

Student: \_\_\_\_\_

1. The difference between chromatin material and chromosomes is
  - A. their structure.
  - B. the kinds of atoms that they contain.
  - C. where you find them.
  - D. that one is a gas and the other is a liquid.
2. Antibiotics have \_\_\_\_\_ cells as their targets.
  - A. animal
  - B. eukaryotic
  - C. fungus
  - D. bacterial
3. One job of the nuclear membrane is to
  - A. control entry to and exit from the nucleus.
  - B. produce enzymes.
  - C. digest chromosomes.
  - D. contain excess water.
4. The endoplasmic reticulum
  - A. functions in internal transport of macromolecules.
  - B. carries on cellular respiration.
  - C. is the site of photosynthesis.
  - D. is dispersed nuclear material of DNA and protein.
5. The breakdown of which of the following leads to the self-destruction of the cell?
  - A. polysome
  - B. lysosome
  - C. microsome
  - D. centrosome
6. A true cellular nucleus is found in
  - A. bacteria.
  - B. eukaryotic cells.
  - C. blue-green algae.
  - D. All of these answers are true.
7. A storage container in a cell is generally called a(n)
  - A. vacuole.
  - B. endoplasmic reticulum.
  - C. pinocyte.
  - D. nucleus.
8. Pinocytosis would allow the intake of
  - A. solid food.
  - B. gas.
  - C. molecules dissolved in water.
  - D. All of these answers are true.
9. Ribosomes are the site of
  - A. cellular respiration.
  - B. photosynthesis.
  - C. anaerobic respiration.
  - D. protein synthesis.

10. Stroma and grana are found in the
  - A. chlorophyll.
  - B. nucleus.
  - C. chloroplast.
  - D. All of these answers are true.
11. A membrane is NOT necessary in
  - A. diffusion.
  - B. phagocytosis.
  - C. active transport.
  - D. osmosis.
12. Which of the following is NOT true of cell membranes?
  - A. They are composed of four carbohydrate layers.
  - B. They contain protein molecules.
  - C. They regulate movement of some substances into and out of the cell.
  - D. They contain phospholipids.
13. Chromatin material is
  - A. one of six materials that make up a chromosome.
  - B. really the same as a chromosome.
  - C. one of the cytoplasmic organelles during the cell's normal daily operation.
  - D. not described by any of these statements.
14. Normal cell functions of noneukaryotes are disrupted by
  - A. enzymes.
  - B. mitochondria.
  - C. antibacterial antibiotics.
  - D. cell walls.
15. Chromatin is
  - A. immature nucleoplasm.
  - B. a cytoplasmic organelle.
  - C. the arrangement of proteins.
  - D. uncoiled DNA of a chromosome.
16. Which of the following is involved in the synthesis and packaging of certain molecules produced for secretion by a cell?
  - A. cell granule
  - B. Golgi apparatus
  - C. flagella
  - D. nucleolus
17. Which of the following organelles contains a green-colored pigment?
  - A. lysosome
  - B. mitochondria
  - C. chloroplast
  - D. leucoplastosome
18. Protoplasm is all the living material
  - A. that makes up the contents of a cell.
  - B. inside the cell membrane except the nucleus.
  - C. inside the nucleus.
  - D. inside the cell except the protein material.

19. Eukaryotic cells are found in the group known as the
  - A. fungi.
  - B. plants.
  - C. animals.
  - D. All of these answers are true.
20. An outside source of energy (ATP) is required for
  - A. osmosis.
  - B. diffusion.
  - C. active transport.
  - D. None of these answers is true.
21. Cilia are different from flagella in that the cilia are
  - A. shorter and more numerous.
  - B. longer and more numerous.
  - C. shorter and less numerous.
  - D. larger and less numerous.
22. A carrier molecule is required for
  - A. osmosis and active transport.
  - B. active transport and facilitated diffusion.
  - C. osmosis and diffusion.
  - D. facilitated diffusion and endocytosis.
23. Chromosomes are
  - A. composed of DNA and lipid.
  - B. found only in the cytoplasm.
  - C. composed of DNA and carbohydrate.
  - D. composed of DNA and protein.
24. Which of the following lacks a cell wall?
  - A. plant
  - B. animal
  - C. bacteria
  - D. fungi
25. Nucleoplasm is (are)
  - A. materials inside the nucleus.
  - B. cytoplasm.
  - C. nonliving protoplasm.
  - D. the excessive amounts of particles located in the cytoplasmic region of the cell.
26. The Golgi apparatus packages
  - A. energy.
  - B. hydrogen.
  - C. waste.
  - D. enzymes.
27. The aerobic cellular respiration (release of energy from food) of carbohydrates occurs in the
  - A. lysosome.
  - B. mitochondrion.
  - C. chloroplast.
  - D. flagellum.
28. Noneukaryotic cells lack
  - A. granules.
  - B. a nucleus.
  - C. flagella.
  - D. All of these answers are true.

29. What structure stores waste produced in the cell?
- A. vacuole
  - B. nucleus
  - C. lysosome
  - D. pinocytic vesicle
30. Molecules move from an area of low concentration to an area of high concentration during
- A. osmosis.
  - B. facilitated diffusion.
  - C. diffusion.
  - D. active transport.
31. Long structures used for cell movement are
- A. centrioles.
  - B. cilia.
  - C. flagella.
  - D. granules.
32. An energy-converting organelle is a
- A. stroma.
  - B. chloroplast.
  - C. granule.
  - D. All of these answers are true.
33. Osmosis is the
- A. net movement of water across a differentially permeable membrane.
  - B. diffusion of any molecule across a differentially permeable membrane.
  - C. net movement of water from an area of low concentration to an area of high concentration.
  - D. movement of any molecule from an area of high concentration to an area of low concentration.
34. \_\_\_\_ is a cell engulfing large solid materials, and \_\_\_\_ is a cell engulfing materials dissolved in solution.
- A. Endocytosis; exocytosis
  - B. Exocytosis; endocytosis
  - C. Phagocytosis; pinocytosis
  - D. Pinocytosis; phagocytosis
35. The coiled DNA is found in
- A. chromosomes.
  - B. centromeres.
  - C. nucleoli.
  - D. lysosome.
36. Which of the following do NOT contain endoplasmic reticulum?
- A. noneukaryotes
  - B. animal cells
  - C. eukaryotic cells
  - D. All of the choices are correct.
37. Which of the following structures is found inside the nuclear membrane?
- A. endoplasmic reticulum
  - B. centriole
  - C. cell membrane
  - D. nucleolus

38. The MAIN components of a cell membrane are
- A. phospholipids and proteins.
  - B. steroids and carbohydrates.
  - C. nucleic acids and simple sugars.
  - D. proteins and steroids.
39. Food (organic molecules such as glucose) is produced in the
- A. mitochondria.
  - B. nucleolus.
  - C. centriole.
  - D. chloroplast.
40. Eukaryotic cells contain
- A. a nucleus.
  - B. cell membranes.
  - C. organelles.
  - D. All of these answers are true.
41. The fluid material located outside of the nucleus is the
- A. vacuole.
  - B. protoplasm.
  - C. cytoplasm.
  - D. nucleoplasm.
42. For diffusion to occur \_\_\_\_ is necessary.
- A. a concentration gradient
  - B. a differentially permeable membrane
  - C. temperature above 0°C
  - D. a carrier molecule
43. The direct intake of a liquid, such as oil, into a cell is called
- A. osmosis.
  - B. phagocytosis.
  - C. induction.
  - D. pinocytosis.
44. Proteins are made at the
- A. nucleolus.
  - B. ribosome.
  - C. Golgi apparatus.
  - D. grana.
45. \_\_\_\_ are NOT composed of microtubules.
- A. Cilia
  - B. Flagella
  - C. Chromosomes
  - D. Centrioles
46. Diffusion of water through a differentially permeable membrane is called
- A. active transport.
  - B. energy.
  - C. osmosis.
  - D. All of these answers are true.
47. \_\_\_\_ is/are associated with ribosomes.
- A. Cilia and flagella
  - B. Golgi apparatus
  - C. Smooth endoplasmic reticulum
  - D. Rough endoplasmic reticulum

48. Plant cell walls are primarily composed of
- A. protein.
  - B. chromatin.
  - C. glycogen.
  - D. cellulose.
49. What happens when an animal cell is placed into a hypertonic solution?
- A. plasmolysis
  - B. crenation occurs
  - C. it swells
  - D. it is unchanged
50. What structure contains the main information storage system of eukaryotes?
- A. nucleolus
  - B. nucleoplasm
  - C. chloroplast
  - D. nucleus
51. \_\_\_\_ are NOT composed of membranes.
- A. Golgi apparatus
  - B. Microtubules
  - C. Mitochondria
  - D. Endoplasmic reticulum
52. The chloroplast is
- A. the site of photosynthesis.
  - B. a reproductive structure.
  - C. necessary for diffusion.
  - D. a cause of fermentation.
53. The phospholipids of a cellular membrane will have their \_\_\_\_ ends facing each other (inside) and their \_\_\_\_ ends facing away from each other (outside).
- A. hypotonic, hypertonic
  - B. hypertonic, hypotonic
  - C. hydrophilic, hydrophobic
  - D. hydrophobic, hydrophilic
54. Noneukaryotic cells have
- A. chloroplasts.
  - B. ribosomes.
  - C. endoplasmic reticulum.
  - D. nuclear membranes.
55. \_\_\_\_ is not a component of a cellular membrane.
- A. Cholesterol
  - B. Nucleic acid
  - C. Phospholipid
  - D. Protein
56. Material is engulfed directly by the cell by
- A. diffusion.
  - B. osmosis.
  - C. phagocytosis.
  - D. active transport.

57. Cell structures that function in cell division are
- Golgi bodies.
  - ribosomes.
  - granules.
  - centrioles.
58. A cell that is 98% water is placed in a solution containing 1% salt. This cell is now \_\_\_\_ compared to its surroundings.
- isotonic
  - hypertonic
  - hypotonic
  - hydrophilic
59. Which of the following is composed of DNA?
- centriole and chromosomes
  - chromosomes and chromatin
  - chromatin and nucleoli
  - nucleoli and centrioles
60. A cell encounters a change in its environment (electrical or heat) that could be fatal. However, it is able to respond in a protective manner because this information is sent *indirectly* through the cell membrane to the nucleus where it stimulates the appropriate response. This is more likely a process known as
- active transport.
  - chemomodulation.
  - phagocytosis.
  - signal transduction.
61. A cell that is 98% water is placed in 50% salt water. This cell will
- shrink.
  - swell.
  - shrink and then swell.
  - remain the same size.
62. A series of canals in the cell that are made up of membranes is/are called
- cilia.
  - endoplasmic reticulum.
  - mitochondria.
  - ribosomes.
63. Lysosomes contain
- food.
  - secretions.
  - enzymes.
  - waste.
64. These antigens are responsible for the rejection of transplanted tissues or organs from donors that are "incompatible."
- human leukocyte antigens
  - histocompatibility antigens
  - HLA
  - All of the choices are true.
65. Which one of the following cell organelles contains RNA?
- ribosome
  - endoplasmic reticulum
  - Golgi body
  - centriole

66. Most plant cells differ from animal cells in that they
- possess nucleoli.
  - lack nucleoli.
  - contain mitochondria.
  - lack centrioles.
67. Darker bodies located in the nucleus of some cells are called
- mitochondria.
  - Golgi bodies.
  - nucleoli.
  - nucleus.
68. A solution that has a higher concentration of dissolved materials than the solution it is compared to is
- hypertonic.
  - hypotonic.
  - hydrophobic.
  - hydrophilic.
69. Lysosomes **originate** from the
- Golgi apparatus.
  - endoplasmic reticulum.
  - mitochondria.
  - chloroplast.
70. Inclusions
- have a well defined function and structure.
  - are permanent storage sites for nutrients and waste.
  - are almost always located within the nucleus.
  - are concentrated areas of stored materials.
71. A cell containing 2% dissolved materials is placed in a solution consisting of 4% solute. The net movement of \_\_\_\_ molecules will be \_\_\_\_ the cell due to **osmosis**.
- solute, into
  - solute, out of
  - water, into
  - water, out of
72. Which of the following help in defending humans against disease?
- immunoglobulins
  - lysosomes
  - peroxisomes
  - All of the choices help defend against disease.
73. Which of the following cellular organelles is responsible for providing ATP energy for the cell?
- ribosomes
  - centrioles
  - Golgi apparatus
  - mitochondria
74. Which of the following structures is made of membranes?
- chromosomes
  - microtubules
  - endoplasmic reticulum
  - ribosomes



75. Which of the following organelles contains protein-digesting enzymes that break down proteins to amino acids?
- A. chloroplasts
  - B. lysosomes
  - C. ribosomes
  - D. mitochondria
76. Which of the following cells has the greatest number of different cellular organelles made of membranes?
- A. bacteria
  - B. animals
  - C. plants
  - D. viruses
77. Which of the following cellular organelles is responsible for manufacturing proteins?
- A. ribosomes
  - B. centrioles
  - C. Golgi apparatus
  - D. mitochondria
78. Which of the following structures is made of membranes?
- A. nucleolus
  - B. centriole
  - C. chloroplast
  - D. ribosomes
79. Which of the following organelles contains enzymes that are able to manufacture  $H_2O_2$ ?
- A. chloroplasts
  - B. peroxisomes
  - C. ribosomes
  - D. mitochondria
80. Which of the following organelles contains microtubules?
- A. mitochondria
  - B. cilia
  - C. cell membrane
  - D. ribosomes
81. The hydrophilic end of a phospholipid molecule is
- A. glycerol
  - B. a fatty acid
  - C. an amino acid
  - D. water-insoluble
82. When phospholipid molecules are placed in water
- A. the hydrophobic ends of the molecules exclude water from their surroundings.
  - B. hydrophilic fatty acid ends mix well with the water.
  - C. a single-layered membrane is formed.
  - D. All of the choices occur.
83. Solution "A" has a solute concentration of 10% while solution "B" has a solvent concentration of 80%. If they are separated by a selectively permeable membrane
- A. the net direction of water movement will be from solution "A" to solution "B".
  - B. the net direction of water movement will be from solution "B" to solution "A".
  - C. there will be no net movement of water.
  - D. the system is in dynamic equilibrium to begin with.

84. If molecules are taken into the cell and encased in a single membrane sac called a vacuole, the transport method used is most likely
- diffusion.
  - osmosis.
  - active transport.
  - endocytosis.
85. I just found out that some people get repeated fungal infections because they cannot destroy these dangerous microbes after their white blood cells phagocytize them. This most likely means that these people have \_\_\_\_\_ that do not work properly.
- ribosomes
  - lysosomes
  - mitochondria
  - microtubules
86. "I wish my Dad would stop smoking! Doesn't he know that nicotine inhibits the \_\_\_\_\_ lining his trachea, and when they stop moving, bacteria and viruses can settle down into his lungs causing pneumonia and emphysema?"
- cellular respiration
  - mitochondria
  - cilia
  - lysosomes
87. Many of these non-membranous organelles of eukaryotic cells are necessary to form the cytoskeleton of a cell.
- cilia
  - microfilaments
  - ER
  - chromatin
88. The respiration (release of energy from food) of carbohydrates occurs in the
- lysosome.
  - mitochondria.
  - chloroplasts.
  - flagellum.
89. Which of the following structures is found inside the nuclear membrane?
- endoplasmic reticulum
  - centriole
  - cell membrane
  - nucleolus
90. A cell that is 98% water is placed in a solution containing 3% salt. This cell is now \_\_\_\_\_ compared to its surroundings.
- isotonic
  - hypertonic
  - hypotonic
  - hydrophilic
91. A cell that is 98% water is placed in pure water. This cell will
- shrink.
  - swell.
  - shrink and then swell.
  - remain the same size.

92. Which is arranged in proper order from largest to smallest?
- algal cell, bacterial cell, virus
  - virus, bacterial cell, animal cell
  - animal cell, virus, plant cell
  - plant cell, animal cell, fungal cell
93. Multi-stranded protein cords that function as cables inside of cells are the
- microtubules.
  - microfilaments.
  - intermediate filaments.
  - all of these are correct.
94. The 9 + 2 pattern is associated with
- eukaryotic flagella.
  - noneukaryotic flagella.
  - ribosomes.
  - mitochondria.
95. The \_\_\_\_\_ membranes stack up to form the \_\_\_\_\_ of the chloroplast.
- cristae, grana
  - thylakoids, grana
  - ER, thylakoids
  - Golgi, ER
96. As cells grow, the amount of surface area increases by the \_\_\_\_\_ but volume increases by the \_\_\_\_\_.
- square ( $X^2$ ), cube ( $X^3$ )
  - cube ( $X^3$ ), square ( $X^2$ )
  - minute, hour
  - minute, day
97. This is a process in which molecules from the cell's surroundings bind to receptor molecules on the plasma membrane.
- phagocytosis
  - receptor mediated endocytosis
  - osmosis
  - active transport
98. The three Domains in which all living things are classified are
- Animals, Plants, and Microbes.
  - Noneukaryotic, Eukaryotic, and Archaea.
  - Eubacteria, Archaea, and Eukarya.
  - Bacteria, Plants, and Animals.
99. As the size of a cell increases,
- the surface area increases faster than the volume.
  - the surface area and the volume increase at the same rate.
  - the volume increases faster than the surface area.
  - there is no relationship between surface area and volume.
100. The surface area of a cell is important because
- the surface area limits the amount of molecular exchange that can take place between the cell and its surroundings.
  - a small surface area allows the cell to protect itself from foreign organisms.
  - a large surface area makes the cell more fragile.
  - the surface area determines the genetic capabilities of the cell.

101. Which of the following cube-shaped objects would have the highest surface-area-to-volume ratio? A cell with a volume of
- A.  $10 \text{ cm}^3$ .
  - B.  $8 \text{ cm}^3$ .
  - C.  $3 \text{ cm}^3$ .
  - D.  $1 \text{ cm}^3$ .
102. Diffusion of materials from outside to the middle of a cell depends upon
- A. the thickness of the cell membrane.
  - B. the distance from the surface to the middle of the cell.
  - C. the age of the cell.
  - D. osmosis.
103. Cells can be large if they
- A. are metabolically very active.
  - B. have metabolically inactive central regions.
  - C. actively pump nutrients into the cell.
  - D. have a very small surface area compared to their volume.
104. Which of the following is false? As a cell grows, its
- A. volume increases.
  - B. surface area increases.
  - C. surface-area-to-volume ratio increases.
  - D. metabolic needs increase.
105. The **fluid-mosaic model** considers the cellular membranes to consist of \_\_\_\_\_ layer(s) of phospholipid molecules and that the individual phospholipids are able to move about within the structure of the membrane.
- A. 1
  - B. 2
  - C. 3
  - D. 4
106. The ultimate size of a cell is NOT limited by which one of the following?
- A. the strength of the membrane
  - B. the cell surface area
  - C. the surface-area-to-volume ratio
  - D. the size of the nucleus
107. An intravenous (IV) solution must be \_\_\_\_\_ to a person's red blood cells to prevent injury to the cells.
- A. isotonic
  - B. hypertonic
  - C. hypotonic
  - D. osmotic

## 4 Key

1. The difference between chromatin material and chromosomes is  
**A.** their structure.  
B. the kinds of atoms that they contain.  
C. where you find them.  
D. that one is a gas and the other is a liquid.

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #1*  
*Learning Outcome: List the typical organelles associated with eukaryotic cells.*  
*Section: 04.06*  
*Topic: Cell Structure*

2. Antibiotics have \_\_\_\_ cells as their targets.  
A. animal  
B. eukaryotic  
C. fungus  
**D.** bacterial

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #2*  
*Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.*  
*Section: 04.08*  
*Topic: Cell Structure*

3. One job of the nuclear membrane is to  
**A.** control entry to and exit from the nucleus.  
B. produce enzymes.  
C. digest chromosomes.  
D. contain excess water.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #3*  
*Learning Outcome: List the typical organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Topic: Cell Structure*

4. The endoplasmic reticulum  
**A.** functions in internal transport of macromolecules.  
B. carries on cellular respiration.  
C. is the site of photosynthesis.  
D. is dispersed nuclear material of DNA and protein.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #4*  
*Learning Outcome: List the typical organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Topic: Cell Structure*

5. The breakdown of which of the following leads to the self-destruction of the cell?  
A. polysome  
**B.** lysosome  
C. microsomes  
D. centrosome

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #5*  
*Learning Outcome: List the typical organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Topic: Cell Structure*

6. A true cellular nucleus is found in  
A. bacteria.  
**B.** eukaryotic cells.  
C. blue-green algae.  
D. All of these answers are true.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #6*  
*Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.*  
*Section: 04.01*  
*Topic: Cell Structure*

7. A storage container in a cell is generally called a(n)  
**A.** vacuole.  
B. endoplasmic reticulum.  
C. pinocyte.  
D. nucleus.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #7*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Learning Outcome: Diagram the generalized structure of all eukaryotic cells and label the parts.*

*Section: 04.04*

*Topic: Cell Structure*

8. Pinocytosis would allow the intake of  
A. solid food.  
B. gas.  
**C.** molecules dissolved in water.  
D. All of these answers are true.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #8*

*Learning Outcome: List the controlled methods by which materials can be transported through a cell membrane.*

*Section: 04.07*

*Topic: Cell Structure*

9. Ribosomes are the site of  
A. cellular respiration.  
B. photosynthesis.  
C. anaerobic respiration.  
**D.** protein synthesis.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #9*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Learning Outcome: Diagram the generalized structure of all eukaryotic cells and label the parts.*

*Section: 04.04*

*Topic: Cell Structure*

10. Stroma and grana are found in the  
A. chlorophyll.  
B. nucleus.  
**C.** chloroplast.  
D. All of these answers are true.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #10*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Section: 04.04*

*Topic: Cell Structure*

11. A membrane is NOT necessary in  
**A.** diffusion.  
B. phagocytosis.  
C. active transport.  
D. osmosis.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #11*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.*

*Section: 04.07*

*Topic: Cell Structure*

12. Which of the following is NOT true of cell membranes?  
**A.** They are composed of four carbohydrate layers.  
B. They contain protein molecules.  
C. They regulate movement of some substances into and out of the cell.  
D. They contain phospholipids.

*Blooms Level: 5. Evaluate  
Enger - Chapter 04 #12*

*Learning Outcome: List the components and molecular parts of a typical cell membrane.*

*Section: 04.03*

*Topic: Cell Structure*

13. Chromatin material is  
A. one of six materials that make up a chromosome.  
**B.** really the same as a chromosome.  
C. one of the cytoplasmic organelles during the cell's normal daily operation.  
D. not described by any of these statements.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #13  
Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06  
Topic: Cell Structure*

14. Normal cell functions of noneukaryotes are disrupted by  
A. enzymes.  
B. mitochondria.  
**C.** antibacterial antibiotics.  
D. cell walls.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #14  
Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.  
Section: 04.01  
Section: 04.08  
Topic: Cell Structure*

15. Chromatin is  
A. immature nucleoplasm.  
B. a cytoplasmic organelle.  
C. the arrangement of proteins.  
**D.** uncoiled DNA of a chromosome.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #15  
Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06  
Topic: Cell Structure*

16. Which of the following is involved in the synthesis and packaging of certain molecules produced for secretion by a cell?  
A. cell granule  
**B.** Golgi apparatus  
C. flagella  
D. nucleolus

*Blooms Level: 1. Remember  
Enger - Chapter 04 #16  
Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04  
Topic: Cell Structure*

17. Which of the following organelles contains a green-colored pigment?  
A. lysosome  
B. mitochondria  
**C.** chloroplast  
D. leucoplastosome

*Blooms Level: 1. Remember  
Enger - Chapter 04 #17  
Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04  
Topic: Cell Structure*

18. Protoplasm is all the living material  
**A.** that makes up the contents of a cell.  
B. inside the cell membrane except the nucleus.  
C. inside the nucleus.  
D. inside the cell except the protein material.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #18  
Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.01  
Topic: Cell Structure*

19. Eukaryotic cells are found in the group known as the  
A. fungi.  
B. plants.  
C. animals.  
**D.** All of these answers are true.

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #19*  
*Learning Outcome: Give examples of organisms composed of prokaryotic and eukaryotic cells.*  
*Section: 04.01*  
*Section: 04.08*  
*Topic: Cell Structure*

20. An outside source of energy (ATP) is required for  
A. osmosis.  
B. diffusion.  
**C.** active transport.  
D. None of these answers is true.

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #20*  
*Learning Outcome: List the controlled methods by which materials can be transported through a cell membrane.*  
*Section: 04.07*  
*Topic: Cell Structure*

21. Cilia are different from flagella in that the cilia are  
**A.** shorter and more numerous.  
B. longer and more numerous.  
C. shorter and less numerous.  
D. larger and less numerous.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #21*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.05*  
*Topic: Cell Structure*

22. A carrier molecule is required for  
A. osmosis and active transport.  
**B.** active transport and facilitated diffusion.  
C. osmosis and diffusion.  
D. facilitated diffusion and endocytosis.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #22*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.07*  
*Topic: Cell Structure*

23. Chromosomes are  
A. composed of DNA and lipid.  
B. found only in the cytoplasm.  
C. composed of DNA and carbohydrate.  
**D.** composed of DNA and protein.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #23*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.06*  
*Topic: Cell Structure*

24. Which of the following lacks a cell wall?  
A. plant  
**B.** animal  
C. bacteria  
D. fungi

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #24*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.01*  
*Section: 04.08*  
*Topic: Cell Structure*



25. Nucleoplasm is (are)  
**A.** materials inside the nucleus.  
B. cytoplasm.  
C. nonliving protoplasm.  
D. the excessive amounts of particles located in the cytoplasmic region of the cell.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #25*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06  
Topic: Cell Structure*

26. The Golgi apparatus packages  
A. energy.  
B. hydrogen.  
C. waste.  
**D.** enzymes.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #26*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04  
Topic: Cell Structure*

27. The aerobic cellular respiration (release of energy from food) of carbohydrates occurs in the  
A. lysosome.  
**B.** mitochondrion.  
C. chloroplast.  
D. flagellum.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #27*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04  
Topic: Cell Structure*

28. Noneukaryotic cells lack  
A. granules.  
**B.** a nucleus.  
C. flagella.  
D. All of these answers are true.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #28*

*Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.  
Section: 04.01  
Topic: Cell Structure*

29. What structure stores waste produced in the cell?  
**A.** vacuole  
B. nucleus  
C. lysosome  
D. pinocytic vesicle

*Blooms Level: 1. Remember  
Enger - Chapter 04 #29*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04  
Topic: Cell Structure*

30. Molecules move from an area of low concentration to an area of high concentration during  
A. osmosis.  
B. facilitated diffusion.  
C. diffusion.  
**D.** active transport.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #30*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07  
Topic: Cell Structure*

31. Long structures used for cell movement are
- A. centrioles.
  - B. cilia.
  - C. flagella.**
  - D. granules.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #31*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05*

*Topic: Cell Structure*

32. An energy-converting organelle is a
- A. stroma.
  - B. chloroplast.**
  - C. granule.
  - D. All of these answers are true.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #32*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04*

*Topic: Cell Structure*

33. Osmosis is the
- A. net movement of water across a differentially permeable membrane.**
  - B. diffusion of any molecule across a differentially permeable membrane.
  - C. net movement of water from an area of low concentration to an area of high concentration.
  - D. movement of any molecule from an area of high concentration to an area of low concentration.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #33*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07*

*Topic: Cell Structure*

34. \_\_\_\_\_ is a cell engulfing large solid materials, and \_\_\_\_\_ is a cell engulfing materials dissolved in solution.
- A. Endocytosis; exocytosis
  - B. Exocytosis; endocytosis
  - C. Phagocytosis; pinocytosis**
  - D. Pinocytosis; phagocytosis

*Blooms Level: 5. Evaluate  
Enger - Chapter 04 #34*

*Learning Outcome: List the controlled methods by which materials can be transported through a cell membrane.  
Section: 04.07*

*Topic: Cell Structure*

35. The coiled DNA is found in
- A. chromosomes.**
  - B. centromeres.
  - C. nucleoli.
  - D. lysosome.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #35*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06*

*Topic: Cell Structure*

36. Which of the following do NOT contain endoplasmic reticulum?
- A. noneukaryotes**
  - B. animal cells
  - C. eukaryotic cells
  - D. All of the choices are correct.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #36*

*Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.  
Section: 04.01*

*Section: 04.04*

*Section: 04.08*

*Topic: Cell Structure*

37. Which of the following structures is found inside the nuclear membrane?  
A. endoplasmic reticulum  
B. centriole  
C. cell membrane  
**D. nucleolus**

*Blooms Level: 1. Remember  
Enger - Chapter 04 #37*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06*

*Topic: Cell Structure*

38. The MAIN components of a cell membrane are  
**A. phospholipids and proteins.**  
B. steroids and carbohydrates.  
C. nucleic acids and simple sugars.  
D. proteins and steroids.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #38*

*Learning Outcome: List the components and molecular parts of a typical cell membrane.  
Section: 04.03*

*Topic: Cell Structure*

39. Food (organic molecules such as glucose) is produced in the  
A. mitochondria.  
B. nucleolus.  
C. centriole.  
**D. chloroplast.**

*Blooms Level: 2. Understand  
Enger - Chapter 04 #39*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04*

*Topic: Cell Structure*

40. Eukaryotic cells contain  
A. a nucleus.  
B. cell membranes.  
C. organelles.  
**D. All of these answers are true.**

*Blooms Level: 1. Remember  
Enger - Chapter 04 #40*

*Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.  
Section: 04.01*

*Section: 04.06*

*Section: 04.08*

*Topic: Cell Structure*

41. The fluid material located outside of the nucleus is the  
A. vacuole.  
B. protoplasm.  
**C. cytoplasm.**  
D. nucleoplasm.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #41*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06*

*Topic: Cell Structure*

42. For diffusion to occur \_\_\_\_\_ is necessary.  
**A. a concentration gradient**  
B. a differentially permeable membrane  
C. temperature above 0°C  
D. a carrier molecule

*Blooms Level: 2. Understand  
Enger - Chapter 04 #42*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07*

*Topic: Cell Structure*

43. The direct intake of a liquid, such as oil, into a cell is called
- A. osmosis.
  - B. phagocytosis.
  - C. induction.
  - D. pinocytosis.**

*Blooms Level: 1. Remember  
Enger - Chapter 04 #43*

*Learning Outcome: List the controlled methods by which materials can be transported through a cell membrane.  
Section: 04.07*

*Topic: Cell Structure*

44. Proteins are made at the
- A. nucleolus.
  - B. ribosome.**
  - C. Golgi apparatus.
  - D. grana.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #44*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05*

*Topic: Cell Structure*

45. \_\_\_\_\_ are NOT composed of microtubules.
- A. Cilia
  - B. Flagella
  - C. Chromosomes**
  - D. Centrioles

*Blooms Level: 1. Remember  
Enger - Chapter 04 #45*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05*

*Topic: Cell Structure*

46. Diffusion of water through a differentially permeable membrane is called
- A. active transport.
  - B. energy.
  - C. osmosis.**
  - D. All of these answers are true.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #46*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07*

*Topic: Cell Structure*

47. \_\_\_\_\_ is/are associated with ribosomes.
- A. Cilia and flagella
  - B. Golgi apparatus
  - C. Smooth endoplasmic reticulum
  - D. Rough endoplasmic reticulum**

*Blooms Level: 1. Remember  
Enger - Chapter 04 #47*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05*

*Topic: Cell Structure*

48. Plant cell walls are primarily composed of
- A. protein.
  - B. chromatin.
  - C. glycogen.
  - D. cellulose.**

*Blooms Level: 1. Remember  
Enger - Chapter 04 #48*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.01*

*Section: 04.08  
Topic: Cell Structure*

49. What happens when an animal cell is placed into a hypertonic solution?  
A. plasmolysis  
**B.** crenation occurs  
C. it swells  
D. it is unchanged

*Blooms Level: 3. Apply*  
*Enger - Chapter 04 #49*  
*Learning Outcome: Contrast diffusion, osmosis, and dialysis.*  
*Section: 04.07*  
*Topic: Cell Structure*

50. What structure contains the main information storage system of eukaryotes?  
A. nucleolus  
B. nucleoplasm  
C. chloroplast  
**D.** nucleus

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #50*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.01*  
*Section: 04.06*  
*Section: 04.08*  
*Topic: Cell Structure*

51. \_\_\_\_ are NOT composed of membranes.  
A. Golgi apparatus  
**B.** Microtubules  
C. Mitochondria  
D. Endoplasmic reticulum

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #51*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.05*  
*Topic: Cell Structure*

52. The chloroplast is  
**A.** the site of photosynthesis.  
B. a reproductive structure.  
C. necessary for diffusion.  
D. a cause of fermentation.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #52*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Topic: Cell Structure*

53. The phospholipids of a cellular membrane will have their \_\_\_\_ ends facing each other (inside) and their \_\_\_\_ ends facing away from each other (outside).  
A. hypotonic, hypertonic  
B. hypertonic, hypotonic  
C. hydrophilic, hydrophobic  
**D.** hydrophobic, hydrophilic

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #53*  
*Learning Outcome: Contrast diffusion, osmosis, and dialysis.*  
*Section: 04.03*  
*Section: 04.07*  
*Topic: Cell Structure*

54. Noneukaryotic cells have  
A. chloroplasts.  
**B.** ribosomes.  
C. endoplasmic reticulum.  
D. nuclear membranes.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #54*  
*Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.*  
*Section: 04.04*  
*Section: 04.08*  
*Topic: Cell Structure*

55. \_\_\_\_\_ is not a component of a cellular membrane.
- A. Cholesterol
  - B. Nucleic acid**
  - C. Phospholipid
  - D. Protein

*Blooms Level: 1. Remember  
Enger - Chapter 04 #55*

*Learning Outcome: List the components and molecular parts of a typical cell membrane.  
Section: 04.03  
Topic: Cell Structure*

56. Material is engulfed directly by the cell by
- A. diffusion.
  - B. osmosis.
  - C. phagocytosis.**
  - D. active transport.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #56*

*Learning Outcome: List the controlled methods by which materials can be transported through a cell membrane.  
Section: 04.07  
Topic: Cell Structure*

57. Cell structures that function in cell division are
- A. Golgi bodies.
  - B. ribosomes.
  - C. granules.
  - D. centrioles.**

*Blooms Level: 1. Remember  
Enger - Chapter 04 #57*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05  
Topic: Cell Structure*

58. A cell that is 98% water is placed in a solution containing 1% salt. This cell is now \_\_\_\_\_ compared to its surroundings.
- A. isotonic
  - B. hypertonic**
  - C. hypotonic
  - D. hydrophilic

*Blooms Level: 3. Apply  
Enger - Chapter 04 #58*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07  
Topic: Cell Structure*

59. Which of the following is composed of DNA?
- A. centriole and chromosomes
  - B. chromosomes and chromatin**
  - C. chromatin and nucleoli
  - D. nucleoli and centrioles

*Blooms Level: 1. Remember  
Enger - Chapter 04 #59*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06  
Topic: Cell Structure*

60. A cell encounters a change in its environment (electrical or heat) that could be fatal. However, it is able to respond in a protective manner because this information is sent *indirectly* through the cell membrane to the nucleus where it stimulates the appropriate response. This is more likely a process known as
- A. active transport.
  - B. chemomodulation.
  - C. phagocytosis.
  - D. signal transduction.**

*Blooms Level: 5. Evaluate  
Enger - Chapter 04 #60*

*Learning Outcome: List the possible roles played by molecules that extend from the cell surface.*

*Section: 04.03*

*Section: 04.04*

*Topic: Cell Structure*

61. A cell that is 98% water is placed in 50% salt water. This cell will
- A. shrink.**
  - B. swell.
  - C. shrink and then swell.
  - D. remain the same size.

*Blooms Level: 3. Apply  
Enger - Chapter 04 #61*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.*

*Section: 04.07*

*Topic: Cell Structure*

62. A series of canals in the cell that are made up of membranes is/are called
- A. cilia.
  - B. endoplasmic reticulum.**
  - C. mitochondria.
  - D. ribosomes.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #62*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Section: 04.04*

*Topic: Cell Structure*

63. Lysosomes contain
- A. food.
  - B. secretions.
  - C. enzymes.**
  - D. waste.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #63*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Section: 04.04*

*Topic: Cell Structure*

64. These antigens are responsible for the rejection of transplanted tissues or organs from donors that are "incompatible."
- A. human leukocyte antigens
  - B. histocompatibility antigens
  - C. HLA
  - D. All of the choices are true.**

*Blooms Level: 3. Apply  
Enger - Chapter 04 #64*

*Learning Outcome: List the possible roles played by molecules that extend from the cell surface.*

*Section: 04.03*

*Topic: Cell Structure*

65. Which one of the following cell organelles contains RNA?  
**A.** ribosome  
B. endoplasmic reticulum  
C. Golgi body  
D. centriole

*Blooms Level: 1. Remember  
Enger - Chapter 04 #65*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05*

*Topic: Cell Structure*

66. Most plant cells differ from animal cells in that they  
A. possess nucleoli.  
B. lack nucleoli.  
C. contain mitochondria.  
**D.** lack centrioles.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #66*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.01*

*Topic: Cell Structure*

67. Darker bodies located in the nucleus of some cells are called  
A. mitochondria.  
B. Golgi bodies.  
**C.** nucleoli.  
D. nucleus.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #67*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04*

*Topic: Cell Structure*

68. A solution that has a higher concentration of dissolved materials than the solution it is compared to is  
**A.** hypertonic.  
B. hypotonic.  
C. hydrophobic.  
D. hydrophilic.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #68*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07*

*Topic: Cell Structure*

69. Lysosomes **originate** from the  
**A.** Golgi apparatus.  
B. endoplasmic reticulum.  
C. mitochondria.  
D. chloroplast.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #69*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04*

*Topic: Cell Structure*

70. Inclusions  
A. have a well defined function and structure.  
B. are permanent storage sites for nutrients and waste.  
C. are almost always located within the nucleus.  
**D.** are concentrated areas of stored materials.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #70*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05*

*Topic: Cell Structure*



71. A cell containing 2% dissolved materials is placed in a solution consisting of 4% solute. The net movement of \_\_\_\_ molecules will be \_\_\_\_ the cell due to **osmosis**.
- A. solute, into
  - B. solute, out of
  - C. water, into
  - D.** water, out of

*Blooms Level: 3. Apply*  
*Enger - Chapter 04 #71*  
*Learning Outcome: Contrast diffusion, osmosis, and dialysis.*  
*Section: 04.07*  
*Topic: Cell Structure*

72. Which of the following help in defending humans against disease?
- A. immunoglobulins
  - B. lysosomes
  - C. peroxisomes
  - D.** All of the choices help defend against disease.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #72*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Learning Outcome: List the components and molecular parts of a typical cell membrane.*  
*Section: 04.03*  
*Section: 04.04*  
*Topic: Cell Structure*

73. Which of the following cellular organelles is responsible for providing ATP energy for the cell?
- A. ribosomes
  - B. centrioles
  - C. Golgi apparatus
  - D.** mitochondria

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #73*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Topic: Cell Structure*

74. Which of the following structures is made of membranes?
- A. chromosomes
  - B. microtubules
  - C.** endoplasmic reticulum
  - D. ribosomes

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #74*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Section: 04.05*  
*Topic: Cell Structure*

75. Which of the following organelles contains protein-digesting enzymes that break down proteins to amino acids?
- A. chloroplasts
  - B.** lysosomes
  - C. ribosomes
  - D. mitochondria

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #75*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Topic: Cell Structure*

76. Which of the following cells has the greatest number of different cellular organelles made of membranes?  
A. bacteria  
B. animals  
**C. plants**  
D. viruses

*Blooms Level: 5. Evaluate*

*Enger - Chapter 04 #76*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.*

*Section: 04.01*

*Section: 04.04*

*Section: 04.08*

*Topic: Cell Structure*

77. Which of the following cellular organelles is responsible for manufacturing proteins?  
**A. ribosomes**  
B. centrioles  
C. Golgi apparatus  
D. mitochondria

*Blooms Level: 1. Remember*

*Enger - Chapter 04 #77*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Section: 04.05*

*Topic: Cell Structure*

78. Which of the following structures is made of membranes?  
A. nucleolus  
B. centriole  
**C. chloroplast**  
D. ribosomes

*Blooms Level: 1. Remember*

*Enger - Chapter 04 #78*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Learning Outcome: List the components and molecular parts of a typical cell membrane.*

*Section: 04.03*

*Section: 04.04*

*Topic: Cell Structure*

79. Which of the following organelles contains enzymes that are able to manufacture  $H_2O_2$ ?  
A. chloroplasts  
**B. peroxisomes**  
C. ribosomes  
D. mitochondria

*Blooms Level: 1. Remember*

*Enger - Chapter 04 #79*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Section: 04.04*

*Topic: Cell Structure*

80. Which of the following organelles contains microtubules?  
A. mitochondria  
**B. cilia**  
C. cell membrane  
D. ribosomes

*Blooms Level: 1. Remember*

*Enger - Chapter 04 #80*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*

*Section: 04.04*

*Topic: Cell Structure*

81. The hydrophilic end of a phospholipid molecule is  
**A.** glycerol  
B. a fatty acid  
C. an amino acid  
D. water-insoluble

*Blooms Level: 1. Remember  
Enger - Chapter 04 #81*

*Learning Outcome: List the components and molecular parts of a typical cell membrane.  
Section: 04.03  
Topic: Cell Structure*

82. When phospholipid molecules are placed in water  
**A.** the hydrophobic ends of the molecules exclude water from their surroundings.  
B. hydrophilic fatty acid ends mix well with the water.  
C. a single-layered membrane is formed.  
D. All of the choices occur.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #82*

*Learning Outcome: List the components and molecular parts of a typical cell membrane.  
Section: 04.03  
Topic: Cell Structure*

83. Solution "A" has a solute concentration of 10% while solution "B" has a solvent concentration of 80%. If they are separated by a selectively permeable membrane  
**A.** the net direction of water movement will be from solution "A" to solution "B".  
B. the net direction of water movement will be from solution "B" to solution "A".  
C. there will be no net movement of water.  
D. the system is in dynamic equilibrium to begin with.

*Blooms Level: 3. Apply  
Enger - Chapter 04 #83*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07  
Topic: Cell Structure*

84. If molecules are taken into the cell and encased in a single membrane sac called a vacuole, the transport method used is most likely  
A. diffusion.  
B. osmosis.  
C. active transport.  
**D.** endocytosis.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #84*

*Learning Outcome: List the controlled methods by which materials can be transported through a cell membrane.  
Section: 04.07  
Topic: Cell Structure*

85. I just found out that some people get repeated fungal infections because they cannot destroy these dangerous microbes after their white blood cells phagocytize them. This most likely means that these people have \_\_\_\_\_ that do not work properly.  
A. ribosomes  
**B.** lysosomes  
C. mitochondria  
D. microtubules

*Blooms Level: 3. Apply  
Enger - Chapter 04 #85*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04  
Topic: Cell Structure*

86. "I wish my Dad would stop smoking! Doesn't he know that nicotine inhibits the \_\_\_\_\_ lining his trachea, and when they stop moving, bacteria and viruses can settle down into his lungs causing pneumonia and emphysema?"
- A. cellular respiration
  - B. mitochondria
  - C. cilia**
  - D. lysosomes

*Blooms Level: 3. Apply  
Enger - Chapter 04 #86*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05  
Topic: Cell Structure*

87. Many of these non-membranous organelles of eukaryotic cells are necessary to form the cytoskeleton of a cell.
- A. cilia
  - B. microfilaments**
  - C. ER
  - D. chromatin

*Blooms Level: 1. Remember  
Enger - Chapter 04 #87*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.05  
Topic: Cell Structure*

88. The respiration (release of energy from food) of carbohydrates occurs in the
- A. lysosome.
  - B. mitochondria.**
  - C. chloroplasts.
  - D. flagellum.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #88*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.04  
Topic: Cell Structure*

89. Which of the following structures is found inside the nuclear membrane?
- A. endoplasmic reticulum
  - B. centriole
  - C. cell membrane
  - D. nucleolus**

*Blooms Level: 1. Remember  
Enger - Chapter 04 #89*

*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.  
Section: 04.06  
Topic: Cell Structure*

90. A cell that is 98% water is placed in a solution containing 3% salt. This cell is now \_\_\_\_\_ compared to its surroundings.
- A. isotonic
  - B. hypertonic
  - C. hypotonic**
  - D. hydrophilic

*Blooms Level: 3. Apply  
Enger - Chapter 04 #90*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07  
Topic: Cell Structure*

91. A cell that is 98% water is placed in pure water. This cell will  
A. shrink.  
**B.** swell.  
C. shrink and then swell.  
D. remain the same size.

*Blooms Level: 3. Apply*  
*Enger - Chapter 04 #91*  
*Learning Outcome: Contrast diffusion, osmosis, and dialysis.*  
*Section: 04.07*  
*Topic: Cell Structure*

92. Which is arranged in proper order from largest to smallest?  
**A.** algal cell, bacterial cell, virus  
B. virus, bacterial cell, animal cell  
C. animal cell, virus, plant cell  
D. plant cell, animal cell, fungal cell

*Blooms Level: 5. Evaluate*  
*Enger - Chapter 04 #92*  
*Learning Outcome: Explain why cells are small.*  
*Section: 04.08*  
*Topic: Cell Structure*

93. Multi-stranded protein cords that function as cables inside of cells are the  
A. microtubules.  
B. microfilaments.  
C. intermediate filaments.  
**D.** all of these are correct.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #93*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.05*  
*Topic: Cell Structure*

94. The 9 + 2 pattern is associated with  
**A.** eukaryotic flagella.  
B. noneukaryotic flagella.  
C. ribosomes.  
D. mitochondria.

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #94*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.05*  
*Topic: Cell Structure*

95. The \_\_\_\_\_ membranes stack up to form the \_\_\_\_\_ of the chloroplast.  
A. cristae, grana  
**B.** thylakoids, grana  
C. ER, thylakoids  
D. Golgi, ER

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #95*  
*Learning Outcome: Describe the function of each of the organelles associated with eukaryotic cells.*  
*Section: 04.04*  
*Topic: Cell Structure*

96. As cells grow, the amount of surface area increases by the \_\_\_\_ but volume increases by the \_\_\_\_.  
**A.** square ( $X^2$ ), cube ( $X^3$ )  
B. cube ( $X^3$ ), square ( $X^2$ )  
C. minute, hour  
D. minute, day

*Blooms Level: 3. Apply*  
*Enger - Chapter 04 #96*  
*Learning Outcome: Explain why cells are small.*  
*Section: 04.02*  
*Topic: Cell Structure*

97. This is a process in which molecules from the cell's surroundings bind to receptor molecules on the plasma membrane.
- A. phagocytosis
  - B.** receptor mediated endocytosis
  - C. osmosis
  - D. active transport

*Blooms Level: 1. Remember  
Enger - Chapter 04 #97*

*Learning Outcome: List the components and molecular parts of a typical cell membrane.  
Section: 04.03*

*Topic: Cell Structure*

98. The three Domains in which all living things are classified are
- A. Animals, Plants, and Microbes.
  - B. Noneukaryotic, Eukaryotic, and Archaea.
  - C.** Eubacteria, Archaea, and Eukarya.
  - D. Bacteria, Plants, and Animals.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #98*

*Learning Outcome: Give examples of organisms composed of prokaryotic and eukaryotic cells.  
Learning Outcome: List the differences in organelles found in prokaryotic and eukaryotic cells.*

*Section: 04.08*

*Topic: Cell Structure*

99. As the size of a cell increases,
- A. the surface area increases faster than the volume.
  - B. the surface area and the volume increase at the same rate.
  - C.** the volume increases faster than the surface area.
  - D. there is no relationship between surface area and volume.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #99*

*Learning Outcome: Explain why cells are small.  
Section: 04.02*

*Topic: Cell Structure*

100. The surface area of a cell is important because
- A.** the surface area limits the amount of molecular exchange that can take place between the cell and its surroundings.
  - B. a small surface area allows the cell to protect itself from foreign organisms.
  - C. a large surface area makes the cell more fragile.
  - D. the surface area determines the genetic capabilities of the cell.

*Blooms Level: 1. Remember  
Enger - Chapter 04 #100*

*Learning Outcome: Explain why cells are small.  
Section: 04.02*

*Topic: Cell Structure*

101. Which of the following cube-shaped objects would have the highest surface-area-to-volume ratio? A cell with a volume of
- A.  $10 \text{ cm}^3$ .
  - B.  $8 \text{ cm}^3$ .
  - C.  $3 \text{ cm}^3$ .
  - D.**  $1 \text{ cm}^3$ .

*Blooms Level: 5. Evaluate  
Enger - Chapter 04 #101*

*Learning Outcome: Explain why cells are small.  
Section: 04.02*

*Topic: Cell Structure*

102. Diffusion of materials from outside to the middle of a cell depends upon
- A. the thickness of the cell membrane.
  - B.** the distance from the surface to the middle of the cell.
  - C. the age of the cell.
  - D. osmosis.

*Blooms Level: 2. Understand  
Enger - Chapter 04 #102*

*Learning Outcome: Contrast diffusion, osmosis, and dialysis.  
Section: 04.07*

*Topic: Cell Structure*

103. Cells can be large if they
- A. are metabolically very active.
  - B.** have metabolically inactive central regions.
  - C. actively pump nutrients into the cell.
  - D. have a very small surface area compared to their volume.

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #103*  
*Learning Outcome: Explain why cells are small.*  
*Section: 04.02*  
*Topic: Cell Structure*

104. Which of the following is false? As a cell grows, its
- A. volume increases.
  - B. surface area increases.
  - C.** surface-area-to-volume ratio increases.
  - D. metabolic needs increase.

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #104*  
*Learning Outcome: Explain why cells are small.*  
*Section: 04.02*  
*Topic: Cell Structure*

105. The **fluid-mosaic model** considers the cellular membranes to consist of \_\_\_\_\_ layer(s) of phospholipid molecules and that the individual phospholipids are able to move about within the structure of the membrane.
- A. 1
  - B.** 2
  - C. 3
  - D. 4

*Blooms Level: 1. Remember*  
*Enger - Chapter 04 #105*  
*Learning Outcome: Explain the fluid mosaic model of membrane structure.*  
*Section: 04.03*  
*Topic: Cell Structure*

106. The ultimate size of a cell is NOT limited by which one of the following?
- A. the strength of the membrane
  - B. the cell surface area
  - C. the surface-area-to-volume ratio
  - D.** the size of the nucleus

*Blooms Level: 2. Understand*  
*Enger - Chapter 04 #106*  
*Learning Outcome: Explain why cells are small.*  
*Section: 04.02*  
*Topic: Cell Structure*

107. An intravenous (IV) solution must be \_\_\_\_\_ to a person's red blood cells to prevent injury to the cells.
- A.** isotonic
  - B. hypertonic
  - C. hypotonic
  - D. osmotic

*Blooms Level: 3. Apply*  
*Enger - Chapter 04 #107*  
*Learning Outcome: Contrast diffusion, osmosis, and dialysis.*  
*Section: 04.07*  
*Topic: Cell Structure*

## 4 Summary

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