high-powered microscope.

Which of the following statements describes how the prokaryotic cells appear different from the eukaryotic cells?

- A. The prokaryotic cells are much larger.
- B. The prokaryotic cells do not have nuclei.
- C. The prokaryotic cells have mitochondria.
- D. The prokaryotic cells have a less distinct shape.

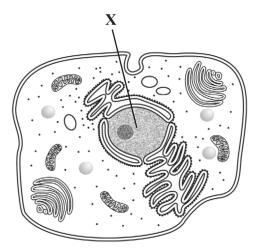
54. A cell is shown in the diagram below. Mitochondrion



Which of the following cell characteristics provides evidence that this cell comes from a plant and not from an animal?

- A. a large vacuole
- B. a single nucleus
- C. a functional mitochondrion
- D. a semipermeable cell membrane

55. A diagram of a cell is shown below.

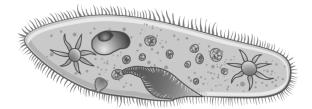


Which of the following is a function performed by the cell part labeled X?

- A. generating ATP
- B. synthesizing polypeptides
- C. storing genetic information
- D. breaking down unneeded materials

- 56. Which of the following organisms has the simplest cellular structure?
  - . bacterium B.
    - B. earthworm
  - C. mushroom
- D. sunflower

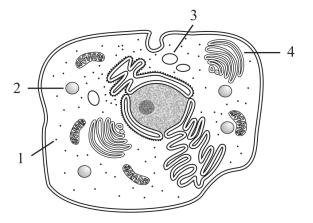
57. A single-celled organism that a student observed under a microscope is shown below.



Which of the following statements *best* describes this organism?

- A. The organism is eukaryotic because it has a plasma membrane.
- B. The organism is prokaryotic because it can reproduce asexually.
- C. The organism is prokaryotic because it can synthesize its own food.
- D. The organism is eukaryotic because it has membrane-bound organelles.

58. The diagram below shows a cell with four of its parts numbered.



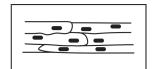
Which numbered part is a ribosome?

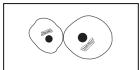
- A. 1 B. 2
- C. 3
- D. 4

- 59. Which of the following statements describes a way in which plant cells and animal cells are similar?
  - A. Both types of cells are prokaryotic.
  - B. Both types of cells are autotrophic.
  - C. Both types of cells have cell walls.
  - D. Both types of cells contain mitochondria.

- 60. Many animals have either internal or external skeletons that provide support and structure. Which of the following parts of plant cells play a similar role?
  - A. cell membranes
- B. cell walls
- C. chloroplasts
- D. cytoplasm

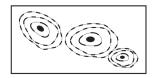
61. Several different types of cells are shown below.

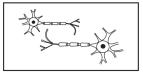




Muscle Cells

Skin Cells





Bone Cells

Nerve Cells

Which two types of cells are *most* similar in shape?

- A. skin cells and bone cells
- B. nerve cells and skin cells
- C. bone cells and nerve cells
- D. muscle cells and skin cells

- 62. Which of these describes the primary function of cell membranes?
  - A. They allow certain molecules to enter and exit the cell.
  - B. They allow all molecules to enter and exit the
  - C. They do not allow molecules to enter or exit the cell.
  - D. They allow all molecules to enter the cell, but not exit.

- 63. Mature human red blood cells lose their nucleus during their development. Which of these are, therefore, absent from red blood cells?
  - A. vacuoles
- B. cytoplasm
- C. membranes
- D. chromosomes

- 64. Which of these is the site where proteins are made in all cells?
  - A. the nuclei
- B. the ribosomes
- C. the chloroplasts
- D. the mitochondria

- 65. Rubisco is an enzyme that enables plants to absorb carbon dioxide. Where in the leaf cell is rubisco used?
  - A. the nucleus
- B. the vacuole
- C. the chloroplasts
- D. the mitochondria

- 66. Which cell part is correctly matched to its function?
  - A. chloroplast—controls cell division
  - B. mitochondrion—releases energy
  - C. cell membrane—contains genetic code
  - D. ribosome—makes sugar

- 67. Algae living in a small lake release a chemical compound that stops production of proteins in the tadpoles that live in the lake. Which structures in the tadpoles' cells will be *directly* affected by this compound?
  - A. vacuoles
- B. ribosomes
- C. chloroplasts
- D. mitochondria

- 68. Which of these are used *directly* to make proteins in all cells?
  - A. nuclei
- B. ribosomes
- C. membranes
- D. mitochondria

69. Use the information below to answer the following question(s).

A student is studying the growth of yeast, a single-celled eukaryotic organism that is used to make bread. He adds yeast cells to a flask containing a sugar solution and then places the flask in an incubator at 30°C. After 36 hours, he observes the flask to determine whether the yeast cells have grown.

Which part of the yeast cell converts the nutrients in the sugar solution into energy?

- A. the cell membrane
- B. the nucleus
- C. the mitochondria
- D. the ribosomes

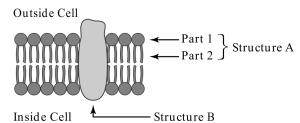
- 70. Which organelle is correctly matched with the cell process it performs?
  - A. vacuole—protein synthesis in leaf cells
  - B. chloroplast—diffusion of water in root systems
  - mitochondrion—energy production in muscle tissue
  - D. ribosome—production of messenger RNA molecules in yeast cells

- 71. Keratin is a protein found in hair. Where in a cell is keratin made?
  - A. the nucleus
- B. the vacuole
- C. the ribosomes
- D. the mitochondria

- 72. Which of these structures is found in plant cells but *not* in animal cells?
  - A. chloroplasts
  - B. mitochondria
  - C. a cell membrane
  - D. a nuclear membrane

73. Use the figure of a cell membrane below to answer the following question(s).

## **CELL MEMBRANE**



What kind of molecule is Structure A?

- A. an amino acid
- B. a phospholipid
- C. a carbohydrate
- D. a nucleic acid

- 74. What characteristic of Part 1 of Structure A gives it the ability to attract water molecules?
  - A. acidity
- B. conductivity
- C. density
- D. polarity

- 75. A scientist wants to study photosynthesis in a newly discovered species. Which of these cell structures should the scientist study?
  - A. vacuoles
- B. chloroplasts
- C. mitochondria
- D. ribosomes

76. Refer to the diagram below of the single-celled, eukaryotic organisms to answer the following question(s).





Paramecium

Euglena

Euglena uses which of these to move?

- A. cilia
- B. a vacuole
- C. a flagellum
- D. pseudopodia

- 77. The exchange of oxygen and carbon dioxide between the body and the air occurs in the lungs. This exchange of gases takes place at the cellular level. What part of the cell is primarily responsible for this exchange?
  - A. the cell membrane
- B. the nucleus
- C. the cell wall
- D. the ribosome

- 78. Which of these organelles in animal cells provide energy for cell activities?
  - A. mitochondria
- B. chloroplasts
- C. ribosomes
- D. nuclei

- 79. The cell wall of a plant helps the plant cell maintain its shape. What is the *main* structural component of the cell wall of a plant?
  - A. lipid
- B. cellulose
- C. amino acid
- D. nucleic acid

- 80. Cyanide is a poison that prevents mitochondria from using oxygen. As a result, the mitochondria *cannot* produce
  - A. lipids
- B. sugar
- C. minerals
- D. energy

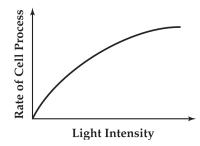
- 81. Maryland white oak trees make their own food. Their cells contain structures that capture energy from the sun. What are these structures?
  - A. chloroplasts
- B. nuclei
- C. mitochondria
- D. ribosomes

- 82. Which statement describes the major role of lipids within a cell?
  - A. They cause DNA to replicate.
  - B. They move RNA in the cytoplasm.
  - C. They catalyze chemical reactions in the cell cytoplasm.
  - D. They are the main structural components of membranes.

83. Use the information and the graph below to answer the following question(s).

A group of students studied the effect of light intensity on the rate of a cell process in Elodea plants. The students exposed Elodea plants to different light intensities. A gas was produced by the cell process. The amount of this gas was measured. The rate of the cell process was determined by the amount of gas produced. A graph of the students' measurements is shown below.

## THE EFFECT OF LIGHT INTENSITY ON A CELL PROCESS IN ELODEA PLANTS

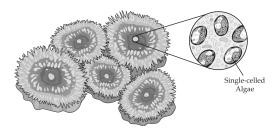


Which of these parts of the Elodea plant cell produces the gas measured in the experiment?

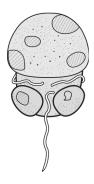
- A. mitochondrion
- 3. chloroplast
- C. ribosome
- D. nucleus

84. Use the information and the figure below to answer the following question(s).

During a trip to the beach, Allen finds a colony of sea anemones on a rock. These sea anemones are green and get their color from tiny single-celled algae that live in their tissues. The algae produce food for the anemones while the anemones provide a place for the algae to live.



A drawing of a mobile form of the single-celled green algae is shown below.



Which of these structures help this algae move?

- A. flagella
- B. cilia
- C. pseudopodia
- D. vacuoles

- 85. Which parts of the single-celled algae are responsible for capturing energy?
  - A. nuclei
- B. chloroplasts
- C. mitochondria
- D. cytoplasm

86. Use the information below to answer the following question(s).

Most organisms need oxygen for their cells to function normally. In mammals, two organ systems work together to move oxygen throughout the body.

Which of these organelles use oxygen to release energy?

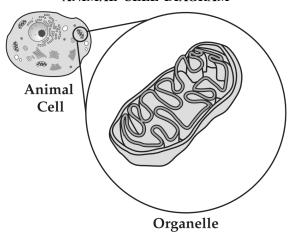
- A. nuclei
- B. ribosomes
- C. chloroplasts
- D. mitochondria

- 87. Which cell structure contains molecules that direct cell activities?
  - A. nucleus
- B. ribosome
- C. mitochondrion
- D. chloroplast

88. Use the information and diagram below to answer the following question(s).

Animal cells contain an organelle that helps release energy. A diagram of this organelle is shown below.

ANIMAL CELL DIAGRAM

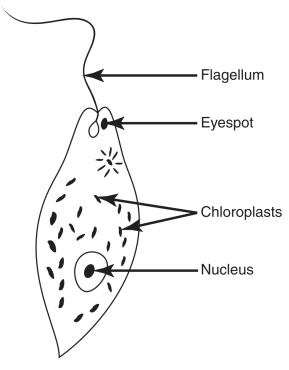


What is the organelle described?

A. chloroplast B. mitochondrion

C. nucleus D. ribosome

89. Organisms that have physical features common to both plants and animals are difficult to classify. The diagram below shows physical features of a *euglena*.

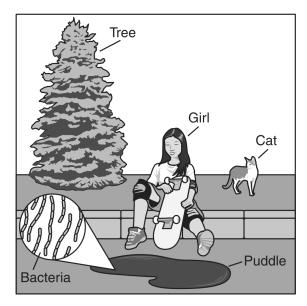


Which euglena feature caused some scientists to classify the *euglena* as a plant?

A. chloroplast B. eyespot

C. flagellum D. nucleus

90. Several organisms are shown in the picture below.



Which organism in the picture is a single-celled organism?

- A. tree
- B. bacteria
- C. girl
- D. cat

91. Which organism has only one cell?

A.



Grasshopper

В.



Paramecium

C.



Mushroom

D.



92. Which organism is made of one cell?

A.



B.



C.



D.



## Problem-Attic format version 4.4.362

© 2011-2018 EducAide Software Licensed for use by Obinna Uchime Terms of Use at www.problem-attic.com

Cells and their organelles 4/13/2019

1. Answer:	C	21. Answer:	В
2. Answer:	D	22. Answer:	C
3. Answer:	C	23. Answer:	D
4. Answer:	C	24. Answer:	A
5. Answer:	C	25. Answer:	C
6. Answer:	D	26. Answer:	A
7. Answer:	С	27. Answer:	В
8. Answer:	D	28. Answer:	A
9. Answer:	В	29. Answer:	В
10. Answer:	В	30. Answer:	C
11. Answer:	D	31. Answer:	C
12. Answer:	D	32. Answer:	В
13. Answer:	D	33. Answer:	A
14. Answer:	В	34. Answer:	D
15. Answer:		35. Answer:	В
16. Answer:	A	36. Answer:	В
17. Answer:	D	37. Answer:	C
18. Answer:	С	38. Answer:	A
19. Answer:	C	39. Answer:	D
20. Answer:	A	40. Answer:	C

41. Answer: В 42. Answer: C 43. D Answer: 44. Answer: C 45. C Answer: 46. C Answer: 47. В Answer: 48. D Answer: 49. Answer: A 50. Answer: D 51. Answer: A 52. Answer: D 53. В Answer: 54. Answer: Α 55. C Answer: 56. Answer: A 57. Answer: D 58. Answer: A 59. D Answer: 60. Answer: 61. Answer: A 62. Answer: 63. Answer:

64. Answer: 65. Answer: 66. Answer: 67. Answer: 68. Answer: 69. Answer: 70. Answer: 71. Answer: 72. Answer: 73. Answer: В 74. D Answer: 75. Answer: В 76.  $\mathbf{C}$ Answer: 77. Answer: Α 78. Answer: A 79. Answer: В 80. D Answer: 81. Answer: A 82. Answer: D 83. В Answer: 84. Answer: Α 85. В Answer:

86.

Answer: D

87.

Answer: A

88.

Answer: B

89.

Answer: A

90.

Answer: B

91.

Answer: B

92.

Answer: A