Name: Block:

Biology: Cells

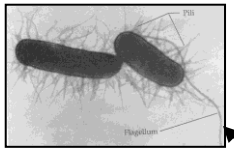
Purpose: This unit will examine different types of cells and the purpose of their organelles, including the production of energy

Date	Topics/Activities	Objectives	HW Due
9/15 & 9/16	Microscopes & Magnification: Examples & discussion R-Lab: Microscope Introduction	**Explain** how technology and tool advancements, microscope, has aided in understanding cells **Know** how to properly operate a microscope	
9/19 & 9/20	Discovery of Cells Notes Cell Organelles Notes Cell Organelles Treasurer Hunt Eukaryotic Cell Comparison Lab	**Describe** the cell theory **Identify** cell organelles (parts) **Describe** organelle function	*R-Lab (Completed in previous class)* *3.1 Reading & Review*
9/21 & 9/22	Complete Cell Comparison Lab Prokaryotes vs. Eukaryotes Frayer Model Eukaryotic Organelles: Digital Note Cards	**Identify** differences between plant & animal cells using a microscope **Compare & Contrast** prokaryotes & eukaryotes (plants & animals)	*Eukaryotic Cell Comparison Lab* *3.2 Reading & Review*
9/23 & 9/26	Photosynthesis & Respiration: Animated Biology, Posters, Expert Groups Complete Manipulating Plant Growth Lab	**Identify** the products and reactants of Photosynthesis & Respiration	*Manipulating Plant Growth Lab*
9/27 & 9/28	Diffusion & Osmosis Pre-Assessment Cell Bingo Photosynthesis & Respiration Review Cell Practice Quiz Studying 101	**Assess** knowledge of and ability to use the microscope **Review** Cells Standard	*Photosynthesis & Respiration Power Notes*
9/29 & 9/30	Review: Flashcards & Venn diagram Cell Test Bubble Lab	**Assess** Tualatin Cell Standard	*Study for Test*
10/3 & 10/4	Discuss Cell Test Results: Test Corrections & Retakes Enrichment opportunities: Readings, analysis, & research	**Discuss** assessment results Test corrections or enrichment	

Next Unit: Osmosis & Diffusion

Cell Unit Vocabulary

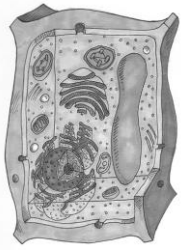
Identify, describe, and compare and contrast the unique cellular organelles and functions of prokaryotic and eukaryotic cells.



Prokaryote

- Plasma (cell) membrane
- Cytoplasm
- Ribosome
- DNA

Eukaryotes



- **Plants**
- **Animal**

ORGANELLES

CELL WALL	CENTRIOLE
CHLOROPLAST	LYSOSOME

- NUCLEUS
- MITOCHONDRIA
- VACUOLE
- ROUGH ER

Check this list before, during, and at the end of a unit. Are there words you still need to know? Are there words not listed that you need to be able to explain prokaryotic and eukaryotic cells?

Cell Standards
Oregon Standards: H.1L.1, H.1L.4, H.3S.4

1. Distinguish between prokaryotic and eukaryotic cells, and plant and animal cells: H.1L.4

- **Proficient:**
  - Given a picture, list, or description **identify** if the cell is prokaryotic or eukaryotic
  - **Select** the cell parts that belong only to plants or animals: chloroplasts, central vacuoles, cell walls, and centriole.
  - **Outline** the function/job of the following organelles: cell membrane, nucleus, ribosome, plasma membrane, mitochondria, endoplasmic reticulum, golgi apparatus, and chloroplasts.
  - **Identify** the components of the cell theory and contributing scientists.
- **Exceeds:**
  - Evaluate how plants and animals differ in their structure and function. How does their structure determine their function?

2. Describe how eukaryotic cells create and use energy: H.1L.1

- **Proficient**:
  - Use a formula or drawing to **identify** inputs and outputs of cellular respiration and photosynthesis including: carbon dioxide, water, oxygen, sunlight, ATP, and carbohydrate sugar.
- **Exceeds**:
  - In a table or venn diagram **compare and contrast** the location, reactants and products, organism type, and type of chemical reactions (Kreb v. Calvin cycle).

3. Identify examples from the history of science that illustrate modification of scientific knowledge in light of challenges to prevailing explanations: H.3S.4

- Proficient:
  - **Identify** scientists' data contributes to changing explanations.

Warm-Ups

Date:
Date:
Date:

Warm-Ups

Date:
Date:
Date:

Microscope Memory

When you are told to do so…draw a compound microscope and label as many parts as you can remember. THERE ARE PRIZES FOR THE WINNER.

Discovery of Cells Notes

The development of the _____ allowed scientists to discover _____.

As early as the _____, Anthony van Leeuwenhoek, _____, and others viewed cells using microscopes and drew hundreds of examples .

The collective study of cells led to the development of the _____.

The Cell Theory:

1. All _____ _____ are made up of one or more cells.
2. In organisms, _____ are the basic unit of structure and function.
3. Cells come from _____ _____.

All cells have the following:

1.
2.
3.
4.

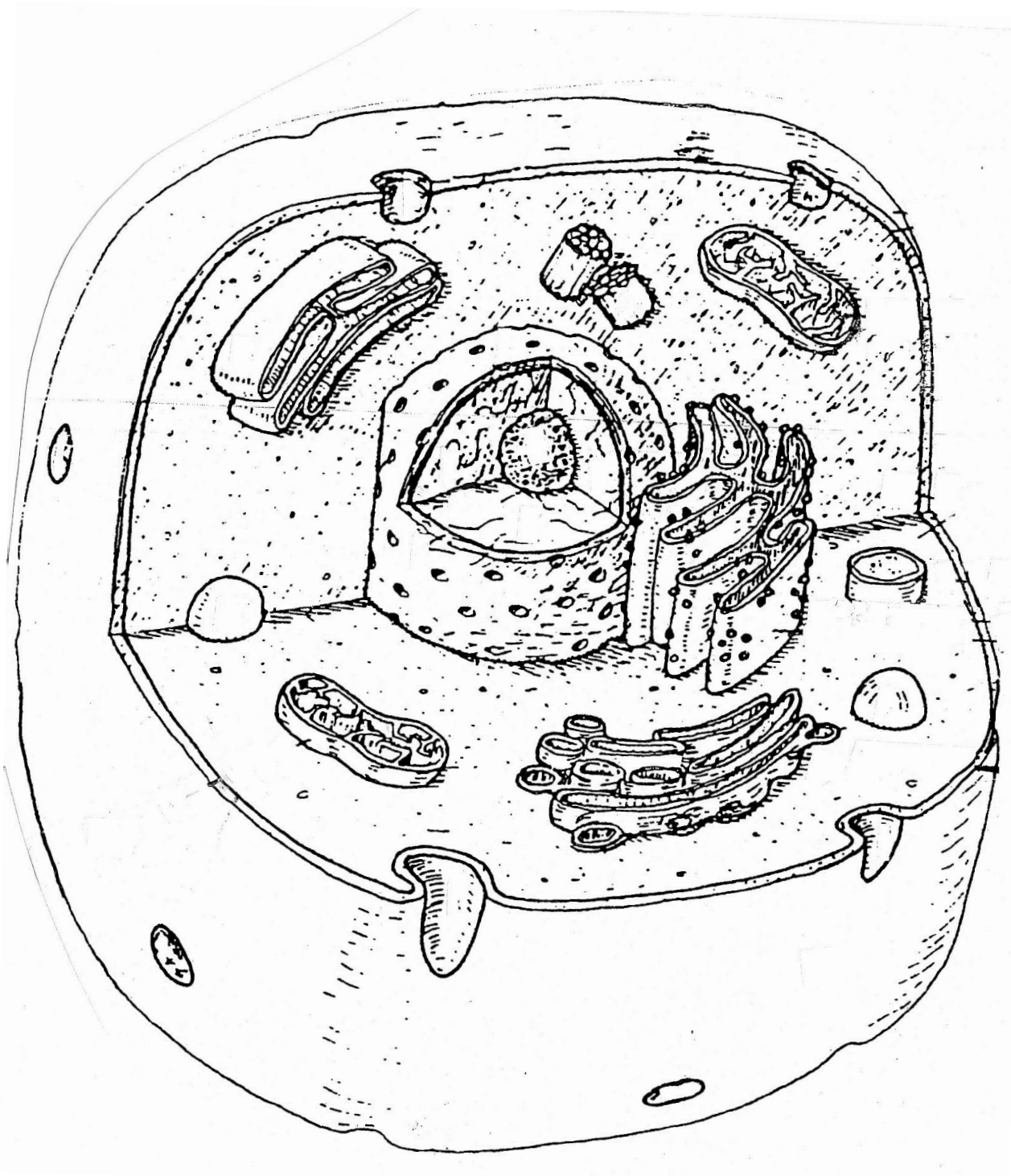
Two types of cells:

1.	**2.**
• • • • •	• • • • •

Cell Organelles Treasurer Hunt

Organelle	Function	Eukaryotic Plant Cell (Y/N)	Eukaryotic Animal Cell (Y/N)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

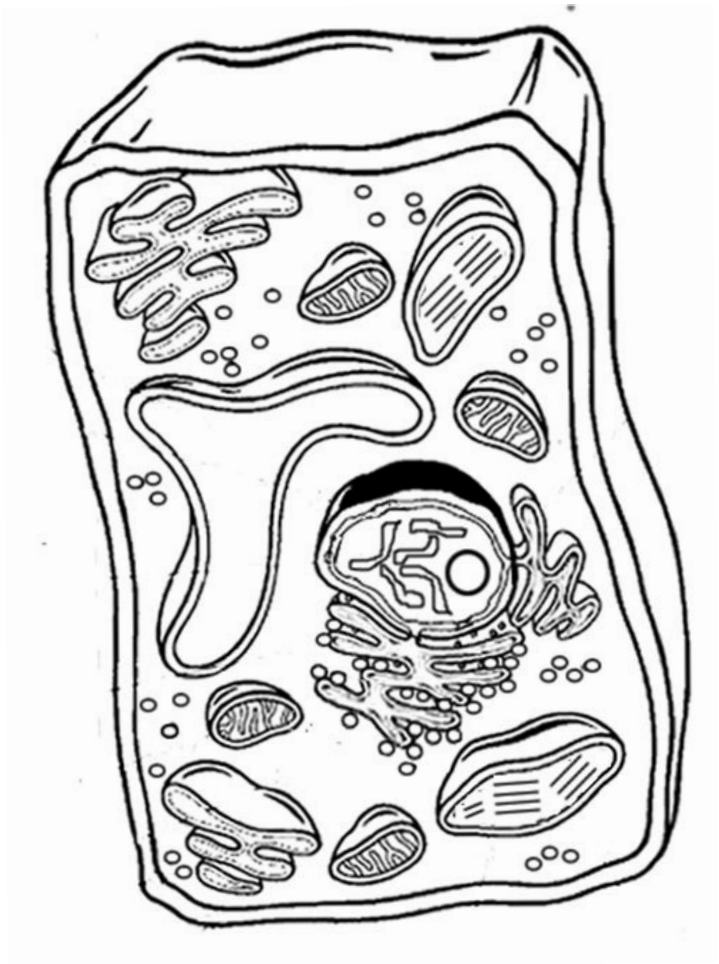
General Animal Cell (Eukaryote)



General Plant Cell (Eukaryote)

Directions:
Color the corresponding organelle in the plant cell with the color next to each vocabulary term. When done, answer the analysis questions.

- ☐ Cell Membrane (orange)
- ☐ Cell Wall (dark green)
- ☐ Ribosome (purple)
- ☐ Cytoplasm (white)
- ☐ Nucleolus (brown)
- ☐ Nuclear Envelope/ Membrane (yellow)
- ☐ Mitochondria (red)
- ☐ Chloroplasts (light green)
- ☐ Vacuole (lt. Blue)
- ☐ Chromatin (gray)
- ☐ Golgi Apparatus (dk blue)
- ☐ Smooth Endoplasmic Reticulum (pink)
- ☐ Rough Endoplasmic Reticulum (pink)



Analysis Questions

1. Name two things found in a plant cell that are not found in an animal cell:

2. How does the shape of a plant cell differ from that of an animal cell?

3. What is the function of the chloroplasts?

4. What is the function of the vacuole?

5. What is missing from a plant cell that an animal cell would have?

Name Period Date

SECTION **3.1** | CELL THEORY

Power Notes

Scientists who contributed to the cell theory:

Important technological advances:

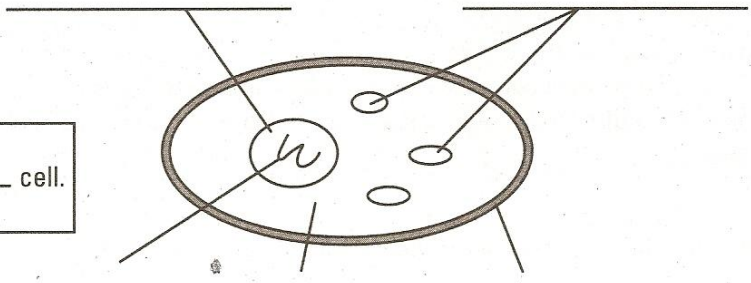
The principles of cell theory:

1.

2.

3.

The cell theory is:



This is a _____ cell.

This is a _____ cell.

All cells have:

Name Period Date

SECTION 3.2 | CELL ORGANELLES

Study Guide

KEY CONCEPT

Eukaryotic cells share many similarities.

VOCABULARY		
cytoskeleton	Golgi apparatus	lysosome
nucleus	vesicle	centriole
endoplasmic reticulum	mitochondrion	cell wall
ribosome	vacuole	chloroplast

MAIN IDEA: Cells have an internal structure.

1. Look at Figure 3.5 in your textbook. What are the functions of a cytoskeleton?

_____

_____

2. How is a cytoskeleton like your skeleton?

_____

3. How is a cytoskeleton like your muscles?

_____

MAIN IDEA: Several organelles are involved in making and processing proteins.

Write either the function or the name of each organelle. Draw a sketch to help you remember it.

Organelle	Function	Sketch
4. nucleus		
5.	helps in the production of proteins and lipids	
6. ribosomes		
7. Golgi apparatus		
8.	carries certain molecules from place to place within a cell	

1)

Name Period Date

STUDY GUIDE, CONTINUED

MAIN IDEA: Other organelles have various functions.
Write the function of each organelle. Draw a sketch to help you remember it.

Organelle	Function	Sketch
9. mitochondrion		
10. vacuole		
11. lysosome		
12. centriole		

MAIN IDEA: Plant cells have cell walls and chloroplasts.

13. What role do cell walls play in a plant?

_____

14. What is the difference between a cell wall and a cell membrane?

_____

15. Why are chloroplasts important?

_____

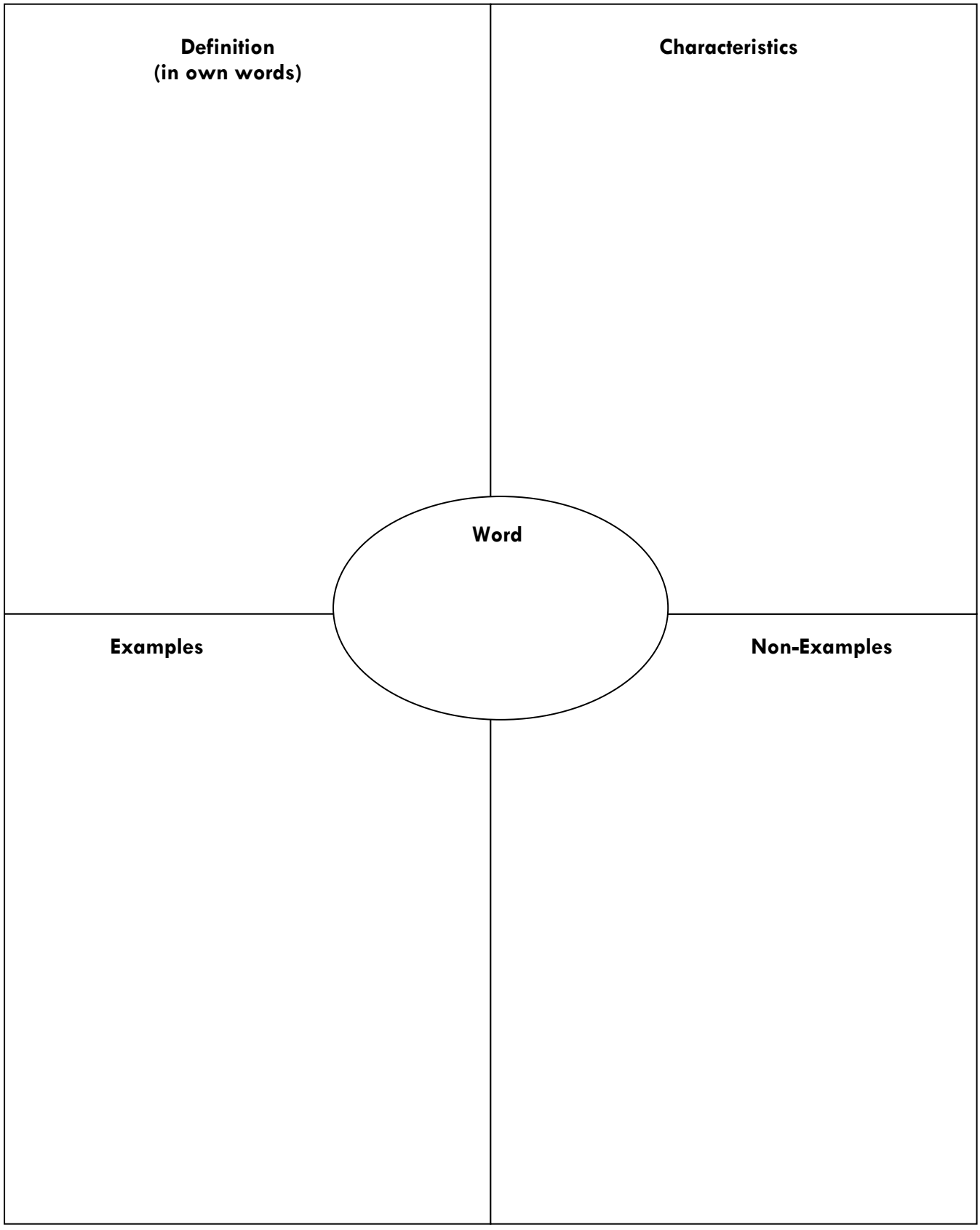
Vocabulary Check

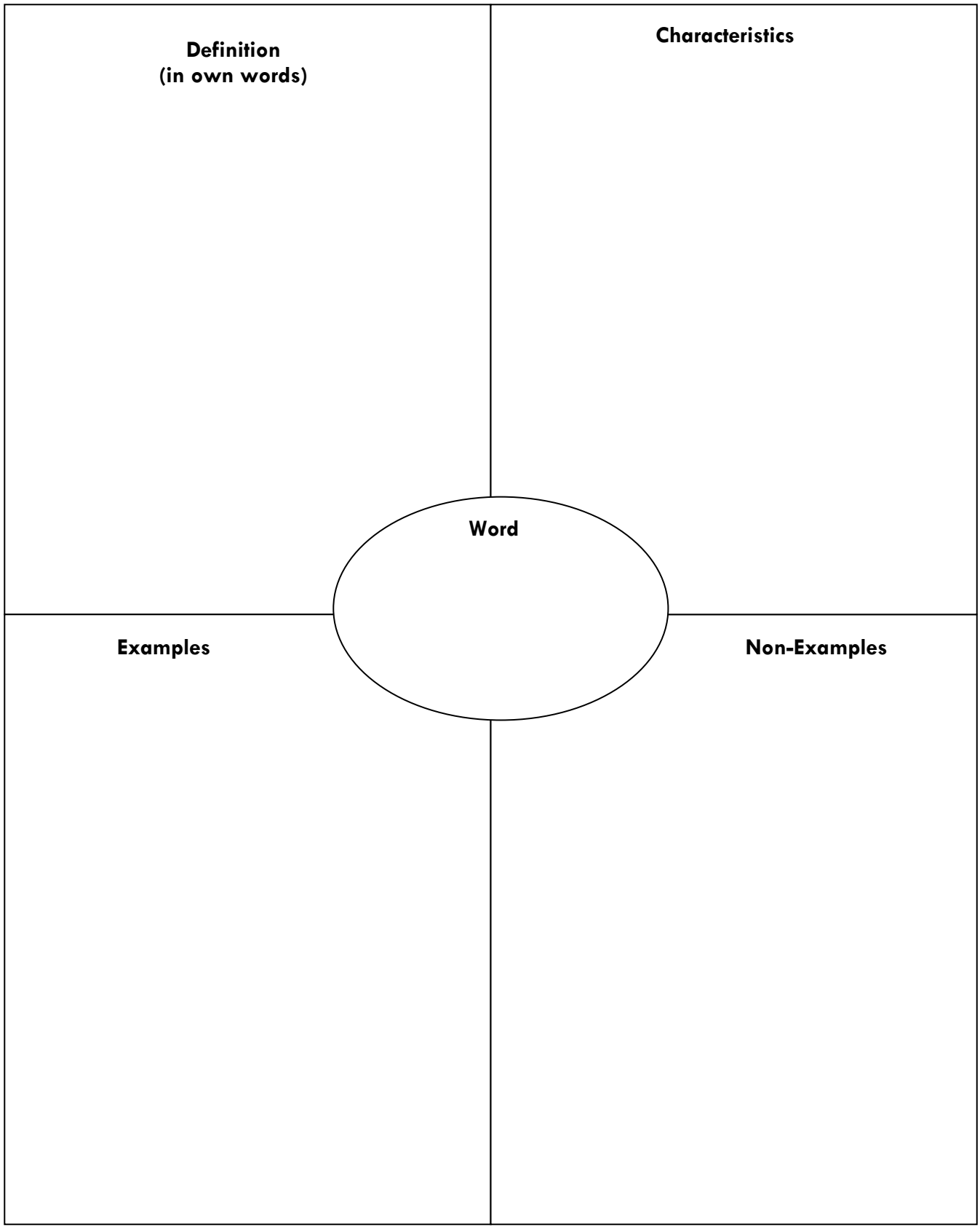
16. Which cell part is a maze of folded membranes where proteins and lipids are produced?

_____

17. Which cell part converts food into energy that is usable by a cell?

_____


Definition
(in own words)
Characteristics
Word
Examples
Non-Examples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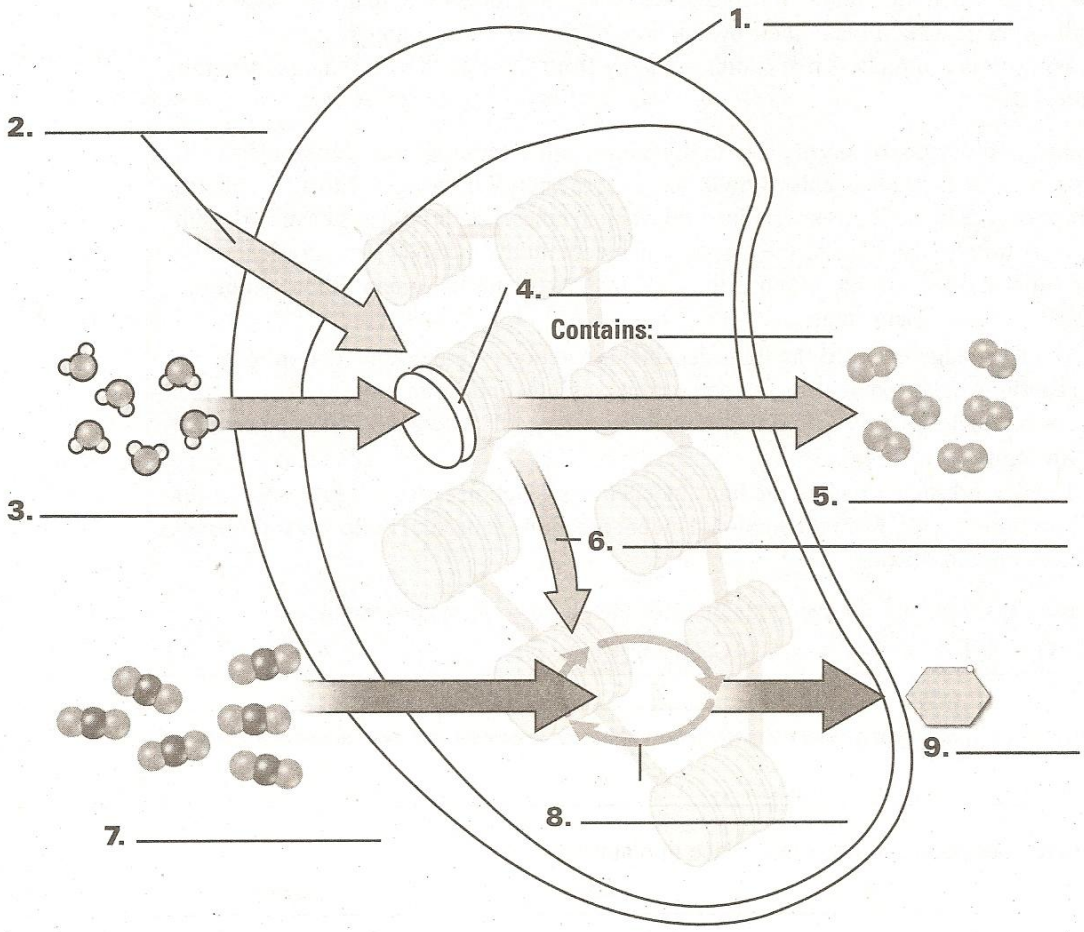
Name Period Date

SECTION 4.2

OVERVIEW OF PHOTOSYNTHESIS

Power Notes

Photosynthesis:



Write the equation for photosynthesis:

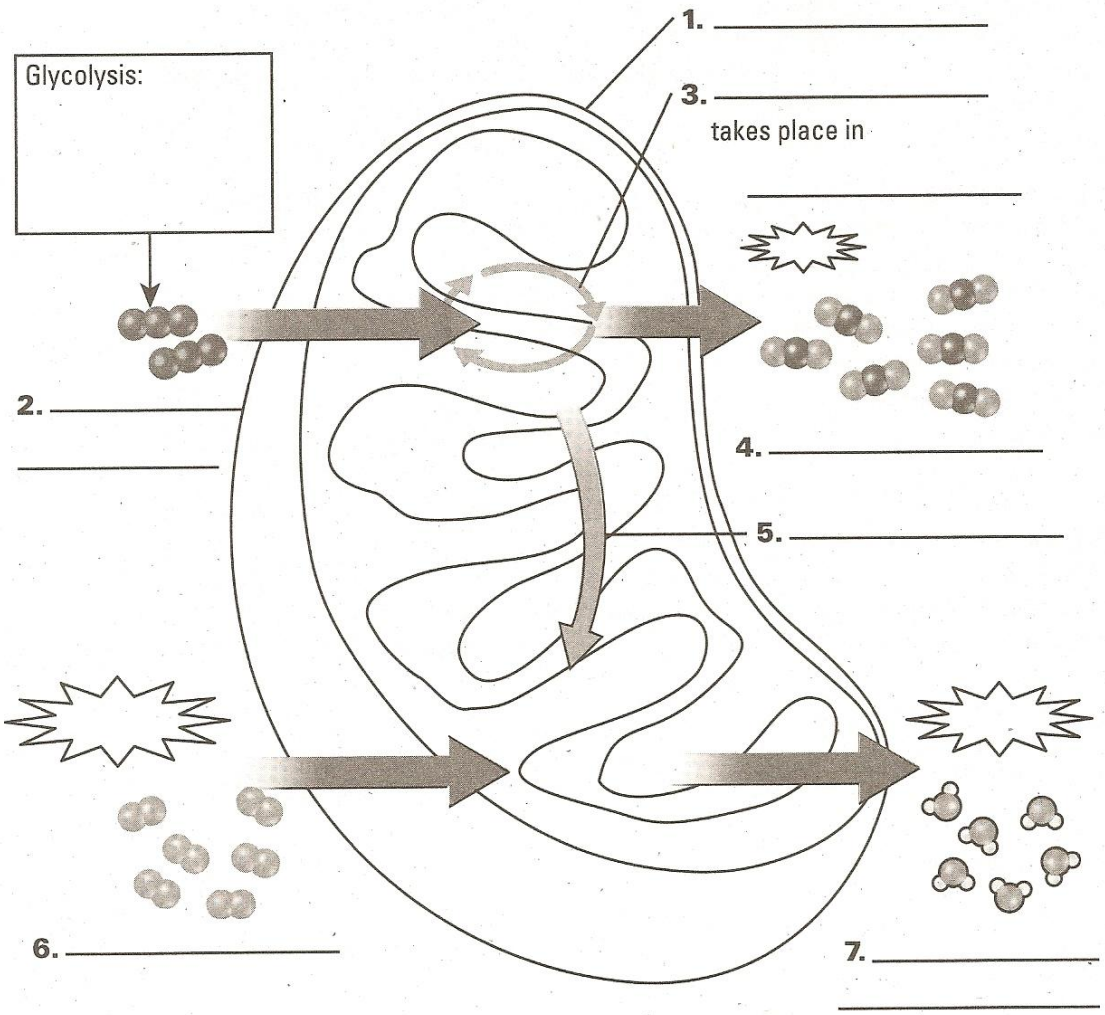
Name Period Date

SECTION 4.4 | OVERVIEW OF CELLULAR RESPIRATION

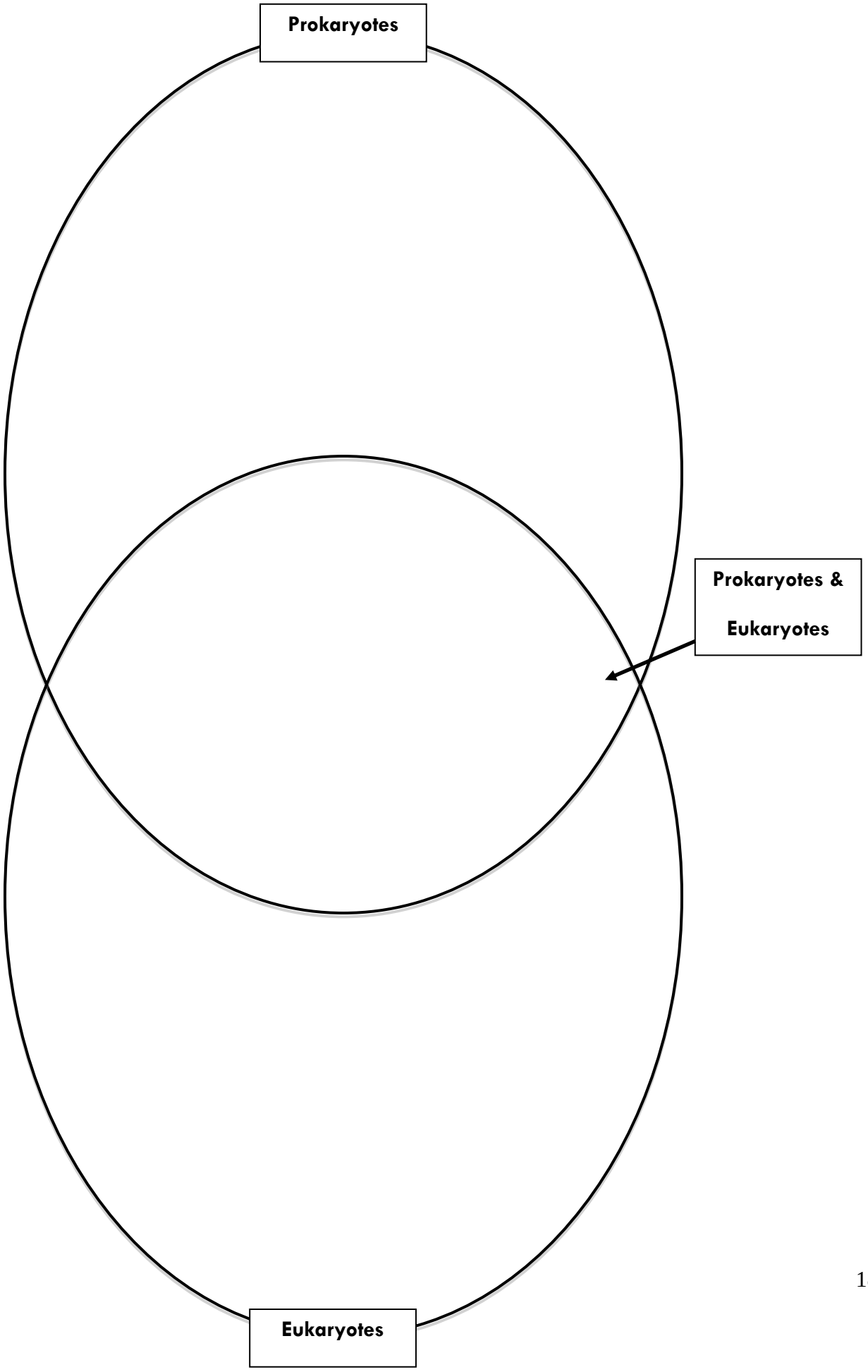
Power Notes

Cellular respiration:

Glycolysis:



Write the equation for cellular respiration.


Prokaryotes
Prokaryotes &
Eukaryotes
Eukaryotes