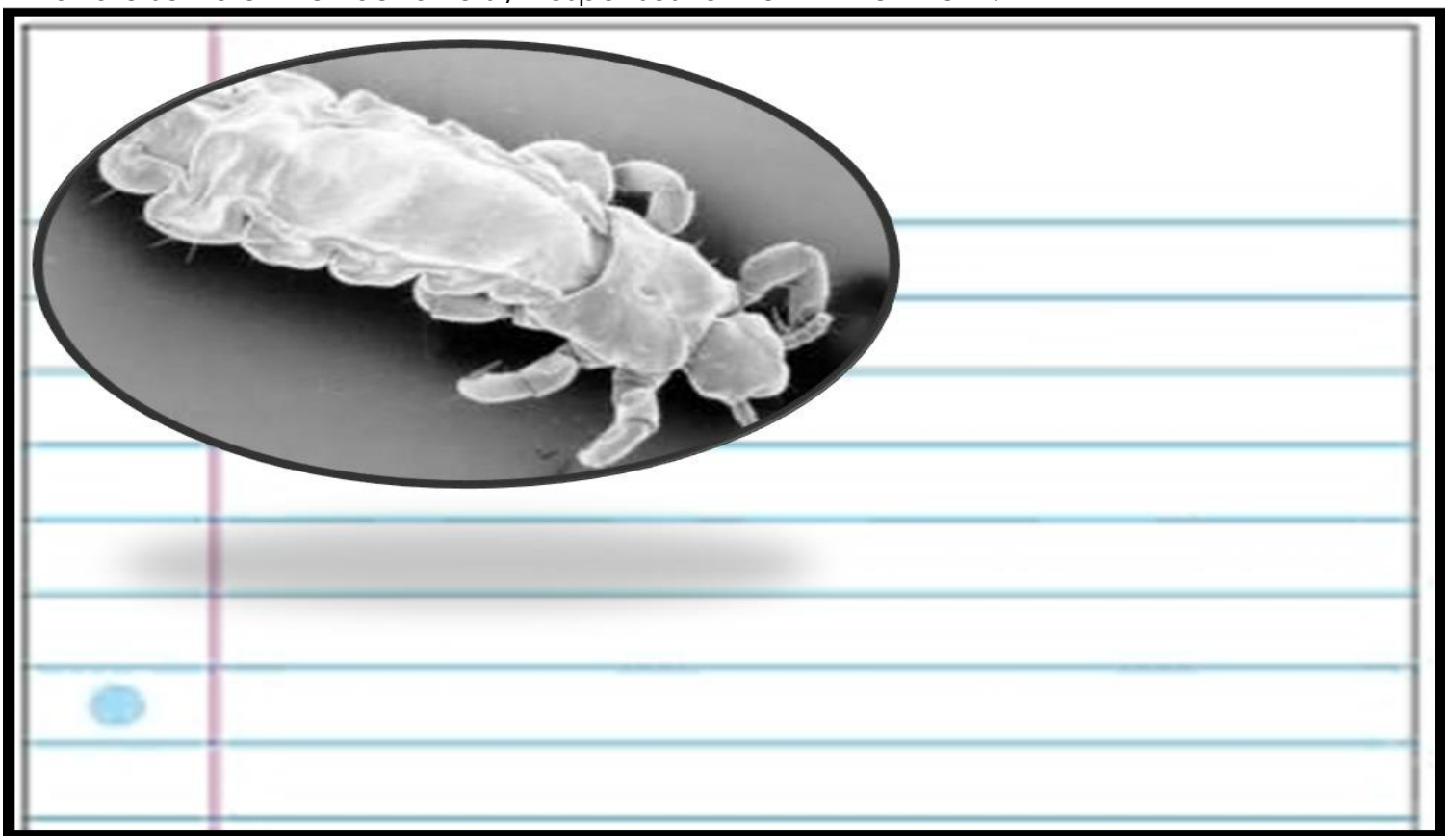
Part 1 Intro to Cell Biology

Name:

Part 1 Lesson 1 SPONCH / Life

Due:

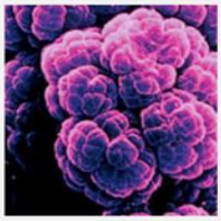
Please describe the Sewer Lice *(Pediculus deficus)*in the space below. What are they doing? What are some of their behaviors / Responses to their Environment?



Organism: An organism is any individual entity that embodies the properties of _____.

- Organisms are classified by taxonomy into groups such as _____cellular animals, plants, and _____ or _____cellular microorganisms such as protists, bacteria, and archaea.

What are the Six Kingdoms of Life? There is an error in the characteristics? Can you find it?

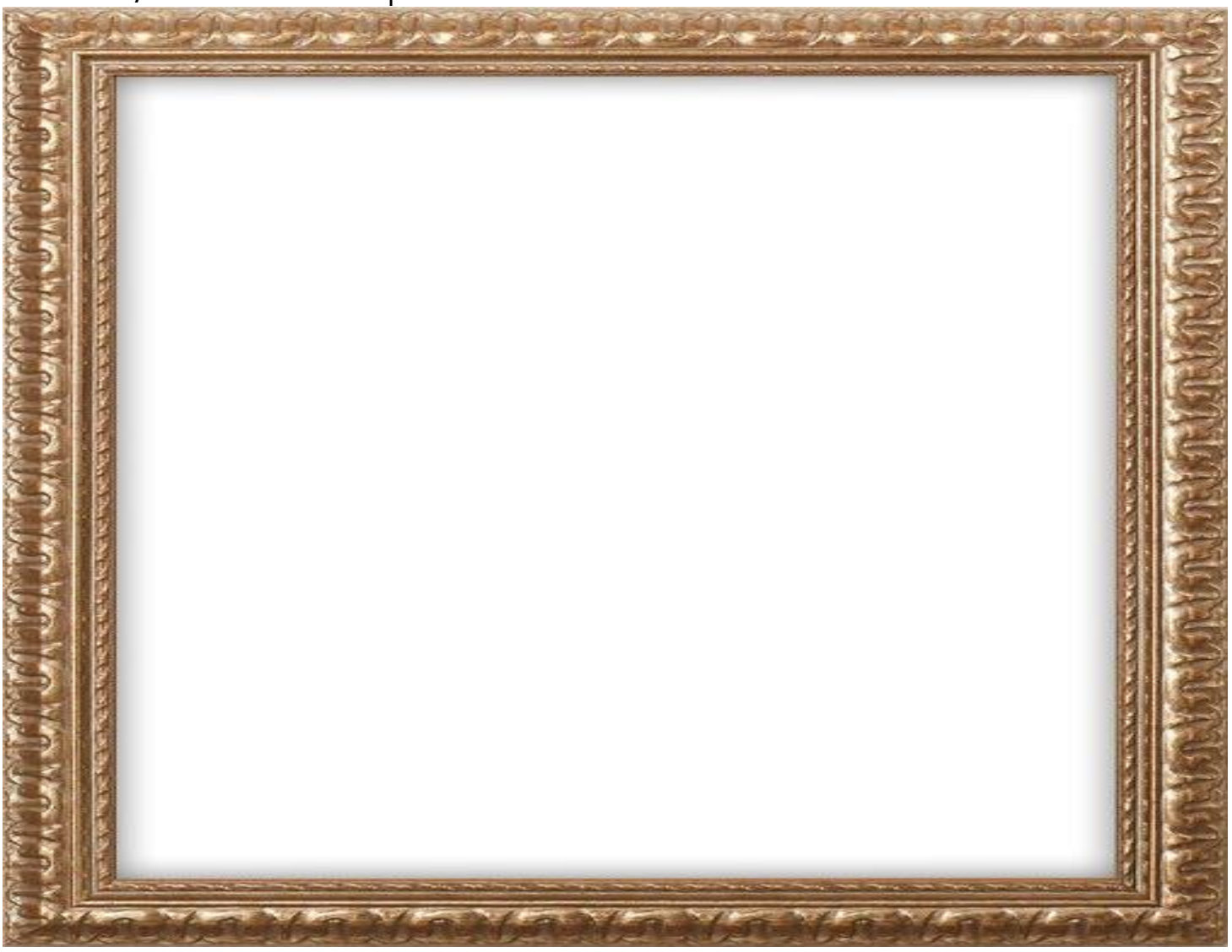
Domain			Eukaryotes			
Kingdom						
Example						
Characteristics	*Bacteria are simple unicellular organisms*	*Simple unicellular organisms that live in extreme environments*	*Unicellular and complex*	*Unicellular or multi-cellular and absorb food*	*Multicellular and absorb their own food*	*Multicellular and take in their own food*

SPONCH -25 of the elements are essential for life.

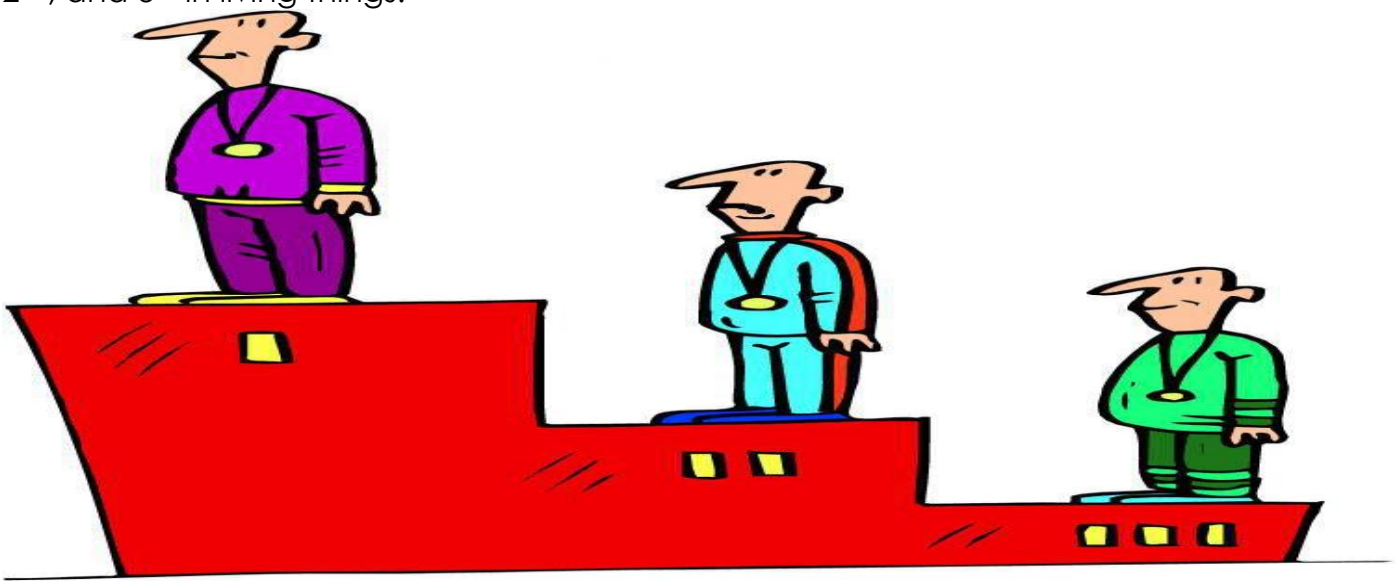
These are the Biologically Important Elements
(These letters deserve to look cool, please put their names below)

Name					
% in living things					

Animal / SPONCH Graph



If these athletes were biologically important Elements, which element is used the most (1st), 2nd, and 3rd in living things.



Part 1 Lesson 2

Characteristics of Life

-Made of mostly __ __ __ __ __ __ elements
-Made of _____.
-M_____.
-Responds to a _____.
-Uses _____.
-Adjusts to _____.
    -Maintains steady body conditions.
    -Maintains _____.
-R_____.
-Grows and D_____.
    -Grow-To increase in size.
    -Develop-To change in ability.
-Adapts to _____.
-Evolves / Inherits traits that promote survival.
-Has a _____ span.

Which is not a characteristic of Life? • Moves • Made of cells • Does not use energy • Maintains homeostasis with environment • Grows and develops • Reacts to a stimulus • Reproduces by exchanging it's own DNA • It evolves over time • Has a life span	Which is not a characteristic of Life? • Moves • Made of cells • Uses energy • Maintains homeostasis with environment • Grows and develops • Reacts to a stimulus • Reproduces by exchanging its own DNA • Cannot evolve over time • Has a life span

Characteristics of Life

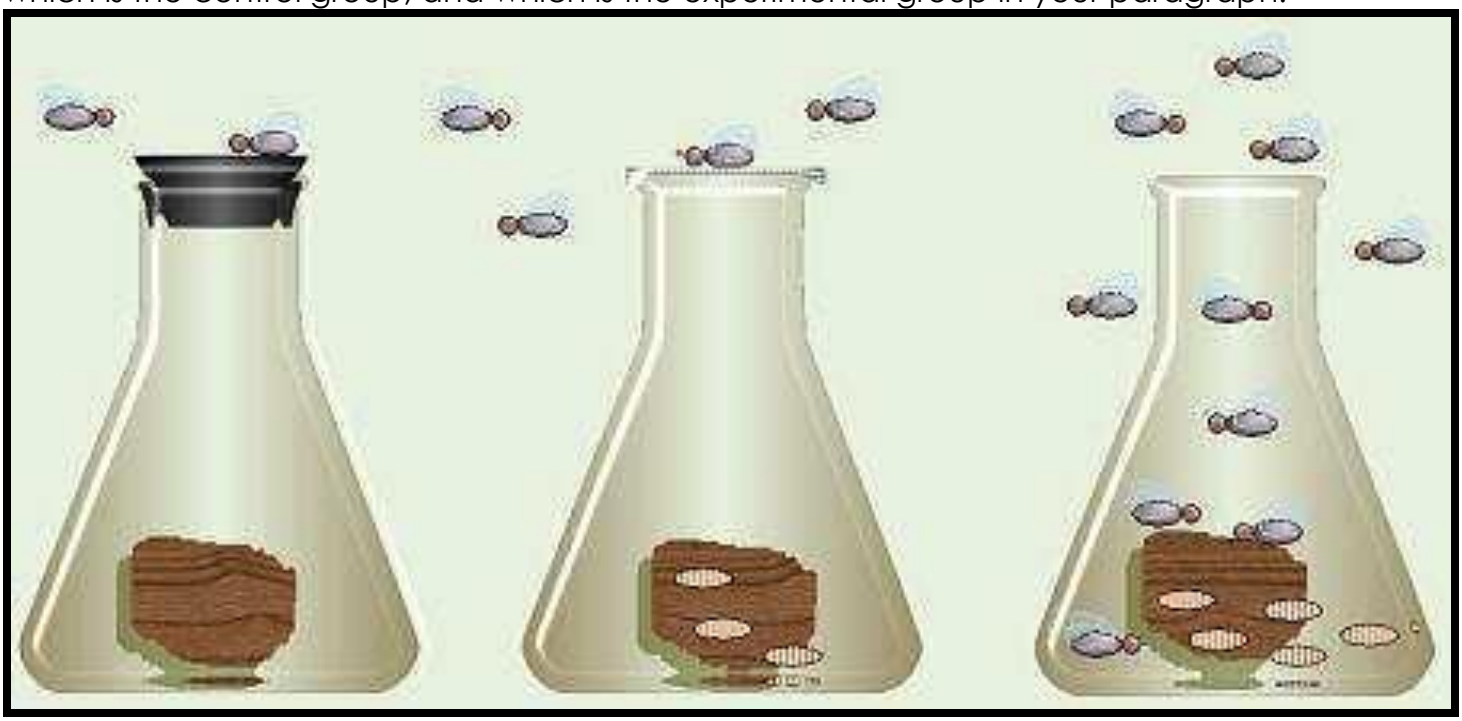
While looking under the microscope, you observe the object below. How can you determine if this is a living creature? What will it need to survive if it is living?

Spontaneous Origin: The belief that living organisms are produced / generated from _____-living sources.

Needs of Living Things

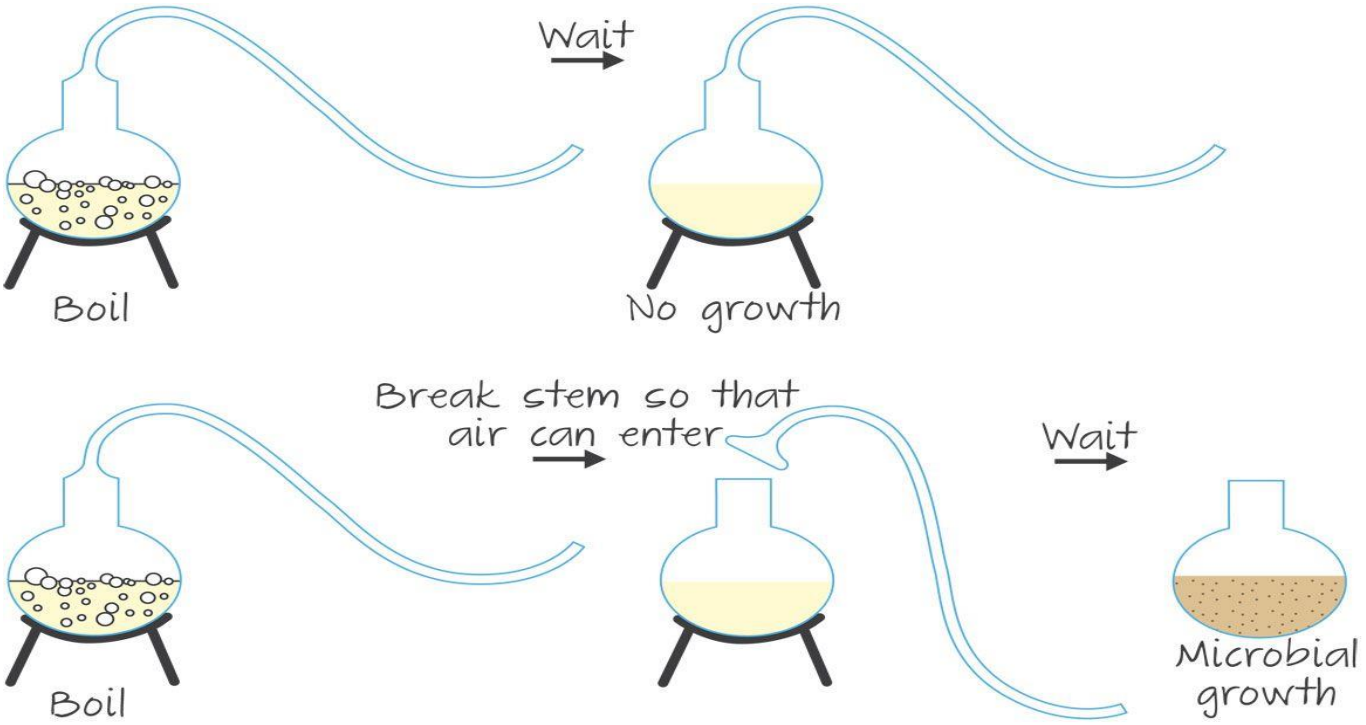
- _____ – Supplied by the sun (most of the time) and stored in food.
- _____ – To burn the food in cells. (Respiration)
- _____ – To keep things moving in and out of cells. (Universal Solvent)
- _____- For proper chemical balance.

Briefly describe the findings of Francesco Redi's experiment in 1668. Make sure to include which is the control group, and which is the experimental group in your paragraph.



Make sure to discuss the control group!

Briefly describe the findings of Louis Pasteur in 1862 that helped disprove spontaneous origin. Make sure to include which is the control group, and which is the experimental group in your paragraph. Also, how did this study help people… think mircrobiology.

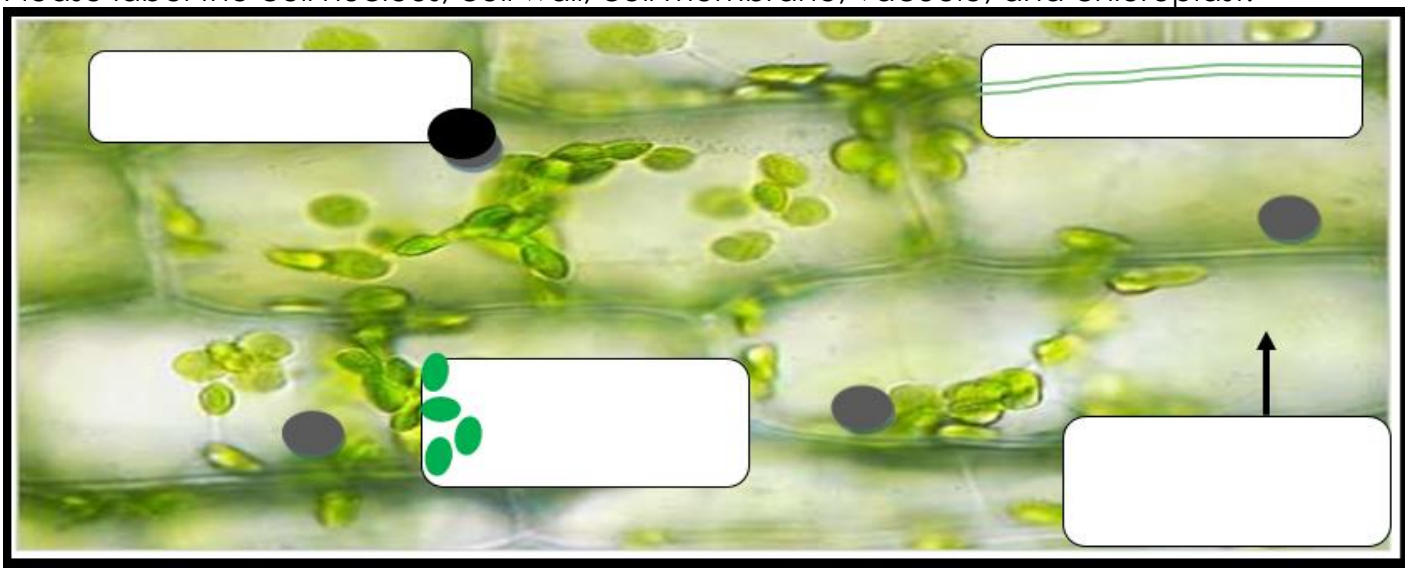


Part 1 Lesson 3 Cheek and Onion Cells

Take some images or sketch a cheek and onion cell at low and high power. Please describe the resolution

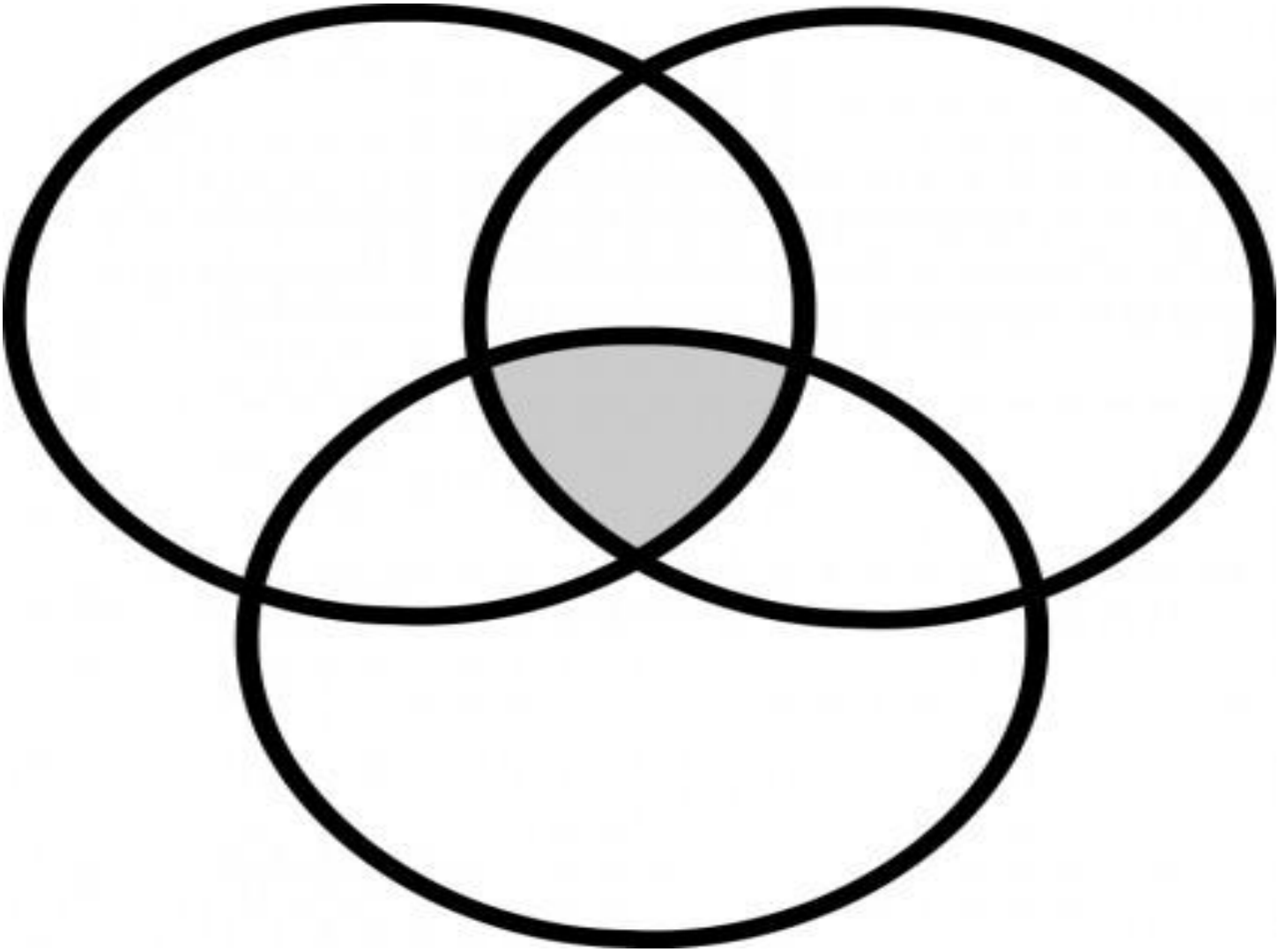
Plant Cell Low Power	Cheek Cell Low Power
Plant Cell High Power	Cheek Cell High Power

Please label the cell nucleus, cell wall, cell membrane, vacuole, and chloroplast.



What are some similarities and differences between an animal cell, plant cell, and prokaryotic bacteria cell? Prokarya will be addressed later in the unit if you want to hold off for a bit.

Animal Cell Plant Cell



Bacteria Cell (Prokaryotic)

Part 1 Lesson 4 Form Follows Function

Name some type of cells?

F_____ F_____ F_____: Means that the form of a body part or structure is related to its function.

- The form or shape of a structure within an organism is correlated to the purpose or function of that structure.

Please find an object that demonstrates how form follows function. Draw it below and describe as best you how its design allows it to do to a job well.

Form Follows Function

Cells are the _____ and _____ units of all living organisms.

Humans have some _____ Trillion

_____cellular (More than one cell)

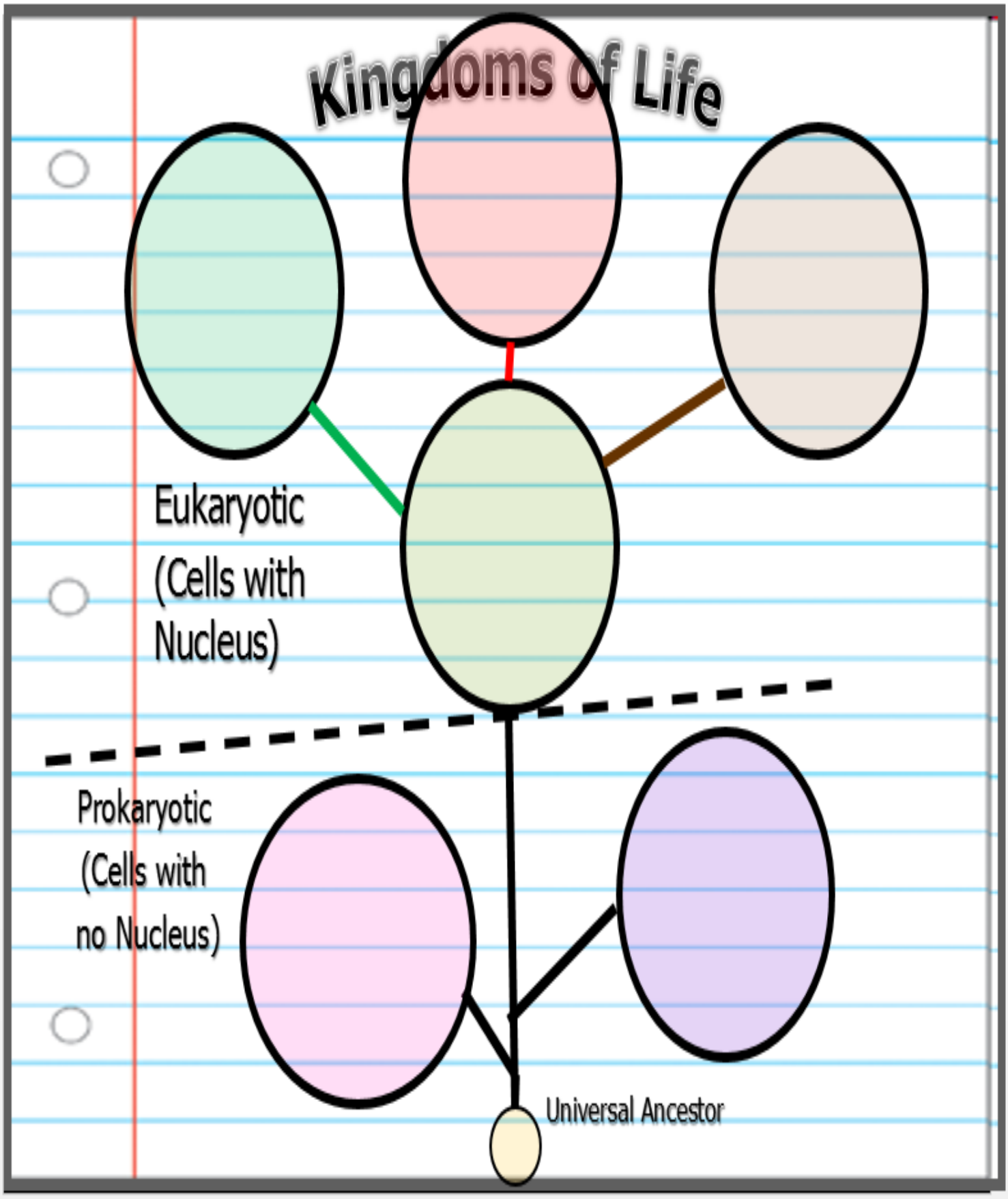
Some Protists, Bacteria, and Archaea have 1 - _____cellular

Which organism below is multi-cellular, and which is unicellular?

Answer=	Answer=
	

Part 1 Lesson 5 Domains and Kingdoms of Life

Please record the Kingdoms / Domains of Life in the empty template below. The more specific / detailed the better.

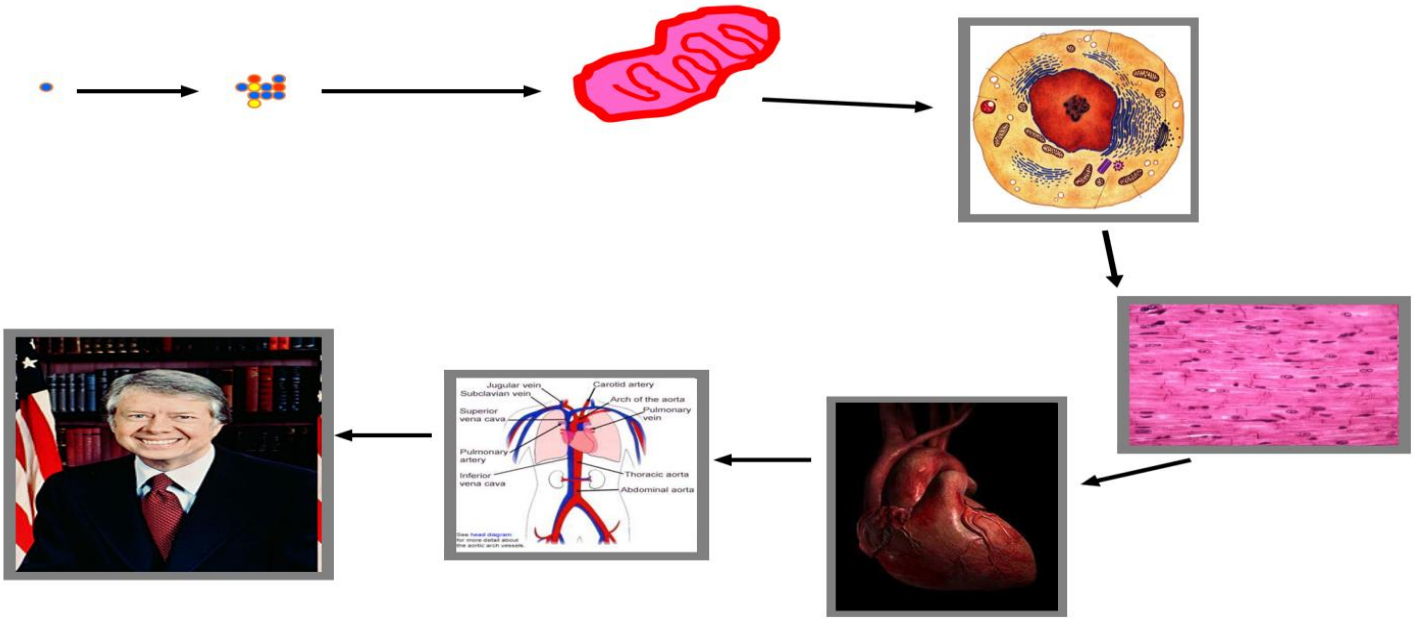


Domain	Bacteria	Archaea	Eukarya			
Kingdom						
Cell Type						
Single or Multi-Cellular						
Gets Energy from..						

Use the matrix above to answer the questions with the correct Kingdom of Life

I'm a multicellular organism that absorbs its food?	
I'm a single celled organism that has a nucleus?	
I'm a multicellular organism that can make its own food?	
I'm a unicellular organism without a nucleus?	
I'm a multicellular organism that eats other organisms?	
I'm a multicellular organism?	
I'm an autoroph?	
I'm only a heterotroph?	
I don't have a cell wall?	
I have a cell wall but it's made of chitin?	
I have a cell wall made of peptidoglycan?	

Please record the levels of biological organization below.



Part 1 Lesson 6 Modern Cell Theory

Hans and Zacharias Janssen created the first _____in 1595.

Modern Cell Theory

-The cell is basic unit of _____ and _____
-Living things are made of _____
-All cells come from _____-existing cells.
-Cells contain _____ information
-All cells are similar in _____
-Energy flow of _____ occurs in cells

The 3 big principles of the cell theory.

- All living organisms are composed of one or more cells.
- The cell is the most basic unit of life.
- All cells arise from pre-existing, living cells.

There are two main groups of cells.

- Pro_____
- Eukaryotic

Prokaryotic cells

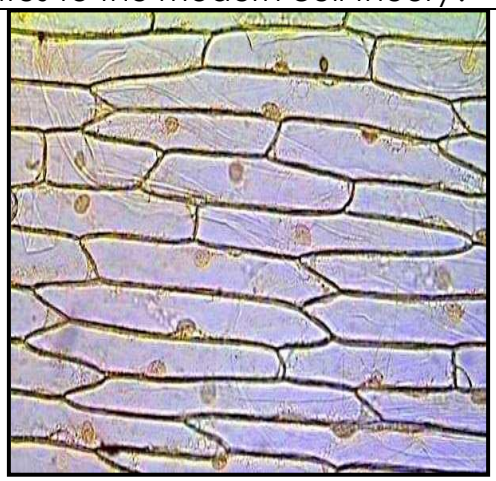
- - No nuclear _____
- - Genetic materials is _____ in cytoplasm
- - No membrane-bound _____
- - Most primitive type of cell (appeared about _____ billion years ago)

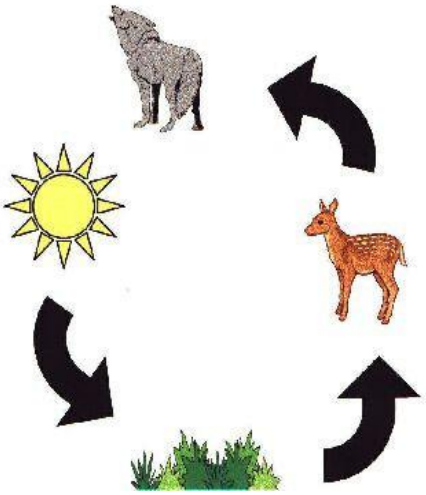
Eukaryotic Cells

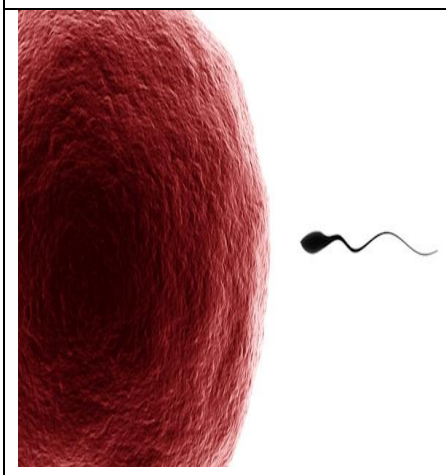
- - Nuclear membrane surrounding _____ material
- - Numerous _____-bound organelles
- - Appeared approximately _____ billion years ago
- - C_____ internal structure

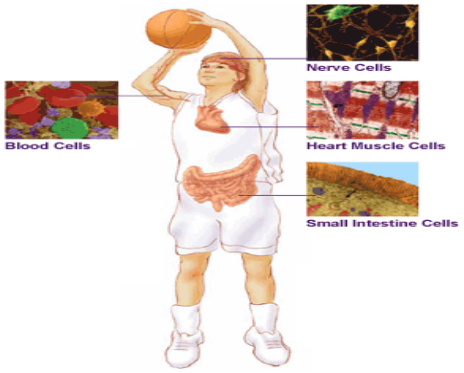
The Cell Theory

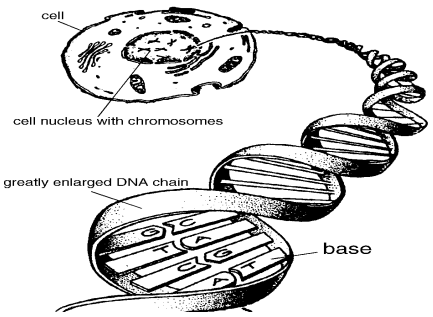
Describe how each picture relates to the modern cell theory?



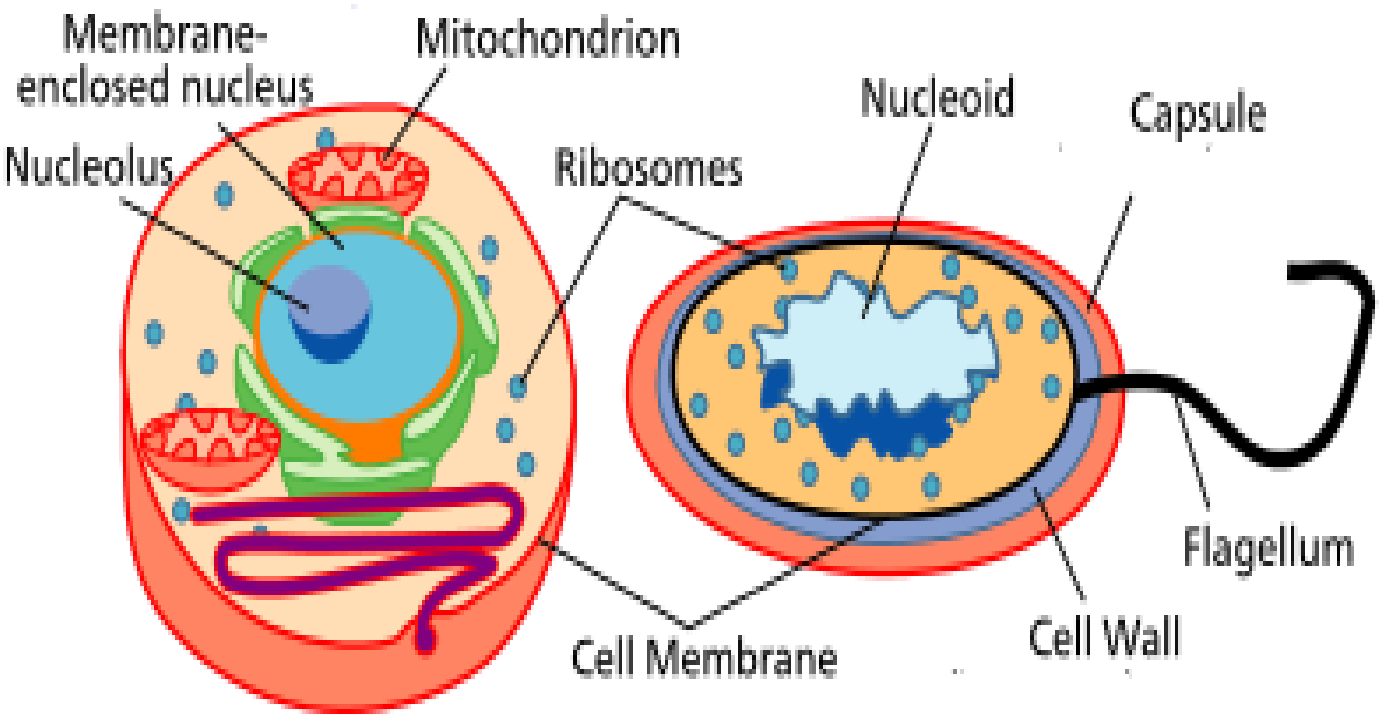








Which one is Prokaryotic and which one is Eukaryotic?



_____ _____

How do you know?

Which one evolved first? Can you give a time scale of their evolution?

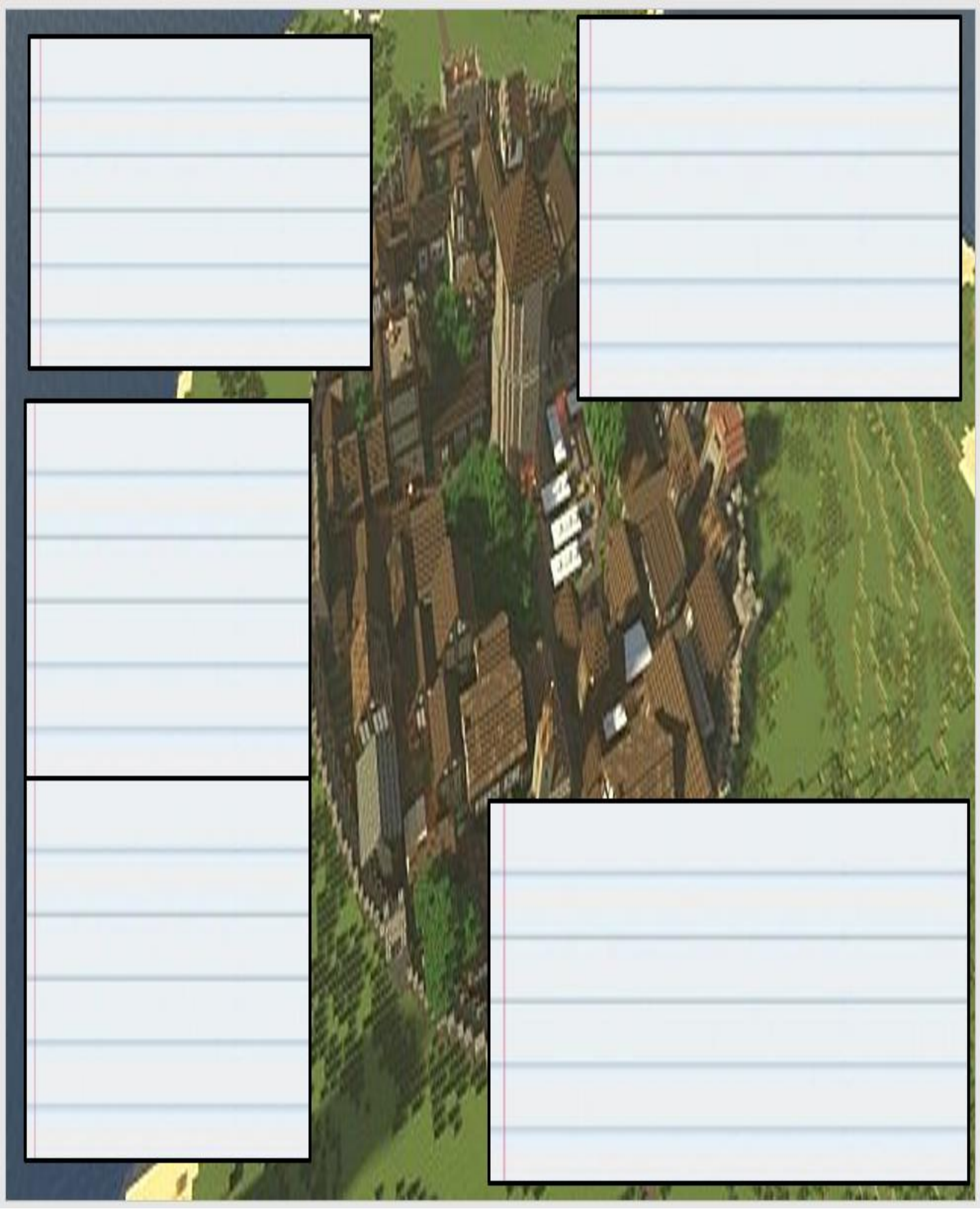
Part 1 Lesson 7 Cell City Project

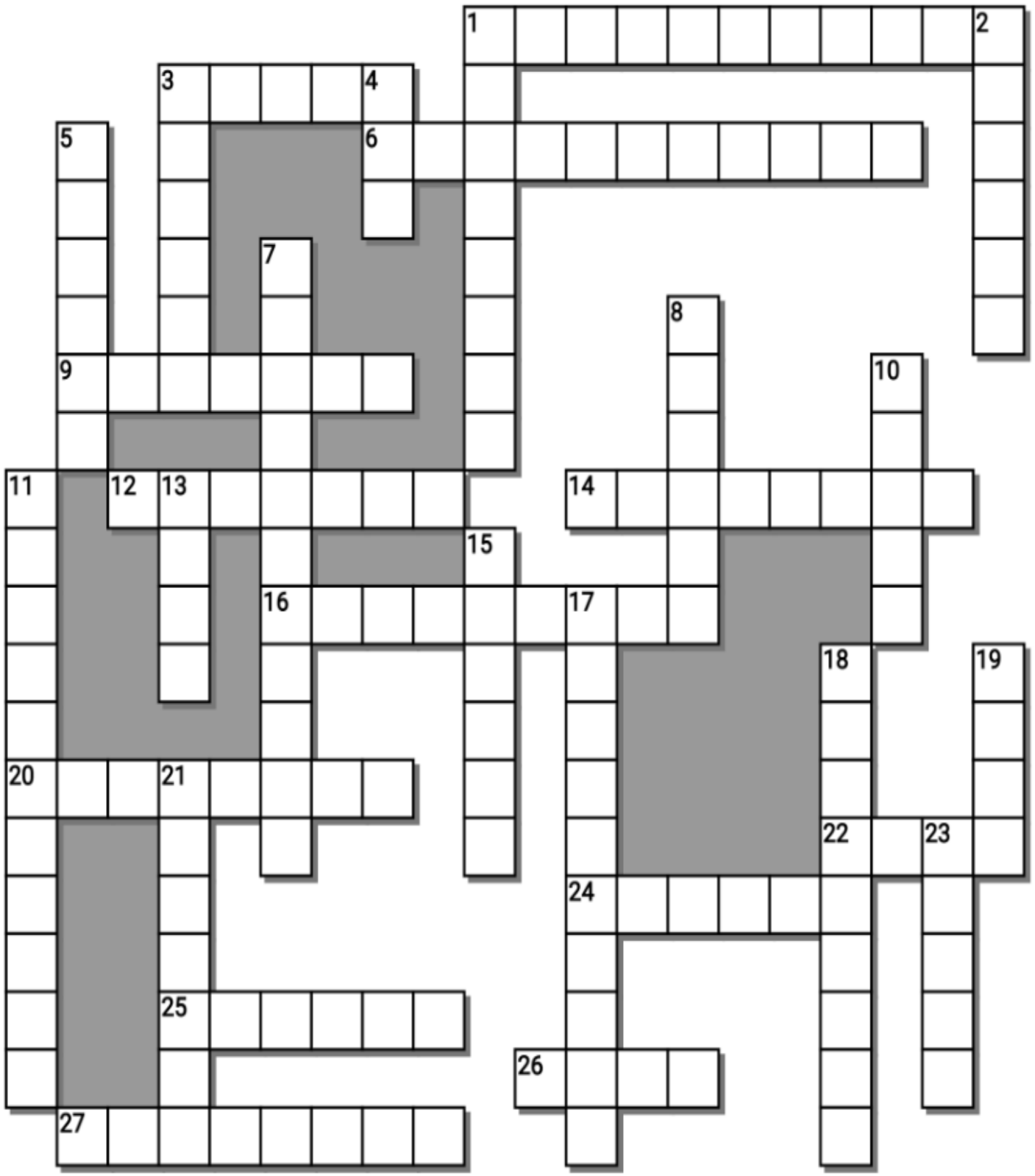
In the following assignment, you need to create a city, school, or the town based on your understanding of cellular organelles. Each building or person in your drawing needs to have its regular name (town mayor) and then the cellular organelle (nucleus). You also need a brief description (text) to aid in your rationale for using that town member or school person.

The cell organelles (structures within the cell) we are about to learn about are all designed for a specific purpose. Remember, the structure determines their function.

Cell Wall-(**Castle Wall / Fence)** only the plant cells have a cell wall. It provides structure and protection to the inside of the cell. Made of material called cellulose, which is a type of carbohydrate.
Cell Membrane (Customs Police Border Patrol) All cells have a cell membrane. The cell membrane decides what is allowed into the cell and what is allowed out of the cell. The cell membrane has tiny holes called pores that allow food and water to pass through.
Nucleus (Town Hall / Capital Building)- The nucleus is the "brain" of the cell. It controls and directs all the activity of the cell.
Nuclear Membrane (Doorway to the Capital)- This is a membrane that is similar to the cell membrane. This is a protective layer that protects the nucleus.
Chromatin (Computer in Capital Building / Blueprints)- These are thin strands that contain all of the genetic information the cell needs. These little strands help to guide the cell to what it needs to become.
Nucleolus (Workers in Town Hall)- The nucleolus is on the inside of the nucleus. This is the place the ribosomes are manufactured.
Mitochondria (PowerPlant)- These are shaped like little medicine capsules. They are considered "powerhouses" because they produce most of the energy the cell needs. They are found in the cytoplasm.
Endoplasmic Reticulum (Roads)- These are passageways through the cytoplasm that brings the proteins from one part of the cell to another. It is almost like a maze in the cytoplasm.
Ribosomes (Workers) These look like small beads of grain but they are very important. They produce the proteins the cells need.
Golgi Bodies (UPS / US Postal)- The Golgi Bodies act as the mailroom. They receive the proteins the ribosomes produce and repackage them. They are then sent throughout the cell.
Chloroplasts-(Solar Panels) These are found in plants only. They capture the light from the sun and use it to produce food for the cell. They are usually green in color.
Vacuoles-(U-Store It / Sewage Pond) These are large water-filled sacs. It is considered the storage area of the cell. They can store food and water or they can store waste.
Lysosomes (Recyclers)- These small round structures are known as the clean-up crew. They break down the old cell parts and release them so they can be reused. They also take large food particles and break them down into smaller ones.

Pretend this city is a cell. Name a few cell city buildings and how their job / function relates to that of a cell.





Possible Answers

ANIMAL, AUTOTROPHIC, CARBON, CELLS, CHANGE, ENERGY, EXISTING, FUNCTION, FUNGI, HOOKE , LEEUWENHOEK , LIFE, MOVE, ORGANISMS, PLANTS, PROTIST, REDI, SPONCH, SCHLEIDEN, SCHWANN, SPONTANEOUS, STIMULUS, SUN, TISSUE, UNICELLULAR, WALL, FUNCTION, GENETIC, STRUCTURAL

Across

1. _____ Origin: The belief that living organisms are produced / generated from non-living sources.
3. Living things are made of_____
6. Made of only one cell. Ex. Bacteria
9. Cells contain G_____ information
12. I'm a single celled organism that has a nucleus?
14. Form Follows F_____
16. Any individual entity that embodies the properties of life.
20. All cells come from pre_____ cells
22. The energy flow of _____ flows through cells
24. A group of specialized cells is called a T_____
25. I'm a multicellular organism that eats other organisms?
26. A cheek cell does not have a cell w____
27. The cell is the basic unit of structure and _____.

Down

1. Living things must be able to respond to a _____
2. Living things are made of _____ elements
3. Organic Chemistry: The chemistry of _____ compounds.
4. Energy on earth is mostly supplied by the _____
5. Living things adjusts to _____.
7. Can make its own food (chemo or photsynthesis)
8. I'm a multicellular organism that can make it's own food?
10. Robert _____ coined the name cells after observing cork cells.
11. In the 1600's Anton van _____ described living cells as seen through a simple microscope.
13. Francesco _____ – (1668).
15. Living things use E_____
17. Cells are the _____ and functional units of all living organisms.
18. Matthias Jakob S_____, German botanist who, with Theodor Schwann, was a cofounder of the cell theory.
19. All living things m_____
21. Matthias Jakob Schleiden, German botanist who, with Theodor _____, was a cofounder of the cell theory.
23. I'm a multicellular organism that absorbs its food?

Possible Answers

ANIMAL, AUTOTROPHIC, CARBON, CELLS, CHANGE, ENERGY, EXISTING, FUNCTION, FUNGI, HOOKE , LEEUWENHOEK , LIFE, MOVE, ORGANISMS, PLANTS, PROTIST, REDI, SPONCH, SCHLEIDEN, SCHWANN, SPONTANEOUS, STIMULUS, SUN, TISSUE, UNICELLULAR, WALL, FUNCTION, GENETIC, STRUCTURAL

Part 1 Review Game Lesson 8

Name:

1-10 = 5 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

IT CAME FROM THE SEWER	ITS ALIVE!	LEVEL-UP	SCHLEID ON TIME	CELL BLOCK Bonus round 1 pt each
1)	6)	11)	16)	*21)
2)	7)	12)	17)	*22)
3)	8)	13)	18)	*23)
4)	9)	14)	19)	*24)
5)	10)	15)	20)	*25)

Final Question Wager ___ /5 Answer: _____

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Part 1 Cells Unit

Name:

Part 1 Lesson 1 SPONCH / Life

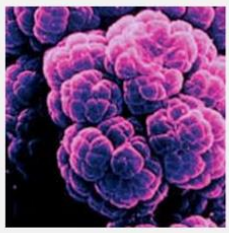
Due:

Please describe the Sewer Lice *(Pediculus deficus)*in the space below. What are they doing? What are some of their behaviors / Responses to their Environment?
The sewer lice were raisins and the sewer water was ginger ale. The CO_2 bubbles from the carbonation got caught under the wrinkles of the raisin and the raisin floated to the top where the bubbles met the air, and then the raisin sank. Teacher would just look for observations that the student was participating in this section.

Organism: An organism is any individual entity that embodies the properties of life.

- Organisms are classified by taxonomy into groups such as multicellular animals, plants, and fungi or unicellular microorganisms such as protists, bacteria, and archaea.

What are the Six Kingdoms of Life? There is an error in the characteristics? Can you find it?

Domain	Prokaryote		Eukaryotes			
Kingdom	Bacteria	Archaea	Protista	Fungi	Plants	Animals
Example						
Characteristics	*Bacteria are simple unicellular organisms*	*Simple unicellular organisms that live in extreme environments*	*Unicellular and complex*	*Unicellular or multi-cellular and absorb food*	*Multicellular and make their own food*	*Multicellular and take in their own food*

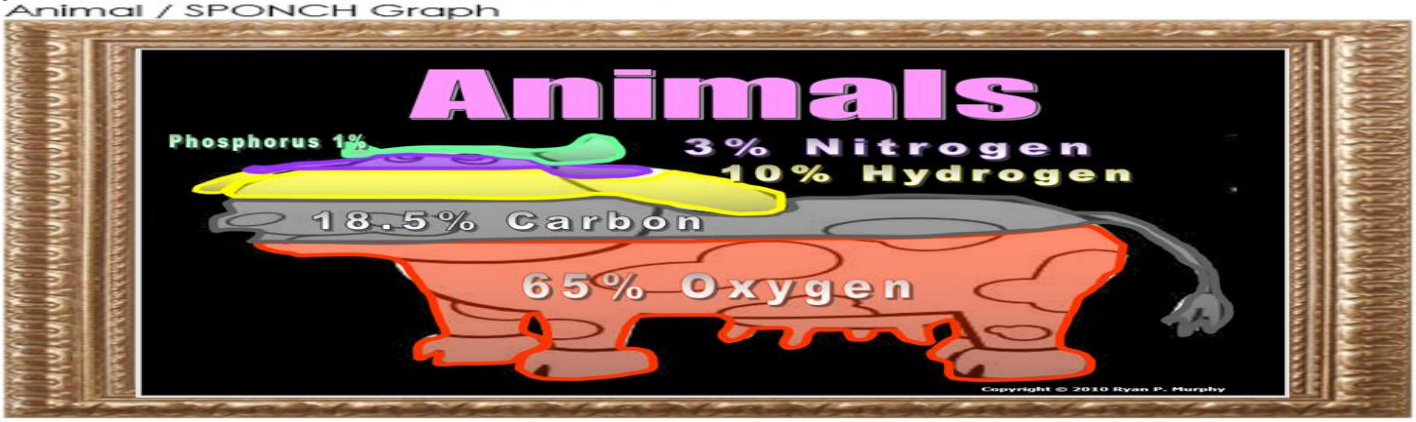
SPONCH -25 of the elements are essential for life.

SPONCH -25 of the elements are essential for life.

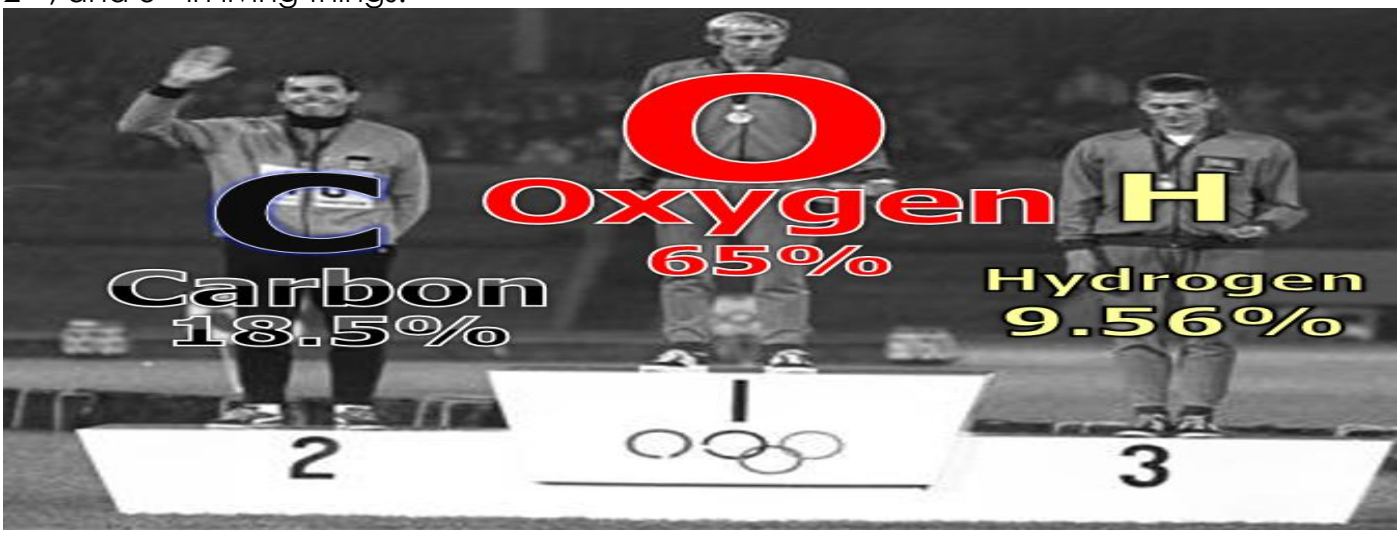
These are the Biologically Important Elements
(These letters deserve to look cool, please put their names below)

S	P	O	N	C	H
Sulfur	Phosphorus	Oxygen	Nitrogen	Carbon	Hydrogen
% in living things: Trace	1%	65%	3.3%	18.5%	9.56%

Animal / SPONCH Graph



If these athletes were biologically important Elements, which element is used the most (1st), 2nd, and 3rd in living things.



Part 1 Lesson 2

Characteristics of Life

-Made of SPONCH Elements
-Made of Cells.
-Moves.
-Responds to a stimulus.
-Uses energy.
-Adjusts to change.
    -Maintains steady body conditions.
    -Maintains homeostasis.
-Reproduces.
-Grows and Develops.
    -Grow-To increase in size.

-Develop-To change in ability.
-Adapts to change.
-Evolves / Inherits traits that promote survival.
-Has a life span. "dies"

Which is not a characteristic of Life? • Moves • Made of cells • Does not use energy • Maintains homeostasis with environment • Grows and develops • Reacts to a stimulus • Reproduces by exchanging it's own DNA • It evolves over time • Has a life span	Which is not a characteristic of Life? • Moves • Made of cells • Uses energy • Maintains homeostasis with environment • Grows and develops • Reacts to a stimulus • Reproduces by exchanging it's own DNA • Cannot evolve over time • Has a life span

Characteristics of Life
While looking under the microscope, you observe the object below. How can you determine if this is a living creature? What will it need to survive if it is living?

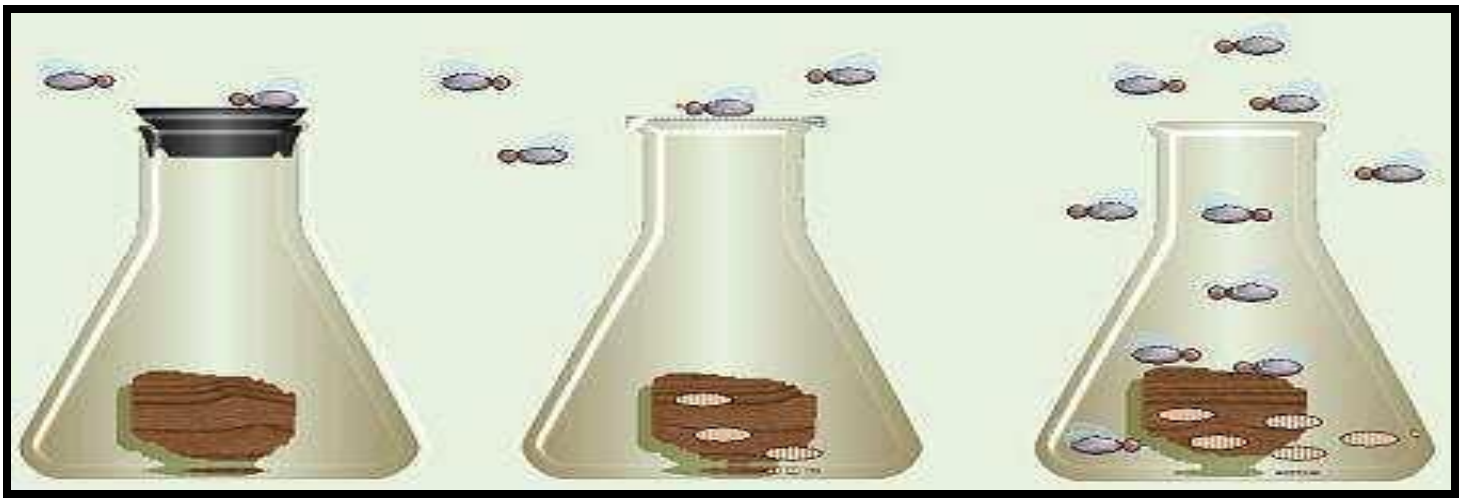
	The answer is just looking for the student to include some of the characteristics of life to make a decision. A strong answer would include if the specimen is made of cells, using energy, maintaining a balance with the environment, reacting to stimulus. Just try and have the student stay away from it's just ink on paper.

Spontaneous Origin: The belief that living organisms are produced / generated from non-living sources.

Needs of Living Things

Energy – Supplied by the sun (most of the time) and stored in food.
Oxygen – To burn the food in cells. (Respiration)
Water – To keep things moving in and out of cells. (Universal Solvent)
Minerals- For proper chemical balance.

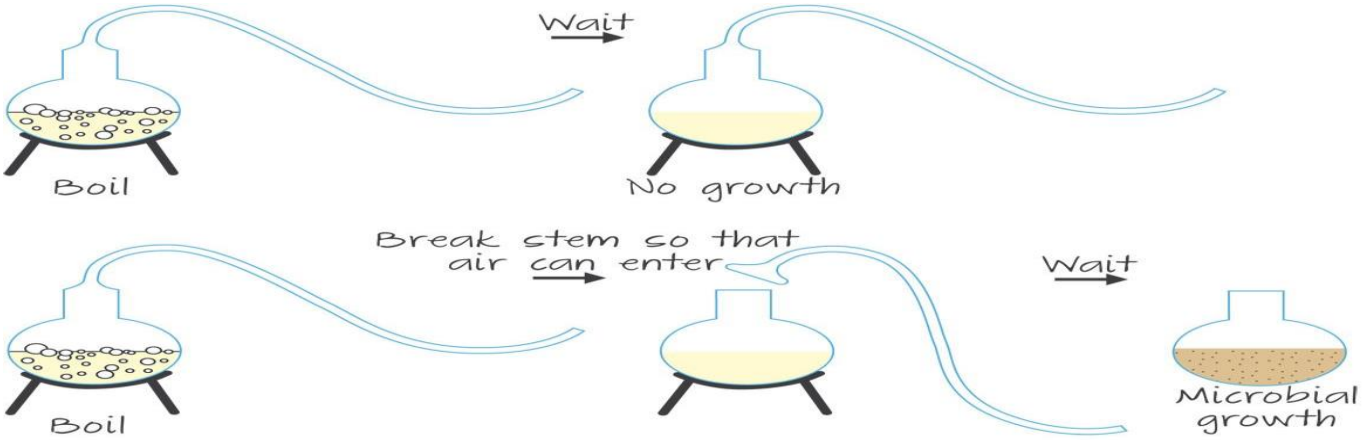
Briefly describe the findings of Francesco Redi's experiment in 1668. Make sure to include which is the control group, and which is the experimental group in your paragraph.



Make sure to discuss the control group!

In 1668, Francesco Redi, an Italian scientist, designed a scientific experiment to test the spontaneous creation of maggots by placing fresh meat in each of two different jars. One jar was covered with a cloth to prevent flies from entering and was the control group. The other jar contained meat that the flies could land on. Redi successfully demonstrated that the maggots came from fly eggs and thereby helped to disprove spontaneous generation. Life must come from life.

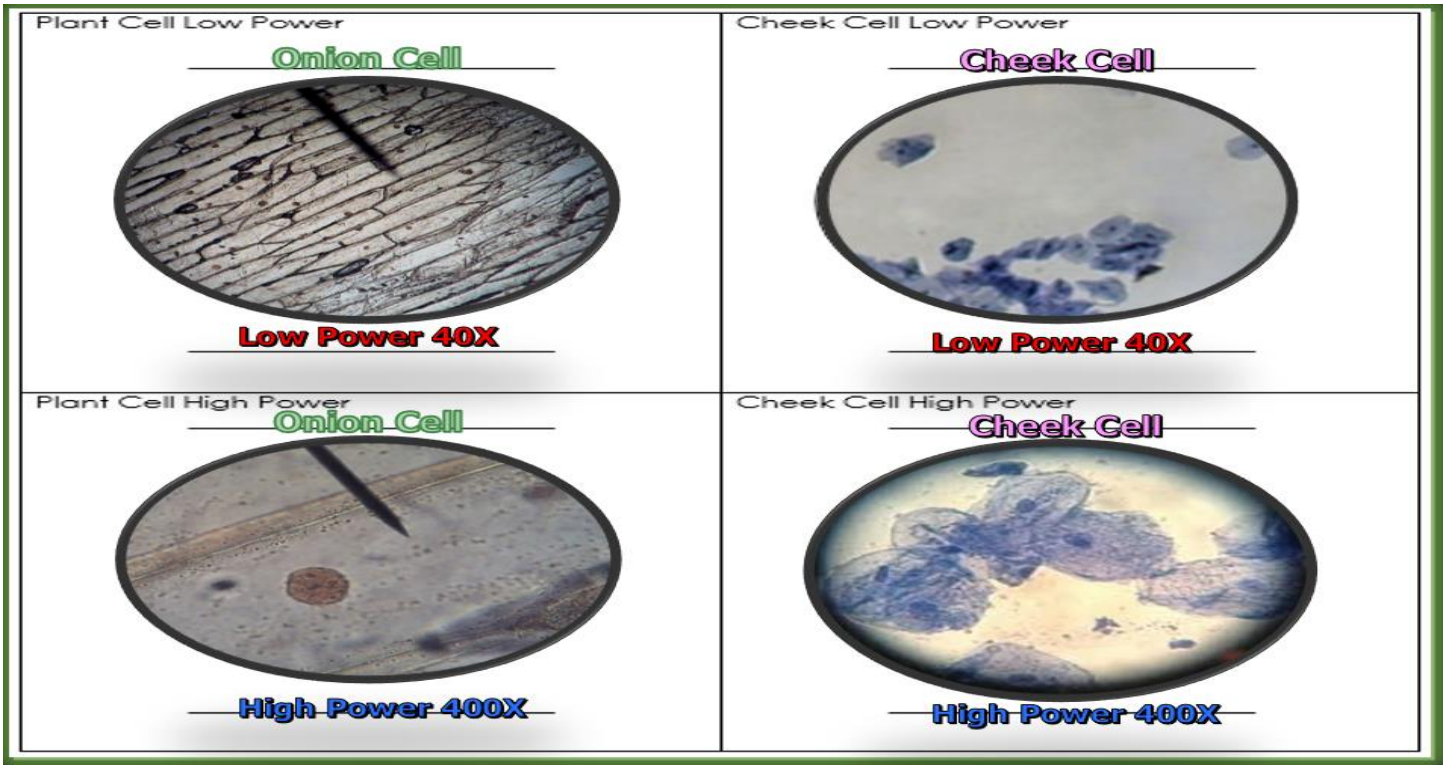
Briefly describe the findings of Louis Pasteur in 1862 that helped disprove spontaneous origin. Make sure to include which is the control group, and which is the experimental group in your paragraph. Also, how did this study help people… think mircrobiology.



Pasteur conducted a now infamous experiment in which he used a glass flask with an S shaped neck. This he explained was because the germ particles in the air attempting to enter the flask had become became trapped in the s shaped bend. Therefore, they had not contaminated the liquid. This experiment demonstrated that microorganisms are present in the air as they contaminated the broth in the container where air could enter. This helped demonstrate the need for sterilization and the presence of microorganisms.

Part 1 Lesson 3 Cheek and Onion Cells

Take some images or sketch a cheek and onion cell at low and high power. Please describe the resolution

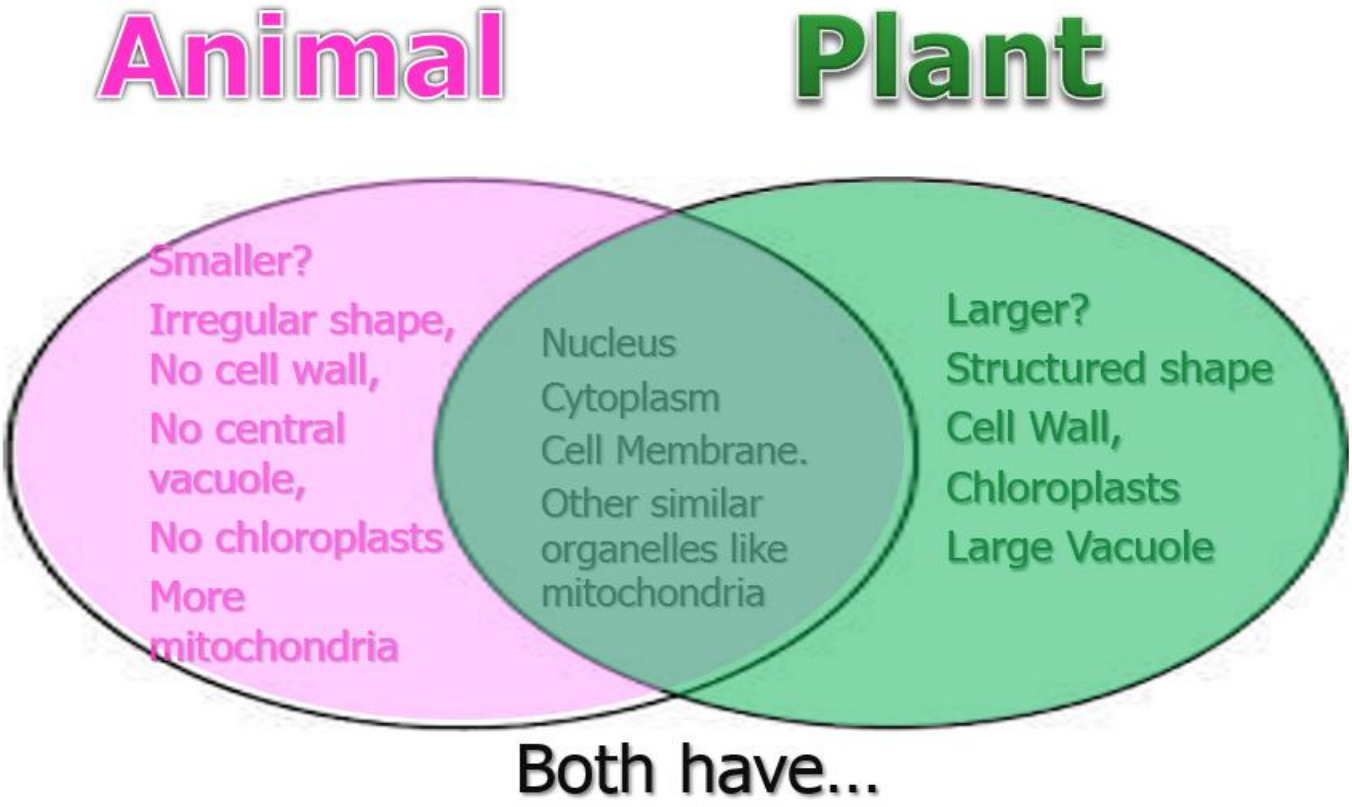


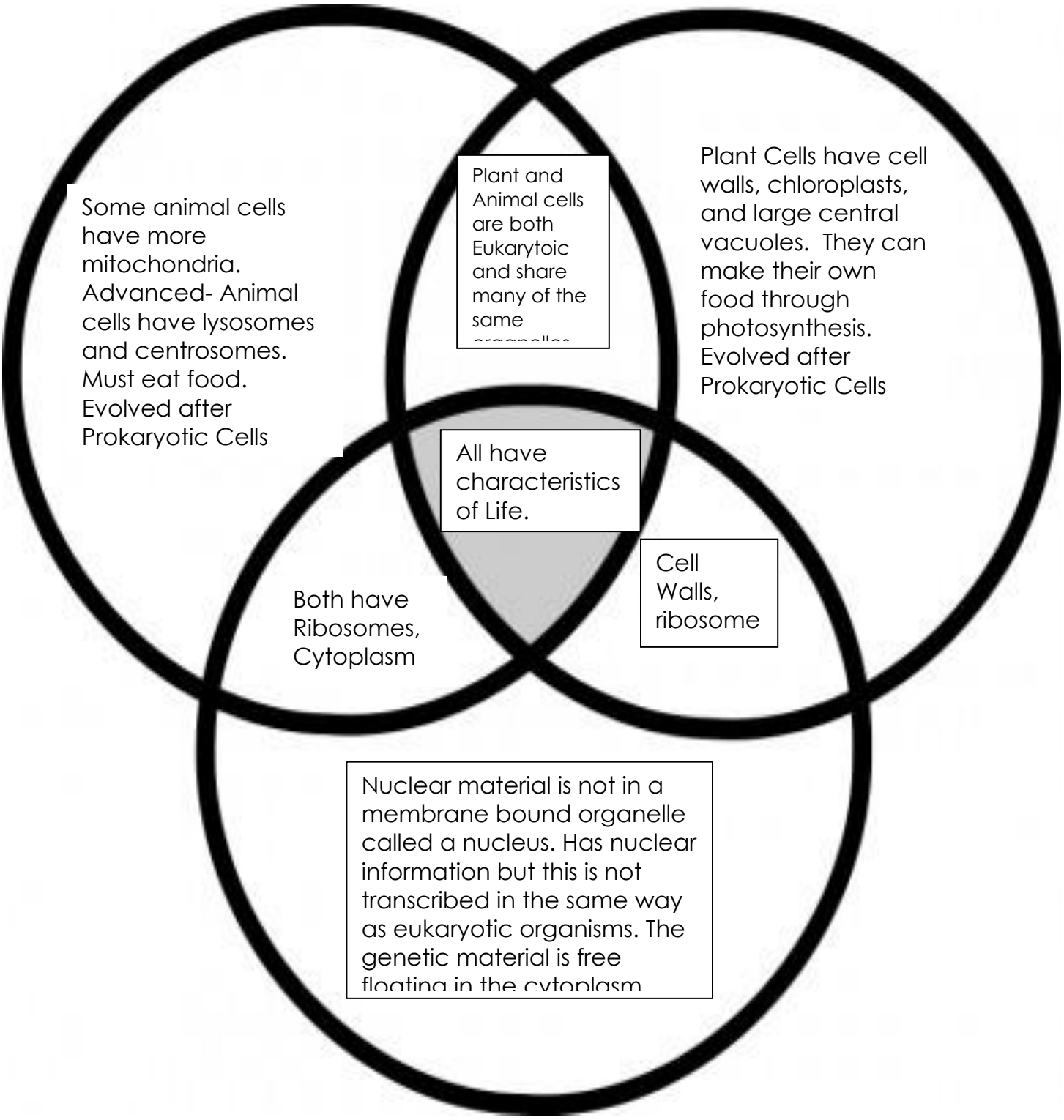
Please label the cell nucleus, cell wall, cell membrane, vacuole, and chloroplast.

What are some similarities and differences between an animal cell, plant cell, and prokaryotic bacteria cell? Prokarya will be addressed later in the unit if you want to hold off for a bit.

Animal Cell

Plant Cell


Animal
Plant
Smaller?
Irregular shape,
No cell wall,
No central vacuole,
No chloroplasts
More mitochondria
Nucleus
Cytoplasm
Cell Membrane.
Other similar organelles like mitochondria
Larger?
Structured shape
Cell Wall,
Chloroplasts
Large Vacuole
Both have…



Part 1 Lesson 4 Form Follows Function

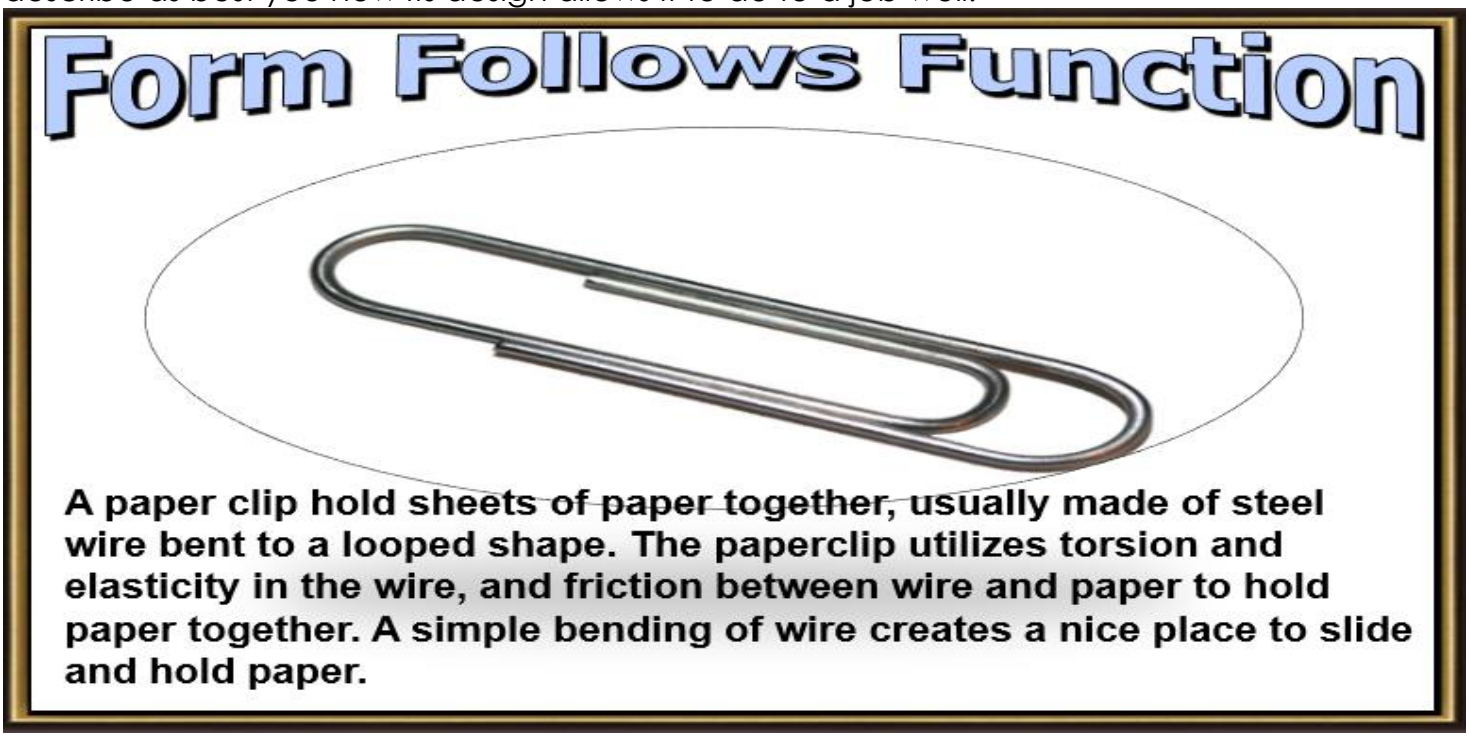
Name some type of cells?

Nerve Cells	Skin Cells	Fat Cells	Sex Cells
Liver Cells	Muscle Cells	Lung Cells	Bone Cells

Form Follows Function: Means that the form of a body part or structure is related to its function.

- The form or shape of a structure within an organism is correlated to the purpose or function of that structure.

Please find an object that demonstrates how form follows function. Draw it below and describe as best you how its design allows it to do to a job well.



Cells are the structural and functional units of all living organisms.

Humans have some 37.2 Trillion

Multicellular (More than one cell)

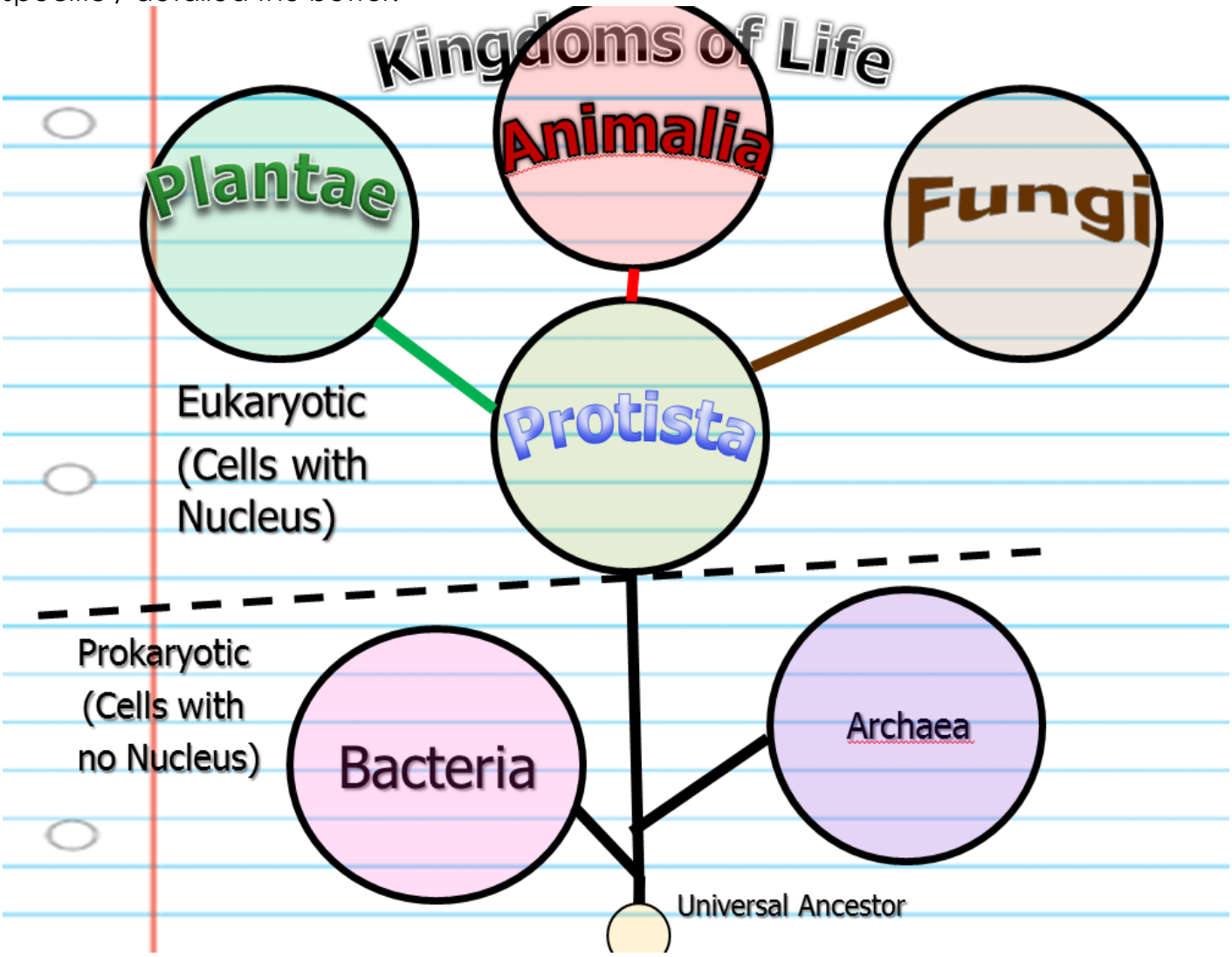
Some Protists, Bacteria, and Archaea have 1 - Unicellular

Which organism below is multi-cellular, and which is unicellular?

Answer= Single Celled / Unicellular	Answer= Multicellular (Many Celled)
	

Part 1 Lesson 5 Domains and Kingdoms of Life

Please record the Kingdoms / Domains of Life in the empty template below. The more specific / detailed the better.

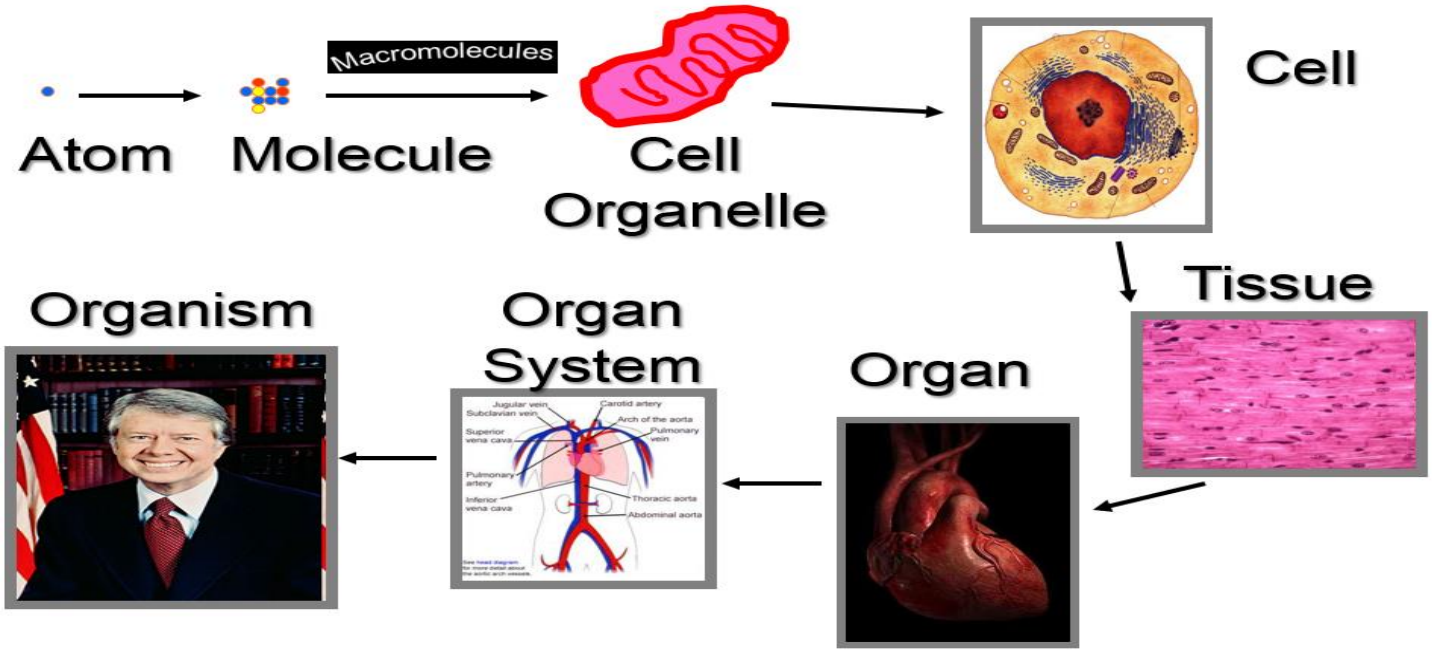


Domain	Bacteria	Archaea		Eukarya		
Kingdom	Bacteria	Archaea	Protista	Plantae	Fungi	Animalia
Cell Type	Prokaryotic (No nucleus)	Prokaryotic (No nucleus)	Eukaryotic (Nucleus)	Eukaryotic (Nucleus)	Eukaryotic (Nucleus)	Eukaryotic (Nucleus)
Single or Multi-Cellular	Single (Unicellular)	Single (Unicellular)	Single (Unicellular)	Multicellular	Multicellular	Multicellular
Gets Energy from..	Varies	Varies	Varies	Sunlight	Absorbs	Consumes Food

Use the matrix above to answer the questions with the correct Kingdom of Life

I'm a multicellular organism that absorbs its food?	Kingdom Fungi
I'm a single celled organism that has a nucleus?	Kingdom Protista
I'm a multicellular organism that can make its own food?	Kingdom Plantae
I'm a unicellular organism without a nucleus?	Domain Bacteria or Domain Archaea
I'm a multicellular organism that eats other organisms?	Kingdom Animalia
I'm a multicellular organism?	Kingdom Plantae, Kingdom Fungi, Kingdom Animalia
I'm an autoroph?	Kingdom Plantae
I'm only a heterotroph?	Kingdom Fungi and Kingdom Animalia
I don't have a cell wall?	Kingdom Animalia
I have a cell wall but it's made of chitin?	Kingdom Fungi
I have a cell wall made of peptidoglycan?	Domain Bacteria

Please record the levels of biological organization below.



Part 1 Lesson 6 Modern Cell Theory

Hans and Zacharias Janssen created the first compound microscope in 1595.

Modern Cell Theory

-The cell is basic unit of structure and function
-Living things are made of cells
-All cells come from pre-existing cells.
-Cells contain genetic information
-All cells are similar in composition
-Energy flow of life occurs in cells

The 3 big principles of the cell theory.

- All living organisms are composed of one or more cells.
- The cell is the most basic unit of life.
- All cells arise from pre-existing, living cells.

There are two main groups of cells.

- Prokaryotic
- Eukaryotic

Prokaryotic cells

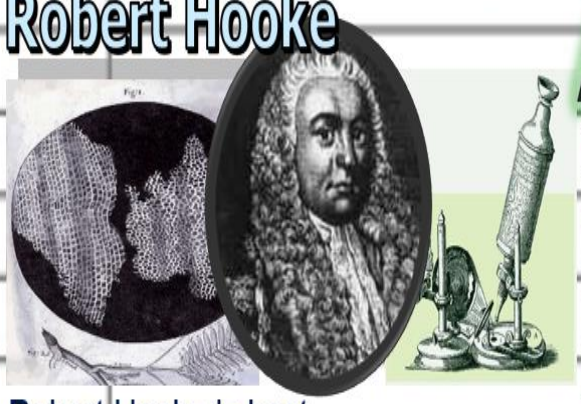
- - No nuclear Membrane
- - Genetic materials is free in cytoplasm
- - No membrane-bound organelles
- - Most primitive type of cell (appeared about 3.8 billion years ago)

Eukaryotic Cells

- - Nuclear membrane surrounding genetic material
- - Numerous membrane-bound organelles
- - Appeared approximately 2.2 billion years ago
- - Complex internal structure

The Cell Theory

Robert Hooke

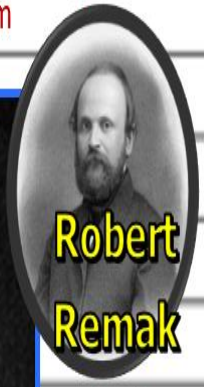


Robert Hooke is best known today for his identification of the cellular structure of plants in Cork Cells. He coined the term cells as they looked like the rooms in a monastery. He successfully did so, thus paving the way for the wide acceptance of Leeuwenhoek's discoveries.

Anton Van Leeuwenhoek

From investigating and experimenting with his microscope, Leeuwenhoek became one of the first scientists to refer to living cells when he observed an abundant number of single-celled organisms, which he called animalcules (plant & animal), swimming in a drop of pond water.

Virchow may have "gathered" his research from a scientist named Robert Remak

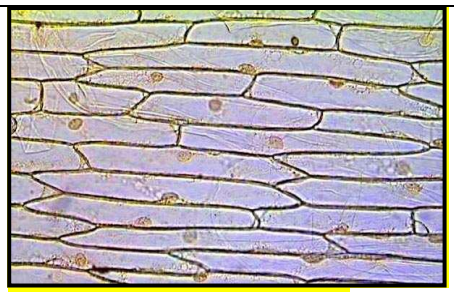


By the late 1830s, botanist Matthias Schleiden and zoologist Theodor Schwann were studying tissues and proposed the unified cell theory. The unified cell theory states that: all living things are composed of one or more cells; the cell is the basic unit of life; and new cells arise from existing cells.

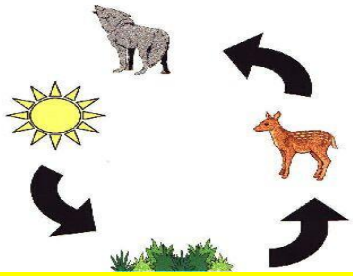
Virchow used the theory that all cells arise from pre-existing cells to lay the groundwork for cellular pathology, or the study of disease at the cellular level.

Describe how each picture relates to the modern cell theory?

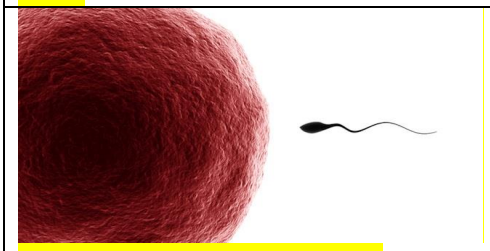
Living things are made of cells



The cell is basic unit of structure and function

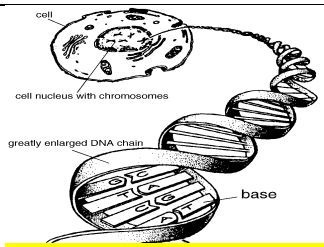


Energy flow of life occurs in cell



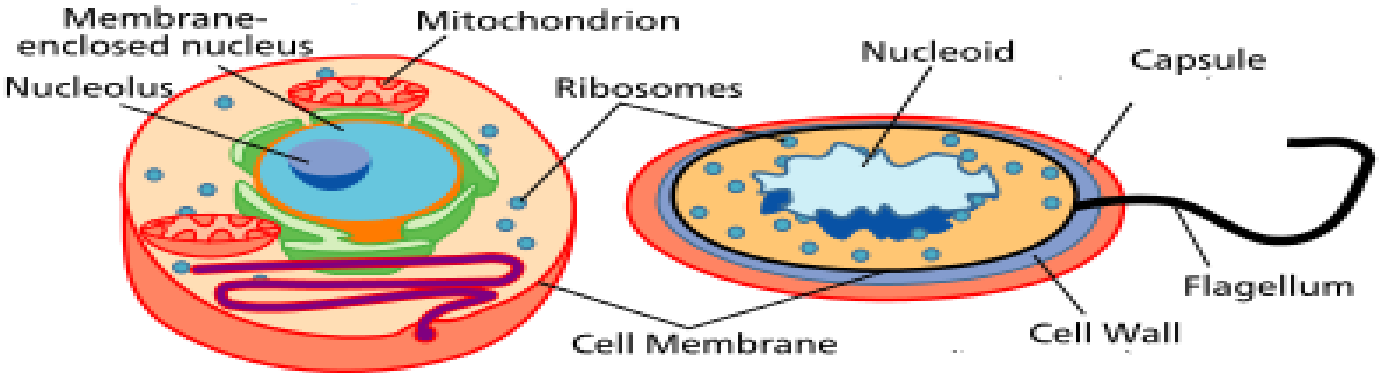
All cells come from pre-existing cells.

All cells are similar in composition



Cells contain genetic information

Which one is Prokaryotic and which one is Eukaryotic?



Eukaryotic Cell Prokaryotic Cell

How do you know?

The Eukaryotic Cell has a membrane bound nucleus that houses the genetic materials. It also has many membrane bound cellular organelles, it also much larger as the size scales above are not accurate. The Eukaryotic cell is likely an animal cell because it does not have a cell wall.

Which one evolved first? Can you give a time scale of their evolution?

The prokaryotic cell evolved first. The first prokaryotic cell evolved 3.5 billions years ago These cells had no nucleus, simple, circular DNA (we suppose), no internal organelles. Eukaryotic cells evolved 1 -1.5 billions years after prokaryotic cells.

Part 1 Lesson 7 Cell City Project

In the following assignment, you need to create a city, school, or the town based on your understanding of cellular organelles. Each building or person in your drawing needs to have its regular name (town mayor) and then the cellular organelle (nucleus). You also need a brief description (text) to aid in your rationale for using that town member or school person.

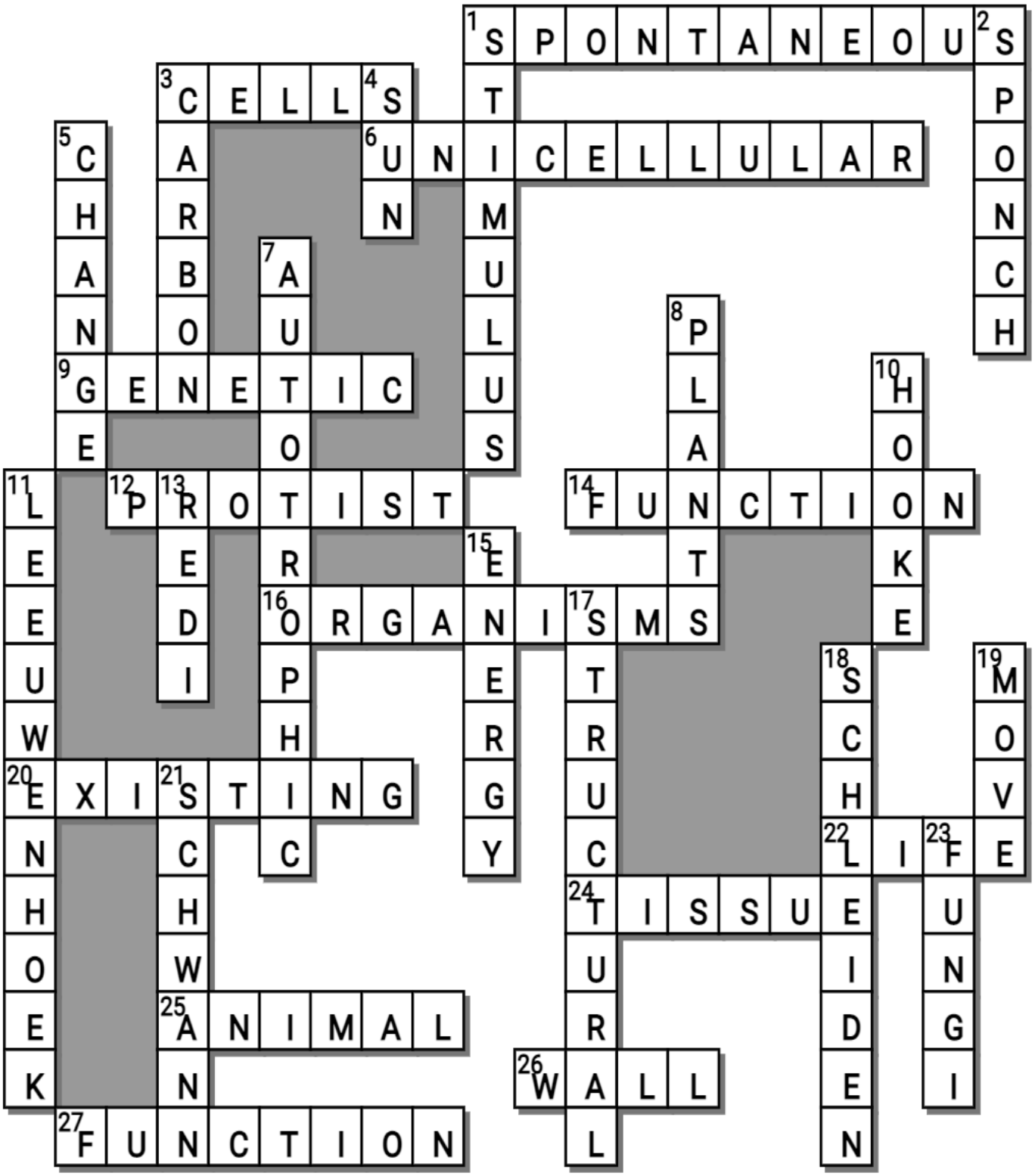
The cell organelles (structures within the cell) we are about to learn about are all designed for a specific purpose. Remember, the structure determines their function.

Cell Wall-(**Castle Wall / Fence)** only the plant cells have a cell wall. It provides structure and protection to the inside of the cell. Made of material called cellulose, which is a type of carbohydrate.
Cell Membrane (Customs Police Border Patrol) All cells have a cell membrane. The cell membrane decides what is allowed into the cell and what is allowed out of the cell. The cell membrane has tiny holes called pores that allow food and water to pass through.
Nucleus (Town Hall / Capital Building)- The nucleus is the "brain" of the cell. It controls and directs all the activity of the cell.
Nuclear Membrane (Doorway to the Capital)- This is a membrane that is similar to the cell membrane. This is a protective layer that protects the nucleus.
Chromatin (Computer in Capital Building / Blueprints)- These are thin strands that contain all of the genetic information the cell needs. These little strands help to guide the cell to what it needs to become.
Nucleolus (Workers in Town Hall)- The nucleolus is on the inside of the nucleus. This is the place the ribosomes are manufactured.
Mitochondria (PowerPlant)- These are shaped like little medicine capsules. They are considered "powerhouses" because they produce most of the energy the cell needs. They are found in the cytoplasm.
Endoplasmic Reticulum (Roads)- These are passageways through the cytoplasm that brings the proteins from one part of the cell to another. It is almost like a maze in the cytoplasm.
Ribosomes (Workers) These look like small beads of grain but they are very important. They produce the proteins the cells need.
Golgi Bodies (UPS / US Postal)- The Golgi Bodies act as the mailroom. They receive the proteins the ribosomes produce and repackage them. They are then sent throughout the cell.
Chloroplasts-(Solar Panels) These are found in plants only. They capture the light from the sun and use it to produce food for the cell. They are usually green in color.
Vacuoles-(U-Store It / Sewage Pond) These are large water-filled sacs. It is considered the storage area of the cell. They can store food and water or they can store waste.
Lysosomes (Recyclers)- These small round structures are known as the clean-up crew. They break down the old cell parts and release them so they can be reused. They also take large food particles and break them down into smaller ones.

Pretend this city is a cell. Name a few cell city buildings and how their job / function relates to that of a cell.

Cell Organelles	City Analogies
Cell Membrane	City border
Cell Wall	City Wall
Cytoplasm	Lawns
Endoplasmic Reticulum	Highway or road system
Ribosomes	Lumber or brick yard
Golgi Bodies	Post Office or UPS
Chloroplasts	Solar Energy Plants
Nuclear Membrane	City Hall Fence with security guard
Mitochondria	Energy Plants
Nucleus	City Hall
DNA	Original Blueprints or the city
RNA	Copies of Blueprints
Nucleolus	Copy Machine
Lysosomes	Waste Disposal/ Recyclers
Vacuole	Warehouses, water towers or garbage dumps
Protoplasm	Air or atmosphere
Chromosomes	Rolled up blueprints
Proteins	Lumber or bricks


Vacuole / Storage: Stores materials needed by the city
Nucleus: City hall where plans are made for the construction of the city
Mitochondria/ Power Plant: Produces energy for the city
Chloroplast: Solar Energy Panels. Uses the sun's energy to produce power for the city
Plasma Membrane: City Limits Controls what goes in and out of the city.



Possible Answers

ANIMAL, AUTOTROPHIC, CARBON, CELLS, CHANGE, ENERGY, EXISTING, FUNCTION, FUNGI, HOOKE , LEEUWENHOEK , LIFE, MOVE, ORGANISMS, PLANTS, PROTIST, REDI, SPONCH, SCHLEIDEN, SCHWANN, SPONTANEOUS, STIMULUS, SUN, TISSUE, UNICELLULAR, WALL, FUNCTION, GENETIC, STRUCTURAL

Across

1. _____ Origin: The belief that living organisms are produced / generated from non-living sources.
3. Living things are made of_____
6. Made of only one cell. Ex. Bacteria
9. Cells contain G_____ information
12. I'm a single celled organism that has a nucleus?
14. Form Follows F_____
16. Any individual entity that embodies the properties of life.
20. All cells come from pre_____ cells
22. The energy flow of _____ flows through cells
24. A group of specialized cells is called a T_____
25. I'm a multicellular organism that eats other organisms?
26. A cheek cell does not have a cell w____
27. The cell is the basic unit of structure and _____.

Down

1. Living things must be able to respond to a _____
2. Living things are made of _____ elements
3. Organic Chemistry: The chemistry of _____ compounds.
4. Energy on earth is mostly supplied by the _____
5. Living things adjusts to _____.
7. Can make its own food (chemo or photsynthesis)
8. I'm a multicellular organism that can make it's own food?
10. Robert _____ coined the name cells after observing cork cells.
11. In the 1600's Anton van _____ described living cells as seen through a simple microscope.
13. Francesco _____ – (1668).
15. Living things use E_____
17. Cells are the _____ and functional units of all living organisms.
18. Matthias Jakob S_____, German botanist who, with Theodor Schwann, was a cofounder of the cell theory.
19. All living things m_____
21. Matthias Jakob Schleiden, German botanist who, with Theodor _____, was a cofounder of the cell theory.
23. I'm a multicellular organism that absorbs its food?

Possible Answers

ANIMAL, AUTOTROPHIC, CARBON, CELLS, CHANGE, ENERGY, EXISTING, FUNCTION, FUNGI, HOOKE , LEEUWENHOEK , LIFE, MOVE, ORGANISMS, PLANTS, PROTIST, REDI, SPONCH, SCHLEIDEN, SCHWANN, SPONTANEOUS, STIMULUS, SUN, TISSUE, UNICELLULAR, WALL, FUNCTION, GENETIC, STRUCTURAL

Part 1 Review Game Lesson 8

Name:

1-10 = 10 pts * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Due: Today
Score ____ / 100

IT CAME FROM THE SEWER	ITS ALIVE!	LEVEL-UP	SCHLEID ON TIME	CELL BLOCK Bonus round 1 pt each
1) LETTER E	6) ENERGY, OXYGEN, WATER, MINERALS	11) A=MULTI CELLULAR B=UNICELLULAR	16) Rudolf Virchow	*21) WOLVERINE
2) CARBON	7) A=PLANT B=ANIMAL	12) STRUCTURAL FUNCTIONAL	17) SCHWANN SCHLEIDEN	*22) SHAWSHANK REDEMPTION
3) LIFE ABIOGENESIS	8) LETTER D	13) CELL ORGANELLE, CELL, TISSUE ORGAN	18) LETTER D	*23) DEATH STAR
4) FRANCESCO REDI 1668	9) SPERM and EGG	14) Anton van Leeuwenhoek	19) PROKARYOTIC EUKARYOTIC	*24) ALADDIN
5) LOUIS PASTEUR	10) LETTER C	15) ROBERT HOOKE	20) A.) Prokaryotic (appeared about 3.8 billion years ago.) B.) Eukaryotic (Appeared approx. 2.2 billion years ago.)	*25) THE COUNT OF MONTE CRISTO

Final Question Wager ___ /5 Answer: A=NUCLEUS, B=CYTOPLASM, C=CELL/PLASMA MEMBRANE

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