Biology 309/310

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Unit 4: Cells

Review Guide

LEARNING TARGETS

Place a checkmark next to the learning targets you feel confident on. Then go back and focus on the learning targets that are not checked .

- ❏ Identify the parts and functions of the light microscope.
  Resources:
  Textbook Section A14
  Student Glossary
  Microscope Lab
  Microscope Labeling Practice

- ❏ Describe the structure and function of organelles in a typical cell.
  Resources:
  Textbook Section 7.2
  Student Glossary
  Notes: Cell Organelles
  Cell Project
  Organelle Practice Sheet

- ❏ Differentiate between prokaryotic and eukaryotic cells.
  Resources:
  Textbook Section 7.1
  Student Glossary
  Notes: Prokaryotes vs. Eukaryotes

- ❏ Compare and contrast structural differences between a plant and animal cell.
  Resources:
  Textbook Section 7.2
  Student Glossary
  Notes: Plant vs. Animal Cells
  Cell Project
  Plant & Animal Cell Lab

- ❏ Recognize the relationship between a cell's structure and function.
  Resources:
  Notes: Cell Function and Structure

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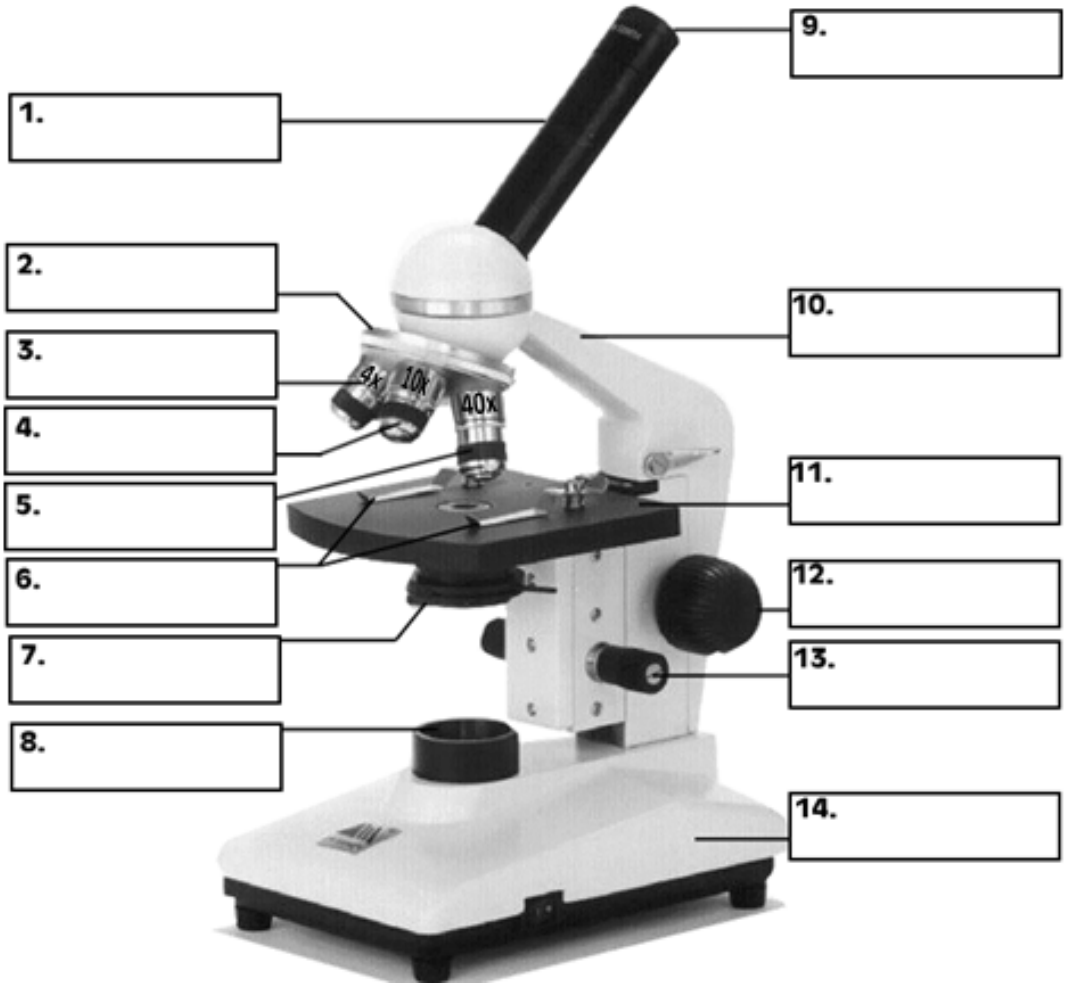
LT: Identify the parts and functions of the light microscope.

1. In order to view a specimen under high power, which objective should you always start with?

2. When working under scanner and low power, which parts of the microscope can be used to focus?

3. When working under high power, what is the ONLY part of the microscope that you may use to focus? Why?

4. Label the parts of the microscope below.



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5. Use the diagram from question four to complete the table below.

Number	Name of Microscope Part	Function of Microscope Part
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

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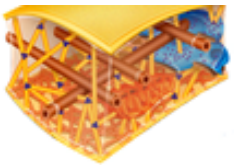
LT 2.2.1.A: Describe the structure and function of organelles in a typical cell.

6. Fill in the table below.

Organelle Name	Function/Description	Illustration	Analogy
			
Chloroplast			
	Rigid network of cellulose fibers that surrounds the cell membrane in plant cells; provides cells with structure and support		
			
Smooth Endoplasmic Reticulum			
	Long, tail-like structure present in cells like sperm that moves these cells from place to place		
Vacuole			

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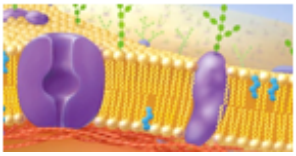
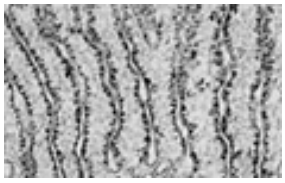
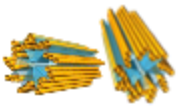
Organelle Name	Function/Description	Illustration	Analogy
			
Ribosome			
	Control center of cell, contains information in the form of DNA		
Nucleolus			
	Small, circular organelles that contain enzymes to break down food, bacteria, waste, old cell parts, or even the cell itself		
			
			

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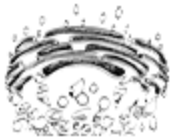
Organelle Name	Function/Description	Illustration	Analogy
Cytoplasm			
			

7. Read each description below and then identify the cell structure.
    a. I'm strong and sturdy, getting through me is tough, and am only found in plants.

    b. I'm a series of tubes, found all throughout the cell. I transport proteins and other things as well.

    c. I'm a real "powerhouse". I break down food, to release energy.

    d. I'm full of holes, flexible, and thin. I control what gets out, as well as what comes in.

    e. Proteins are made here, even though I am quite small. You can find me in the cytoplasm or attached to E.R's wall.

    f. I'm a sac filled with water, food, enzymes, or waste.

    g. Found only in plant cells, I make food for the plant using the sun's energy.

    h. I contain many enzymes, I break down large molecules for the cell.

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LT 2.2.2.A: Differentiate between prokaryotic and eukaryotic cells.

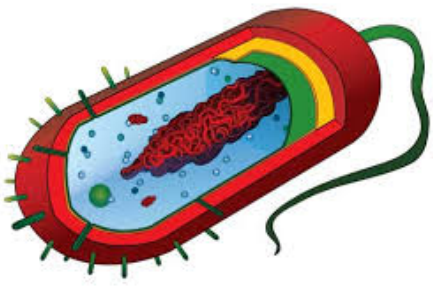
8. Compare and contrast prokaryotic and eukaryotic cells using the table below

Prokaryotes	Both	Eukaryotes

9. What types of cells are prokaryotic?

10. What types of cells are eukaryotic?

11. Identify the drawings below as either prokaryotic or eukaryotic.



LIFE 8e, Figure 27.25

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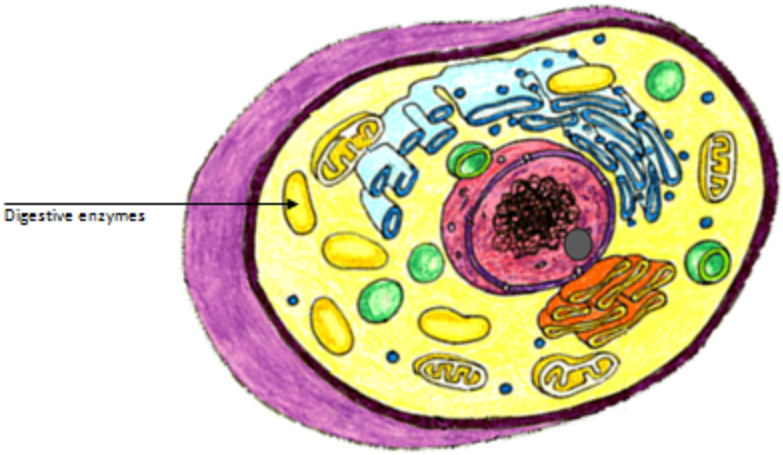
LT 2.2.2.B: Compare and contrast structural differences between a plant and animal cell.

12. What type of cell is shown in the diagram below?



13. What type of cell is shown in the diagram below?

14. List the organelles that are only found in a plant cell.

15. List the organelles that are only found in an animal cell.

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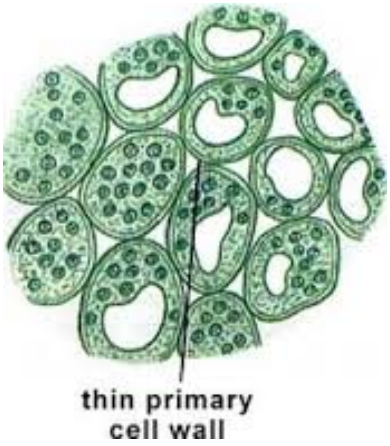
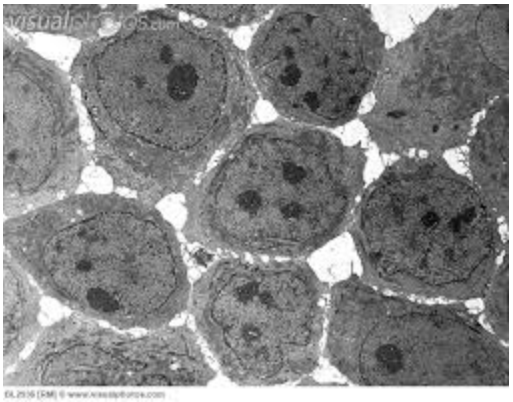
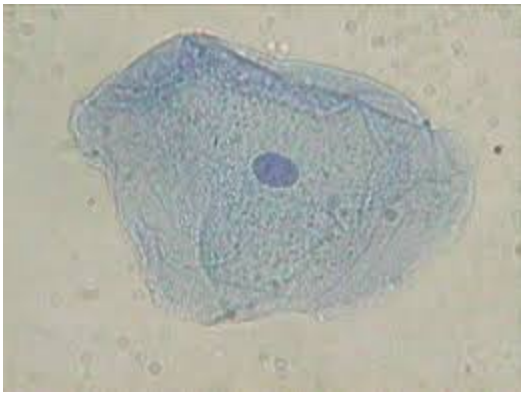
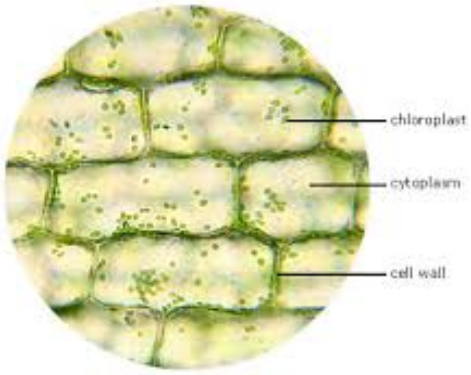
16. Identify each of the microscope pictures as either plant or animal cells and explain how you know.









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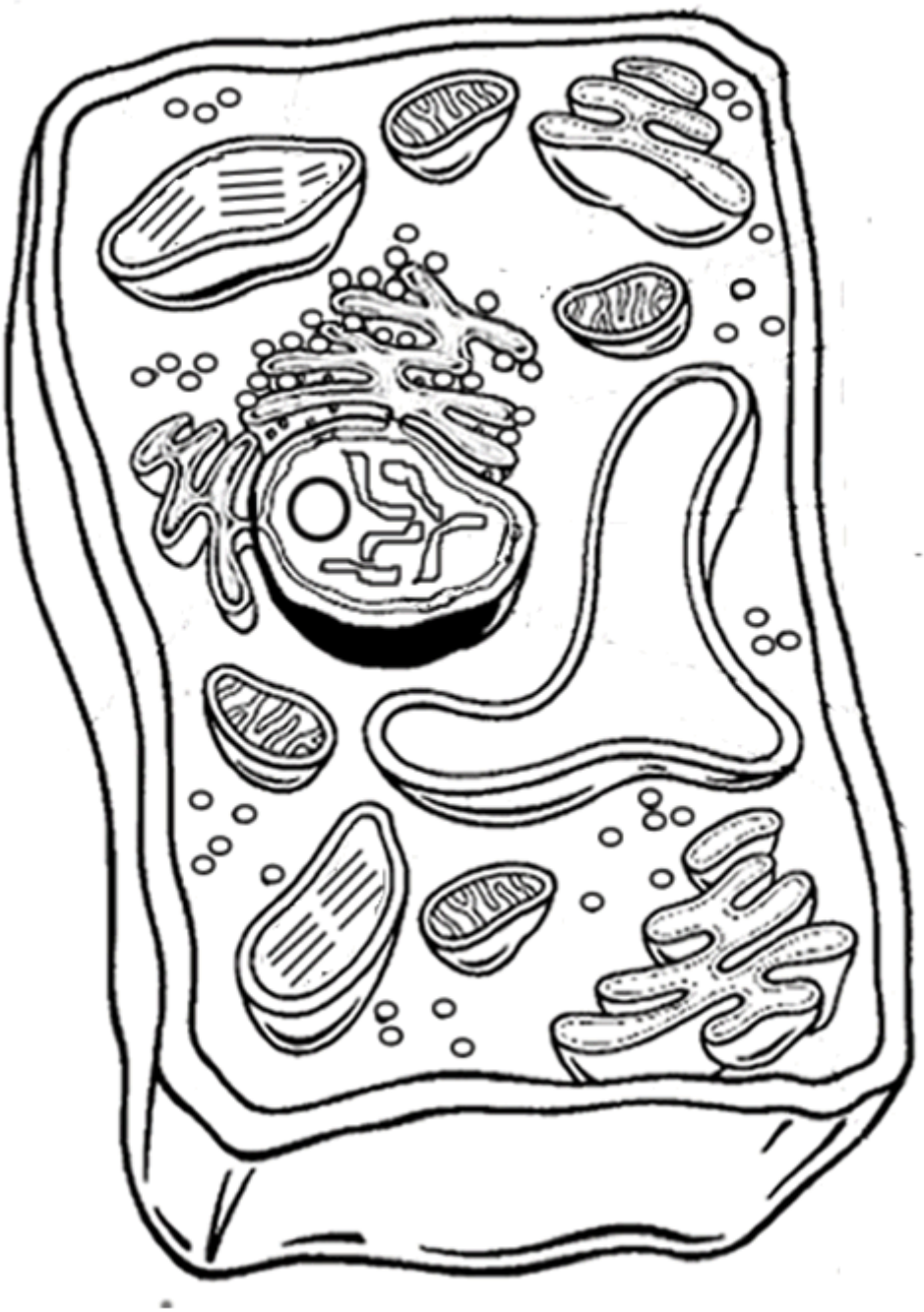
17. Label the different organelles found in a plant cell (you can either draw lines and label or color code)

Cell Membrane Cell wall Chloroplasts Cytoplasm Cytoskeleton Golgi body Lysosomes Mitochondria Nuclear Membrane Nucleolus Nucleus Rough ER Smooth ER Vacuole



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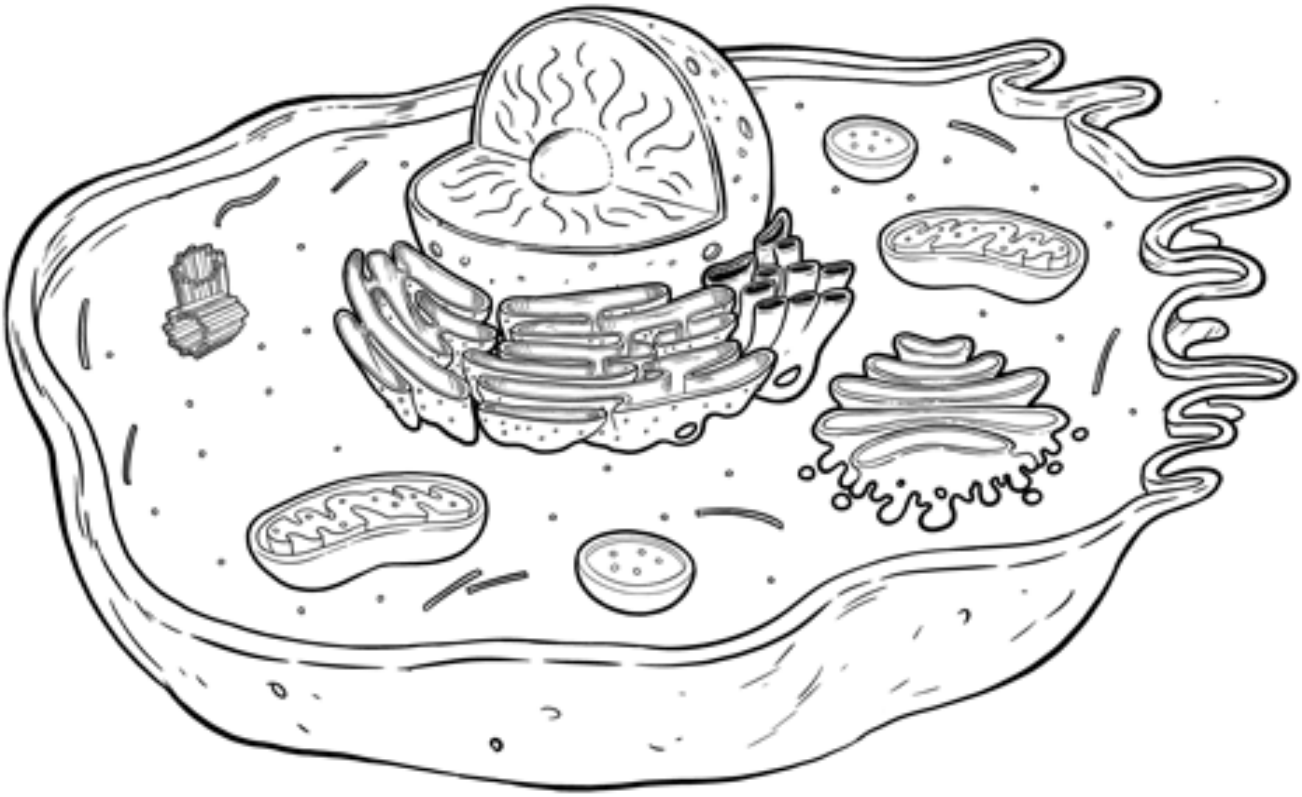
18. Label the different organelles found in an animal cell (you can either draw lines and label or color code)

Cell Membrane Centrioles Cytoplasm Cytoskeleton Golgi body Lysosomes Mitochondria Nuclear Membrane Nucleolus Nucleus Rough ER Smooth ER Vacuoles



LT 2.2.2.C: Recognize the relationship between a cell's structure and function.

19. What is the relationship between a cell's structure and it's function?

20. Explain why it makes sense that red blood cells are round.

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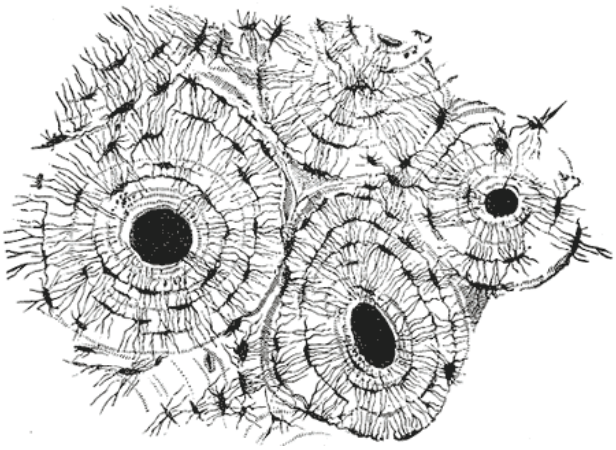
21. Look at the following cell, based on its structure what do you think it's function is?



22. What shape would you expect a muscle cell to have if its function is to be able to stretch?

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EXTRA VOCABULARY PRACTICE