

Chapter 2

Living Things



Chapter 2 Objectives

Section 1: What is Life?

1. List the characteristics all living things share
2. Explain where all living things come from
3. Identify what all living things need to survive

Section 2: Classifying Organisms

1. Tell why biologists classify organisms
2. Relate the levels of organisms to the relationships between organisms
3. List characteristics used to classify organisms into groups, including domains and kingdoms

Section 3: Discovering Cells

1. Tell what cells are
2. Explain how the invention of the microscope contributed to scientists understanding of living things
3. State the cell theory
4. Describe how microscopes produced magnified images

Section 4: Looking Inside Cells

1. Identify the role of the cell wall and the cell membrane in the cell
2. Describe the functions of the cell organelles
3. Explain how cells are organized in many-celled organisms

Living Things

Key Theme:

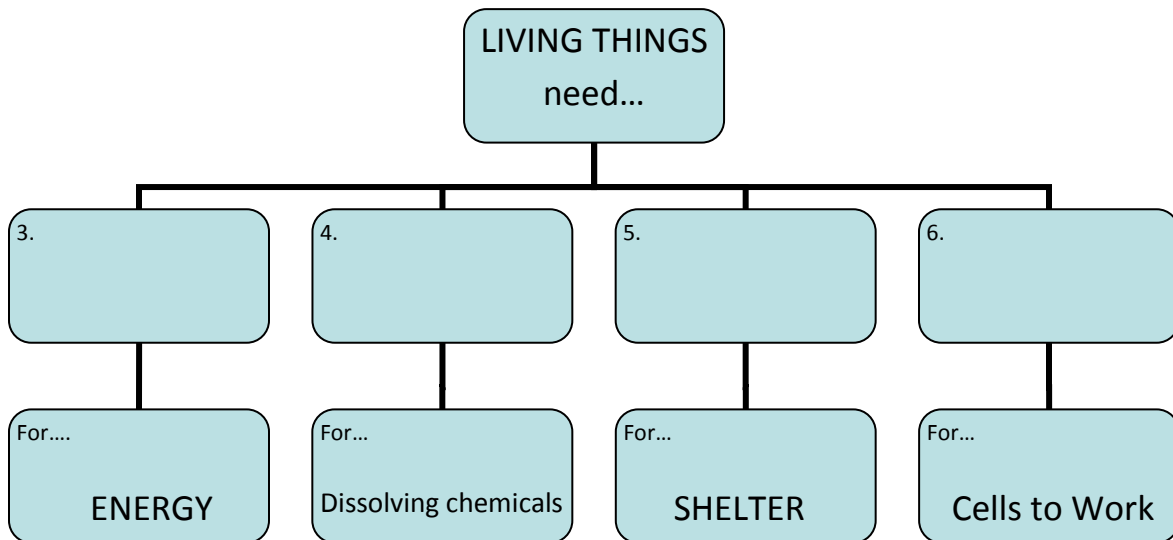
All living things must satisfy their basic needs for water, food, living space, and stable internal conditions.

DIRECTIONS: Match the following terms to their correct definitions

- | | |
|--------------------------------------------------------------------|---------------------------|
| 1. ____ Theory that living things can arise from nonliving things | a. Unicellular |
| 2. ____ Change in an organism's surroundings and causes a reaction | b. Organism |
| 3. ____ Basic unit of structure and function in an organism | c. Stimulus |
| 4. ____ Single-celled organism | d. Homeostasis |
| 5. ____ Process of change that occurs during an organism's life | e. Spontaneous Generation |
| 6. ____ Organisms composed of specialized cells | f. Multicellular |
| 7. ____ Another name for a living thing | g. Cell |
| 8. ____ Maintaining internal balance | h. Development |

DIRECTIONS: Fill in each blank with the correct term.

1. Living things that get energy by feeding on other living things are _____
2. Living things that use the energy from the sunlight to make food are _____



**Lab
zone**

At-Home Activity

Observing Life With a family member, observe a living thing, such as a family pet, a houseplant, or a bird outside your window. Record your observations as you study the organism. Prepare a chart that shows how the organism meets the four needs of living things discussed in this section.

Movie Focus Questions

Classification of Living Things

1. What is the name of the science of classifying living things?
2. How many kingdoms of classification exist?
3. What are the 5 Kingdoms?
4. How many subdivisions are there, including kingdoms?
5. Who was the first known person to attempt classification of living things?
6. Who classified in the 1800s and now takes credit for the system we use today?
7. How many phyla exist in the Kingdom *Animalia*?
8. What phylum does the horse belong in? What is the main characteristic that puts the horse in this phylum?
9. What class does the horse belong in? What are the two characteristics that put the horse in this class?
10. The horse is in the order perissodactyla. Why is the horse in this order?
11. What family does the horse belong to?
12. What genus does the horse belong to?
13. What species does the horse belong to?

Life and the Dichotomous Key

TRUE OR FALSE:

1. Most cells can be seen only with a microscope, a tool that magnifies small objects. _____
2. An organism made of many cells is a unicellular organism. _____
3. The cells of organisms use energy for growth and repair. _____
4. Flies can arise from rotting meat. _____
5. Louis Pasteur used a controlled experiment to show that bacteria arise from spontaneous generation.

6. Living things use food as their energy source to carry out their life functions. _____
7. Living things can live without water for long periods of time. _____
8. Organisms compete with each other for space to live. _____
9. Once an organism is classified, a scientist knows a lot about that organism. _____
10. Linnaeus placed organisms into groups based on their features that he could observe. _____
11. A species is a group of similar organisms that can mate with each other and produce offspring that can also mate and reproduce. _____
12. The more classification levels that two organisms share, the more characteristics they have in common.

13. Archaea have a similar chemical makeup to bacteria. _____
14. Protists can be either unicellular or multicellular. _____
15. Mushrooms, molds, and mildews are all fungi. _____
16. Plants provide food for every heterotroph on Earth (directly or indirectly). _____
17. All animals are multicellular. _____

Figure 1

Dichotomous Key			
Step 1	1a.	Can be seen without a microscope (multicellular)	Go to Step 2
	1b.	Can be seen only with a microscope (unicellular)	Go to Step 4
Step 2	2a.	Has chloroplasts (green cell parts)	Plants
	2b.	Has no chloroplasts	Go to Step 3
Step 3	3a.	Absorbs food; may be attached to food source	Fungi
	3b.	Captures and eats food; moves or has appendages	Animals
Step 4	4a.	Has no nucleus; cell is very small	Eubacteria or Archaeobacteria
	4b.	Has a nucleus and other cell parts	Go to Step 5
Step 5	5a.	Has a cell wall made of chitin, but no chloroplasts	Fungi
	5b.	May or may not have cell wall; may have chloroplasts	Protists

Directions: Use Figure 1 on NB p. 5 to answer the following questions.

18. Using the dichotomous key, identify what kingdom the following organism belongs to: multicellular, contains no chloroplasts, and hunts for food in the jungle.

19. What kingdom would a four-legged gray organism you see eating an acorn belong to?


Directions: Use Figure 2 to answer the following questions.

20. Suppose a classmate created a dichotomous key for which Step 2a was “has 8 legs”. Which of the following would be the most likely choice for step 2b?

- a. Has a stinger
- b. Has antennae
- c. Has 6 legs
- d. Has wings

Figure 2

Taxonomic Key	
Step 1	
1a. Has 8 legs	Go to Step 2.
1b. Has more than 8 legs	Go to Step 3.
Step 2	
2a. Has one oval-shaped body region	Go to Step 4.
2b. Has two body regions	Go to Step 5.
Step 3	
3a. Has one pair of legs on each body segment	Centipede
3b. Has two pairs of legs on each body segment	Millipede
Step 4	
4a. Is less than 1 millimeter long	Mite
4b. Is more than 1 millimeter long	Tick
Step 5	
5a. Has clawlike pincers	Go to Step 6.
5b. Has no clawlike pincers	Spider
Step 6	
6a. Has a long tail with a stinger	Scorpion
6b. Has no tail or stinger	Pseudoscorpion



21. What are the two parts of an organism’s scientific name according to Linnaeus’s system?

22. What is the broadest level of classification

23. Using the key, identify the organism shown above.

CLASSIFYING ORGANISMS

Directions: Answer the following questions in the space provided.

1. List the major levels of classification, starting with the highest level.
2. What three characteristics are used to place organisms into domains and kingdoms?

Directions: Match each term with the proper definition.

- | | |
|--------------------------------|----------------------------------------------------------------------------------------------|
| 3. _____ Classification | a. naming system developed by Carolus Linnaeus |
| 4. _____ Binomial nomenclature | b. process of grouping things based on their similarities |
| 5. _____ eukaryote | c. first word in an organism's scientific name |
| 6. _____ genus | d. organism whose cell lacks a nucleus |
| 7. _____ species | e. a group of organisms that can mate and produce offspring that can also mate and reproduce |
| 8. _____ Taxonomy | f. the scientific study of how things are classified |
| 9. _____ prokaryote | g. organism whose cell(s) contain a nucleus |
| 10. _____ nucleus | h. dense area in a cell that contains nucleic acids |

Jelly Belly Classification Key Activity

Procedure:

1. Collect 8 different Jelly Belly jellybeans.
2. Select one bean to begin with.
3. Use the key to “key out” (identify the jelly bean). Place the answer obtained in the KEY IDENTIFICATION column.
4. Repeat steps 2-3 for other 7 beans.
5. Confirm your key answers by eating each jellybean and RECORD the results under the TASTE IDENTIFICATION column.
6. Record YES or NO under VERIFY if you have correctly identified the Jelly Belly by using the key and tasting it.

Jelly Belly	Key Identification	Taste Identification	Verified (Y/N)
1			
2			
3			
4			
5			
6			
7			
8			

Questions:

1. Explain how variations in color affected how you used the key.
2. Does tasting the JELLY BELLY verify the results? EXPLAIN your answer.
3. How would a labeled, colored key help you in this activity?
4. What are the strengths and weaknesses of this classification key?

Jelly Belly Classification Key

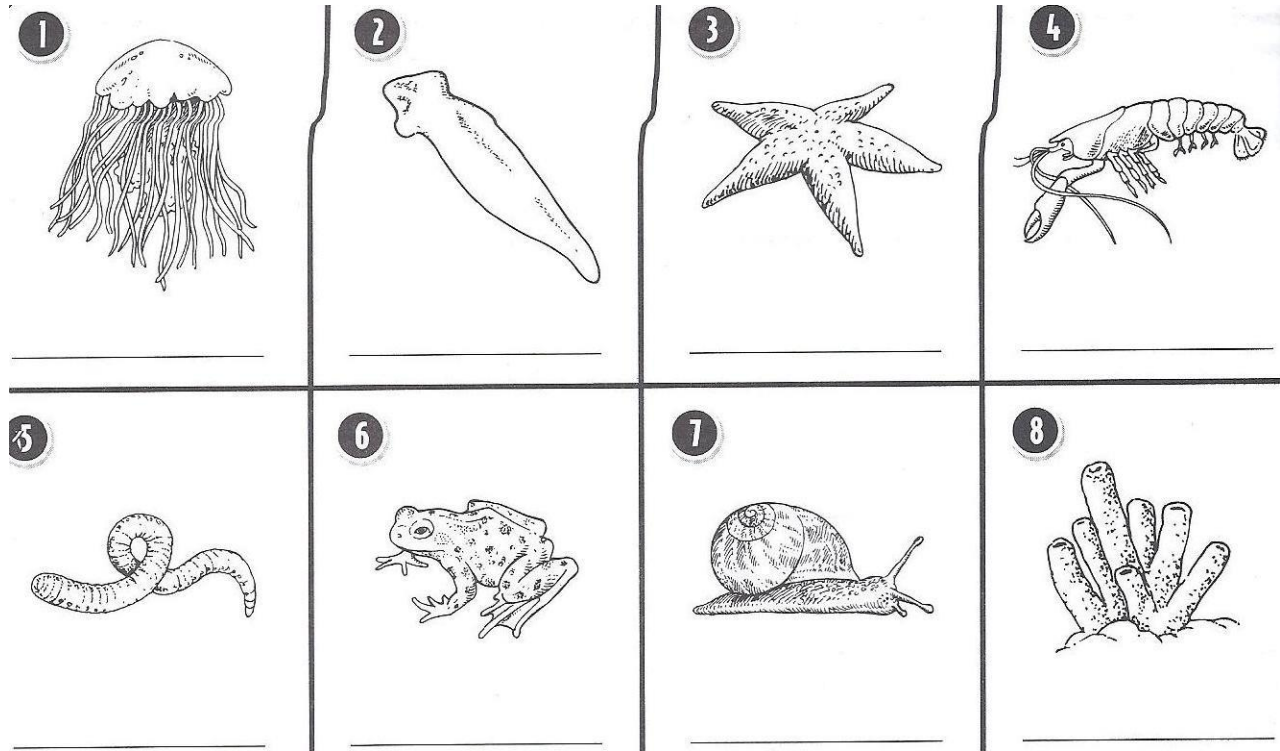
The bean is...

- 1a. yellow, orange, red, or pink go to 2
- 1b. NOT yellow, orange, red, or pink go to 22
- 2a. yellow or orange go to 3
- 2b. red or pink go to 14
- 3a. yellow go to 4
- 3b. orange go to 10
- 4a. solid yellow go to 5
- 4b. yellow with spots go to 7
- 5a. dark yellow Lemon
- 5b. bright or pale yellow go to 6
- 6a. bright yellow Pina Colada
- 6b. pale yellow Crushed Pineapple
- 7a. yellow with brown spots Top Banana
- 7b. yellow with other colored spots go to 8
- 8a. yellow with green spots Mango
- 8b. yellow with other colored spots go to 9
- 9a. yellow with white or yellow spots Lemon Drop
- 9b. white with yellow spots Buttered Popcorn
- 10a. solid orange go to 11
- 10b. orange with red spots Peach
- 11a. bright orange go to 12
- 11b. light or pale orange go to 13
- 12a. orange with orange spots Orange Juice
- 12b. creamy orange Orange Sherbet
- 13a. light orange Cantaloupe
- 13b. pale orange Tangerine
- 14a. pink go to 15
- 14b. red go to 18
- 15a. pink with red spots Strawberry Daiquiri
- 15b. pink with no spots go to 16
- 16a. bright pink Cotton Candy
- 16b. light or pale orange pink go to 17
- 17a. light pink Bubble Gum
- 17b. pale orange pink Pink Grapefruit
- 18a. solid red go to 19
- 18b. red with spots go to 21
- 19a. bright red Very Cherry
- 19b. dark red go to 20
- 20a. deep red Raspberry
- 20b. cinnamon red Cinnamon
- 21a. red with yellow spots Sizzling Cinnamon
- 21b. red with dark spots Strawberry Jam
- 22a. blue, purple, or green go to 23
- 22b. black or brown go to 32
- 23a. blue or purple go to 24
- 23b. green go to 28
- 24a. purple go to 25
- 24b. blue go to 27
- 25a. purple with spots Plum
- 25b. purple with no spots go to 26
- 26a. dark or blackish purple Grape Jelly
- 26b. light purple or lavender Island Punch
- 27a. bright blue Berry Blue
- 27b. dark blue Blueberry
- 28a. solid green go to 29
- 28b. green with spots go to 31
- 29a. bright green Green Apple
- 29b. light or yellow green go to 30
- 30a. light green Kiwi
- 30b. yellow green Lemon Lime
- 31a. pale green with dark spots Juicy Pear
- 31b. light green with green spots Margarita
- 32a. black Licorice
- 32b. brown go to 33
- 33a. brown Root Beer
- 33b. dark brown Chocolate Pudding

Members of the Animal Kingdom

Kingdom Animalia is divided into subgroups called **PHYLA**. Each phylum displays certain characteristics.

Directions: Use the definitions below to identify each animal representative of some of the animal phyla.



Porifera: This phylum includes the sponges. They have no symmetry, tissues, or organs.

Cnidaria: This phylum includes the jellyfish, coral and sea anemones. They have radial symmetry and stinging cells.

Platyhelminthes: This phylum includes flatworms. They have flattened bodies and bilateral symmetry.

Mollusca: The mollusks include soft-bodied animals with and without shells such as clams, snails, slugs, and squids.

Annelida: This phylum includes worms that have segmented bodies.

Arthropoda: The most successful phylum on Earth, arthropods include crustaceans, spiders, and insects.

Echinodermata: The echinodermata are spiny-skinned animals such as the sea star and sea urchin.

Chordata: The chordates have bilateral symmetry and a spinal nerve cord. Most of this phylum is made up of vertebrates, or animals with backbones.

Microscope Lab Activity

INTRODUCTION:

“Micro” refers to *tiny*, “scope” refers to *view or look at*. Microscopes are tools used to enlarge images of small objects so they can be studied. The compound light microscope is an instrument containing **two lenses**, which magnifies, and a variety of knobs to resolve (**focus**) the picture. Because it uses more than one lens, it is sometimes called the compound microscope or a light microscope. In this lab, we will learn about the proper use and handling of the microscope.

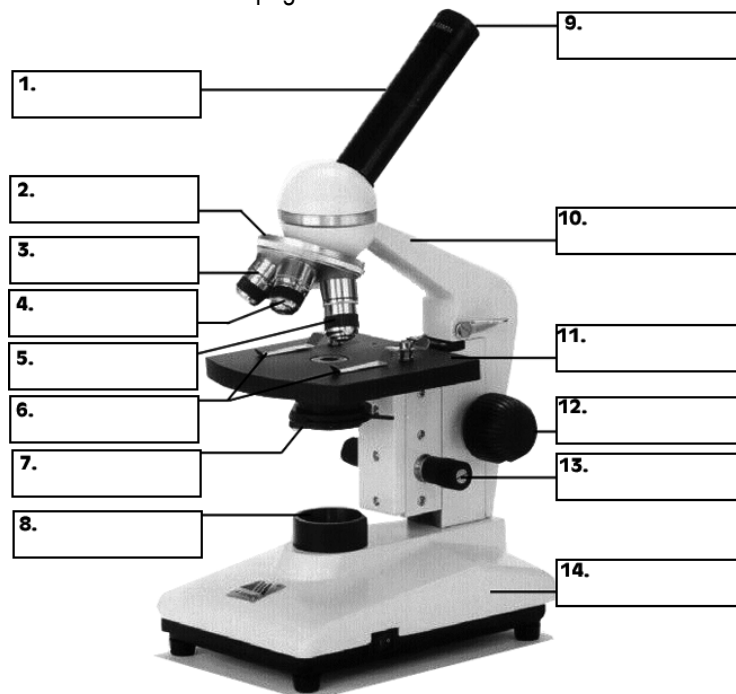
MATERIALS:

- Compound microscope
- Glass slides
- Cover slips
- Eye dropper
- Beaker of water
- The letter “e” cut from newsprint
- Scissors

PROCEDURE: PART I- Microscope Handling

1. Carry the microscope with both hands--- one on the arm and the other under the base of the microscope
2. One person in the group will retrieve the microscope and the other will pick up a pair of scissors, newsprint, a slide, and a cover slip.
3. Remove the dust cover and store it properly. Plug in the scope. Do not turn it on until told to do so.
4. Examine the microscope and give the name and function of each of the parts listed below on the diagram. Place answers on table found on next page.

Figure 1.



PARTS OF THE MICROSCOPE		
Part #	NAME	FUNCTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

PART II- Preparing a wet mount of the letter “e”.

Figure 2

1. With your scissor, cut out the letter “e” from the newspaper.
2. Place it on the glass slide so as to look like the letter “e”.
3. Cover it with a clean cover slip. See figure 2.
4. Using an eyedropper, place a drop of water on the edge of the cover slip where it touches the glass slide. The water should be sucked under the slide if done properly.

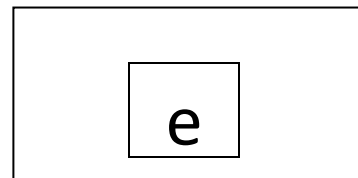
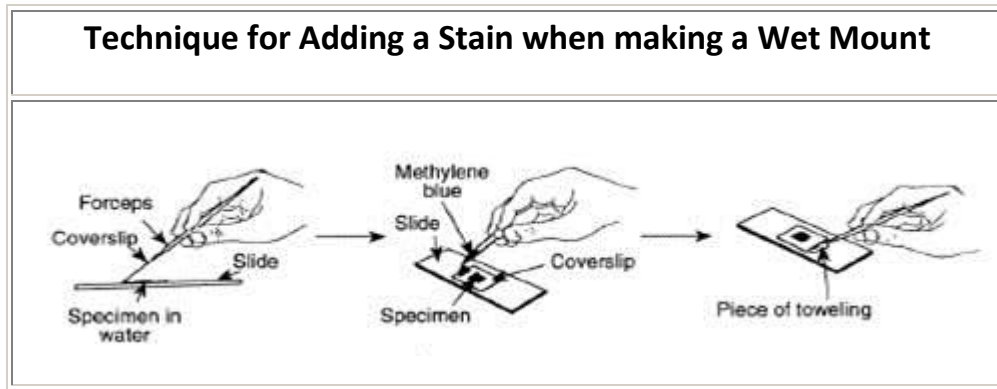
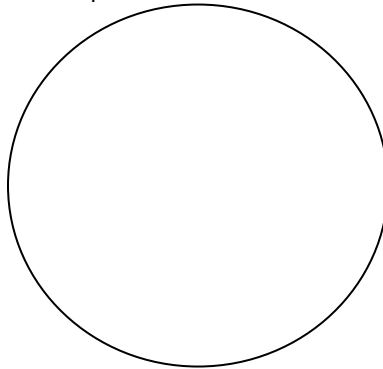


Figure 3



5. Turn on the microscope and place the slide on the stage, making sure the “e” is facing the normal reading position. See Figure 2. Using the course focus and low power, move the body tube down until the “e” can be seen clearly. Draw what you see in the space below.

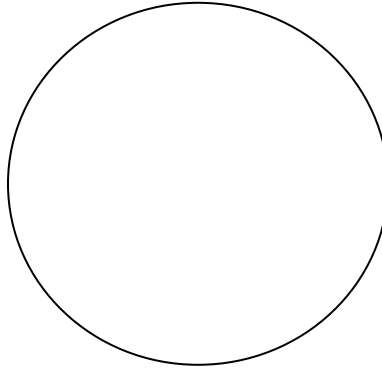


6. Describe the relationship between what you see through the eyepiece and what you see on the stage.

7. Looking through the eyepiece, move the slide to the upper right area of the stage. What direction does the image move?

8. Now, move it to the lower left side of the stage. What direction does the image move?

- Re-center the slide and change the scope to high power. You will notice the “e” is out of focus. DO NOT touch the coarse focus knob; instead use the fine focus to resolve the picture. Draw the image you see of the letter “e” (or part of it) on high power.



- Locate the diaphragm under the stage. Move it and record the changes in light intensity as you do so.
-

PART III- Determining Total Magnification:

- Locate the numbers on the eyepiece and the low power objective and fill in the blanks below.

Eyepiece Magnification _____	(X)	Objective Magnification _____	=	Total Magnification _____X
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- Repeat step 1 for the high power objective

Eyepiece Magnification _____	(X)	Objective Magnification _____	=	Total Magnification _____X
---------------------------------	------------	----------------------------------	---	-------------------------------

- Write out the rule for determining total magnification of a compound microscope.
-

- Remove the slide and clean it up.
- Turn off the microscope and wind up the wire so it resembles its original position. Place the lower power objective in place and lower the body tube. Cover the scope with the dust cover. Place the scope back in its original space in the cabinet

ANALYSIS/CONCLUSION:

1. State two procedures which should be used to properly handle a light microscope

2. Explain why the light microscope is also called the compound microscope.

3. Images observed under the light microscope are reversed and inverted. Explain what this means.

4. Explain why the specimen must be centered in the field of view on low power before going to high power.

5. A microscope has a 20X ocular (eyepiece) and two objectives of 10X and 43X respectively:
 - a. Calculate the low power magnification of this microscope. Show the formula and all work.

 - b. Calculate the high power magnification of this microscope. Show the formula and all work.

6. In three steps using complete sentences, describe how to make a proper wet mount of the letter e.

7. Describe the changes in the field of view and the amount of available light when going from low power to high power using the compound microscope.

8. Explain what the microscope user may have to do to combat the problems incurred in questions #7.

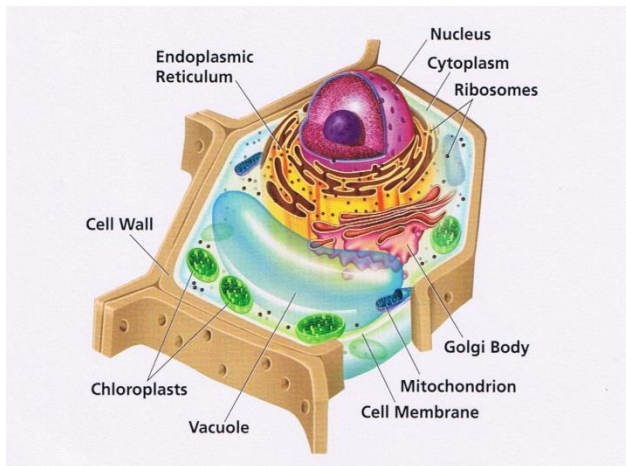
9. How does the procedure for using the microscope differ under high power as opposed to low power?

10. Indicate and describe a major way the stereomicroscope differs from the compound light microscope in terms of its use.

	<i>Stereoscope</i>	<i>Microscope</i>
<i>Magnification</i>		
<i>Number of Ocular lenses</i>		
<i>Objective Lenses</i>		
<i>Light source</i>		
<i>Examples of what would be viewed under scope</i>		

PLANT VS. ANIMAL

Figure 1.

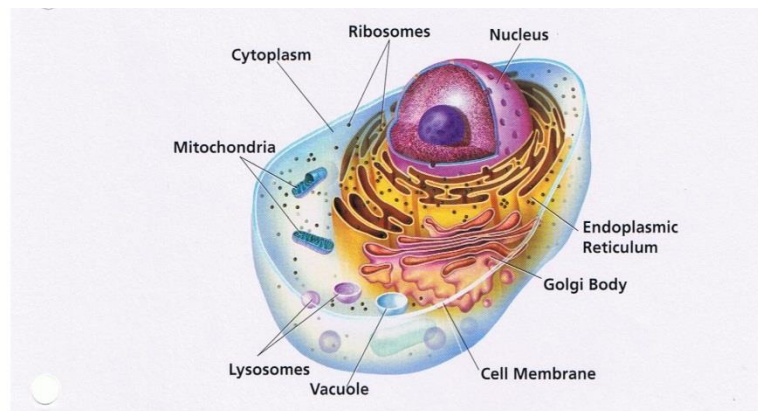


Directions: Use Figure 1 to answer the following questions.

1. What is the cell wall of a plant cell made of? _____
2. In plant cells, which organelle is a storage area for the cell?

a. Vacuole	c. Chloroplasts
b. Nucleolus	d. Endoplasmic reticulum

Figure 2.



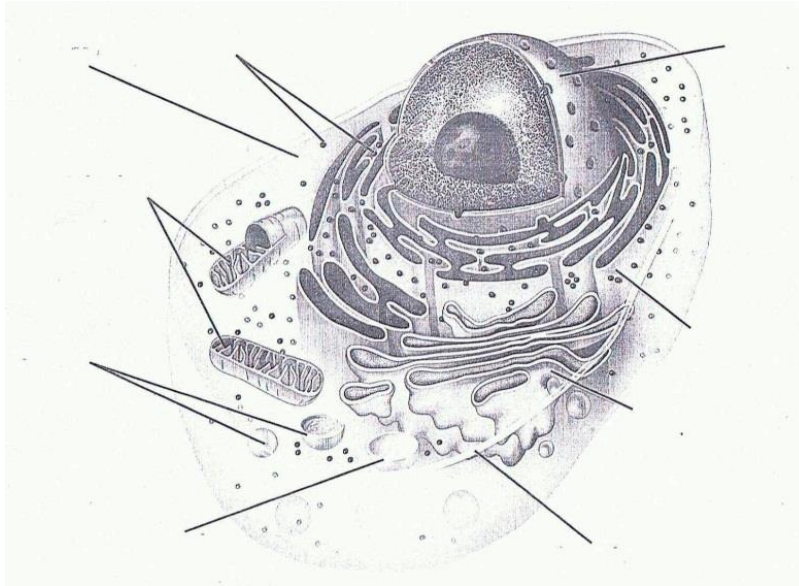
Directions: Use Figure 2 to answer the following questions.

3. What structure separates an animal cell from its environment? _____
4. Which of the following structures are found in both animal and plant cells?

a. Chloroplasts and lysosomes	c. Cell wall and cell membrane
b. Mitochondria and ribosomes	d. Golgi bodies and chloroplasts

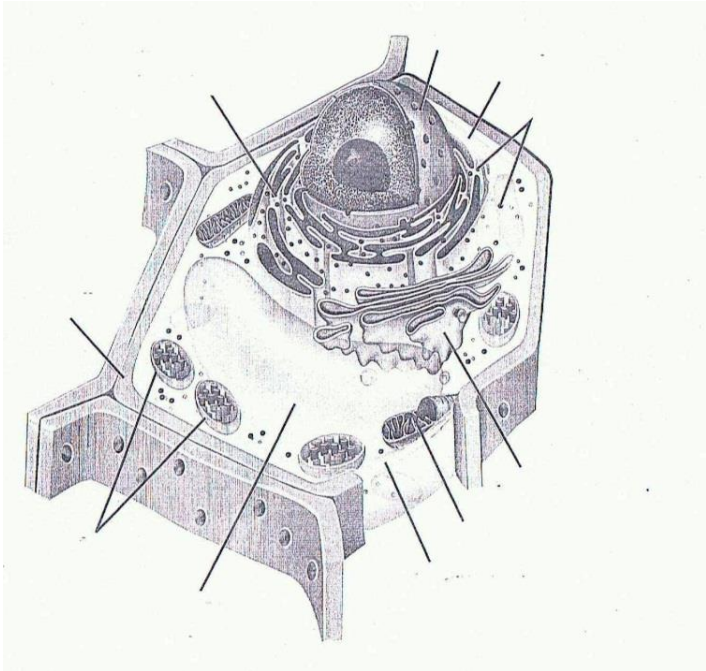
Directions: LABEL the following diagrams using pages 64-65 in your text.

ANIMAL CELL:



STRUCTURE NAME	FUNCTION

PLANT CELL:



STRUCTURE NAME	FUNCTION

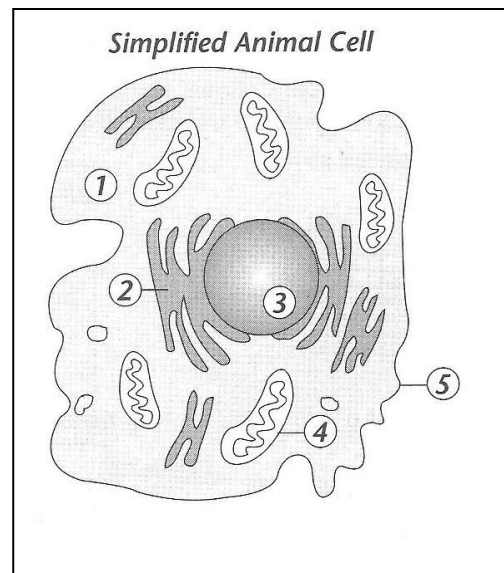
LOOKING INSIDE CELLS- Building Vocabulary

Directions: Fill in the blank to complete each statement.

1. _____ are tiny cell structures that carry out specific functions within the cell.
2. The rigid layer of nonliving material that surrounds the cells of plants and other organisms is called the _____.
3. In cells without cell walls, the _____ forms the outside boundary that separates the cell from its environment.
4. The _____ is a large, oval structure that directs all of the cell's activities.
5. The region between the cell membrane and the nucleus is called the _____.
6. _____ produce most of the energy the cell needs to carry out its functions
7. A maze of passageways called the _____ carries proteins and other materials from one part of the cell to another.
8. _____ function as factories to produce proteins.
9. _____ receive proteins and other newly formed materials and distribute them to other parts of the cell.
10. Organelles called _____ capture energy from sunlight and use it to produce food for the cell.
11. The storage area of a cell is called a(n) _____.
12. _____ are small, round structures in cells that break down large food particles into smaller ones.

Directions: Identify each of the cell structures in the figure

1. _____
2. _____
3. _____
4. _____
5. _____



KEY TERMS

Directions: Use the clues to identify the Key Terms of the Chapter. Then find the words in the word search

1. Change that produces a more complex organism _____
2. Organelles that capture energy to used to produce food _____
3. The maintenance of stable internal conditions _____
4. A dense organelle in a cell that contains nucleic acids _____
5. An organism whose cell lacks a nucleus _____
6. A group of organisms that can mate and produce offspring that can also mate and reproduce _____
7. Organelles called "powerhouses" of the cell _____
8. Change in the surroundings that causes an organism to react _____
9. The scientific study of how living things are classified _____
10. The basic unit of structure and function in an organism _____
11. Organelle that functions as a protein factory _____
12. Classification group containing related species _____
13. Organism that cannot make its own food _____

e h p r o k a r y o t e j d e y v t a o
h s j i l f b t e h o m e o s t a s i s
d t l s k e t u m i t o c h o n d r i a
o i b p d e v e l o p m e n t f i n r f
a m p e c h l o r o p l a s t o c n y g
r u a c h e t e r o t r o p h v e m u e
p l n i s t w t a x o n o m y p l h r n
a u p e r i b o s o m e p u f c l v r u
h s i s h r a c v n u c l e u s m p r s

LAB – HOW DO ANIMAL AND PLANT CELLS DIFFER?

HYPOTHESIS: Write a hypothesis as to what cellular structures you will be able to see under the microscope for both the cheek cells and the plant cells. Will it be an If, then or When comparing statement?

Research 2 facts about cheek cells:

- 1.
- 2.

Research 2 facts about Elodea leaf:

- 1.
- 2.

MATERIALS

You will need the following materials to conduct your experiment

- Microscope
- 2 glass slides
- 2 coverslips
- Dropper
- Methylene blue stain
- Flat toothpick
- Elodea leaf
- Water

PROCEDURE – CHEEK CELL

1. Ask your teacher to put a drop of stain on a slide. Gently scrape the inside of your cheek with a toothpick.
CAUTION: Do not scrape hard enough to injure your cheek.
2. Rub the toothpick in the stain and leave it there for 30 seconds. Break the toothpick in half and discard it in the trash.
3. Cover the slide with a coverslip
4. Use a microscope: Look at the cheek cells under low power, then under high power.
5. Locate the nucleus, cytoplasm, and cell membrane. Fill in the table by putting a check mark in the box if the cell part can be seen.
6. Draw and label the nucleus, cytoplasm, and cell membrane of a cheek cell.

PROCEDURE – PLANT CELL

1. Ask your teacher for an Elodea leaf. Put a drop of water on your slide, then place the Elodea leaf onto the drop of water. Add a coverslip.
2. Look at the Elodea cells under low power, then under high power.
3. Locate the cell wall, chloroplasts, nucleus, and cytoplasm. Fill in the table below.
4. Draw and label the cell wall, chloroplasts, nucleus, and cytoplasm of an Elodea cell.

LAB- OBSERVATIONS

Copy the data below and check off which cellular structures you have found for each of the cells.

Cellular Structures	Cheek Cell – Parts Present	Elodea Cell – Parts Present
Cytoplasm		
Nucleus		
Chloroplast		
Cell Wall		
Cell Membrane		

Draw Pictures of each cell you examined.

Picture of cheek cell	Picture of Elodea cell

POST LAB:

DATA ANALYSIS

1. Describe the shape of a cheek cell

2. Describe the shape of an Elodea cell.

3. Compare: What parts did you see in both cells?
4. What parts are found in plant cells that are absent in animal cells?


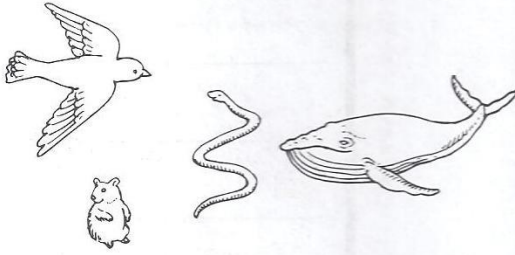
CONCLUSIONS

1. What are the functions of the cell parts found only in plant cells?
2. Is the nucleus always found in the center of the cell?
3. Which part of an animal cell gives shape to the cell?
4. Which parts of a plant cell give shape to the cell?
5. Why are stains such as methylene blue used when observing cells under the microscope?
6. Apply: Why don't animal cells have chloroplasts? (HINT: How do animals get energy?)

Plant or Animal?

Two of the largest groups of all living things are the plant and animal kingdoms. These two kingdoms have distinct characteristics while having others in common. Use the phrases in the word box to complete the chart. Some phrases are used more than once.

living organisms formed from cells cells have chlorophyll
cells have no chlorophyll makes own food moves from place to place
obtains food from outside sources has limited movement reproduces its own kind
depends on sun's energy

Plant	Animal
	
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

FUNCTIONS WITHIN A PLANT CELL

Directions: Match the term to its definition

Cytoplasm
Endoplasmic
reticulum
Mitochondrion
Cell Membrane

Chloroplast
Ribosome
Cell Wall

Vacuole
Nucleus
Organelle

1. _____ This is the tough, nonliving outer layer of each plant cell. It gives the cell shape, strength, and support.
2. _____ This is a structure that stores water and helps keep the plant from wilting.
3. _____ This is a structure that contains chlorophyll, giving the plant its green color, and traps energy from sunlight.
4. _____ This is a structure that moves material throughout the cell.
5. _____ This is a substance that fills most of the cell outside the nucleus and contains the other organelles
6. _____ This is any tiny structure in the cytoplasm of the cell that performs a special job.
7. _____ This is an organelle that puts together proteins for the cell.
8. _____ This is a structure where food and oxygen react to release energy
9. _____ This acts as a control center for the cell.
10. _____ This is a layer that holds the parts of the cell together and controls movement of materials into and out of the cell.

A TYPICAL PLANT CELL

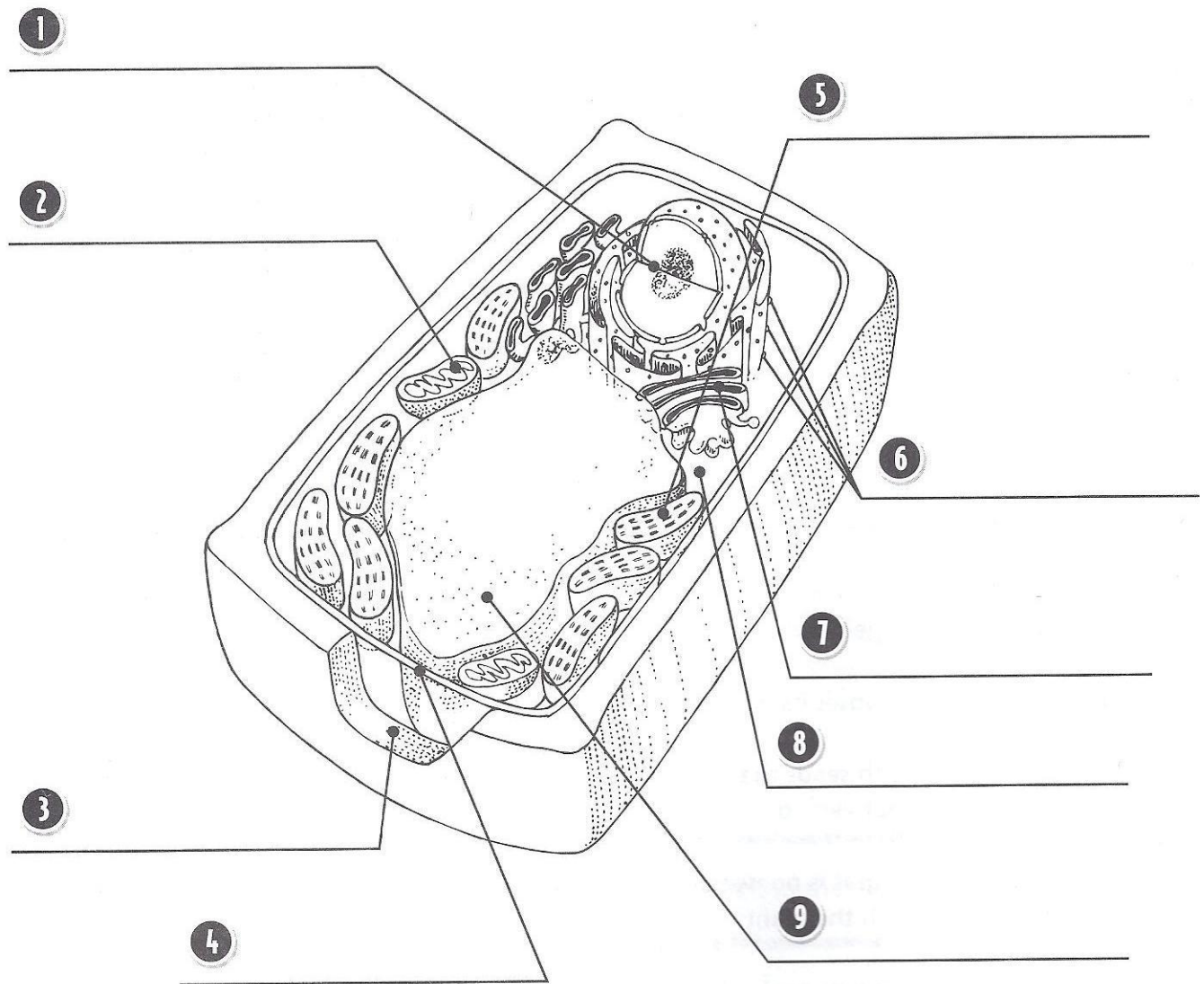
Plant cells have basic structures in common, even though plant cells are as varied as the plants themselves. Each individual plant cell is partly self-sufficient, carrying on processes contained within the cell membrane. A plant cell differs from an animal cell because it contains chloroplasts and has a cell wall made of cellulose.

Directions: Use the terms below to label the diagram

Cytoplasm
Golgi Bodies
Mitochondrion

Chloroplast
Ribosomes
Cell wall

Vacuole
Nucleus
Cell membrane



FUNCTIONS WITHIN AN ANIMAL CELL

Directions: Match each term to its definition

Cytoplasm
Cell Membrane
Mitochondria
Nucleolus

Nucleus
Vacuole
Lysosome
Endoplasmic Reticulum

1. _____ Located in the nucleus, this organelle is made up of RNA and protein.
2. _____ These structures are passageways from the nucleus that transports proteins through the cell.
3. _____ This organelle is the control center of the cell. It contains chromosomes and DNA.
4. _____ This substance contains all living material in the cell.
5. _____ These organelles break down glucose to supply the cell with energy.
6. _____ This small round organelle is involved in digestion.
7. _____ This expanding and contracting organelle stores water, nutrients, and wastes.
8. _____ This enclosing structure holds together and controls what moves into and out of the cell.

A Typical Animal Cell

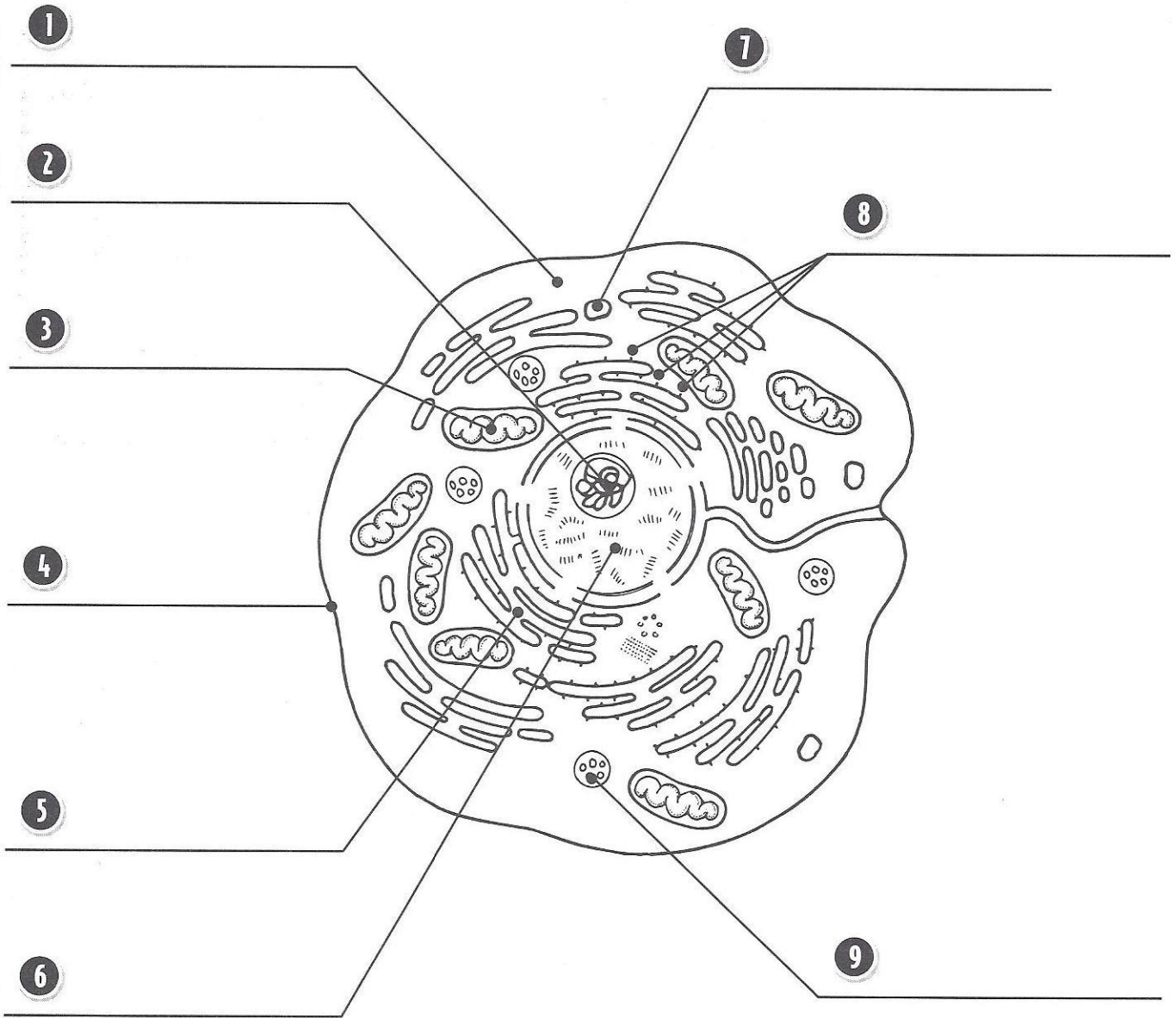
While the cells found in various tissues of animals are unique and specialized, the basic structure of animals cells is the same. Animal cells lack the rigid cell wall found in plant cells.

Directions: Use the terms below to label the diagram

Cytoplasm
Cell Membrane
Endoplasmic Reticulum

Nucleolus
Nucleus
Mitochondrion

Lysosome
Ribosomes
Vacuole



Cell Writing Component

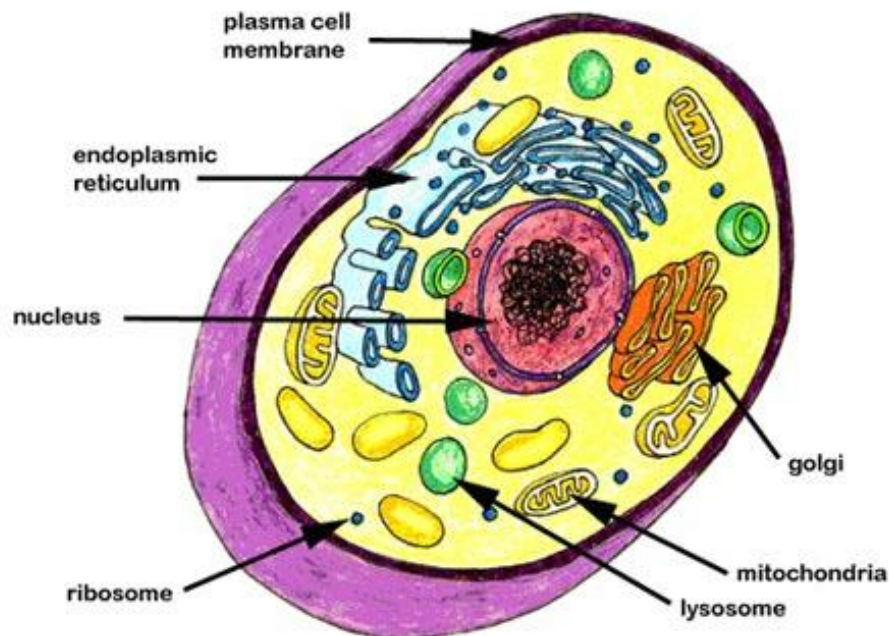
“CELL ORGANELLES”

Scenario: The land of Eukarya has been growing exponentially for more than 100 years but not all of Eukarya’s life processes are functioning well. The president, Plasmelda Membranous must relocate some of the inhabitants (organelles and cell structures) from the land and move them to Prokarya Land, so that Eukarya can continue to supply all the needs of living things. Madam Membranous cannot decide which inhabitants should go and which should leave. She has decided to allow each inhabitant to write a letter expressing their reasons why they should stay in Eukarya.

Your job is to write a persuasive argument in a specific language style or dialect about why YOU (cell structure or organelle) should be chosen to stay. Include:

1. A description of your cell structure or organelle
2. Where it is located within the cell
3. Its function in the cell
4. A picture of the structure or organelle

You may choose to write your letter using a particular a language style or dialect (MTV, Shakespearean, 1970’s, 1990’s, Reggae, Valley girl, College).



REVIEW: Microscope Parts

Directions: Label the parts of the diagram

Inclination Joint
Eyepiece/Ocular
Arm
Body Tube
Stage Clip

Nosepiece
Fine Adjustment
Coarse Adjustment
High Power Objective
Low Power Objective

Base
Stage
Diaphragm
Mirror

