Plant & Animal Cells Study Guide

Cell Basics

1. What are tiny structures found inside of cells called?
   organelles

2. Which organelle is the control center of a cell?
   nucleus

3. What are organelles that contain chlorophyll and use energy from sunlight to produce food called?
   chloroplasts

4. What part of a cell controls what enters and leaves the cell?
   cell membrane

5. Which organelles store food and other materials needed by the cell?
   vacuoles

6. What do you call the jelly-like substance that flows throughout a cell?
   cytoplasm

7. What cell part separates and protects the nucleus from the cytoplasm?
   nuclear membrane

8. What makes up all living things?
   cells

Organelle Application

9. What is the function of the mitochondria?
   To convert energy from food molecules into energy the cell can use

10. What is the function of a cell wall?
    To protect and support the cell

11. How is the cell wall different from the cell membrane?
    The cell membrane is found in all cells, while the cell wall in ONLY in plant cells

12. How are mitochondria and chloroplasts related?
    Mitochondria make energy, while chloroplasts make food

13. What process allows plant cells to be able to convert the sun's light energy into food?
    photosynthesis

14. What 2 organelles do plant cells have that animal cells do not?
    cell wall
    chloroplasts

15. For what purpose does the cell membrane allow certain types of matter to pass into the cell?
    To provide the cell with materials it needs

16. What organelle gives plants their green color and enables them to produce their own food?
    chloroplast

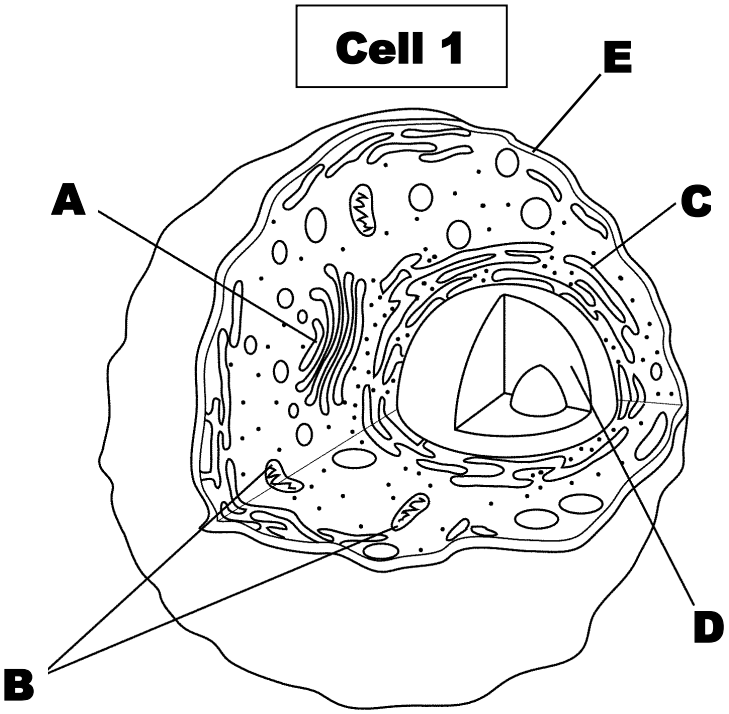
17. During science class, a group of students went on a field trip to a nearby pond where they collected samples of pond water and pond plants. The students used a microscope to study cells in their samples. They also took samples of their own cheek cells and studied them using the microscope. The results are shown in the following table.

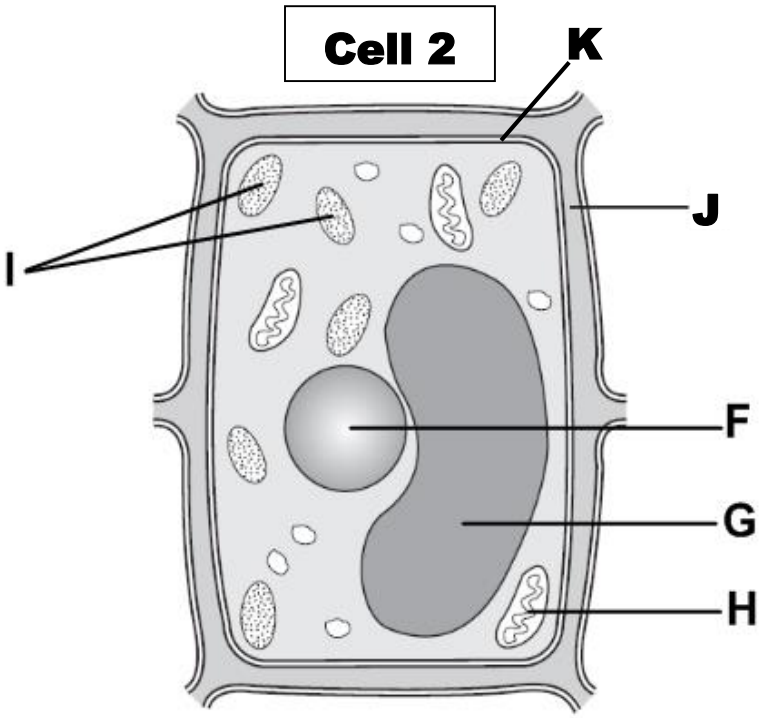
    According to the table provided, which pond organism shares the most characteristics with animal cells?

Sample	Nucleus	Cell Membrane	Cell Wall	Cytoplasm	Chloroplast	Vacuole
Cheek Cells	X	X		X		X
Pond Plant Cells	X	X	X	X	X	X
Pond Organism #1	X	X	X	X	X	X
Pond Organism #2	X	X		X		X

Pond Organism #2 – it's the only one without a cell wall and chloroplasts

Use the diagrams below to answer questions # 18-21





18. Identify by LETTER and NAME the 2 structures which are found in Cell 2, but NOT found in Cell 1.
J – cell wall
I – chloroplasts

19. Identify the LETTER of each organelle in BOTH Cell 1 and Cell 2.

Mitochondria: **Cell 1 - B and Cell 2 - H**

Cell Membrane: **Cell 1 - E and Cell 2 - K**

20. Identify the LETTER of each organelle in Cell 2.

Cell Wall: **J**

Chloroplast: **I**

21. What are structure D in Cell 1 and structure F in Cell 2?
Nucleus

22. Which cell is the plant cell and which cell is the animal cell?
Cell 1 – Animal Cell
Cell 2 – Plant Cell

23. Identify the following structures and give their functions:

B & H – **Mitochondria – provide energy for the cell**

E & K – **Cell Membrane – controls what enters and exits the cell**

D & F – **Nucleus – directs and controls all the activities of the cell, including mitosis**

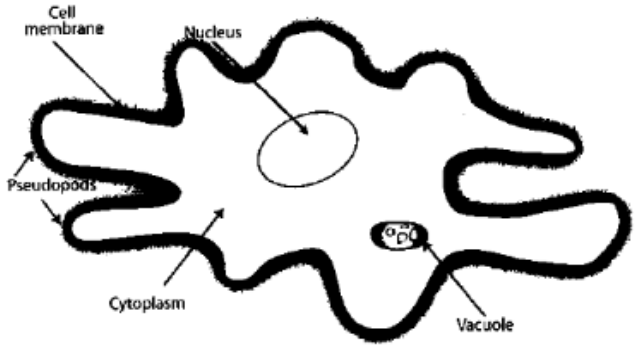
Comparing/Contrasting Cells

24. How does a protist cell differ from a plant or animal cell?
    Protists have contractile vacuoles, while plant and animal cells do not.

25. What organelle found in plant cells, is also found in some protist cells, but NOT in animal cells?
    Chloroplasts (found in plant cells, euglena, and volvox)

26. What organelle found in plant and animal cells is also found in protists?
    all protists, plant cells, and animal cells have a nucleus (they are eukaryotic)

27. What structure is found on the amoeba, and helps it move, is NOT found on plant and animal cells?
    pseudopod



28. What 2 protists are most like plant cells?
    volvox
    euglena

29. What are the 3 ways protists move?
    pseudopods
    flagellum/flagella
    cilia

Fill in the Blank: Directions: fill in the blank with the correct word. A list of possible answers is provided at the bottom of the page.

30. The smaller structures that make up cells are called ___**organelles**_____.
31. The ____**nuclues**_____ acts as the brain of the cell.
32. ____**mitochondria**_____ are the powerhouses of the cell and break down food to produce large amounts of energy.
33. ___**Vacuoles**_____ are the parts of the cell responsible for storage of food, materials, and waste.
34. An organelle that enables a plant to produce its own food is called a _**chloroplast**_____.

Word Bank		
Endoplasmic Reticulum	Organelles	Ribosomes
Nucleus	Mitochondria	Lysosomes
Vacuoles	Chloroplasts	Cellulose