

Science 8
*Unit 4: Cells, Tissues, Organs and
Systems*

Name: _____

Section: _____

Chapter 10 – *The cell is the basic unit of life.* p.388

1. Compare past and present ideas of what living things are made of.

Early Idea	Current Theory

2. What is a cell?

3. What are FOUR characteristics of living things?

4. Define:

Growth:

Movement:

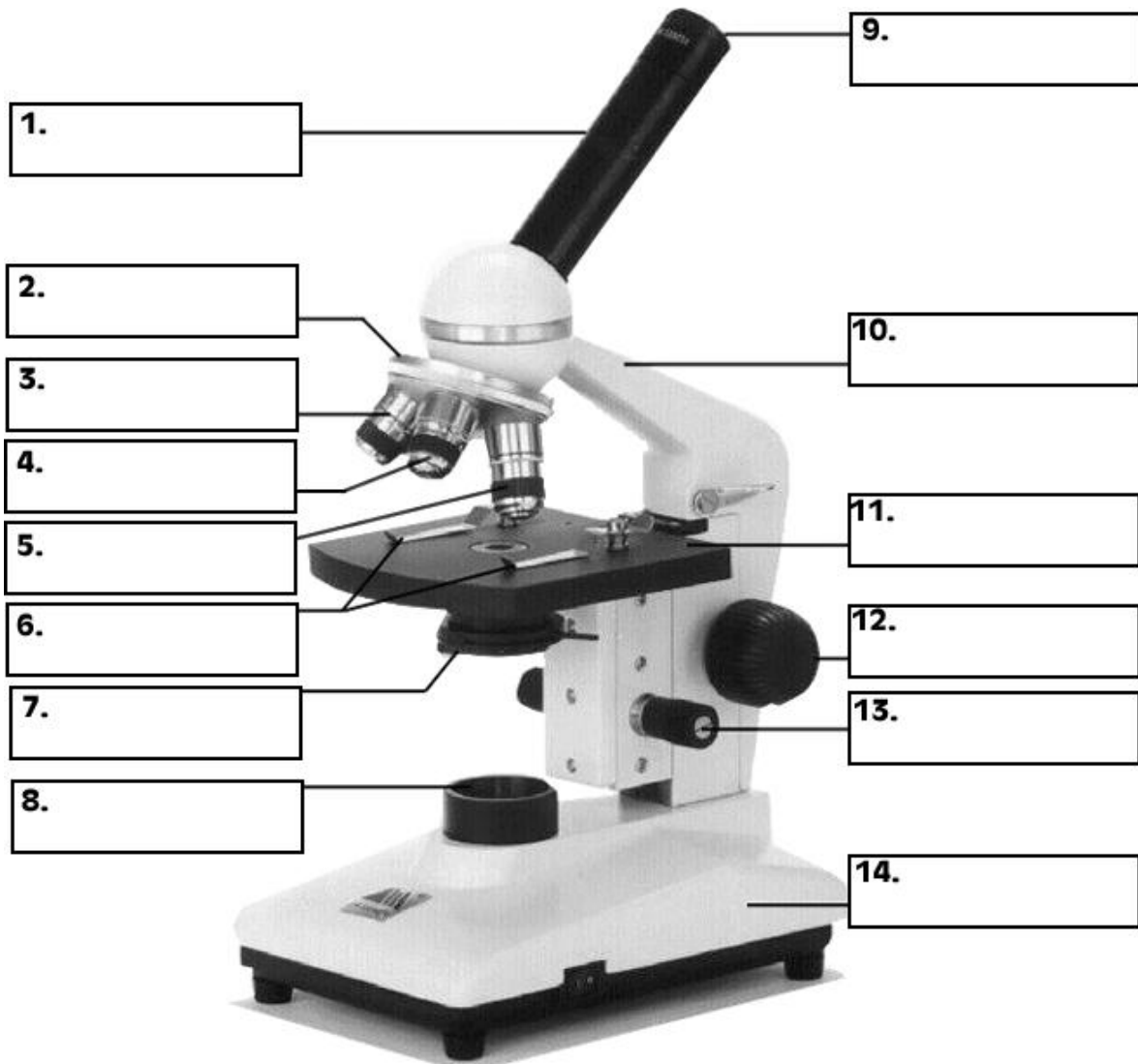
Stimulus:

Reproduction:

5. Give an example of stimulus – response reaction.

The Compound Light Microscope

6. Label the parts of the microscope below.



7. Identify the function of the microscope parts in the following table.

PART	FUNCTION
Eyepiece	
Body tube (barrel)	
Coarse adjustment knob	
Fine adjustment knob	
Objective lenses	
Revolving nosepiece	
Stage	
Iris diaphragm	
Light source	
Base	
Arm	

8. How would you calculate the **Total Magnification** of a microscope?
9. What is the total magnification of an object when using the low power lens (4X) in a microscope with an eyepiece magnification of 10X?

Cells and Cell Theory

9. List the three main points of the cell theory.

10. What is an organelle?

11. Outline the structure and function of the organelles listed below.

Cell Organelle	Structure and Function
Cell Membrane	
Cytoplasm	
Cell Wall	
Nucleus	
Vacuole	
Chloroplast	
Mitochondrion	

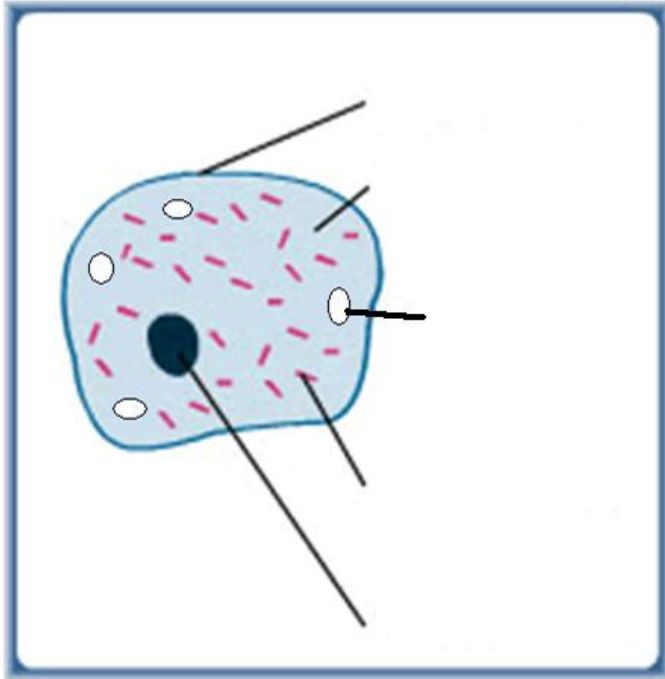
12. Indicate whether the following organelles are present in a plant cell an animal cell or both.

Organelle	PLANT	ANIMAL
Cell membrane		
Cytoplasm		
Cell wall		
Nucleus		
Vacuole		
Mitochondrion		
Chloroplast		

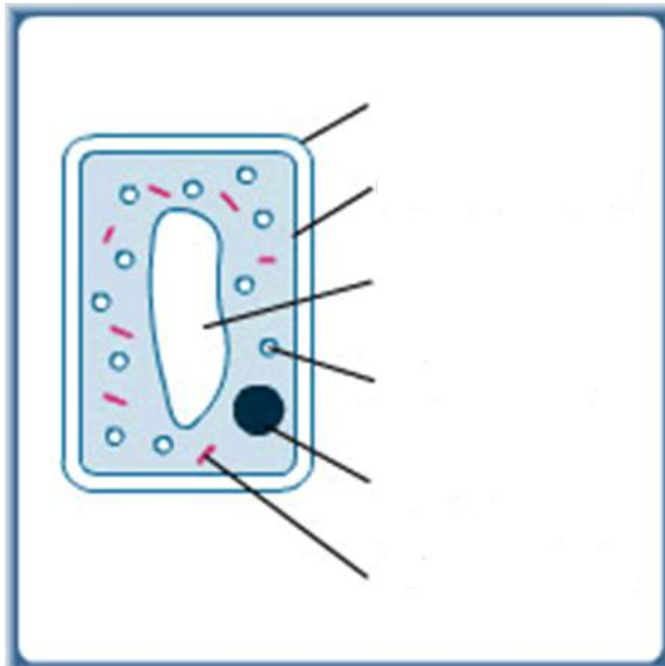
13. Explain why cells divide.

14. How do body cells divide? What other types of organisms divide in this manner?

15. Label the following cell parts. Identify the cell type (plant or animal).



Cell Type: _____



Cell Type: _____

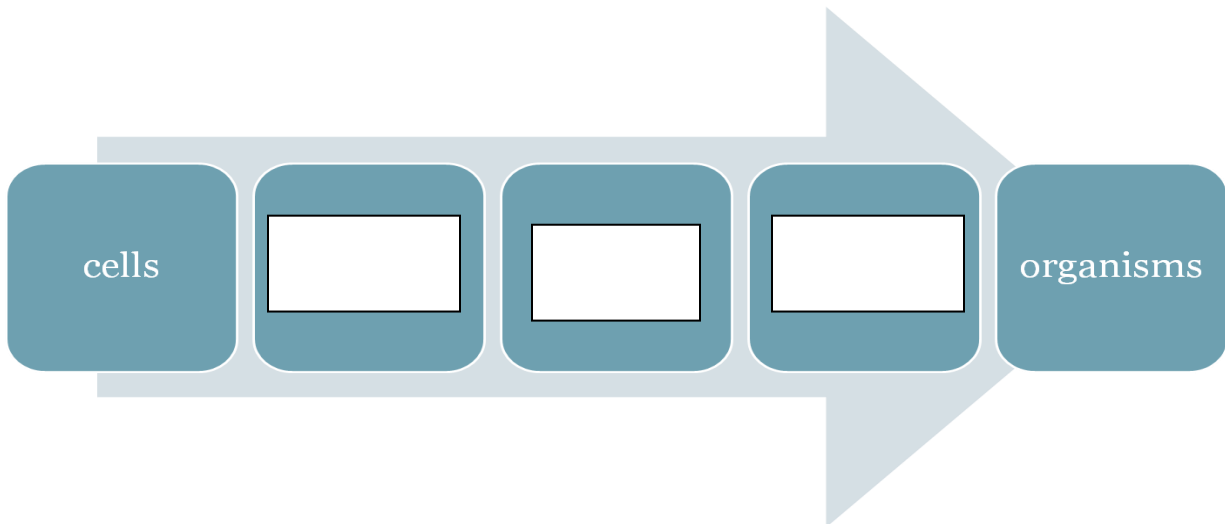
Energy for Cells – Fill in the blanks.

17. All cells need (1)_____ for all life processes. Energy is stored in food called (2)_____ (a type of sugar). To release energy cells must carry out (3)_____. This process converts one type of (4)_____ to another. The organelle responsible for cellular respiration is the (5) _____. Most energy is released as (6)_____. The gas necessary for cellular respiration is (7)_____. Waste gases are produced and removed from the cell. The waste gases include (8)_____ and (9)_____.

Chapter 11 – *Human body cells are organized as tissues, organs and systems.* p.418

1. What are the three main characteristics of systems?

2. Complete the flowchart that illustrates the levels of organization from a cellular level on up to the organism.



3. Compare Tissues and Organs in terms of their composition. Give four examples of each.

Tissues	Organs
Examples:	Examples:

4. Organ Systems p.428-430

What is an *organ system*?

Identify the main organs and tissues as well as the function of each.

Organ System	Main Organs and Tissues	Main Functions
Digestive System		
Circulatory System		
Nervous System		

Respiratory System		
Excretory System		
Muscular System		

Chapter 12 – *The health of the body depends on the health of its interdependent systems.* p.434

1. Cells and the organisms that they make up have the same basic needs. These include:

2. Briefly outline how the systems below depend on one another.

Systems	Connection
Circulatory and Respiratory	
Circulatory and Digestive	
Nervous and Muscular	

3. Identify three factors that affect the health of body systems.

4. Compare and contrast lifestyle and genetic factors that affect our body systems.

5. Briefly describe the technologies below that have been designed to assist damaged organs and/or systems.

Artificial Heart

Insulin Pump

6. List six examples of careers that are associated with the health of body systems.

7. Identify the effects of lifestyle factors on our health.

Lifestyle Factors	Effects
Diet high in fats and cholesterol	
Being overweight	
Smoking	
Drugs and alcohol	
Lack of exercise	