

**Alvin High
School
Fall 2015**

Name: _____

Teacher: _____

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Get Connected!

Remind 101

Text: _____ to _____

Teacher's email:

_____@alvinisd.net

Student email:

Log on: ID#@student.alvinisd.net

Password: your initials/birth year/00

Wi-Fi

Log on:

Password:

Accessing TEAMS

Go to www.alvinisd.net/students .

Click on *Teams Student Self Serve*.

If you have never used TEAMS before, register as a new user.



Fall 2015 Syllabus

1st 8 weeks

- Characteristics of life
- Ecology
- Symbiotic relationships
- Succession
- Taxonomy
- Classification
- Levels of organization
- Biomolecules
- Cells parts and functions
- Cell theory
- Endosymbiotic theory
- Prokaryotic vs. eukaryotic cells
- Homeostasis in the cell
- Cell transport

2nd 8 weeks

- Bacteria and viruses
- Immune response
- Homeostasis in the body
- Circulatory system
- Excretory system
- Nervous system
- Endocrine system
- Feedback mechanisms
- Specialized tissues
- Cellular respiration
- Photosynthesis
- Enzymes
- pH
- Muscles
- Digestive system
- Respiratory system
- Skeletal system

• Classroom Procedures

- Grades:
 - Major Tests 40%
 - Labs 40%
 - Daily work 20%
- Late work
 - All work will be expected to be turned in as you leave the classroom
 - Late work: -15 one day late, -30 two days late
 - three days late is a 0
- Make-up work
 - **You are responsible for this** when you are absent!!!
- Tutorials
 - Make an appointment with your teacher for tutoring



• Classroom Rules

- Be safe
 - No horseplay, etc.
 - No masticating or imbibing in class
 - If you bring food or drinks into class, you will be asked to throw them away.
- Be respectful
 - Use manners
 - No foul language
 - Not yours? **DON'T TOUCH IT!**
- Be responsible
 - Turn in assignments **COMPLETE AND ON TIME**
 - Clean up after yourself
- Be courteous
 - no electronic devices etc. (policy strictly enforced)
- Be on time
 - **TARDIES COUNT** so do not be surprised by that!
- Be successful
 - Make an effort to pass
- Have fun!!



Name: _____ Date: _____ Per: _____

Alvin ISD Dress Code

Alvin ISD has established the following expectations:

- Students should come to school bathed and free of body odor.
- Clothing should be washed and cleaned.
- Hair should be neat and clean.
- Appropriate undergarments should be worn and not visible.

GROOMING Hair

- Hair should be of a natural color. Colors should not be extreme. (No pink, orange, green, etc.)
- Extreme hair styles such as carvings, Mohawks, spikes, etc. will not be allowed.
- Boys may wear their hair not to exceed a length touching the top of the shoulders.
- Mustaches, beards, or goatees will not be allowed.
- Sideburns will not extend past the bottom of the earlobe.
- Eyebrows will not be carved/notched.
- Tattoos must be covered.

Accessories

- Boys will not be allowed to wear earrings. Earrings may NOT be covered.
- Girls may wear a maximum of two earrings in each ear.
- Body piercing jewelry and/or accessories will not be allowed.
- Heavy chains or accessories with spikes or studs will not be allowed.
- Any accessory that may cause injury will be prohibited. Make-Up
- Extreme make-up will not be allowed (examples include, but are not limited to, black lipstick, black eye shadow, black nail polish)
- Boys may not wear make-up. Headwear
- Caps and hats will be allowed outside the buildings if worn appropriately and for the intended purposes.
- Bandanas will not be allowed.
- Sunglasses or sunshades are not to be worn in the building.

Shirts

Shirts may be worn tucked or untucked. They must be appropriately sized. No tight fitting or oversized garments are allowed. Five types of shirts may be worn:

- A solid color or school appropriate patterned * polo-style, collared shirt.
- A solid color or school appropriate patterned * turtleneck or mock turtleneck.
- A solid color or school appropriate patterned * button-front dress shirt or blouse with a collar.

*Appropriate patterns include, but are not limited to, stripes, plaids, polka dots or repetitive prints (excluding printed words and phrases)

- A school spirit shirt that has been approved by the school administration.
- A school appropriate college shirt.

All shirts must have sleeves. Logos or insignias on the shirt are allowed. Shirts and blouses may have short or long sleeves and must be buttoned. Sleeveless shirts may NOT be worn. Halters, strapless garments, tank tops, mesh/see-through tops and clothes that expose the midriff or back will not be allowed. All shirts and blouses must be long enough to completely cover the midriff at all times. If the shirt is too short to be tucked in, it does not meet dress code requirements. All spirit shirts must be approved each year by the principal prior to going on sale to the student population.

Name: _____ Date: _____ Per: _____

Pants

Pants, Shorts, Dresses, Skorts, Skirts, Jumpers, Bib Overalls The general requirements for all pants, shorts, dress, skirts, jumpers and bib overalls are as follows:

- Solid color jeans, slacks or shorts may be worn. Jeans must be appropriately sized, fitting at the waist; no holes or frays allowed.
- Solid color jean or khaki style shorts may be worn. Shorts must be appropriately sized, fitting at the waist; no holes or frays allowed.
- Solid color dresses, skorts, skirts and jumpers may be worn. Dresses, skorts, skirts and jumpers must be appropriately sized. Dresses must have sleeves or a shirt with sleeves must be worn underneath the dress.
- Tights and leggings of any school appropriate pattern may be worn under a school dress code regulation length skirt, dress, skorts or shorts.
- Athletic shorts, skirts, dresses or pants are NOT permitted.
- Oversized, baggy or saggy garments will not be acceptable. Pants, skorts, skirts or shorts must be worn at the waist. Tight-fitting pants, skirts, skorts, or shorts are not acceptable. • Hems may not be frayed or cut. Pants cut on the inseam must be hemmed.
- No sweat pants, wind pants, leather or spandex of any color are allowed.

Length

- Shorts, skorts, skirts, jumpers, and bib overalls must be slightly above the knee or longer.

Shoes - Footwear for Secondary Students

- Shoes should be comfortable for walking or general exercise. No flip flops, thongs, slides, wheeled shoes or shower shoes will be allowed. For school purposes a flip-flop/thong is defined as any footwear that has a strap that goes between the toes and has no heel strap regardless of the height of the shoe or the material it is made of. Makeshift or added heel straps are not acceptable on shoes.
- Shower shoes are not acceptable and are defined as rubber, plastic, or vinyl shoes that have a strap or band that goes over the top of the foot.
- Shoes must be properly laced or fastened.

Jackets, Sweaters, Vests, Sweatshirts

- In cold weather, jackets or coats may be worn to school. Coats may be worn in the building. Trench coats are not allowed.
- Solid colored vests, sweatshirts, hoodies, and sweaters in any solid color may be worn over a school-approved shirt.
- Sweaters, vests, sweatshirts, and pull-over hoodies must be a solid color.
- No oversized jackets, vests, sweaters, or sweatshirts may be worn.
- Jackets and coats should be worn as appropriate to the environment.

Name: _____ Date: _____ Per: _____

Cell Phone/Electronic Device Policy

Copy the following cell phone/electronic device policy on the blank lines below.
Sign, date, and turn in bottom portion to your teacher.

I understand that my biology class is a no cell phone/electronic device zone. I further understand that if I have my phone or electronic device out for ANY REASON, it will be confiscated and turned in to the office. I will not be able to get my phone back until the end of the day. To pick up my phone, I understand that I will need \$15.00 and a school ID

Signature: _____ Date: _____

Name: _____

Signature: _____ Date: _____

Name: _____ Date: _____ Per: _____



Academic Calendar 2015-2016

July 2015

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August 2015

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September 2015

		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October 2015

			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November 2015

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December 2015

		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

January 2016

						1	2
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	31

February 2016

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29					

March 2016

		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	★	★	★		

April 2016

						1	2
3	4	5	6	7	8	9	
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	

May 2016

1	★	★	★	★	★	7
8	★	★	★	★	★	13
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June 2016

			4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30		

- ⬡ Holiday/Breaks (No classes for Students/Teachers)
 - Professional Learning (No classes for Students)
 - ▲ Staff Work Day (No classes for Students)
 - Comp/Professional Learning (No classes for Students)
 - New Teacher Professional Learning
- Early Dismissal Dates & Times:**
 Oct 21, Dec 18, Feb 10, Mar 11, June 1
 Pre-K • 10 a.m. and 12:30 p.m.
 Elementary • 12:30 p.m.
 Jr. High • 1:00 p.m.
 High School • 11:30 a.m.
- Late Arrival Dates & Times for High School ONLY:**
 Sept 16, Oct 7, Nov 11, Jan 27, Mar 2, April 6
 High School start time • 10:15 a.m.
- STAAR Testing:**
 Dec 7-Dec 11 • High School
 March 29-31 • Elem., Junior High, and High School
 May 2-6 • High School
 May 9-12 • Elem. and Junior High
- () **Begin/End of grading periods**
 1st August 24- October 16
 2nd October 19-December 18
 3rd January 5-March 11
 4th March 21-June 1
- Bad Weather Make-Up Days:**
 Oct 12 and Feb 15
- 176 Instructional Days**
- Graduation Dates:**
 Alvin High School • June 4
 Manvel High School • June 3
 ASSETS • June 4
- 301 E. House St. Alvin, TX 77511-3568
 281.388.1130
 www.alvinisd.net
- *3/20/15 (STAAR testing dates updated)**

Name: _____ Date: _____ Per: _____

Alvin High School Bell Schedule

Late Arrival- 7 Periods
2014-15

1 st period	7:25 – 8:17 (52)	
2 nd period	8:23 – 9:15 (52)	
3 rd period	9:21 – 10:13 (52)	
4 th period	10:19 – 11:13 (54)	
A Lunch	11:13 – 11:43 (30)	1st Floor CM Bldg. B. Bldg. LK (Luke Kennedy),
5 th period	11:48 – 12:53 (65)	
5 th period	11:19 – 11:48 (29)	2nd Floor CM Bldg.
B Lunch	11:48 – 12:18 (30)	
5 th period	12:23 – 12:53 (30)	
5 th period	11:19 – 12:23 (64)	A Bldg. FAC, Gyms, Dance, U/G
C Lunch	12:23 – 12:53 (30)	
6 th period	12:59 – 1:51 (52)	
7 th period	1:57 – 2:50 (53)	

1 st period	10:15-10:40
2 nd period	10:45-11:10
A Lunch	11:10 – 11:40
5 th period	11:45 – 12:50
5 th period	11:15 – 11:45
B Lunch	11:45 – 12:15
5 th period	12:20 – 12:50
5 th period	11:15 – 12:20
C Lunch	12:20 – 12:50
3 rd period	12:55-1:20
4th period	1:25-1:50
6th period	1:55-2:20
7 th period	2:25-2:50

Pep Rally / Afternoon Event Schedule
2014-2015

1 st period	7:25 – 8:08
2 nd period	8:14 – 8:57
3 rd period	9:03 – 9:47
4 th period	9:53 – 10:36
6 th period	10:42 – 11:25
A Lunch	11:25 – 11:55
5 th period	12:01 – 1:15
5 th period	11:31 – 12:00
B Lunch	12:00 – 12:30
5 th period	12:35 – 1:05
5 th period	11:31 – 12:35
C Lunch	12:35 – 1:05

Alvin High School
2014-2015 Early Dismissal Bell Schedule

1 st Period	7:25 – 7:54
2 nd Period	8:00 – 8:29
3 rd Period	8:35 – 9:04
4 th Period	9:10 – 9:39
5 th Period	9:45 – 10:14
6 th Period	10:20 – 10:49
7 th Period	10:55 – 11:30

Name: _____ Date: _____ Per: _____

Name: _____ Date: _____ Per: _____

Characteristics of Life

Content objective: identify 9 traits that all living organisms have in common by sorting trait cards into 2 categories: trait living things share and traits living things do not share

Language objective: read to sort trait cards into categories that will identify traits all living organisms share

TEKS: B.9A, B.9D, B.4A, B.4B

Essential question: _____

Questions:	Notes:
	CHARACTERISTICS OF ALL LIVING ORGANISMS
	• Cells
	*smallest living unit
	* unicellular describes organisms made of one cell
	* multicellular describes organisms made of many cells
	• Metabolism
	*all organisms obtain and use energy
	*autotrophs obtain energy from the food they produce through photosynthesis
	*heterotrophs obtain energy from the food they eat or absorb
	• Development
	*maturing with age
	• Evolve
	*biodiversity makes some organisms more successful than others resulting in changes in populations over time
	Biodiversity - differences in living organisms
	• Growth
	*a result of cell division in multicellular and unicellular organisms
	• Reproduction
	*sexual - involved combining DNA from 2 different organisms; Results in genetic diversity
	*asexual - occurs when organisms inherit DNA from only one parent
	• Contain DNA
	*a set of instructions that tells cells how to make proteins
	• Biomolecules
	*large molecules necessary for life; protein, lipid, carbohydrate, nucleic acids

Name: _____ Date: _____ Per: _____

	<ul style="list-style-type: none">• Homeostasis
	The ability of an organism (a living thing) to respond to the environment and keep the body and individual cells stable
Summary	

Highlight the following vocab terms in the notes on pages 2 and 3:

- | | |
|--------------|---------------|
| Cell | Homeostasis |
| Organism | Evolve |
| Metabolism | Biomolecules |
| Reproduction | Biodiversity |
| Growth | Multicellular |
| Development | Unicellular |
| DNA | |

Write 3 level one questions (see Appendix page 200) in the question column.
Highlight the questions and answers to the questions in 3 different colors.

Example:

Highlight vocabulary in pink

Question and answer 1; green

Question and answer 2; blue, etc.

Characteristics of Life

Content objective: identify 9 traits that all living organisms have in common by creating a graphic organizer that identifies and describes the traits

Language objective: read to create a graphic organizer that describes traits all living organisms share

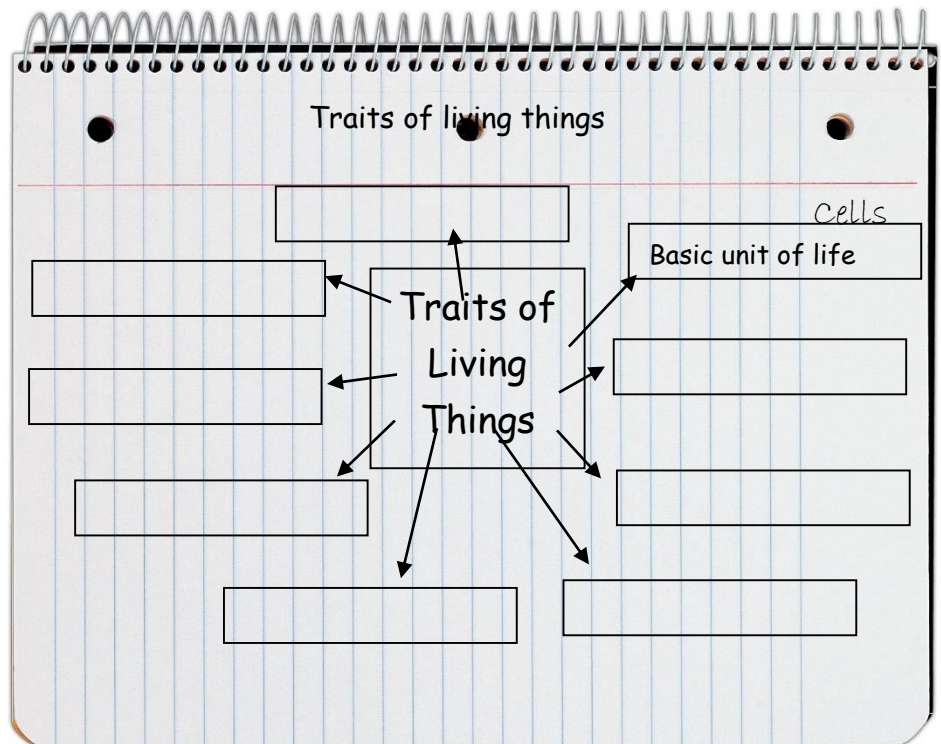
TEKS: B.9A, B.9D, B.4A, B.4B

Essential question: _____

Traits of Living Things Graphic Organizer

Directions:

1. This assignment will be completed on page 5.
2. In the space between the wire and the red margin line, write the date you were absent on the next page chronologically in your spiral.
3. Cut out all of the individual rectangles on the next page.133.
4. Attach the largest rectangle (the title) in the center of the page.
5. Put the remaining rectangles around the title in any order or arrangement that will allow you to draw an arrow from the title to each rectangle.
6. You also need to leave room to write a word above each rectangle.
7. Using your Traits of Living Things Notes, write the matching term above the rectangle containing a description of it.
 - a. Cells (this one has been done for you)
 - b. Metabolism
 - c. Development
 - d. Evolve
 - e. Reproduce
 - f. Contain DNA
 - g. Grow
 - h. Homeostasis
 - i. Biomolecules



Name: _____ Date: _____ Per: _____

Traits of Living Things Graphic Organizer

Name: _____ Date: _____ Per: _____

Characteristics of Life

Content objective: use your notes or graphic organizer to match the terms and pictures that correspond with them and write the definitions.

Language objective: read and write using sentence stems to match definitions with the terms and pictures that depict the characteristics living things share.

TEKS: B.9A, B.9D, B.4A, B.4B

Essential question: _____

"Biocab" (Biology Vocabulary)

Directions: In the left column, select a picture from page 135 which best shows the meaning of the term, cut it out, and glue it in. **COLOR THE PIC!** In the right column, write the definition for each term **IN A COMPLETE SENTENCE**. DO NOT USE PRONOUNS (it, they, he, she, them, those etc.)

Biology	_____ _____ _____
Cells	_____ _____ _____
Metabolism	_____ _____ _____
Reproduction	_____ _____ _____
Growth	_____ _____ _____

Name: _____ Date: _____ Per: _____

Development	<hr/> <hr/> <hr/>
Homeostasis	<hr/> <hr/> <hr/>
Evolving	<hr/> <hr/> <hr/>
Biomolecules	<hr/> <hr/> <hr/>
Biodiversity	<hr/> <hr/> <hr/>
Multicellular	<hr/> <hr/> <hr/>
Unicellular	<hr/> <hr/> <hr/>
Organism	<hr/> <hr/> <hr/>
DNA	<hr/> <hr/> <hr/>

Name: _____ Date: _____ Per: _____

Energy and Matter

Content objective: analyze the flow of energy through trophic levels using various models including food chains, food webs, and ecological pyramids.

Language objective: read to determine the meaning of words associated with the flow of matter through an ecosystem.

TEKS: B12.C, B3.E

Essential question: _____

Directions: Read the following pages and highlight the vocabulary.

Energy in an ecosystem

One way to study the interactions within an ecosystem is to trace how energy flows through the system. All organisms are classified by the way they obtain energy.

How do autotrophs get energy?

All green plants and other organisms that produce their own food are the primary producers of food in an ecosystem. They are called autotrophs. An **autotroph** is an organism that captures energy from sunlight (photosynthesis) or inorganic substances to produce food. Autotrophs make energy available for all other organisms in the ecosystem.

How do heterotrophs differ from autotrophs?

A **heterotroph**, also called a consumer, is an organism that obtains energy by consuming other organisms. A heterotroph that consumes only plants is an herbivore. Cows, rabbits, and grasshoppers are herbivores.

Heterotrophs that prey on other heterotrophs are known as **carnivores**. Wolves and lions are carnivores. **Omnivores** eat both plants and animals. Bears, humans, and mockingbirds are examples of omnivores.

Name: _____ Date: _____ Per: _____

How do detritivores help an ecosystem?

Detritivores decompose organic materials in an ecosystem and return the nutrients to the soil, air, and water. The nutrients then become available for use by other organisms. Worms and some insects are detritivores. They feed on animals that have died. Fungi and bacteria are **saprophytes** or decomposers. They break down dead organisms by secreting enzymes and absorbing the nutrients.

Detritivores play an important role in the biosphere. Without them, the biosphere would be littered with dead organisms. The nutrients in these dead organisms would not be available to other organisms. Detritivores make these nutrients available for use by other organisms.

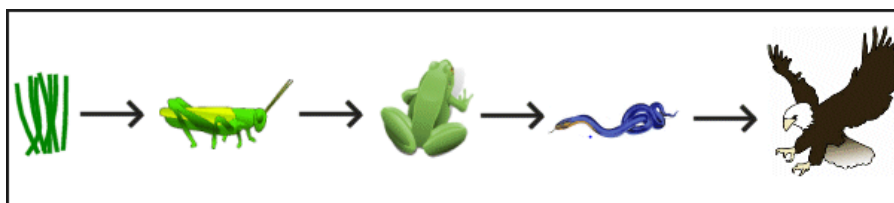
Models of Energy Flow

Ecologists study feeding relationships to learn how energy flows in an ecosystem. Ecologists use food chains and food webs to describe the flow of energy. Each step in a food chain or food web is called a **trophic level**. Autotrophs are the first trophic level in all ecosystems. Heterotrophs make up the remaining levels.

Organisms at the first trophic level produce their own food. Organisms at all other levels get energy from the trophic level before it.

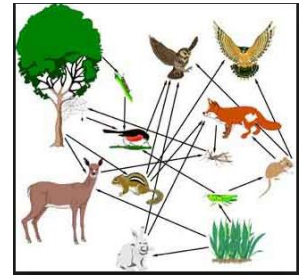
What is a food chain?

A **food chain** is a simple model that shows how energy flows through an ecosystem. A typical food chain is shown in the figure below. Each organism gets energy from the organism it eats. The flow of energy is always one way-into the consumer as shown by the direction of the arrows. An organism uses part of this energy to build new cells and tissues. The remaining is released into the environment as heat and is no longer available.



What does a food web show?

Feeding relationships are usually more complex than a single food chain model can show. Most organisms feed on more than one species. A **food web** is a model that shows all the possible feeding relationships in an ecosystem. Food webs give a more accurate picture of how energy flows in an ecosystem that contains many food chains.



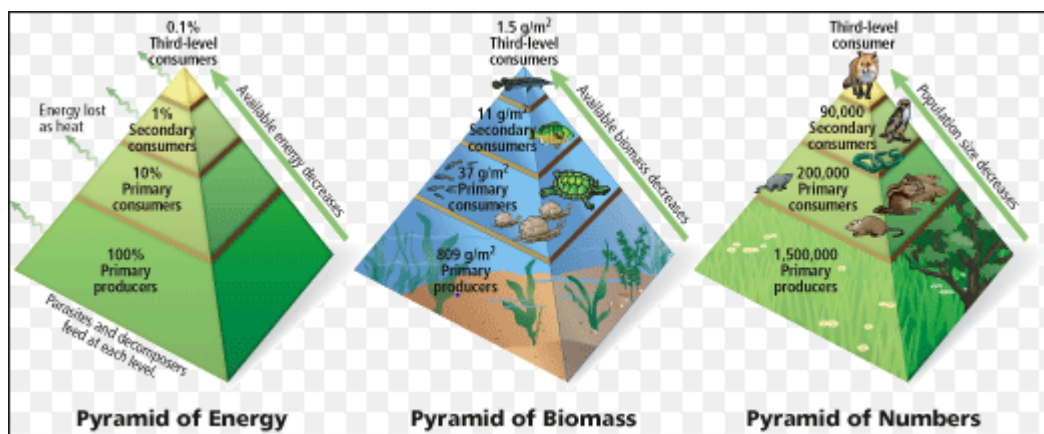
What do ecologists model with an ecological pyramid?

Ecologists also use ecological pyramids to model how energy flows through ecosystems. A pyramid model can be used to show energy flow in three different ways. Each level of the pyramid represents a trophic level.

A pyramid of energy indicates the amount of energy available to each trophic level. In the energy pyramid below, notice that about 90% of the available energy is used by the organisms at each level. Some of the energy is used for cellular processes. Some is released into the environment as heat. Only about 10% is available to the next level of the pyramid.

The biomass, or total mass of living matter at each trophic level, can also be modeled by an ecological pyramid. In a pyramid of biomass, each level shows the amount of biomass consumed by the level above it.

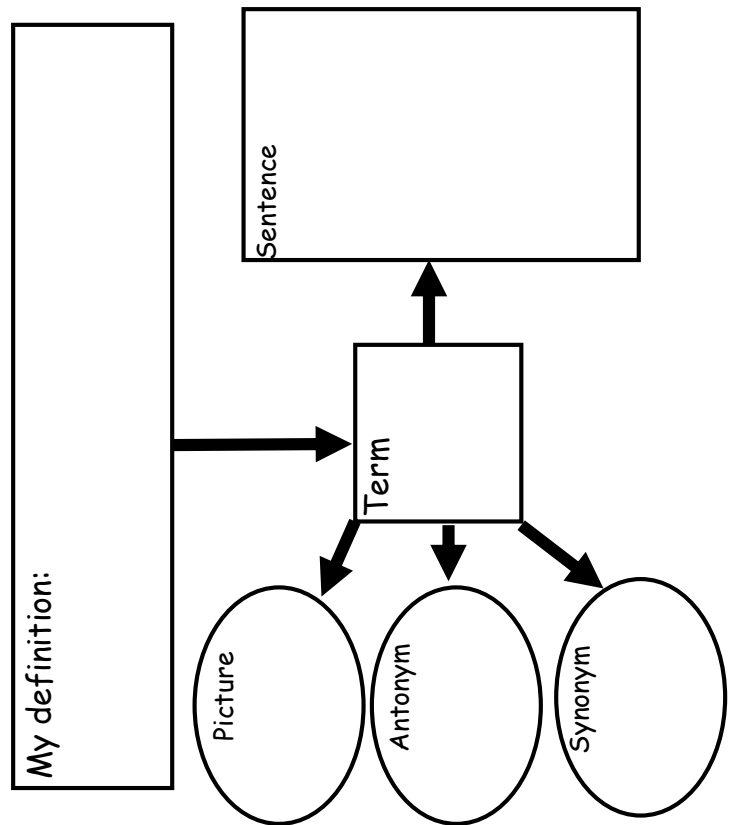
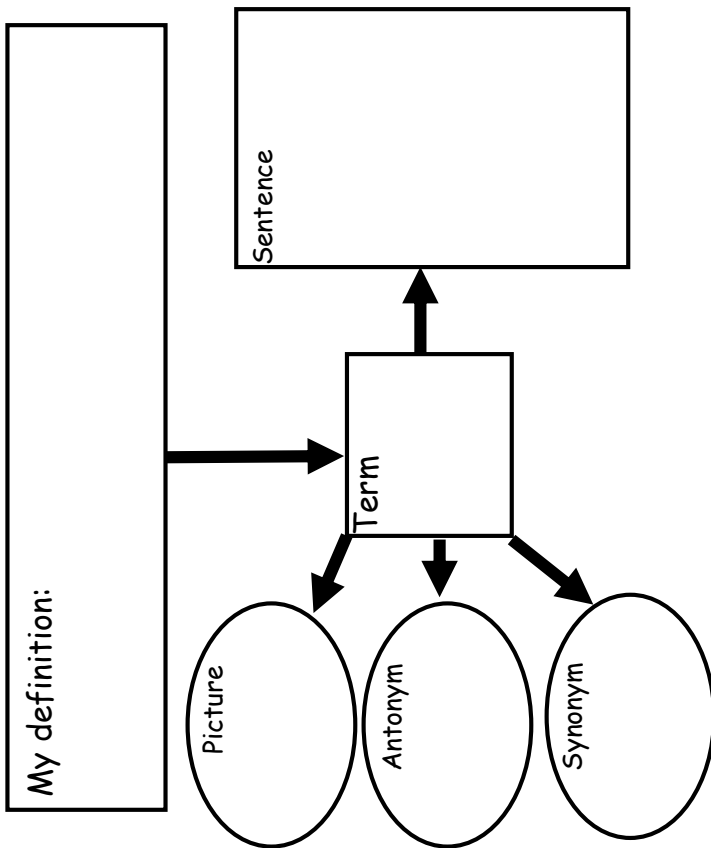
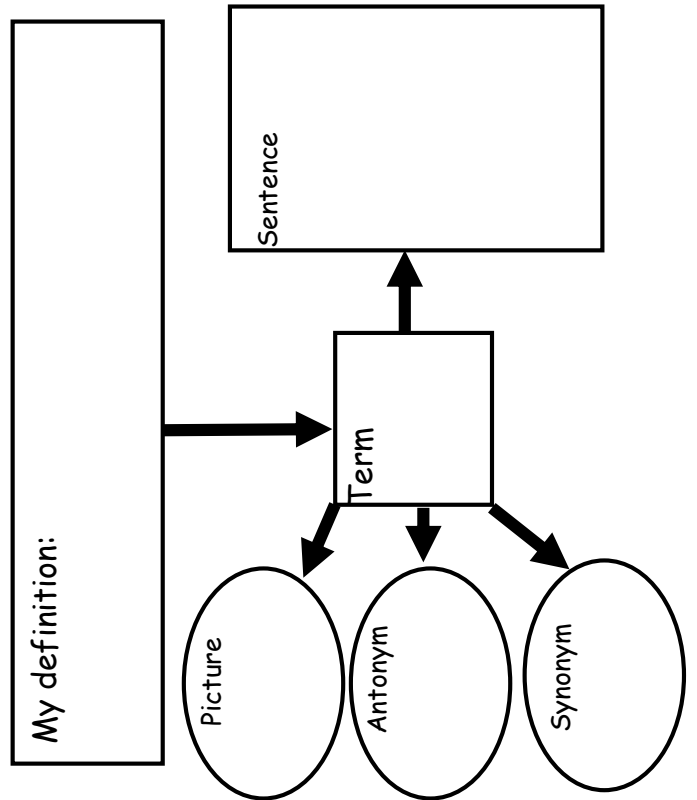
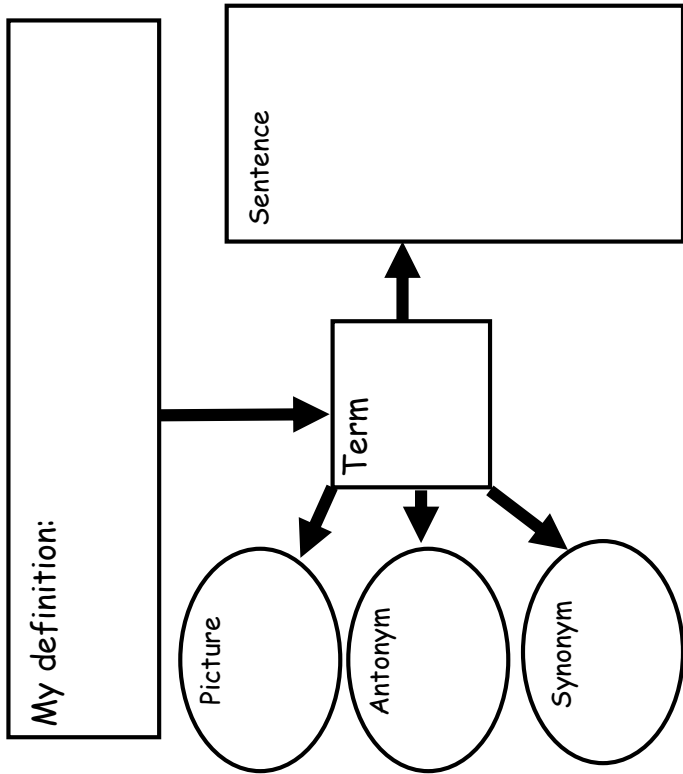
A pyramid of numbers shows the number of organisms consumed at each trophic level in an ecosystem. The number decreases at each level because less energy is available to support organisms.



Name: _____ Date: _____ Per: _____

Name: _____ Date: _____ Per: _____

Select the 4 terms that you are the least familiar with. Use those terms to fill in the boxes below.



Name: _____ Date: _____ Per: _____

Energy and Matter

Content objective: analyze the flow of energy through trophic levels by building food chains, webs and ecological pyramids.

Language objective: speak to communicate with partners about how to build a food web.

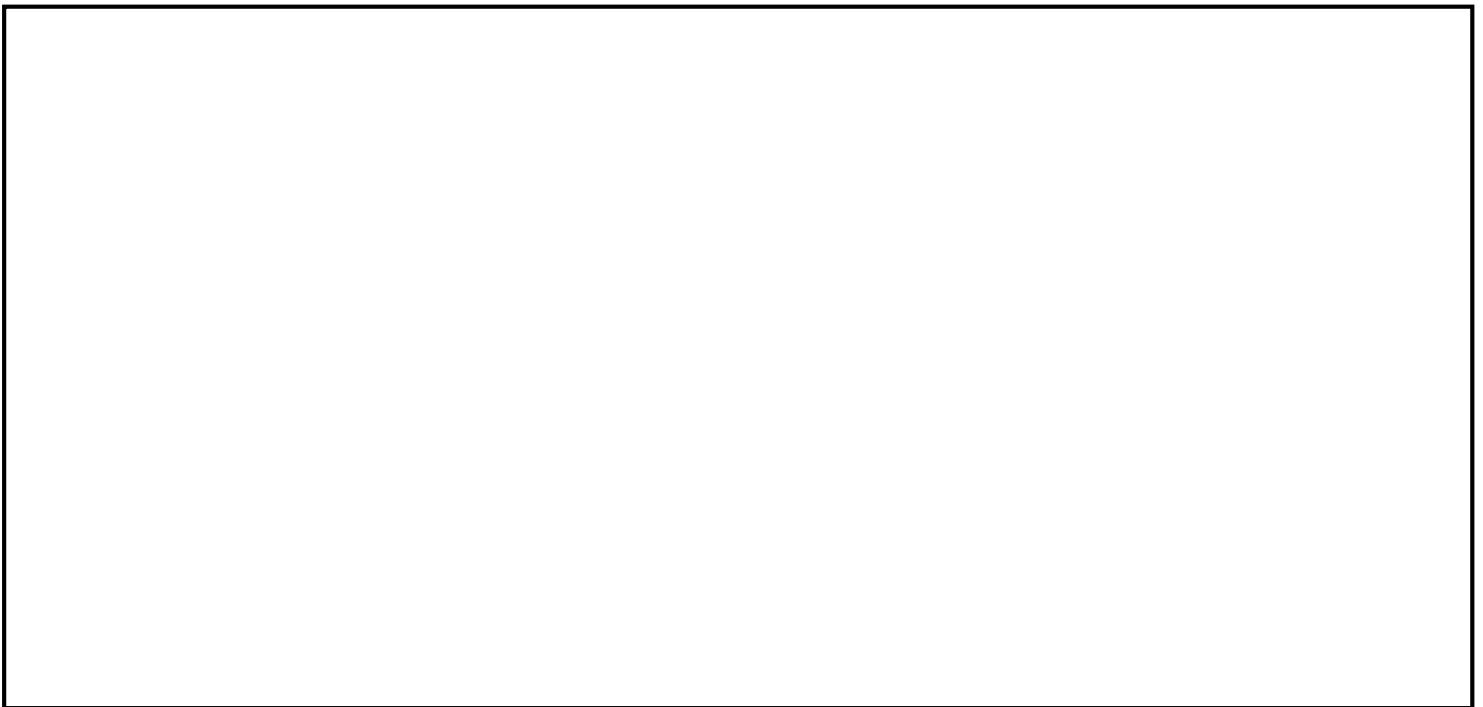
TEKS: B12.C, B3.E

Essential question: _____

Use the manipulatives provided by your teacher (also found in the appendix) to create several food chains. Draw your food chain in the space below and label the following: producer, carnivore, herbivore, primary consumer, secondary consumer, flow of energy.



Use the manipulatives provided by your teacher (also found in the appendix) to create a food web. Draw your food web in the space below and label the following: producer, carnivore, herbivore, primary consumer, secondary consumer, flow of energy.



Name: _____ Date: _____ Per: _____

Analysis questions:

1. List 4 complete food chains that can be found in the food web you drew. An example has been provided for you.

a. Berries -> butterfly -> frog -> snake -> hawk -> earthworm.

b. _____

c. _____

d. _____

e. _____

2. Select any organism in the food web except the earthworm, and put an "X" over it. This represents the extinction of this organism. Answer the following questions in COMPLETE sentences.

a. Which organism in your food web became extinct?

b. What does it mean for an organism to become extinct?

c. What do you think might have caused the extinction of your organism?

d. What effect will the extinction of your organism have on the organisms above it in the web?

e. What effect will the extinction of your organism have on the organisms below it in the web?

Name: _____ Date: _____ Per: _____

Ecological Pyramids

Content objective: analyze the flow of energy through trophic levels by building food chains, webs and ecological pyramids.

Language objective: speak to communicate with partners about how to build an ecological pyramid.

TEKS: B12.C, B3.E

Essential question: _____

Materials:

- Pyramid template (page 137)
- Map pencils
- Glue or tape
- Scissors

Directions:

- Put your name on the "name" tab.
- Color the following:
 - First (bottom) level light green
 - Second level yellow
 - Third level light blue
 - Fourth level light red
 - Fifth level light orange
- On one of the sides, label each level with the following terms. (Note: the terms are NOT in the correct order.) Write the definition of each term.
 - Primary consumer
 - Tertiary consumer
 - Producer
 - Secondary consumer
 - 4th order consumer



Name: _____ Date: _____ Per: _____

- On a second side, label each level with the following terms. (Note: the terms are NOT in the correct order.) Draw an example of each using the food web you drew on the previous page. Also, order the numbers of organisms for each level using the information in the chart on the right.

Numbers of organisms
512
1523
1
100,012
32

- Autotroph
- 3rd order heterotroph
- 2nd order heterotroph
- 4th order heterotroph
- 1st order heterotroph

- On a 3rd side, label the middle of each level with the following terms. (Note: the terms are NOT in the correct order.) On the right side, calculate the % of energy that will be available for each of the labels using 5,000j at the producer level. On the left side, write the biomass from the chart on the correct level.

Biomass
17kg
138kg
1.5kg
15,429kg
1492kg

- Producers
- Secondary carnivores
- Herbivores
- Tertiary carnivores or omnivores
- Primary carnivores or omnivores

- On the last side do the following:
 - On each of the level, write a sentence or two describing the level. Use the following terms in each sentence as appropriate.
 - Biomass
 - Energy
 - Herbivore
 - Carnivore
 - Omnivore
 - Autotroph
 - Heterotroph
 - Primary consumer

- Fold your pyramid on the lines radiating from the center and glue the tab.
- Answer the analysis questions.

Name: _____ Date: _____ Per: _____

Ecological Pyramids Analysis Questions

Analysis questions: write the answers in **COMPLETE SENTENCES!**

1. What are 2 terms used to describe the organisms on level 1?

2. What are 3 terms used to describe the organisms on level 2?

3. What are 3 terms used to describe the organisms on level 3?

4. What are 3 terms used to describe the organisms on level 4?

5. What are 2 terms used to describe the organisms on level 5?

6. What do the organisms in each heterotrophic level eat?

7. Explain why omnivores may not always stay in the same trophic level.

8. Which level has the most biomass?

9. Which level contains the most energy?

10. What is the source of energy for all of the organisms in the pyramid?

11. What percent of the available energy goes to the next trophic level?

12. Where does the energy "lost" between levels go?

13. Why are there fewer organisms at the top of the pyramid?

14. What does a biomass pyramid show?

15. What does an energy pyramid show?

16. What does a numbers pyramid show?

Name: _____ Date: _____ Per: _____

Symbiosis (and Other Kinky Relationships)

Content objective: interpret relationships including predation, parasitism, commensalism, mutualism, and competition among organisms.

Language objective: write to describe relationships among organisms.

TEKS: B12.A

Essential question: _____

What is symbiosis?

Some species survive because of relationships with other species. A relationship in which two organisms live together in close association is called **symbiosis**. The three kinds of symbiosis are mutualism, commensalism, and parasitism.

Mutualism: 😊😊 A relationship between two species that live together and both benefit from each other is called **mutualism**. A lichen is a mutualistic relationship between algae and fungi. The algae provide food for the fungus. The fungus provides a habitat (place to live) for the algae. Food and shelter are the benefits of this relationship.



Lichen



Commensalism 😊 :| A relationship in which one organism is helped and the other organism is neither harmed or helped is called **commensalism**. For example, birds make nests in trees. This does not harm or help the tree, but the birds benefit from a safe habitat.

Name: _____ Date: _____ Per: _____

Parasitism: 😊 ☹️ A relationship in which one organism benefits and another organism is harmed is called **parasitism**. When a tick lives on a dog, it is good for the tick but bad for the dog. The tick gets food and shelter, but the dog might get sick. The tick is the **parasite** and is helped by the relationship. The dog is the **host**. Usually a parasite does not kill the host, but it might harm or weaken it. If the host dies, the parasite will also die, unless it can find a new host.



Other relationships

Predator/prey: The act of one organism consuming another organism for food is **predation**. Most organisms are heterotrophs which obtain their food by eating other organisms. If you have seen a cat stalk and capture a mouse, you have seen a predator catch its prey. The organism that is the hunter - the cat- is the **predator**. The organism that is hunted - the mouse- is the **prey**. Predators can be plants, animals, or protists.



Competition: **Competition** occurs when organisms need to use the same resource at the same time. Organisms compete for such resources such as food, water, space, and light. When strong organisms compete with weak organisms, the strong organisms usually survive. During a drought, water might be scarce for many organisms. Strong organisms will use the available water. Weak organisms might die or be forced to move to another location.



The competition for stumps is fierce!

Name: _____ Date: _____ Per: _____

Illustrating relationships

Directions:

- Using the chart below, choose 2 imaginary organisms to illustrate each of the 5 types of relationships discussed on pages 19-20.
- Cut out pages and glue together on page 139-143.
- On the first page, write a title.
- In the space on the bottom of each page, describe how the needs of the organisms are met or not met depending on the type of relationship. (You may have to make up some extra information.)
- Write the type of relationship on the tab.
- In the center of the page, draw and color a picture that shows what type of relationship the organisms have.

ORGANISM INTERACTIONS	
Imaginary organism	Organism's need
Cratz	A pollinator to help with reproduction
Gimblobby	A dark environment
Lunic	Help digesting food
Majooka	Lots of exposure to sun
Scuzit	Protection from herbivores
Elladock	Slime to lay eggs in
Thustle	Someone to clean its eyes
Jory	A deep hole to live in
Gollyper	Blood for food
Zumble	An anaerobic environment
Coblatty	Small herbivores for food
Blubbussle	A way to move around.
Plonk	Trees to nest in

Name: _____ Date: _____ Per: _____

Glue your Relationship book here

Name: _____ Date: _____ Per: _____

Name: _____ Date: _____ Per: _____

Limiting Factors

Content objective: create a graph of population changes in Kaibab due to limiting factors resulting from human intervention.

Language objective: read to understand how limiting factors can affect populations.

TEKS: B12.C, B3.E

Essential question: _____

The Lesson of the Kaibab



Introduction:

The environment may be altered by forces within the biotic community, as well as by relationships between organisms and the physical environment. The **carrying capacity** of an ecosystem is the maximum number of organisms that an area can support on a sustained basis. The density of a population may produce such profound changes in the environment that the environment becomes unsuitable for the survival of that species. For instance, overgrazing of land may make the land unable to support the grazing of animals that lived there.

Objectives:

- Graph data on the Kaibab deer population of Arizona from 1905 to 1939
- Determine factors responsible for the changing populations
- Determine the carrying capacity of the Kaibab Plateau

Name: _____ Date: _____ Per: _____

Background

Before 1905, the deer on the Kaibab Plateau were estimated to number about 4,000. The average carrying capacity of the range was then estimated to be about 30,000 deer. On November 28th, 1906, President Theodore Roosevelt created the Grand Canyon National Game Preserve to protect the "finest deer herd in America."

Unfortunately, by this time the Kaibab forest area had already been overgrazed by sheep, cattle, and horses. Most of the tall grasses had been eliminated. The first step to protect the deer was to ban all hunting. In addition, in 1907, The Forest Service tried to exterminate the predators of the deer. Between 1907 and 1939, 816 mountain lions, 20 wolves, 7,388 coyotes and more than 500 bobcats were killed.

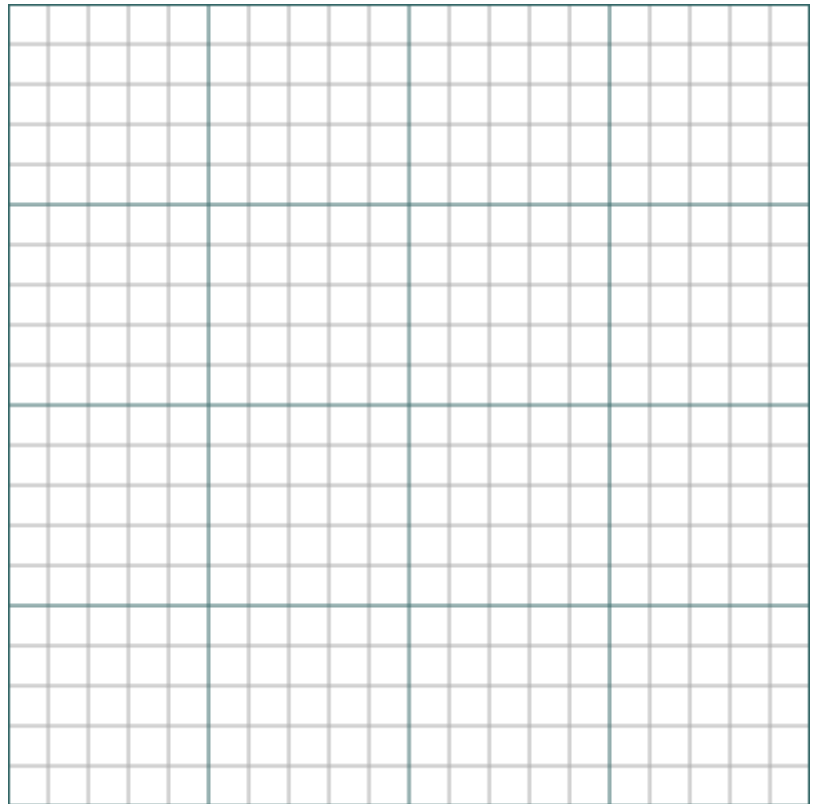
Signs that the deer population was out of control began to appear as early as 1920 - the range was beginning to deteriorate rapidly. The Forest Service reduced the number of livestock grazing permits. By 1923, the deer were reported to be on the verge of starvation and the range conditions were described as "deplorable." The Kaibab Deer Investigating Committee recommended that all livestock not owned by local residents be removed immediately from the range and that the number of deer be cut in half as quickly as possible. Hunting was reopened, and during the fall of 1924, 675 deer were killed by hunters. However, these deer represented only one-tenth the number of deer that had been born that spring. Over the next two winters, it is estimated that 60,000 deer starved to death. Today, the Arizona Game Commission carefully manages the Kaibab area with regulations geared to specific local needs. Hunting permits are issued to keep the deer in balance with their range. Predators are protected to help keep herds in balance with food supplies. Tragic winter losses can be checked by keeping the number of deer near the carrying capacity of the range.

Name: _____ Date: _____ Per: _____

DATA

1. Graph the deer population data. Label each axis and title the graph.

DATA TABLE	
Year	Deer Population
1905	4,000
1910	9,000
1915	25,000
1920	65,000
1924	100,000
1925	60,000
1926	40,000
1927	37,000
1928	35,000
1929	30,000
1930	25,000
1931	20,000
1935	18,000
1939	10,000



Name: _____ Date: _____ Per: _____

Analysis questions

1. During 1906 and 1907, what two methods did the Forest Service use to protect the Kaibab deer?

2. Were these methods successful? Use the data from your graph to support your answer.

3. Why do you suppose the population of deer declined in 1925, although the elimination of predators occurred?

4. Why do you think the deer population size in 1900 was 4,000 when it is estimated that the plateau has a carrying capacity of 30,000?

5. Why did the deer population decline after 1924?

6. Based on these lessons, suggest what YOU would have done in the following years to manage deer herds.

1915:

1923:

Name: _____ Date: _____ Per: _____

7. It is a criticism of many population ecologists that the pattern of population increase and subsequent crash of the deer population would have occurred even if the bounty had not been placed on the predators. Do you agree or disagree with this statement. Explain your reasoning.

8. What future management plans would you suggest for the Kaibab deer herd?

9. Describe some other environmental changes that could impact ecosystem stability.

Name: _____ Date: _____ Per: _____

Ecological Succession

Content objective: create a foldable that correctly illustrates and describes the steps of succession and how they affect species diversity and populations.

Language objective: write to describe the steps of succession in a foldable.

TEKS: B11.D, B12.F

Essential question: _____

Directions:

- Read the information below.
- Highlight the bold terms.
- Use the information to complete the manipulative double bubble map.
- After your teacher has checked your map, copy it on page 31 .
- Use the map to complete the secondary succession foldable.

Ecological Succession

Ecosystems constantly change. A tree falling in the forest affects the forest ecosystem. A fire might alter the forest habitat so much that some species cannot survive while others can thrive. The process of one community replacing another as a result of changing **abiotic** (non-living; rock, water, air) and **biotic** (living) factors is called **ecological succession**.

How does soil form in primary succession?

There are two types of ecological succession; primary succession and secondary succession. **Primary succession** is the establishment of a community in an area of bare rock that does not have topsoil. For example, suppose a lava flow alters an ecosystem. The lava hardens to form bare rock. Usually, lichens begin to grow on the rock first. Because lichens and some mosses are among the first organisms to appear, they are called **pioneer species**.

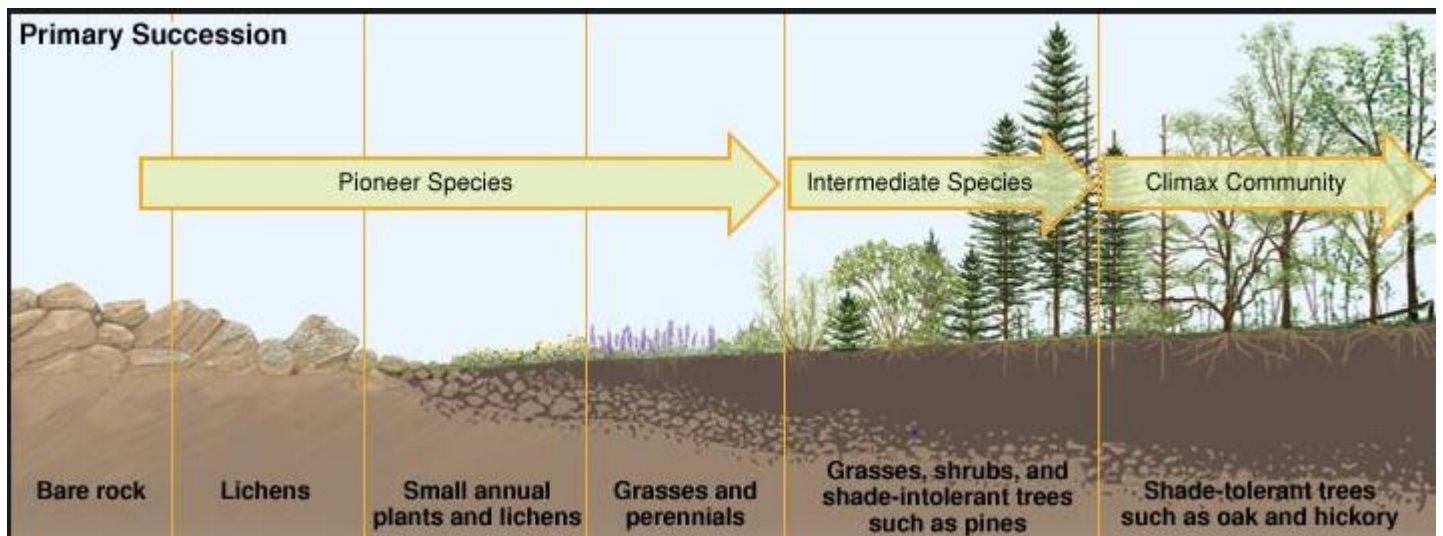


Lichens growing on rock

Name: _____ Date: _____ Per: _____

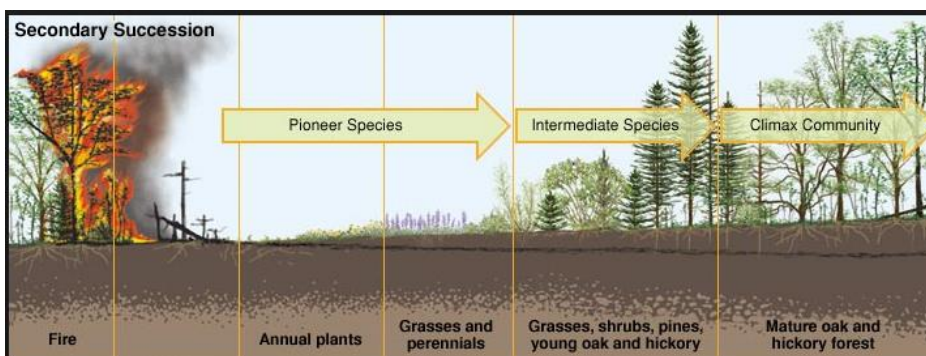
Pioneer species physically and chemically break down rocks. As pioneer species die, their decaying organic materials mix with small pieces of rock. This is the first stage of soil development. Small weedy plants begin to grow in the soil. These organisms die adding to the soil. Seeds brought by animals, water, and wind begin to grow. Eventually, enough soil forms to support trees and shrubs.

It might take hundreds of years for the ecosystem to become balanced and achieve equilibrium. When an ecosystem is in **equilibrium**, there is no net change in the number of species. New species come into the community at about the same rate that others leave the community.



How does secondary succession occur?

Disturbances such as fire or flood can disrupt a community. After a disturbance, new species of plants and animals might occupy the habitat. **Secondary succession** is the orderly and predictable change that takes place after a community of organisms has been removed but the soil remains. Pioneer species begin the process of restoring a habitat after a disruption.



Name: _____ Date: _____ Per: _____

Ecological Succession

Content objective: create a foldable that correctly illustrates and describes the steps of succession and how they affect species diversity and populations.

Language objective: write to describe the steps of succession in a foldable.

TEKS: B11.D

Essential question: _____

Comparing Primary and Secondary Succession

Illustrating secondary succession foldable; activity page 145; glue here.

Name: _____ Date: _____ Per: _____

Taxonomy and classification

Content objective: Define taxonomy, discuss its importance; classify organisms based on similarities and differences.

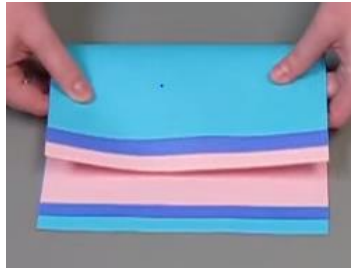
Language objective: speak to name the 7 levels of classification in order from largest to smallest.

TEKS: B8.A, B8.B

Essential question: _____

Directions: go to www.youtube.com and search "Classification of Living Things" by Mark Drollinger. Use the video and the following directions to make a foldable.

1. Obtain 4 sheets of color paper from your teacher.
2. Stagger the papers and fold as illustrated.
3. Put a thin bead of glue just below each fold.



4. Write the title and your name, date, and period on the top flap.
5. The flaps should have the name of the level of classification on the visible space.
6. Under the flap should be the pictures of the animals, crossing off the ones that don't belong. The pictures are on page 147.
7. Explain why they don't belong there.
8. Explain why the remaining ones DO belong there.

Name: _____ Date: _____ Per: _____

Levels of Taxonomic Classification

Glue foldable here

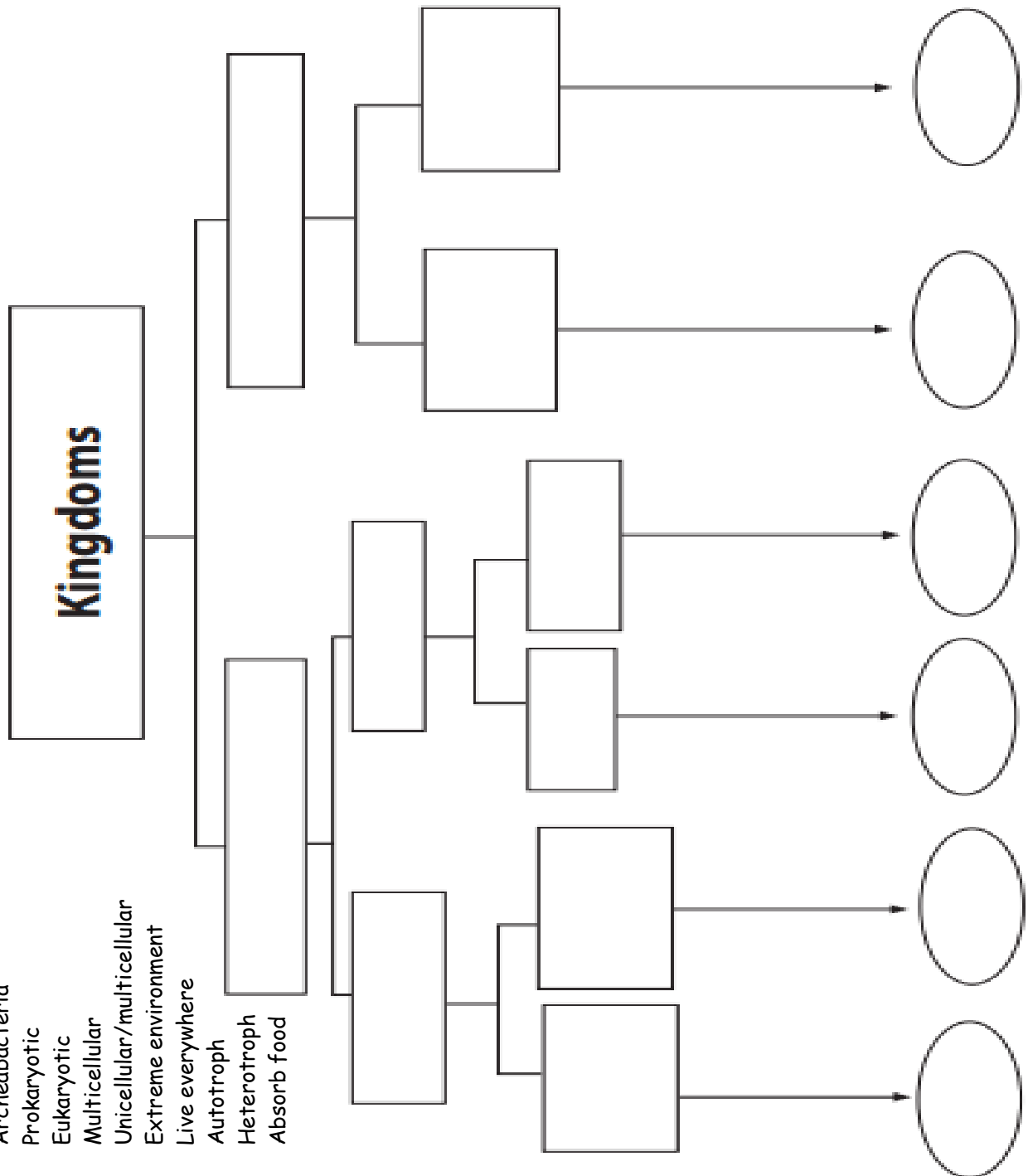
Taxonomy and classification

Content objective: compare characteristics of taxonomic groups.

Language objective: read to match a description of a kingdom of organisms with its picture.

TEKS: B8.A, B8.B, B8.C

Essential question: _____



- Plant
- Animal
- Fungus
- Protist
- Eubacteria
- Archeabacteria
- Prokaryotic
- Eukaryotic
- Multicellular
- Unicellular/multicellular
- Extreme environment
- Live everywhere
- Autotroph
- Heterotroph
- Absorb food

Name: _____

Date: _____

Per: _____

Six Kingdom Classification Chart

Characteristics	Archaea	Eubacteria	Protista	Fungi	Plantae	Animalia
Prokaryotic or Eukaryotic						
Unicellular or multicellular						
Method of obtaining energy						
Type of reproduction						
Method of movement						
Examples						

Name: _____ Date: _____ Per: _____

Unit 1 Test Review; Characteristics of living things, Ecology, Classification

1. Define the following terms

- | | | |
|------------------|--------------------------|-----------------------------|
| a. Biology | m. Autotroph | x. Symbiosis |
| b. Cells | n. Heterotroph | y. Mutualism |
| c. Metabolism | o. Carnivore | z. Commensalism |
| d. Reproduction | p. Detritivores | aa. Parasitism |
| e. DNA | q. Saprophyte | bb. Primary
succession |
| f. Homeostasis | r. Trophic level | cc. Secondary
succession |
| g. Evolve | s. Food chain | dd. Pioneer
species |
| h. Biomolecule | t. Food web | ee. Equilibrium |
| i. Biodiversity | u. Ecological
pyramid | |
| j. Multicellular | v. Biomass | |
| k. Unicellular | w. Omnivore | |
| l. Organism | | |

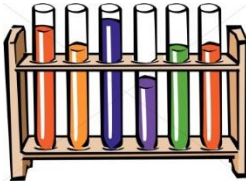





- List the characteristics that all living organisms share.
- How does removing or adding a population of organisms to a food web effect an ecosystem?
- Which level of a food web or energy pyramid contains the most energy?
- How much energy is "lost" between trophic levels?
- Where does this "lost" energy go?
- List some factors that can effect ecosystems.
- Describe the processes of primary and secondary succession.
- List the 6 kingdoms organisms are classified in to.
- List 5 characteristics and at least 1 example of organisms from each kingdom.
- List in order the levels of classification from largest to smallest.

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Identifying Lab Equipment

In your lab activity over the next several days, you will be using some of the following laboratory equipment. Complete the chart with your teacher to understand what the equipment is and how it is used.

Picture	Name	Purpose
		
		
		
		
		
		

Name: _____ Date: _____ Period: _____

Testing For Lipids

Lipids are biomolecules that store energy and are either fats or oils or are found in foods containing fat and oil.

Directions:

- Before testing for lipids, predict whether the food you are testing will contain them.
- Obtain a piece of paper towel from your teacher and put a small amount of food on the towel. Write the name of the food sample below. Set the towel aside until tomorrow.

Testing for Lipids			
Test Tube/Food Sample	Prediction: Lipids or no lipids?	Wet	Contains Lipids? (yes/no)
1. Water			
2. Chips			
3. Egg whites			
4. Corn oil			
5. Icing			
6. Milk			
7. Rice			
8. Sprite			
9. Chicken noodle soup			
10. Sunflower seeds			

Name: _____ Date: _____ Period: _____

To test for starch we _____

Testing for Starch			
Test Tube/Food Sample	Prediction: Starch or no starch?	Color of iodine	Contains Starch? (yes/no)
1. Water			
2. Chips			
3. Egg whites			
4. Corn oil			
5. Icing			
6. Milk			
7. Rice			
8. Sprite			
9. Chicken noodle soup			
10. Sunflower seeds			

To test for proteins we _____

Testing for Protein			
Test Tube/Food Sample	Prediction: Protein or no protein?	Color of Biuret	Contains Protein? (yes/no)
1. Water			
2. Chips			
3. Egg whites			
4. Corn oil			
5. Icing			
6. Milk			
7. Rice			
8. Sprite			
9. Chicken noodle soup			
10. Sunflower seeds			

Name: _____ Date: _____ Period: _____

To test for sugar we _____ then we
_____ the we look for _____.

Testing for Sugar			
Test Tube/Food Sample	Prediction: Sugar or no sugar?	Color of Benedict's Solution	Contains Sugar? (yes/no)
1. Water			
2. Chips			
3. Egg whites			
4. Corn oil			
5. Icing			
6. Milk			
7. Rice			
8. Sprite			
9. Chicken noodle soup			
10. Sunflower seeds			

Name: _____ Date: _____ Period: _____

Testing Food for Biomolecules Lab

Data: Use the data you have collected over the past few days to complete the chart below. Put a check mark in the boxes if the food contained the biomolecule.

Testing Foods for Biomolecules					
Food sample	Starches	Protein	Lipids	Sugar	Total
Water					
Chips					
Egg whites					
Corn oil					
Icing					
Milk					
Rice					
Sprite					
Chicken noodle soup					
Sunflower seeds					

Analysis Questions:

1. Biomolecules are molecules that are necessary to sustain life. Given this information, which of the foods above do you think would be the healthiest for you to eat? _____
explain your answer: _____

2. Why might it be advantageous to eat more than one type of food to maintain a healthy life style?

3. Protein is a biomolecule found in all body tissues, especially muscle. If you were a body builder, which 2 foods would you most likely want to eat more of? _____

4. On the Adkins diet, people eat a lot of protein and very little of any other food. Do you think this is a healthy diet to follow? _____ Explain your answer: _____

5. If someone gave you a food that you could not identify, how could you test it to see if it contains starches? Be specific in your answer.

For proteins? _____

For lipids? _____

For sugar? _____

Name: _____ Date: _____ Period: _____

The Amoeba Sisters and The Biomolecule Band



Content objective: compare monomers, structures and examples of carbs, lipids, proteins, and nucleic acids by analyzing cards that show their molecular design

Language objective: speak to correctly pronounce the monomers of biomolecules.

TEKS: B9A, B9D

Go to youtube.com and search Amoeba Sisters Biomolecule Band.

As you watch the video, answer the following questions:

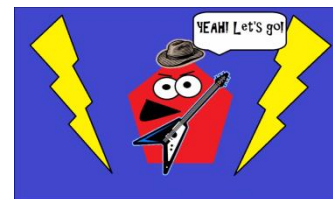
1. What is a monomer? _____

Carbohydrates are illustrated as a guitar-playing pentagon.

2. What is the nickname for carbohydrates? _____

3. What do carbs provide the body with? _____

4. What is the monomer these carbohydrates are made of?



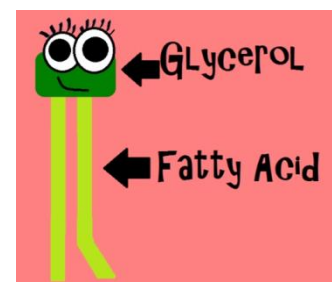
Lipids appear in the video as a piano-playing two-legged blob.

5. What is the nickname for lipids? _____

6. What are the 2 monomers of lipids? _____ and

7. List the functions of lipids:

- _____
- _____ for a long time
- _____



Proteins look like a 3 headed drummer!

8. What is the nickname for protein? _____

9. What is the monomer of a protein? _____

10. List the functions of proteins:

- _____
- _____ to help fight disease
- _____ which are proteins that speed up chemical reactions.



Nucleotides are made of three parts

11. Look at the part of the nucleotide with the eyes. What type of biomolecule do you think it is?

12. What is the monomer of nucleic acids? _____

13. What are 2 examples of nucleic acids? _____ & _____

14. The job of nucleic acids is to direct _____



Name: _____ Date: _____ Period: _____

15. Explain the picture below.



- a. C is _____
- b. H is _____
- c. O is _____
- d. N is _____
- e. P is _____

Summary:

Write a short paragraph to summarize what you have learned.

Name: _____ Date: _____ Period: _____

Biomolecule analysis:

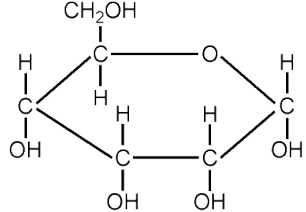
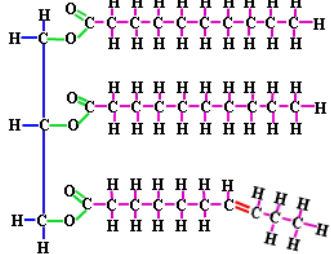
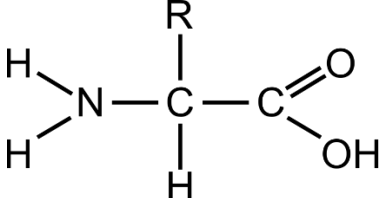
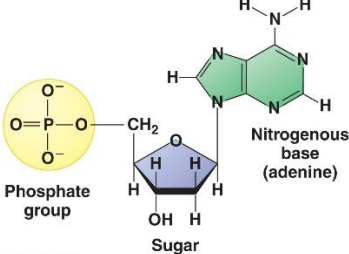
Content objective: compare the monomers, structures and examples of carbs, lipids, proteins, and nucleic acids by analyzing cards that show their molecular design

Language objective: speak to correctly pronounce the monomers of biomolecules.

TEKS: 9A, 9D, 2G, 2H

Essential Question:

Directions: Using the cards provided by your teacher and your "amoeba sister" notes to complete the chart.

Biomolecule	Monomer	Structure of monomer
		
		
		
		

Name: _____ Date: _____ Period: _____

<p>Examples</p> <hr/> <hr/> <hr/> <hr/> <hr/>	<p>Functions</p> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Examples</p> <hr/> <hr/> <hr/> <hr/> <hr/>	<p>Functions</p> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Examples</p> <hr/> <hr/> <hr/> <hr/> <hr/>	<p>Functions</p> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Examples</p> <hr/> <hr/> <hr/> <hr/> <hr/>	<p>Functions</p> <hr/> <hr/> <hr/> <hr/> <hr/>

Name: _____ Date: _____ Period: _____

Facts of Life (as told by biomolecules)

Content objective: use the chart on the previous pages to help you list 3 facts about each term related to biomolecules.

Language objective: read and write using sentence stems to match definitions with the terms and pictures that depict the characteristics living things share.

TEKS: B.9A, B.9D, B.4A, B.4B

Essential question: _____

Directions: Use the sentence subjects and predicates to create complete sentences about each of the terms below. Select the sentence that you feel is the most important and copy it into the appropriate space. Color the picture and glue it beside the term it represents. Pre-ap combine 2 sentences. Pictures can be found on page 149.



Make-up assignment: use the chart and amoeba sister's video answers to write 3 facts about each term. Each fact should be in a COMPLETE SENTENCE.

Polymer	_____ _____ _____
Monomer	_____ _____ _____
Carbohydrate	_____ _____ _____
Monosaccharide	_____ _____ _____
Proteins	_____ _____ _____

Name: _____ Date: _____ Period: _____

Amino acids	<hr/> <hr/> <hr/>
Lipids	<hr/> <hr/> <hr/>
Fatty acids and glycerol	<hr/> <hr/> <hr/>
Triglycerides	<hr/> <hr/> <hr/>
Nucleic Acids	<hr/> <hr/> <hr/>
Nucleotides	<hr/> <hr/> <hr/>
Macromolecule	<hr/> <hr/> <hr/>
Micro molecules	<hr/> <hr/> <hr/>

Name: _____ Date: _____ Period: _____

Scientific Processes and Biomolecule Test Review

1. Define the following terms
 - a. Dependent variable
 - b. Hypothesis
 - c. Independent variable
 - d. Control
 - e. Experiment
 - f. Biomolecule
 - g. Iodine
 - h. Biuret
 - i. Benedict's solution
 - j. Carbohydrate
 - k. Glucose
 - l. Monosaccharide
 - m. Disaccharide
 - n. Polysaccharide
 - o. Sugar
 - p. Starch
 - q. Lipids
 - r. Fatty acids
 - s. Triglyceride
 - t. Protein
 - u. Amino acid
 - v. Nucleic acid
 - w. DNA
 - x. Nucleotide
 - y. Polymer
 - z. Monomer
2. How is a polymer different from a monomer? How are they the same?
3. Proteins
 - a. What are the functions of a protein?
 - b. Give 3 examples.
 - c. What monomers are they made of?
 - d. Draw the basic structure.
 - e. Name the elements that make it up.
4. Lipids
 - a. What are the functions of a lipid?
 - b. Give 3 examples.
 - c. What monomers are they made of?
 - d. Draw the basic structure.
 - e. Name the elements that make it up.
5. Carbohydrates
 - a. What are the functions of a carbohydrate?
 - b. Give 3 examples.
 - c. What monomers are they made of?
 - d. Draw the basic structure.
 - e. Name the elements that make it up.
6. Nucleic acids
 - a. What are the functions of a nucleic acid?
 - b. Give 3 examples.
 - c. What monomers are they made of?
 - d. Draw the basic structure.
 - e. Name the elements that make it up.

Name: _____ Date: _____ Per: _____

Name: _____ Date: _____ Per: _____

Levels of Organization

Content objective: arrange pictures of different levels of organization from smallest to largest differentiating between organelles, organs and organisms.

Language objective: speak to communicate with partners about how to sort levels of organization cards.

TEKS: B10.C

Essential question: _____

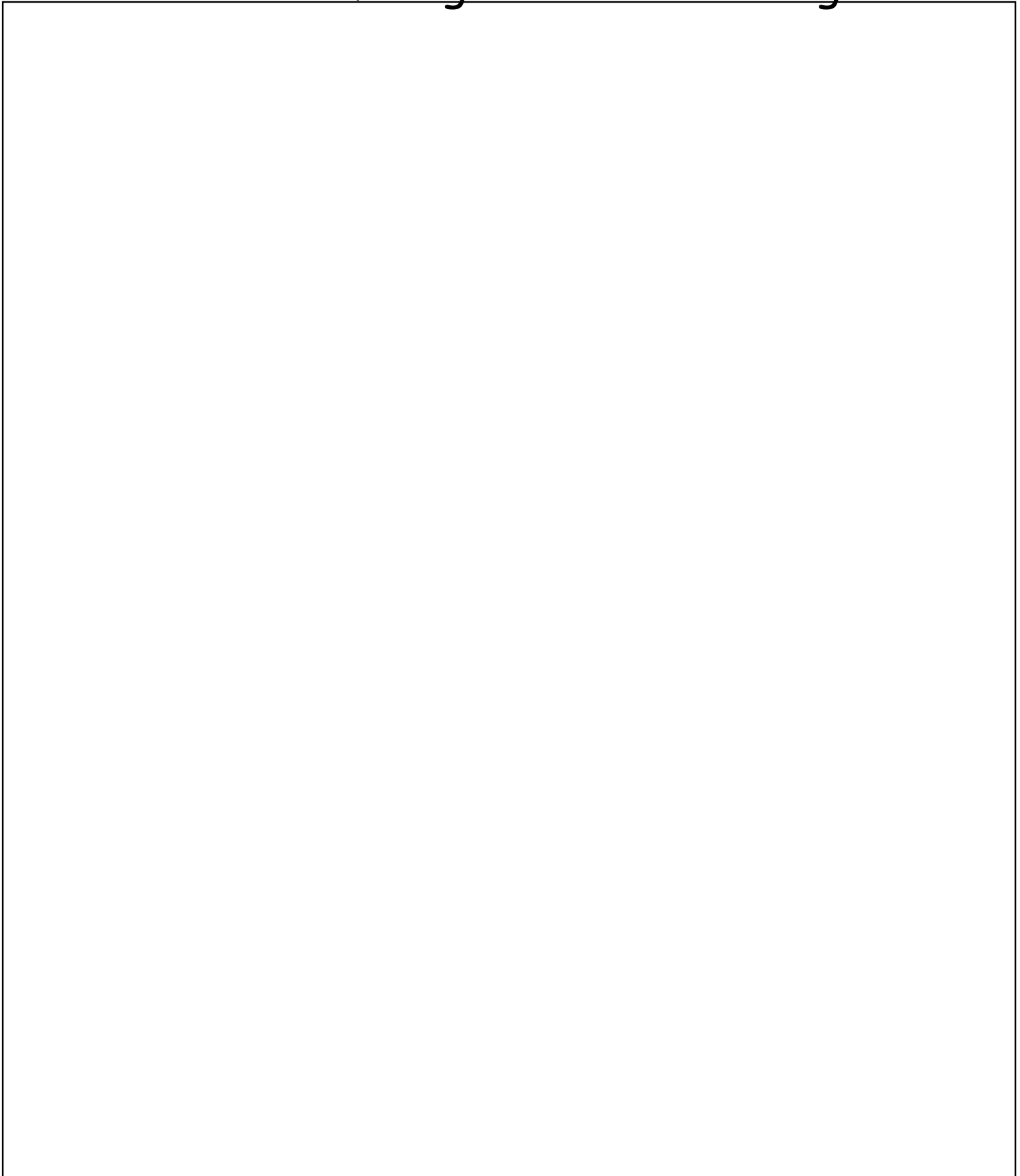
Directions:

- Arrange the cards on your table in order from smallest to largest.
- Have your teacher check the order.
- If the order is correct, copy it into the space below, making a quick sketch of the picture and writing the name of the level.
- Use arrows to indicate an increase in size.
- Match the statements in the chart to the pictures and write the correct statement below the picture.

Cell having similar jobs make tissues.	Many organ systems make organisms.
Organs are made of different tissues working together.	Organelles are made of biomolecules and work inside cells like tiny organs.
Cells are the smallest unit of life.	Atoms are the smallest unit of matter.
Atoms bond together to make biomolecules.	Organ systems are a group of organs that work together for the same job.

Name: _____ Date: _____ Per: _____

Levels of Organization Drawing

A large, empty rectangular box with a thin black border, occupying most of the page. It is intended for a student to draw a diagram illustrating the levels of organization in a biological system.

Name: _____ Date: _____ Per: _____

Glue the Levels of Organization
Activity 1 here; found on page 151

Name: _____ Date: _____ Per: _____

Glue the Levels of Organization
Activity 2 here; found on page 153

Name: _____ Date: _____ Per: _____

Cells

Content objective: brainstorm what cells are and how they are made to compare prokaryotic and eukaryotic cells.

Language objective: write to define the word cell.

TEKS: B4.A

Essential question: _____

Cut out and complete the cell booklet on activity page 155.

Glue your foldable here

Name: _____ Date: _____ Per: _____

Cells

Content objective: describe the role of scientists in the development of cell theory.

Language objective: write to define the word cell and list ideas of cell theory.

TEKS: B.3F

Essential question: _____

DIRECTIONS:

- Watch the youtube video “The Wacky History of Cell” Theory-Lauren Royal-Woods.
- In the space below, jot down the following info:
 - Their order of appearance in the video
 - Their contribution to the biology
 - One wacky fact about each

Name	Contribution
Hooke	
Virchow	
Schwann	
Schleiden	

Name: _____ Date: _____ Per: _____

Glue the old dead guys here.
Directions and pics are on
Pages 157-159

Name: _____ Date: _____ Per: _____

Ideas of Cell Theory

Glue the cell theory foldable activity from page 163 on this square.

Cell Specialization

Content objective: examine pictures of cells to identify drawings of specialized cells.

Language objective: read to determine how the structure of these cells determines its function.

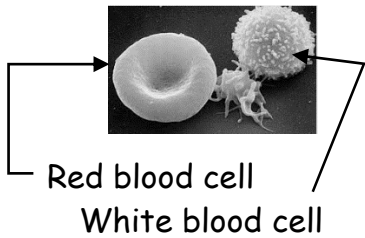
TEKS: B2.H, B3.E, B5.B

Essential question: _____

Directions:

- Examine the pictures of the plant and animal cells below to complete the activity on page 165.

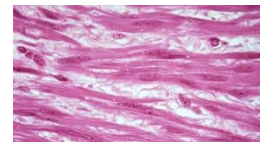
Animal cells



Sperm and egg



Neuron

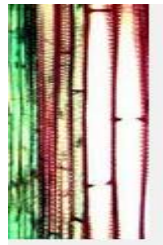


Muscle

Plant cells



Root
Hairs



Xylem &
Phloem



Stoma



Leaf
epidermis

Name: _____ Date: _____ Per: _____

Cell Specialization; Structure = Function

Glue the one of cell
specialization
foldable activities
from page 165 on
this square.

Glue the
other one
here

Name: _____ Date: _____ Per: _____

Cell Types; Prokaryotic and Eukaryotic

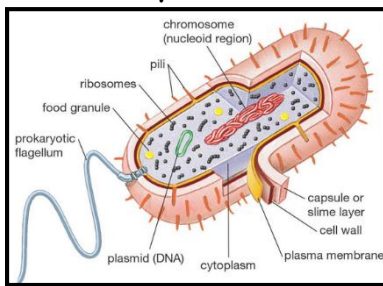
Content objective: compare and contrast prokaryotic and eukaryotic cells.

Language objective: write to record observations of prokaryotic and eukaryotic cells by looking at labeled pictures of each.

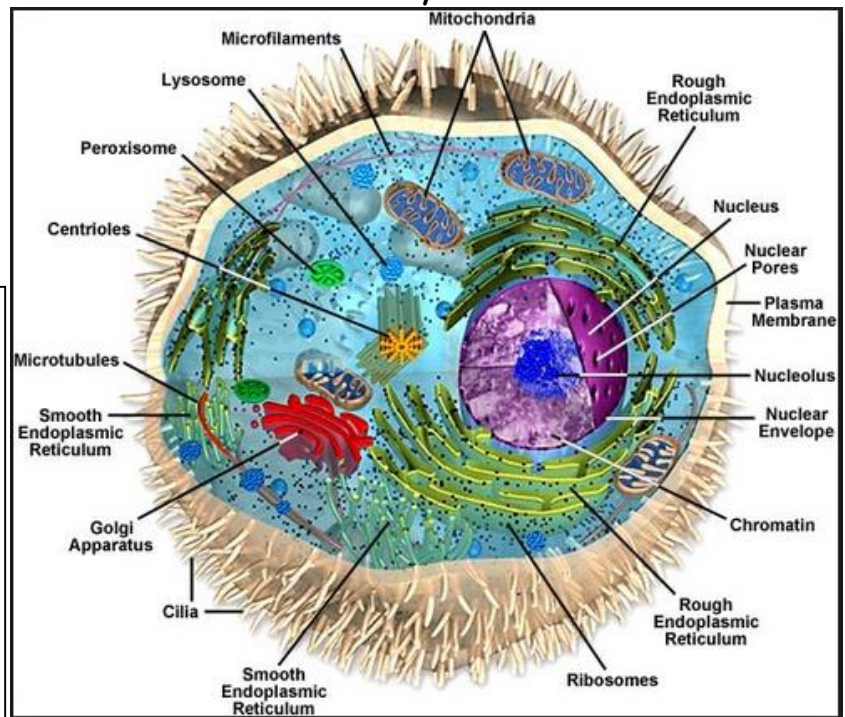
TEKS: B2.H, B3.E, B4.A

Essential question: _____

Prokaryotic cell



Eukaryotic cell



Directions:

Use your observations of the pictures of these 2 cells and the manipulatives to complete the double bubble map at your table. Have your teacher check your answers.

When all your answers are correct, copy the map into the space below.

Name: _____ Date: _____ Per: _____

Comparing Prokaryotic & Eukaryotic cells

Use the cut-out pieces on page 167 to complete this activity.

Glue Prokaryotic and Eukaryotic Cell Comparison Sheet here

© 2015 Creative Minds, LLC

Name: _____ Date: _____ Per: _____

Cell Types; Prokaryotic and Eukaryotic

Content objective: compare and contrast prokaryotic and eukaryotic cells from each kingdom.

Language objective: write to record similarities and differences between prokaryotic and eukaryotic cells from each of the 6 kingdoms.

TEKS: B2.H, B3.E, B4.A, B8.C

Essential question: _____

PRE-AP

Use the cut-outs on page 169 to complete this activity



Name: _____ Date: _____ Per: _____

Name: _____ Date: _____ Per: _____

Eukaryotic Cells: plant, animal, protist, fungi

Content objective: identify parts and functions of a typical eukaryotic animal cell.

Language objective: speak to pronounce the names of organelles using coral response.

TEKS: B4.A

Essential question: _____

Animal Cell

Glue Organelles of the Animal Cell Sheet Here

Cell Membrane:

Vacuole:

Cytoplasm:

Lysosome:

Nuclear Membrane:

Smooth Endoplasmic Reticulum:

Nucleus:

Rough Endoplasmic Reticulum:

Chromatin:

Mitochondria:

Nucleolus:

Golgi Body/ Apparatus:

Ribosome:

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Use the cut-outs on page 171 to complete this activity.

Name: _____ Date: _____ Per: _____

Eukaryotic Cells: plant, animal, protist, fungi

Content objective: identify parts and functions of a typical eukaryotic plant cell.

Language objective: speak to pronounce the names of organelles using coral response.

TEKS: B4.A

Essential question: _____

Plant Cell

Glue Organelles of the Plant Cell Sheet Here

Cell Membrane:

Chloroplast:

Cytoplasm:

Vacuole:

Nuclear Membrane:

Lysosome:

Nucleus (contains
Chromatin and Nucleolus):

Smooth Endoplasmic Reticulum:

Ribosome:

Rough Endoplasmic Reticulum:

Cell Wall:

Mitochondria:

Golgi Body/ Apparatus:

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Use the cut-outs on page 173 to complete this activity.

Name: _____ Date: _____ Per: _____

Eukaryotic Cells: plant, animal, protist, fungi

Content objective: identify parts and functions of a typical eukaryotic cell.

Language objective: speak to pronounce the names of organelles using coral response.

TEKS: B4.A

Essential question: _____

Cell Organelles and Functions

Directions:

- Using the plant and animal cell activities you just completed, answer the questions for each cell part of the foldable on the following 2 pages.
- Color the cell part indicated on each page.
- Cut out the strips and glue them together at the tabs in the same order in which they appear in the book.
- Fold them accordion style and glue in below.
- When you answer the question "what if I took a vaca"/ your answer may not be vague. Make your answer very specific and do NOT say "the cell would die".

Glue the foldable from
pages 175-177 here

Endosymbiotic Theory

Content objective: use knowledge of prokaryotic and eukaryotic cells to evaluate scientific explanations concerning the complexity of cells.

Language objective: speak to pronounce the names of organelles using coral response.

TEKS: B4.A, B7.G

Essential question: _____



In the 1960s, Lynn Margulis, an American biologist, hypothesized that early prokaryotic cells formed from a symbiotic relationship with cells they “ate”. Over time, the smaller prokaryotic cells began to live inside the cell that ate them and evolved into eukaryotic cells.

Directions:

- Go to the “Prefix” page and add the following prefixes and roots: endo-, exo- -symbiosis
- Go to www.youtube.com and search “Big Tony Endosymbiotic Theory”.
- Answer the questions in complete sentences.
- Write a level 2 and a level 3 question about the topic.

Questions	Notes
	How do Big Tony, Little Jon, and Little Jim come to live together?
	What type of cells do they represent before they meet?
	What type of cell do they represent after the Littles move in?
	Refer to your cell lesson. What organelles do you think Jim and Jon evolved into?
Summary	

Name: _____ Date: _____ Per: _____

Complete a “one pager” on page 72

- Title the one-pager appropriately to reflect the content.
- Used color pens, pencils, or markers.
- Fill the entire page.
- Arrange things on your page with a purpose
- Write 2 quotations from the activity using proper grammatical format.
- Draw 3 visuals about the content.
- Write five vocabulary words or phrases.
- Write a brief summary of the information.
- Write 2 level 2 questions and answer them.
- Put a symbolic colored border around the edges of the page.

One Pager Rubric	
Title	5
Border	5
2 quotes	10
3 pictures	15
5 terms	25
Questions	10
Answers	10
Summary	15
Quality	5
Total	100

Name: _____ Date: _____ Per: _____

Name: _____ Date: _____ Per: _____

Test Review; Levels of organization, Cell Theory, Specialized cells, Cell parts and functions, Endosymbiotic theory

1. Explain the following terms
 - a. Cells
 - b. Tissues
 - c. Organs
 - d. Organ systems
 - e. Organisms
 - f. Populations
 - g. Communities
 - h. Ecosystems
 - i. Biomes
 - j. Biosphere
 - k. Mitochondria
 - l. Chloroplast
 - m. Cytoplasm
 - n. Nucleus
 - o. Nucleolus
 - p. Golgi apparatus
 - q. Lysosome
 - r. ER
 - s. Cell membrane
 - t. Ribosome
 - u. Endosymbiotic theory
2. List the 3 ideas of cell theory
3. Describe the contributions of scientists to the ideas of cell theory
4. Explain how cell structure is related to its function.
5. List 4 ways prokaryotic cells differ from eukaryotic cells.
6. List 4 ways eukaryotic cells are different from prokaryotic cells.
7. List 7 ways in which prokaryotic cells and eukaryotic cells are similar.
8. Describe what might happen to a cell if it lost any of the following organelles:
 - a. Cell membrane
 - b. Cytoplasm
 - c. Nucleus
 - d. DNA
 - e. Nucleolus
 - f. Ribosomes
 - g. Mitochondria
 - h. Chloroplast
 - i. Vacuole

Name: _____ Date: _____ Period: _____

Cell (Plasma) Membrane

Content objective: build a model of a cell membrane and identify parts in order to describe how it functions to maintain homeostasis.

Language objective: speak to pronounce the names of organelles using coral response.

TEKS: B4.B

Essential question: _____

Building a Plasma Membrane: directions

- Pick up the packet from your teacher.
- Color the picture according to the chart below.
- Follow the directions in the packet.
- If absent;
 - Go to www.teach.genetics.utah.edu.
 - Click on "print and go lesson plan index" in the right column.
 - Scroll down to Amazing Cells and click on "amazing cells supplemental material"
 - Scroll to "build-a-membrane" (second box on left).
 - Click on "preview download print and go pdf".
 - Print directions and templates and build your membrane!

Plasma Membrane Color Chart	
Circles	Dark Blue
	Green
Protein channel	Orange
Receptor protein	Red
Transporter protein	Yellow
Tethered protein	Light Blue
Anchor protein	Purple

Name: _____ Date: _____ Period: _____

Cell Transport and Homeostasis

Content objective: describe how movement of materials through the cell membrane helps the cell maintain homeostasis.

Language objective: write to complete sentence stems about diffusion and osmosis.

TEKS: B4.B

Essential question: _____

After completing the human plasma membrane class activity, finish the following sentence stems about cell transport.

1. From this activity, I can conclude that diffusion is _____

2. During diffusion, molecules move down a concentration gradient. This means they _____

3. Two reasons osmosis is different than diffusion are _____

4. Facilitated diffusion uses helper proteins to _____

5. In our activity we modeled passive transport which requires _____ to move molecules through a _____.
6. In the body, diffusion can occur when molecules such as oxygen and carbon dioxide _____

7. Selective permeability was modeled in our activity when _____

8. Channel proteins work by _____

9. A carrier protein works by _____

Name: _____ Date: _____ Period: _____

Cell Transport and Homeostasis

Content objective: describe how movement of materials through the cell membrane helps the cell maintain homeostasis.

Language objective: speak to collect data from other students in lab.

TEKS: B4.B, B1.A, B1.B, B2.E, B2.F, B2.G, B2.H,

Essential question: _____

Understanding osmosis and its effect on cells

Lab set-up:

On day one of the experiment, you will put a raw egg into a cup of vinegar. On day three, you will transfer the egg to a cup of syrup. On day four, you will transfer the egg to distilled water. You will measure the mass of the egg each time you transfer it to a new solution. In the space below, draw a picture of the experimental set up. Label the solution, the egg and the day it will be transferred. Color the set up.



An independent variable is _____

The independent variable in this experiment _____

Name: _____ Date: _____ Period: _____

Observations before vinegar: Write a complete sentence or two that describes what you are observing. Describe the shell, the shape of the cell, the amount of vinegar in the cup, and the mass of the cell.

Hypothesis: complete the sentence stem to write a hypothesis.

If we change _____, then
_____ because _____

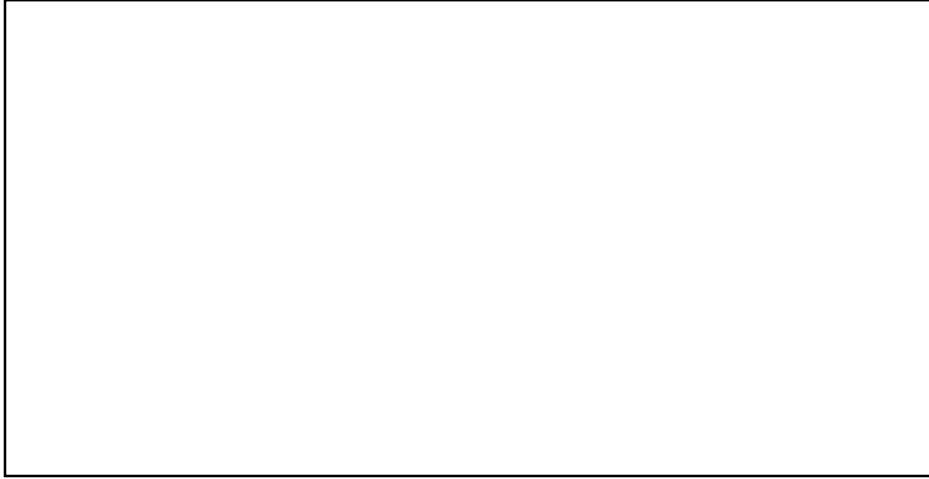
Observe the demo cell

Observations after vinegar: Write a complete sentence or two that describes what you have observed. Include changes in the shell of the cell, size of the cell, amount of vinegar remaining in the cup, the before and after average mass, and the amount of change in the mass of the cell.

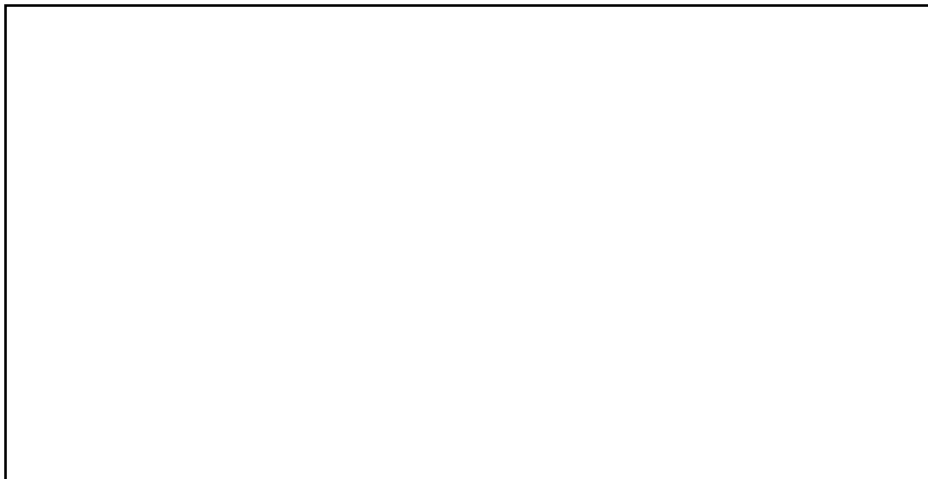
Look at the foldable on page 83 and page 179. Determine from your observations if vinegar is a hypotonic, isotonic, or hypertonic solution. Complete that section of the foldable by coloring the pictures and answering the questions.

Name: _____ Date: _____ Period: _____

Using the manipulative cell and molecule models at your table, arrange the molecules to show a cell in a hypotonic solution. Have your teacher check your model. Draw and color the model below. Label it hypotonic solution. Label the cell membrane and the water molecules. Draw an arrow to show where the water molecules will have to move in order to reach dynamic equilibrium.



Now, arrange the water molecules so that they are in dynamic equilibrium. Have your teacher check the model. Draw and color the model below. Label it dynamic equilibrium. Also label the cell membrane and the water molecules. Draw an arrow or arrows to show where the water molecules move when cells are in equilibrium.



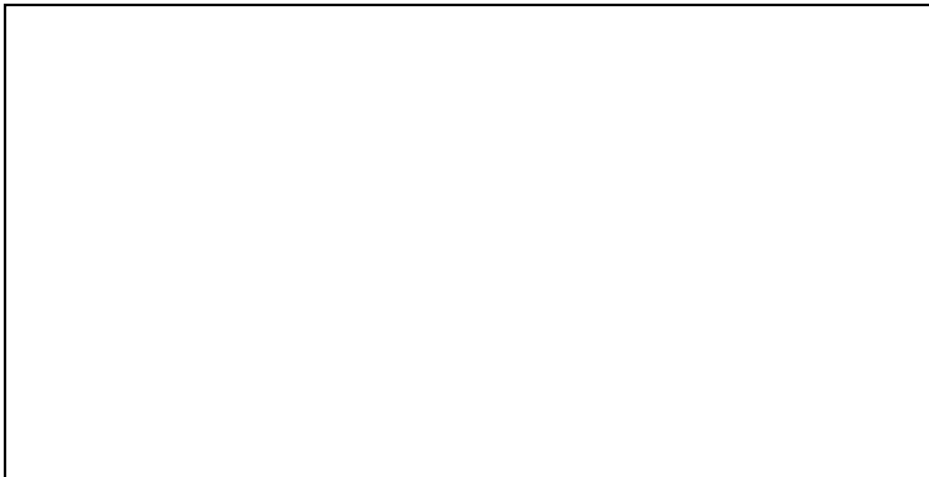
Name: _____ Date: _____ Period: _____

Observe the demo cell

Observations after syrup: Write a complete sentence or two that describes what you have observed. Include changes in the cell, size of the cell, amount of syrup remaining in the cup, the before and after mass, and the amount of change in the mass of the cell.

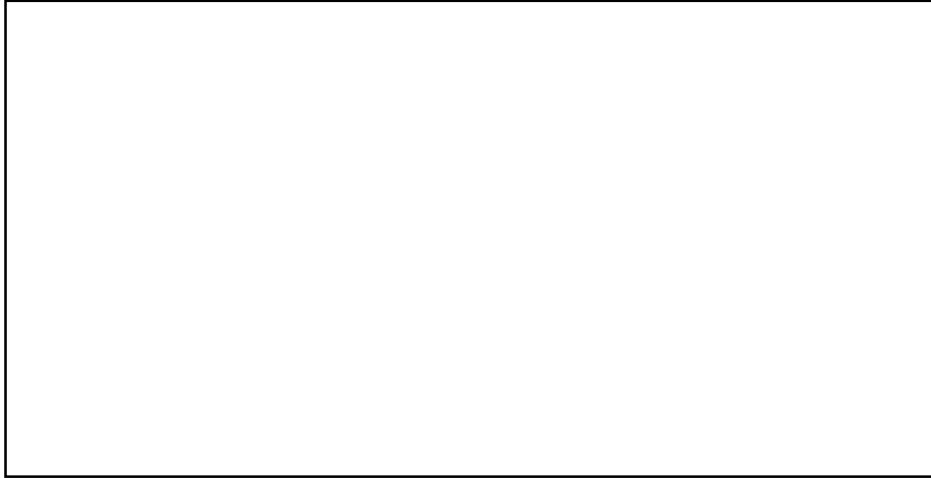
Look at the foldable on page 83 and page 179. Determine from your observations if syrup is a hypotonic, isotonic, or hypertonic solution. Complete that section of the foldable by coloring the pictures and answering the questions.

Using the manipulative cell and molecule models at your table, arrange the molecules to show a cell in a hypertonic solution. Have your teacher check your model. Draw and color the model below. Label it hypertonic solution. Label the cell membrane and the water molecules. Draw an arrow to show where the water molecules will have to move in order to reach dynamic equilibrium.



Name: _____ Date: _____ Period: _____

Now, arrange the water molecules so that they are in dynamic equilibrium. Have your teacher check the model. Draw and color the model below. Label it dynamic equilibrium. Also label the cell membrane and the water molecules. Draw an arrow or arrows to show where the water molecules move when cells are in equilibrium.



Using what you know about hypotonic and hypertonic solutions, your cell observations, and the pictures on the foldable, discuss with your table what you think an isotonic solution is. Arrange the model of the cell and the molecules to show an isotonic solution. Draw arrows to show the flow of water through the membrane. Complete the foldable.

Name: _____ Date: _____ Period: _____

Osmotic solutions

ANALYSIS QUESTIONS:

1. What is equilibrium?

2. What effect do hypotonic solutions have on cells? _____

3. What does it mean for a solution to be hypotonic? _____

4. Which activity would be more likely to cause your blood to become hypotonic to your cells; drink too much water or eat too much salt?

5. Explain your answer. _____

6. Look at the cell pictured in the hypotonic section of the foldable. That cell is lysing. What does it mean for a cell to lyse? _____

7. What effect do hypertonic solutions have on cells?

8. Which activity would be more likely to cause your blood to become hypertonic to your cells; drink too much water or eat too much sugar?

9. Explain your answer:

10. Look at the cell pictured at the top of the foldable in the hypertonic section. That cell is dehydrated. What does it mean for a cell to dehydrate?

Name: _____ Date: _____ Period: _____

11. Look at the center section of your osmosis foldable. What do you think it means for a solution to be isotonic? _____

12. What effect does an isotonic solution have on a cell?

13. Predict if water is hypertonic, hypotonic or isotonic.

14. Explain your reasoning:

Directions:

Cut out the top of this foldable from page 179 and glue where indicated. Cut the dividers between the pictures to make flaps.

Glue Types of Osmotic Solutions Tab Here		
Hypotonic Solution Describe an Hypotonic Solution: What is happening to the Red Blood Cell & Cell in Beaker? What is happening to the Plant Cell?	Isotonic Solution Describe an Isotonic Solution: What is happening to the Red Blood Cell & Cell in Beaker? What is happening to the Plant Cell?	Hypertonic Solution Describe an Hypertonic Solution: What is happening to the Red Blood Cell & Cell in Beaker? What is happening to the Plant Cell?

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Name: _____ Date: _____ Period: _____

Cell Transport and Homeostasis

Content objective: describe how movement of materials through the cell membrane helps the cell maintain homeostasis.

Language objective: write to describe your observations in lab.

TEKS: B4.B

Essential question: _____

Directions: Cut out the individual Passive Transport Summary booklet pages found on page 181. Color them, put them in the correct order, answer the questions, and glue below.

Answer essential question what is homeostasis and how does passive transport help maintain it? _____

Name: _____ Date: _____ Period: _____

Cell Transport and Homeostasis

Content objective: describe how movement of materials through the cell membrane helps the cell maintain homeostasis.

Language objective: speak to pronounce the types of active transport using choral response.

TEKS: B4.B

Essential question: _____

Directions: Fill in the descriptions of the types from your prefix/suffix activity and from analyzing the pictures on the Active Transport booklet pages found on pages 183-185. Write 3 level 2 questions (see page 200). Highlight the answers to the questions. Summarize the lesson. To observe active transport in action, Watch videos at youtube.com; search phagocytosis amoeba and select "phagosytose1"; also search for phagocytosis white blood cells and scroll to "white blood cell chases bacteria".

Questions:	Notes:
	ACTIVE TRANSPORT
	• Movement of materials through the cell membrane
	• Uses cellular energy (ATP)
	• Allows larger amount amounts of materials into and out of cells
	• Moves molecules against a concentration gradient
	There are 4 types of active transport
	1.The sodium (Na)/potassium(K) pump
	2.Endocytosis
	Which includes:
	Phagocytosis:
	2 Examples are:

Name: _____ Date: _____ Period: _____

	Pinocytosis:
	3.Exocytosis search youtube "paramecium takes a poop"
	4.Receptor mediated
Summary	

Directions: Cut out the individual Active Transport booklet pages found on page 187-189. Color them, put them in the correct order, answer the questions, and glue below.

Name: _____ Date: _____ Period: _____

Importance of Microbes

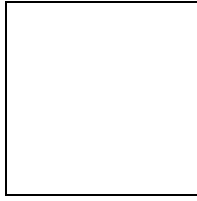
Content Objective: summarize the role of microorganisms in maintaining and disrupting the health of organisms and ecosystems.

Language Objective: write to record the impact of microorganisms on health of organisms and ecosystems by watching a video.

TEKS: B11.C, B4.A

Name of microbe	Picture of microbe	Impact

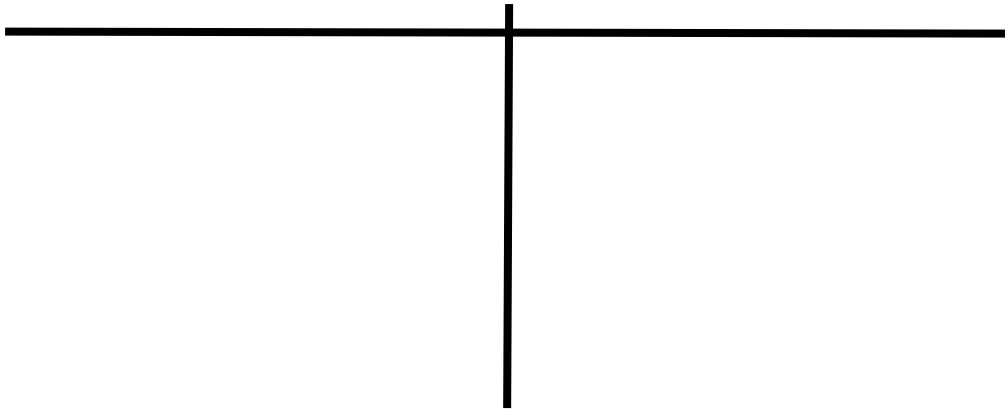
Name: _____ Date: _____ Period: _____



Predict how many germs you think will fit in this square. _____. On the table? _____

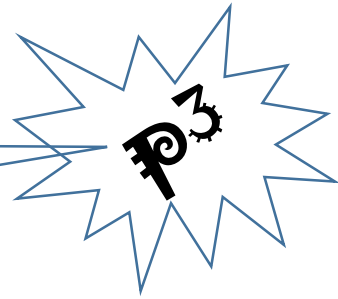
How many surfaces does a child (K-12) touch in 30 minutes? _____

Working with your table; make a list of the 6 places in your home where you think you would find the most germs. Compare your list to a table on the opposite side of the room. Make any changes you might wish to make.



Name: _____ Date: _____ Period: _____

Powerful Powder Pathogen



Activity directions:

- Obtain a baggie of powder from your teacher.
- Using a plastic spoon, everyone gives two teaspoons of their powder to another student.
- After receiving the powder, mix it well and give two teaspoons back.
- Repeat this process with at least 3 more students.
- Add vinegar to your bag.
- Complete the sentence stem to record what you observe.

When I _____, then
_____.

Name: _____ Date: _____ Period: _____

Glo-Germ Activity

After completing the activity:

- Assign each group a different hand-washing technique.
- Each group washes hands together, timed by teacher.

Hand Washing Techniques	
Group 1	Rinse hands for 20 seconds without rubbing them together.
Group 2	Rinse hands for 20 seconds gently rubbing hands together.
Group 3	Wet hands and rub in one drop of hand soap for 10 seconds and rinse, rubbing hands together for 20 seconds.
Group 4	Wet hands and rub in one drop of hand soap for 20 seconds and rinse, rubbing hands together for 20 seconds.
Group 5	Rub one "squirt" of hand sanitizer on to hands until rubbed in.

- After students have washed their hands, re-shine the uv light and rate the effectiveness of their technique by comparing how much glo-germ is left on other student's hands.
- Survey the class and record student's results on the board.

Group	Hand-Washing Effectiveness				
	Not effective	Somewhat effective	Fairly effective	Very effective	Most effective
1					
2					
3					
4					
5					

Name: _____ Date: _____ Period: _____

Germ Analysis Questions



Answer the analysis questions in **COMPLETE SENTENCES**.

1. Were you one of the students who became "sick" with the flu virus?

How do you know? _____

2. Were you able to tell who was "sick"? _____

3. How do you know the tennis balls had "germs" on them?

4. How were "germs" transferred from student to student?

5. Besides handling an object that has bacteria and viruses on it, what are 2 other ways we can become infected by pathogens (something that causes disease)?

6. List 3 diseases that you learned about today and their causes.

Disease	Cause

7. Describe at least 3 ways to prevent germs from spreading.

a. _____

b. _____

c. _____

8. In your opinion, what is the best way to remove germs from your hands?

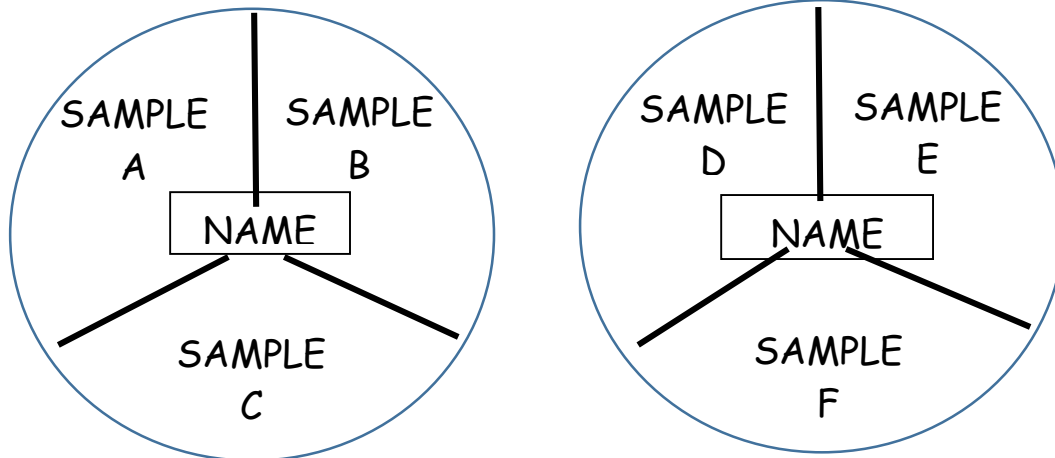
Explain your position.

Name: _____ Date: _____ Period: _____

How Gross is School?

Directions:

- Working in your assigned group, predict what you think are the 7 most germ infested places on your school campus.
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
- Select 6 of the places you would like to test. (the 7th is a back-up in case you are unable to test one of your places)
- Get a petri dish from your teacher but DO NOT OPEN IT.
- Each pair of students in your group will test 3 places.
- Label the bottom of your dish with a sharpie as shown.



- Using the swabbing technique taught to you by your teacher, swab the three places you selected.
- You have 12 minutes to collect your samples and return to the classroom. Anyone taking longer than 12 minutes will be considered truant.
- GO!!!!!!

Name: _____ Date: _____ Period: _____

Refer to your notes on prokaryotic cells on page 63-64 . Draw, color and label a typical prokaryotic cell in the space below.

Write a complete sentence that describes a prokaryotic cell.

Name: _____ Date: _____ Period: _____

Viruses & Bacteria

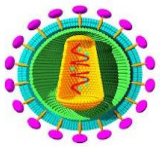
Content Objective: compare viruses to cells including structure, reproduction, and disease causing ability for HIV and influenza

Language Objective: speak to discuss diseases caused by bacteria and viruses

TEKS: B11.C, B4.A, B4.C

Essential Question: _____

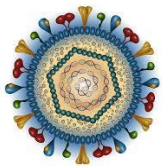
Some common viruses:



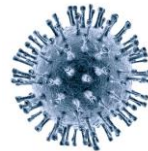
HIV: a lysogenic virus that is usually terminal and is transmitted through exchange of bodily fluids. It works to destroy the white blood cells that fight infection.



Influenza: a lytic virus that infects the respiratory system causing coughing, sneezing, and fever. It is typically called "the flu". Influenza is transmitted on water droplets released through a sneeze or a cough.



Herpes: a lysogenic virus that causes blistering of the skin. It can reoccur throughout a person's life. This virus infects nerve cells in the skin. Herpes is spread through direct contact with the blisters.



Rhinovirus: a lytic virus that infects the respiratory system causing coughing, sneezing, and fever. It is typically called "the common cold". Rhinovirus is transmitted on water droplets released through a sneeze or a cough.

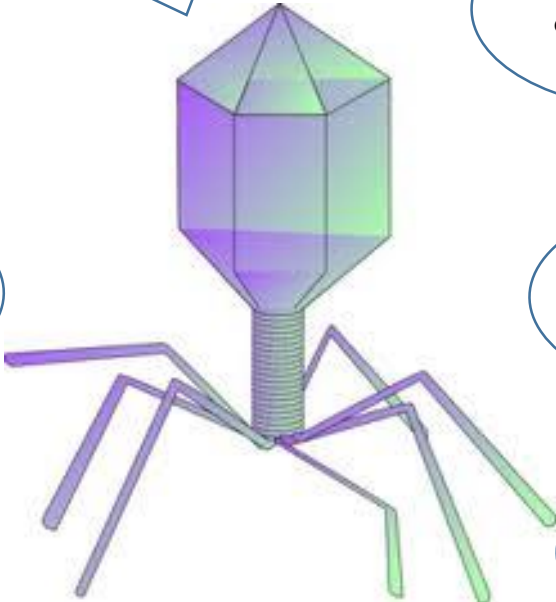
Name: _____ Date: _____ Period: _____

Viruses

Directions: go to youtube.com and search: "amoeba sisters viral replication and the mysterious common cold".

What is an example of a virus?	
Why won't antibiotics work on a virus?	Antibiotics only work on _____
Why is a virus not considered a prokaryote or a eukaryote?	
Why is a virus not considered a cell?	1. 2. 3. 4. 5.
What is the structure of a virus?	The center of a virus contains either _____ or _____ surrounded by a coat made of _____ called a _____.
Draw and label a typical virus.	
What is a retrovirus?	A retrovirus is a virus that contains _____ instead of _____.
Give an example of a retrovirus.	
What is the purpose of the capsid?	
Compared to a bacterium, how big is a virus?	Very, very, very, very _____
What other stuff can a virus contain?	1. 2.
The video states that viruses are specific. What does this mean?	Viruses are _____ about who they infect!!

What's up with me?



I contain some genetic material called _____ or _____.

I won't work to cure a virus because I can only kill bacteria. I am an _____.

I am a retrovirus called _____.

I wear a special coat made of protein called a _____.

I am not a prokaryote or a eukaryote. I am not _____.

Unlike a cell, I do not have a _____ or a _____.

I am a virus who contains RNA. Who am I? _____.

Why do I wear a protein coat? _____
_____.

If I were a bacterium, I would be much, much _____.

Some of us have other stuff called _____ or an _____.

I am a structure made of protein and DNA. I am not living. I am a _____.

I am very picky about who I infect. This make me _____.

Name: _____ Date: _____ Period: _____

Virus Vocab (pre-ap)

Directions: define each term using **COMPLETE** sentences. In the boxes below, draw, color, and name them according to their corresponding numbers.

1. Virus _____

2. Capsid _____

3. Retrovirus _____

4. DNA _____

5. RNA _____

6. HIV _____

7. Antibiotics _____

8. Prokaryotic cell _____

9. Eukaryotic cell _____

10. Protein _____

1.	2.	4.
5.	8.	9.

Name: _____ Date: _____ Period: _____

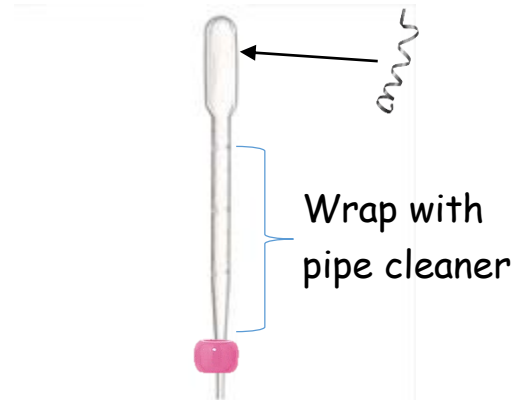
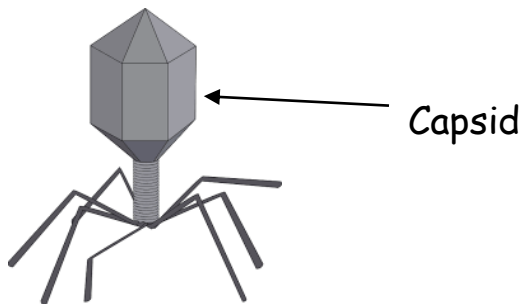
Making a Bacteriophage

Directions:

1. Put your complete name and period on one of the triangles.
2. Write virus facts on the remaining triangles.
3. Score each of the lines by tracing them with the sharp edge of the scissors as shown. This will make the pattern easier to fold. Do not cut all the way through.



4. Cut out the template around the outer edges only.
5. Fold each of the lines down.
6. Shape the template into the shape of the capsid shown below and tape down the tabs.



7. In the bulb of a pipette, insert a piece of curled ribbon through the slit. This represents the DNA in the virus.
8. Wrap the "tail" with a whole pipe cleaner down to the bead.
9. Add the legs (3- ½ pipe cleaners) just above the bead.
10. Insert the DNA into the capsid and secure with tape.
11. Tie a piece of fishing line just below the capsid.
12. Tie the other end to a paper clip.
13. Hang your bacteriophage as per your teacher's instructions.

Viral Replication

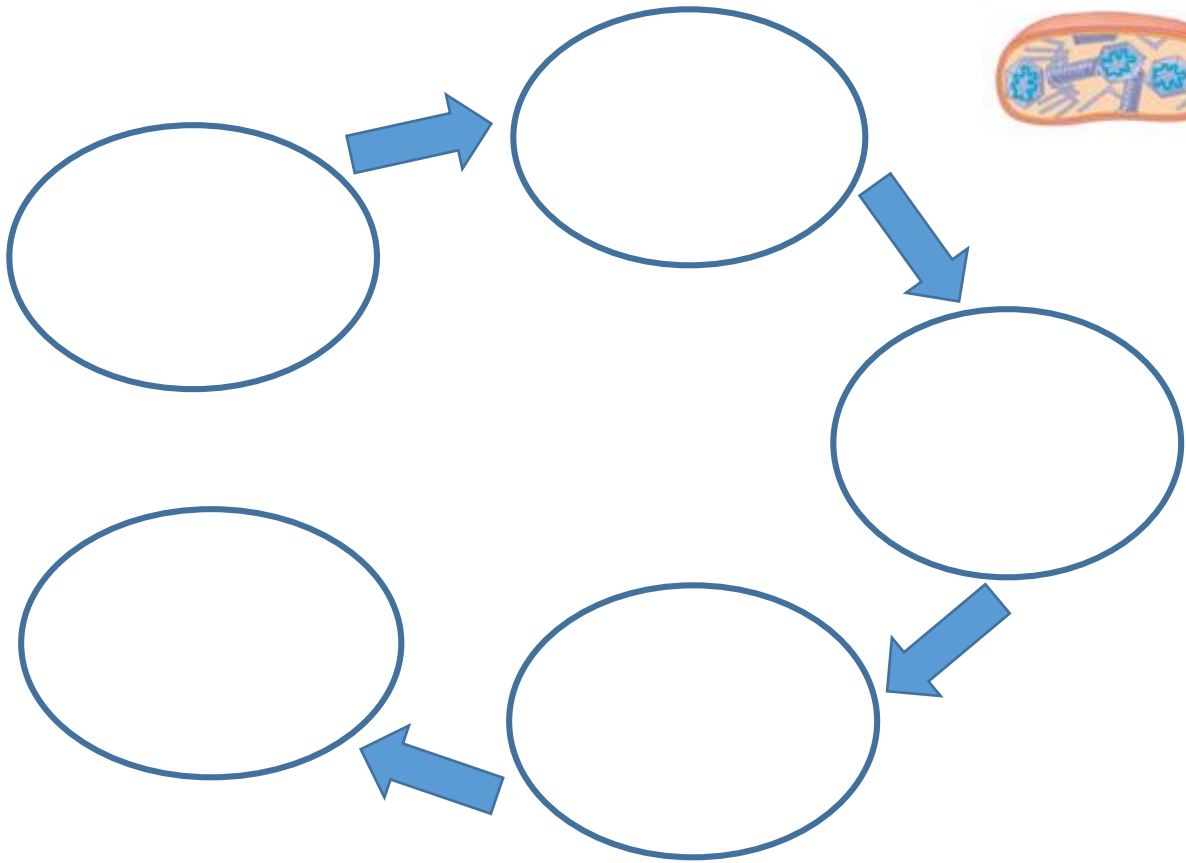
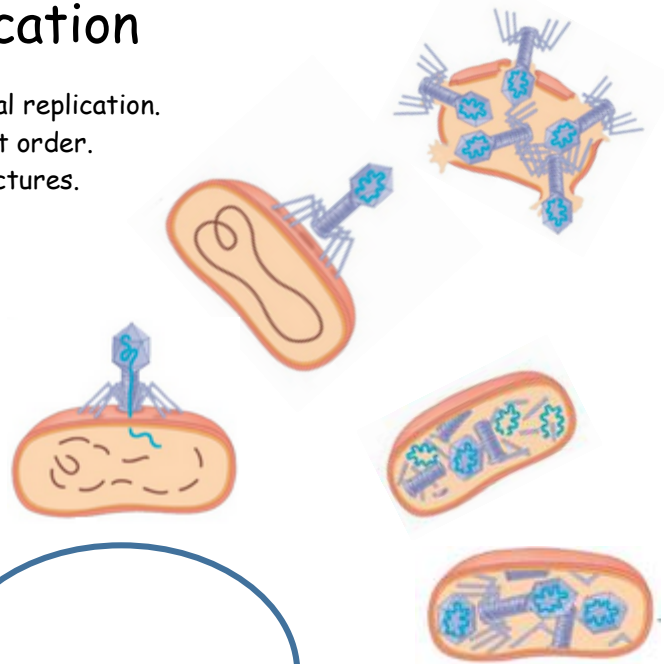
Directions: go to youtube.com and search "amoeba sisters viral replication and the mysterious common cold."

What are the 2 ways viruses can reproduce?	
What must a virus have to be able to reproduce?	To reproduce, a virus must have a _____ cell
What does the virus inject into the cell during the lytic cycle?	
How does the cell respond to the viral DNA?	
Why does the cell membrane lyse?	
What does lyse mean?	
What is a bacteriophage?	A bacteriophage is a type of virus that infects _____
What is the first thing that happens in the lysogenic cycle?	
How does the virus become hidden in a cell?	
What are 2 triggers that can cause the virus to become active?	1. 2. 3.
What 2 things happen after the virus becomes active?	1. 2.
List 2 reasons HIV is so difficult to treat.	1 it attacks _____ cells 2 it _____ quickly

Viral Replication

- The pictures to the right are steps in the lytic cycle of viral replication.
- In the blank circles, draw the pictures shown in the correct order.
- Use the color code below to identify the viral and cell structures.
- Briefly describe what is happening in each box.

Capsid	Blue
Viral DNA	Red
Cell membrane	Green
Cell's DNA	Orange
Cytoplasm	Yellow



Answer the following discussion question:

5. The difference between the lytic and lysogenic cycles is that in the lysogenic cycle, the RNA or DNA becomes part of the DNA of the cell that has been infected. The cell carries out normal functions including mitosis. How does this facilitate the spread of the virus? _____

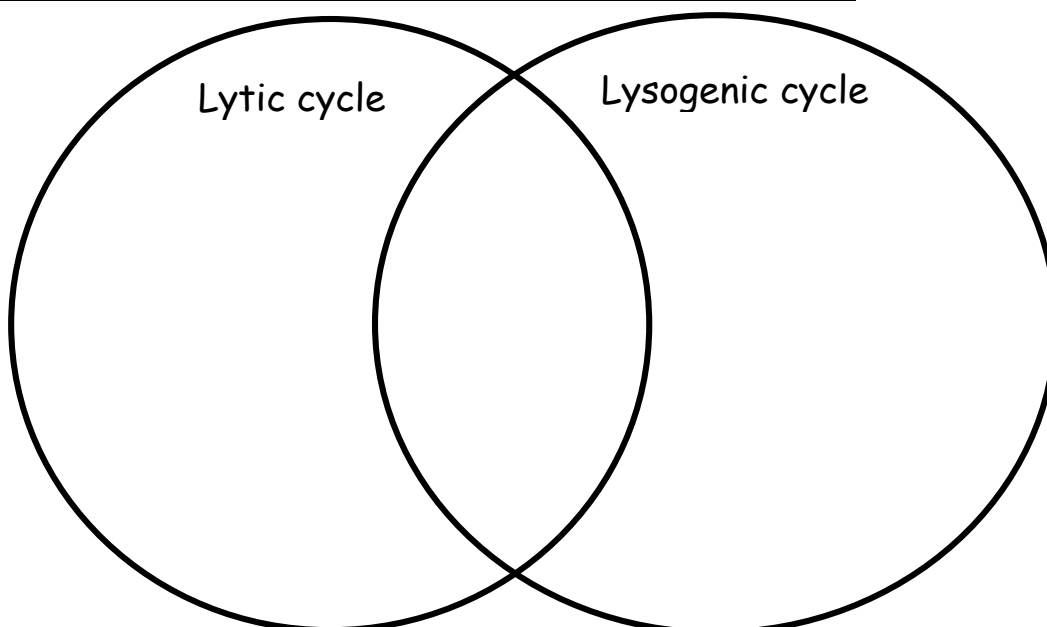
Using your notes, fill in the blanks with the word that makes the statement true.

6. In order to reproduce, a virus must have a _____.
7. In order to infect a cell, a virus must first _____

8. A virus that can infect a bacterium is a _____
9. Sometimes the viral DNA becomes part of the cell's DNA. This happens during the _____ cycle.
10. When the infected cells become full of new viruses, they explode or _____ to release them.
11. One of the reasons HIV is so difficult to treat or prevent is because this virus attacks white blood cells called _____.

Use the word bank below to complete the Venn diagram.

Must have host	Injects DNA	Causes cell to lyse
Virus can become hidden in cell's DNA	Can be dormant needs a trigger to activate it	Causes cell to make new viruses
Herpes	Is a type of replication	The flu



Immune System

Content Objective: describe interactions between the immune system and pathogens


Language Objective: write to answer questions about how the immune system interacts with pathogens

TEKS: B10.A

Essential Question: _____

The Immune System

Directions: watch the youtube video called "Immune System-Human Organs for Kids" by Make Me Genius to answer the questions.

<p>What is a pathogen?</p> 	<p>A biologic agent that causes _____.</p> <p>Aka: Germs!</p> <ul style="list-style-type: none"> • • • •
<p>What is the job of your immune system</p>	<p>The immune system fights _____ by defending our bodies against pathogens.</p>
<p>What are the 3 lines of defense?</p>	<ol style="list-style-type: none"> 1. _____(barriers) 2. _____ (inflammatory response) 3. _____ (immune response)
<p>How does the first line of defense protect you?</p>	<p>_____</p>
<p>How does a fever help protect you?</p>	<p>A fever raises the temperature of your body in to _____</p>
<p>How does swelling help protect you?</p>	<p>Increase blood flow and water to the area allows _____ to enter the infected area.</p>

Name: _____ Date: _____ Period: _____

What is a macrophage?	A macrophage is a really big _____.
Label the macrophage, pathogen and antigen	
What active transport process is the macrophage using to capture the pathogen?	
★What does a B-cell make?	B-cells make _____ that are shaped like the letter _____.
★What does an antibody do?	An antibody attaches to an _____ and tag them for _____.
★How do the killer K cells know what to destroy?	The killer K cells destroy the pathogens that have _____ attached to them.
★Killer K cells destroy pathogens by phagocytosis. What does this mean?	When killer K cells find a pathogen tagged by an antibody they _____.
★What is an M cell and what does it do?	
★What is the most important thing you can do to help your immune system?	
★What is a vaccine?	
How does a vaccine work?	

Name: _____ Date: _____ Period: _____

Bacteria, Virus, & Immune Test Review

1. Is a bacteria living or non-living?
2. How many cells are bacteria made of?
3. Is a bacterium prokaryotic or eukaryotic?
4. What does it mean to be prokaryotic?
5. What are the 2 kingdoms bacteria are divided into?
6. Where do eubacteria live?
7. Where do archaeobacteria live?
8. What is one thing used to identify bacteria?
9. What is the name of rod-shaped bacteria?
10. What is the name of round-shaped bacteria?
11. What is the name of spiral-shaped bacteria?
12. List 4 ways bacteria are helpful to humans.
13. What are flagella?
14. How do bacteria grow/reproduce?
15. What is an aerobe?
16. What is an anaerobe?
17. What is binary fission?
18. List 2 diseases caused by bacteria.
19. What is a vaccine?
20. What is a pathogen?
21. What is an antibiotic?
22. Do antibiotics "cure" bacteria or viruses? (pick one)
23. How can cooking your food well prevent you from getting food poisoning?
24. What is a virus?
25. Is a virus living or not living?
26. What is the only thing a virus has in common with a living cell?
27. What must a virus have in order to reproduce, evolve, get energy, etc?
28. Why is the capsid important to a virus?
29. Can a human catch a viral infection from a plant? Why or why not?
30. What are 2 processes by which viruses can reproduce?
31. How is a lytic infection different from a lysogenic infection?
32. Why do cells die from being infected by a virus?
33. List 5 viral infections
34. What types of cells does the HIV virus infect?
35. How can you cure a virus?
36. How can you prevent a viral infection?
37. What are the 3 lines of defense?
38. Explain the differences between
 - a. Antibody
 - b. Macrophage
 - c. T-cell
 - d. B-cell
 - e. Killer K cell
 - f. M cell
 - g. Antigen
 - h. Pathogen
39. How does a vaccine work?
40. What is the job of your immune system?

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Homeostasis

Content Objective: investigate and explain how systems interact to maintain homeostasis.

Language Objective: write to answer questions about how the immune system interacts with pathogens

TEKS: B4.A, B10.A, B1.A, B1.B, B2.E, B2.F, B2.G, B2.H,

Essential Question: _____

Directions:

- As you watch the youtube video "Part 1 of 5: emergency room - North Memorial", think about what the medical staff in the ER needs to be checking for. Discuss with class.
- Watch youtube "BigBang Theory - Homeostasis" to review the meaning of the term.
- Using the manipulatives, review the different items in bold and discuss them with your teammates.
- Arrange the manipulatives in order to answer the following question: What would kill you first if any of your homeostatic systems failed?
- Number them 1 - 6.
- Now fill in the justification for each item to explain your ranking.
- After a class discussion, re-evaluate your decisions and make changes, if needed, to the order of your manipulatives.
- Add your work to the comparison chart in the hallway.
- In the chart below, list which body systems you think are used to maintain homeostasis in each situation. (Systems: respiratory, circulatory, nervous, excretory (urinary), integument (skin), digestive, endocrine).

Homeostatic condition	System(s) Responsible
Temperature	
Oxygen levels	
Carbon dioxide levels	
Waste (urine) levels	
Blood sugar concentrations	
Electrolyte levels	

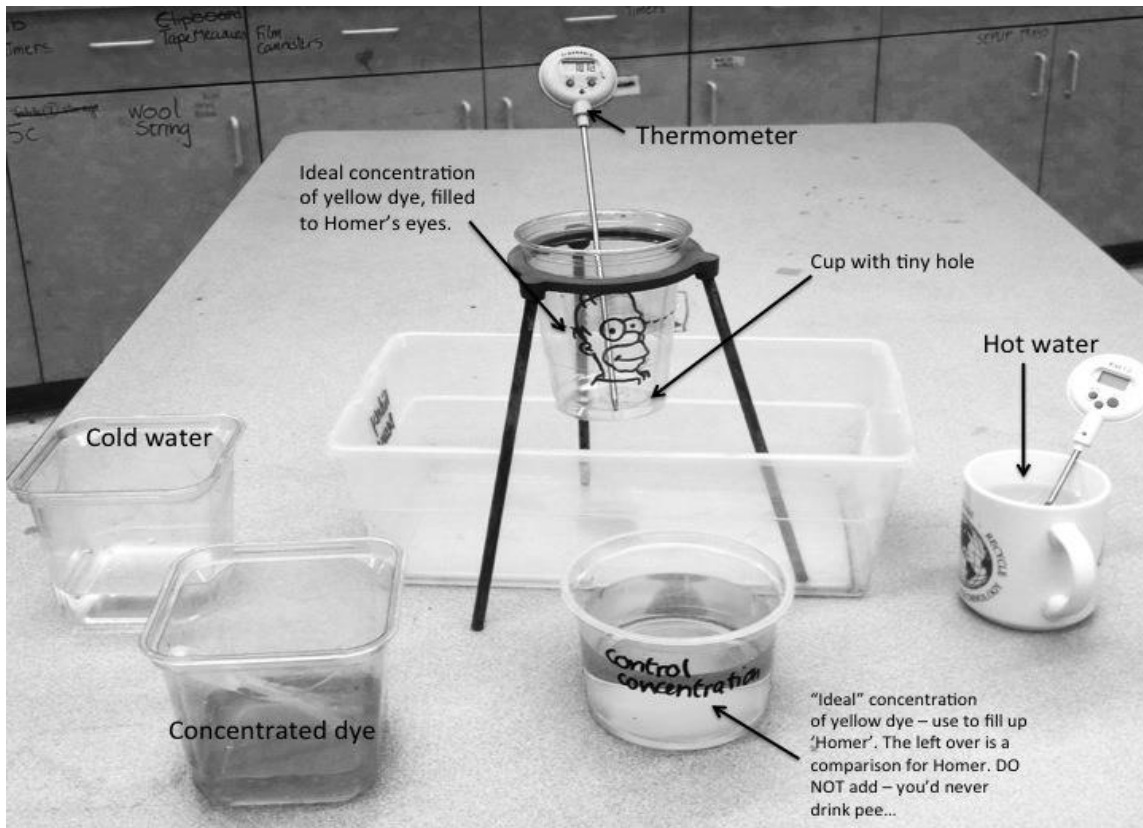
Name: _____ Date: _____ Period: _____

Maintaining "Homer-ostasis"

Homer has been admitted to the hospital because he is having difficulty maintaining stable levels of oxygen, carbon dioxide, and blood sugar. He has also become dehydrated and is unable to pee. This has affected his electrolyte levels and body temperature.

As his physician, your job is to return Homer's body to "Homer-ostasis" for a minimum of 5 minutes!

Your set up is pictured below.



Use the chart below as guidelines for helping Homer.

Homeostatic Condition	Normal body levels
Temperature	25° C
Water level	Top of Homer's eye balls
Carbon dioxide/oxygen level	Shade of yellow matches control cup

Name: _____ Date: _____ Period: _____

Did Homer live? (If anything got way off, you will have killed Homer, just saying.)

_____ Why or why not? _____

What was the most difficult part of maintaining homeostasis for Homer?

When hospital staff says that a patient is stable, what do you think that means?

Fill out the following chart as you participate in a class discussion.

Homeostatic condition	Organs involved	Systems involved	Cell process used
Temperature			
CO ₂ and O ₂			
Blood sugar			
Urea			

Name: _____ Date: _____ Period: _____

The Homeostasis Hook-up

Brought to you by Positive & Negative Feedback

Directions: using the cards, match the homeostatic cause to the effect. After your teacher has confirmed that you have all the cards correctly matched, use this information to complete the table below.

What was detected?	How was it corrected?	Systems Involved	Type of feedback
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Name: _____ Date: _____ Period: _____

Energy Transformations

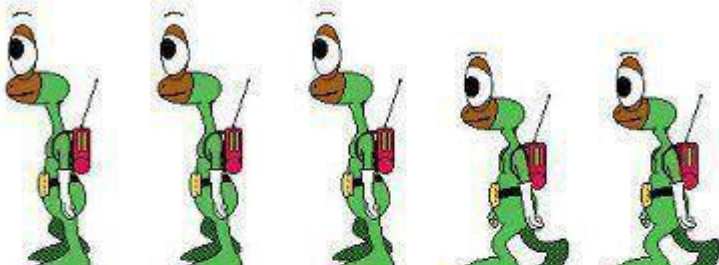
Content Objective: determine which food product has the most energy by measuring the increase in temperature of water when heated by burning the food.

Language Objective: speak to discuss how/why food can burn

TEKS: B1.A, B1.B, B2.E, B2.F, B2.G, B2.H,

Essential Question: _____

Energy in Food Lab



What is a calorie?
Calories are those little traitors that get into your wardrobe at night and sew your clothes tighter....
My closet is infested with the little rascals!

Background:

A **calorie** is a measurement of the amount of energy found in food. Lipids, carbohydrates, and proteins each provide energy in different amounts. In the mitochondria of your cells, carbohydrates in the form of glucose are broken down to release this energy. If carbohydrates are not available, then cells will break down lipids to provide energy for survival. When all the carbohydrates and lipids have been used by the body, cells will eventually convert proteins to a form that can be used as a source of energy.



Name: _____ Date: _____ Period: _____

Scientists use an apparatus called a **calorimeter** to measure the amount of energy in food. It works like this: food is burned and the heat is used to warm water. The change in the water temperature is then used in some calculations to determine how many calories the food stored. This is what you will be doing today.

Because foods contain such large amounts of energy, scientists convert the calories (with a lower case "c") to kilocalories shown on nutrition labels as "kCal" or "**Calories**" with a capital "C".

Energy in Food Lab

Prelab questions (10 min):

1. What is the difference between a calorie and a Calorie? _____

2. What instrument do scientists use to measure how much energy is in food?

3. What biomolecule do cells use first for providing energy? _____
Second? _____ Third? _____
4. In what cell organelle is the energy from food released for use by the cell?

5. Examine the nutrition labels pictured below. Record the amount of carbohydrates, lipids, and proteins in the chart.

Calories in Cashew Nuts

Nutrition Facts	
Serving Size 1 oz (28.3 g) Servings per Container About 10	
Amount Per Serving	
Calories 156	Calories from Fat 112
% Daily Value*	
Total Fat 12.4 g	19%
Saturated Fat 2.2 g	11%
Polyunsaturated Fat 2.2 g	
Monounsaturated Fat 6.7 g	
Trans Fat 0 g	
Cholesterol 0 mg	0%
Sodium 3 mg	0%
Total Carbohydrates 8.5 g	3%
Dietary Fiber 0.9 g	4%
Sugars 1.7 g	
Protein 5.2 g	
Vitamin A 0%	Vitamin C 0%
Calcium 1%	Iron 11%
Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Total Fat	Less than 65 g 80 g
Sat Fat	Less than 20 g 25 g
Cholesterol	Less than 300 mg 300 mg
Sodium	Less than 2,400 mg 2,400 mg
Total Carbohydrate	300 g 375 g
Dietary Fiber	25 g 30 g
Calories per gram: Fat 9 Carbohydrate 4 Protein 4	

Calories in Cheese Puffs

Nutrition Facts	
Serving Size 1 oz (28 g/About 13 pieces) Servings per Container About 11	
Amount Per Serving	
Calories 160	Calories from Fat 90
% Daily Value*	
Total Fat 10 g	15%
Saturated Fat 1.5 g	8%
Trans Fat 0 g	
Cholesterol 0 mg	0%
Sodium 350 mg	15%
Total Carbohydrates 13 g	4%
Dietary Fiber 0 g	0%
Sugars 2 g	
Protein 2 g	
Vitamin A 0%	Vitamin C 0%
Calcium 0%	Iron 2%
Vitamin E 6%	Vitamin B ₆ 2%
Phosphorus 2%	Riboflavin 4%
Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Total Fat	Less than 65 g 80 g
Sat Fat	Less than 20 g 25 g
Cholesterol	Less than 300 mg 300 mg
Sodium	Less than 2,400 mg 2,400 mg
Total Carbohydrate	300 g 375 g
Dietary Fiber	25 g 30 g
Calories per gram: Fat 9 Carbohydrate 4 Protein 4	

Name: _____ Date: _____ Period: _____

Comparison of Nutrition Labels

Cashews			Cheese Puffs		
Biomolecule	g/serving	Cal/g	Biomolecule	g/serving	Cal/g
Carbohydrates			Carbohydrates		
Lipids			Lipids		
Proteins			Proteins		

6. Based on the information in the chart above, complete the sentence stem to predict which food, cashews or cheese puffs, will have the most calories.

Hypothesis: If cashews and cheese puffs are burned to determine the number of calories in each, then _____ will have the most calories because _____

Data and Analysis:

Complete the following data table (15 min).

Food: _____	Before Burning	After Burning	change in mass/temp
Mass of food sample			
Water temp. °C			

Record your data on the class data chart at the front of the room.

Name: _____ Date: _____ Period: _____

Copy the data from the class data chart into the chart below.

Energy in Food Class Data				
	Cashew		Cheese Puff	
Groups	Change in mass	Change in temp	Change in mass	Change in temp
1				
2				
3				
4				
5				
Totals changes				
Average changes				

Analysis Questions:

1. How does the data on the nutrition labels compare to your experimental data?

2. The food you used contained chemical energy. What 2 types of energy was this chemical energy in the food converted into?

3. Which of the 2 foods do you think has more nutritive value? _____
Why? _____

4. Which food would provide the most energy? _____ Why? _____

5. What was the purpose of this lab? _____

Energy Transformation

Content Objective: describe the process of converting the energy in glucose into ATP.

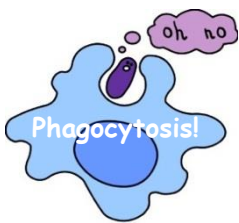
Language Objective: read to understand the process of converting the energy in glucose into ATP

TEKS: B9.B

Essential Question: _____

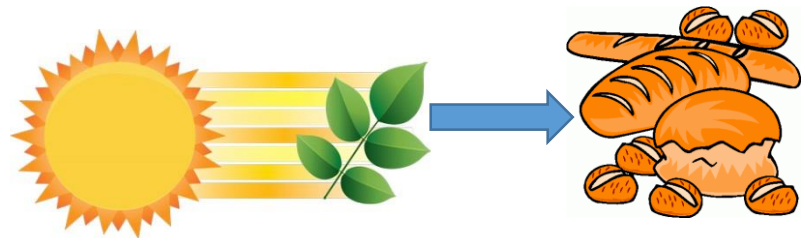
Cellular Respiration

1. All living organisms need energy to survive. This energy is used for many things from active transport of molecules through the cell membrane to walking and running. But where does the energy come from?

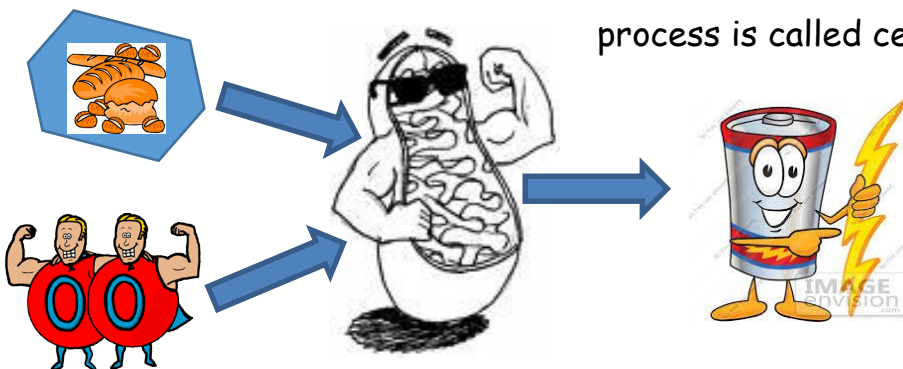


Coach McChesney

2. The energy that fuels your body comes from the foods that you eat. Carbohydrates are the main source of energy for living organisms. Carbohydrates, which are made by plants during photosynthesis, are broken down into many glucose molecules. It is these glucose molecules that power your cells.

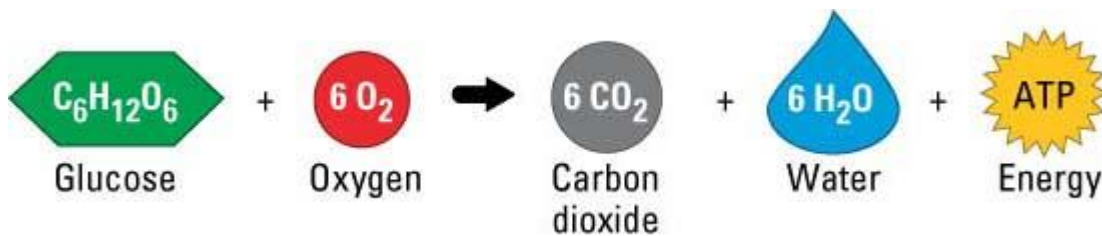


3. Here is how it works. Glucose diffuses into your cells using a transport protein called insulin. From there it moves into the mitochondria. The mitochondria are the cell organelles that convert the energy in glucose into energy that is usable by cells. This process is called cellular respiration. The energy from the glucose is stored in a little molecule called ATP.

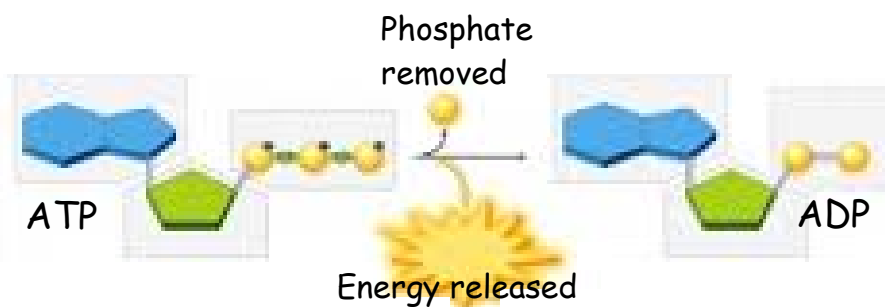


Name: _____ Date: _____ Period: _____

4. Aerobic organisms are able to convert the energy in a molecule of glucose into 36 molecules of ATP by adding oxygen to the process. As a result of this process, carbon dioxide (CO_2) and water (H_2O) are also made.



5. In humans, glucose must be ingested (eaten) and the O_2 needed is taken in by the lungs when we inhale. The glucose and the oxygen then go to the mitochondrion where they have a little party! During the party they make some energy molecules (ATP) and some trash (CO_2 & H_2O). The trash is removed from the cell and the body by diffusion and osmosis and exhaled from the lungs.
6. How is ATP made? When the glucose molecule is broken down, energy is released. This energy is used to add a phosphate group to a molecule called adenosine diphosphate; ADP. The result is the formation of adenosine triphosphate or ATP. Energy is stored in the bond that holds the extra phosphate to the ADP. When this bond is broken, ATP becomes ADP again and energy is released for use by the organism.



7. Sometimes there is not enough oxygen available for aerobic respiration to occur. In animals a small amount of energy can still be released from glucose (2ATP), but instead of making CO_2 & H_2O , the cells make lactic acid which causes muscle soreness. Plants and fungi also produce only 2 ATP molecules, but instead of lactic acid, these organisms produce alcohol. This process is known as anaerobic respiration or fermentation.

Name: _____ Date: _____ Period: _____

Cellular Respiration Poster

Objective: Diagram the process of respiration on a poster.

1. Put your full names and class period on the in the upper right corner of the poster.
2. Label and color the following:

Mitochondria

ATP

Glucose

Water (H_2O)

Carbon Dioxide (CO_2)

Oxygen (O_2)

3. Glue the pictures on the poster with arrows to show the reactants entering the mitochondria and products leaving.
4. Write the word reactant under the 2 reactants.
5. Write the word product under the 2 products.

Tying it all Together

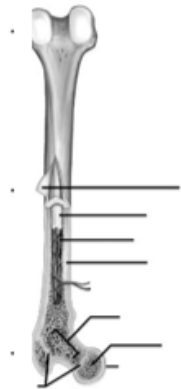
Content Objective: describe the interactions between systems with regard to cell respiration.

Language Objective: write to explain how organ systems work together to provide the body with energy

TEKS: B10.A, B10.C

Essential Question: _____

Skeletal System Notes

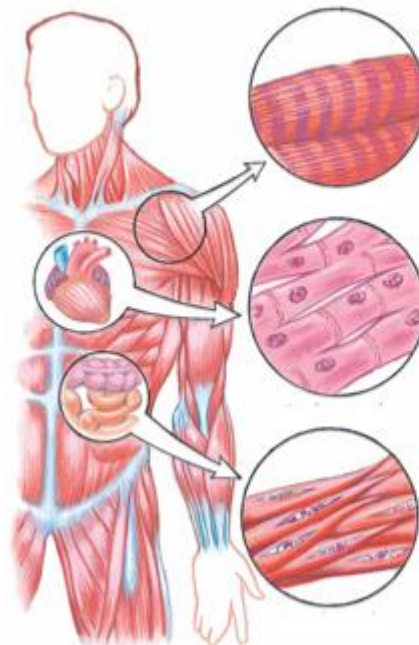


Functions of the Skeletal System	
1.	_____
2.	_____
3.	_____
4.	_____
5.	_____

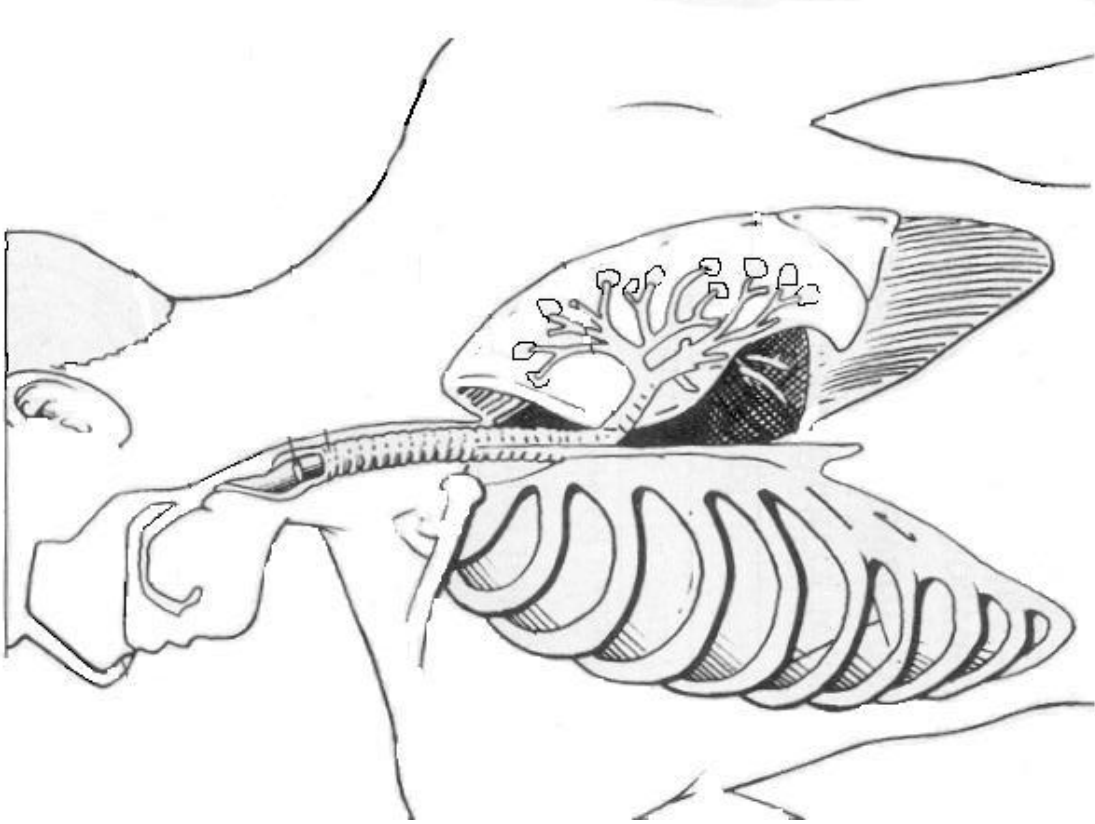
Axial Skeleton	Appendicular Skeleton



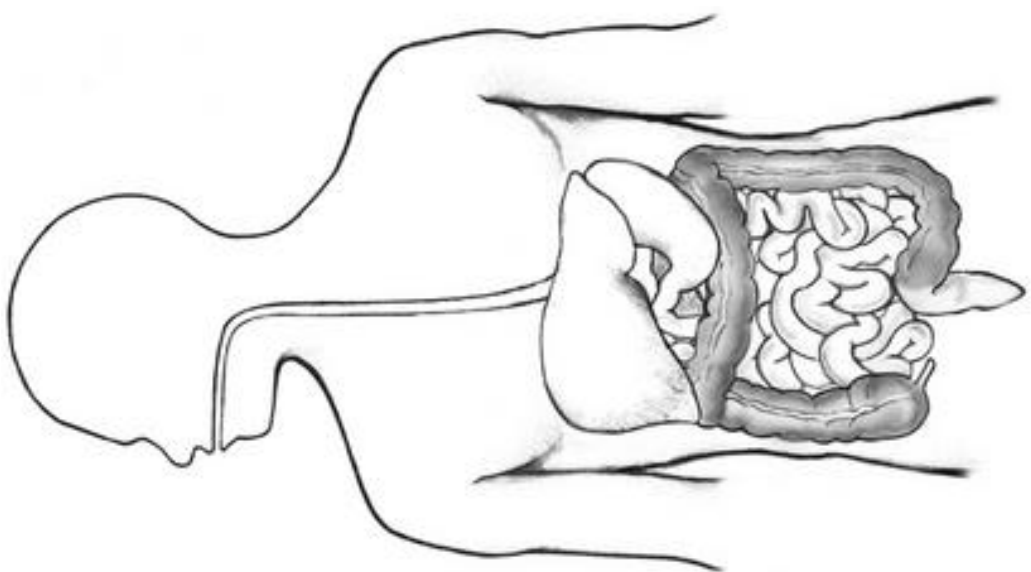
The Muscular System Notes



Respiratory System



Digestive System



Name: _____ Date: _____ Period: _____

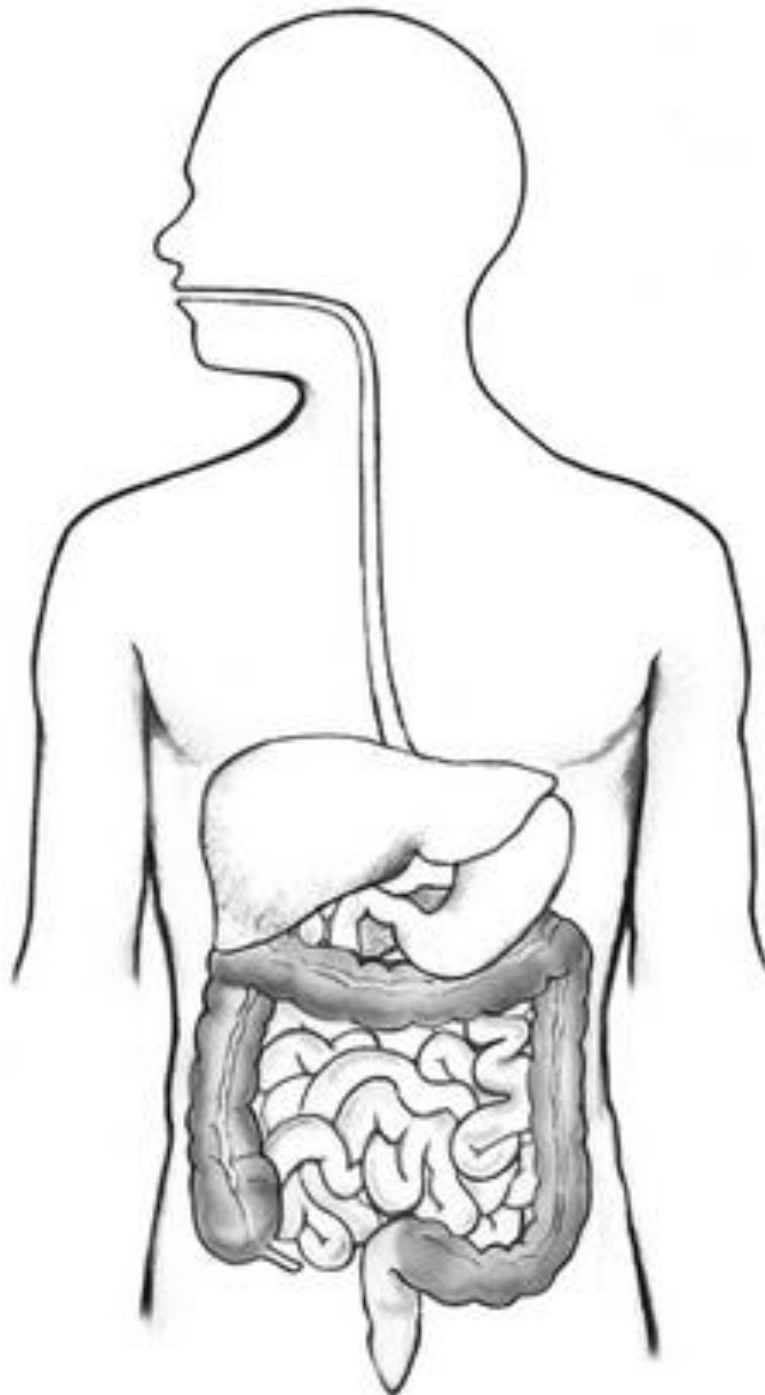
Getting Energy

Content Objective: describe the relationship between digestion and cell respiration in terms of enzymes and nutrient absorption.

Language Objective: write to explain how enzymes relate to cell respiration

TEKS: B10.A, B9.C, B3.E

Essential Question: _____



Name: _____ Date: _____ Period: _____

So, What's an Enzyme?

Content Objective: identify and investigate the role of enzymes using models and by conducting a lab experiment showing how the body breaks down hydrogen peroxide.

Language Objective: write to complete statements about the characteristics of enzymes

TEKS: B9.A, B9.C, B1.A, B1.B, B2.E, B2.F, B2.G, B2.H

Essential Question: _____

Word Bank		
Lipid	Decrease	Carbohydrate
Change	Shape	Energy
Substrate	Protein	Used up
Nucleic acid	Increase	

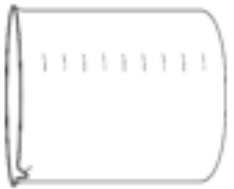
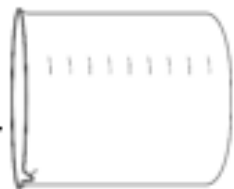
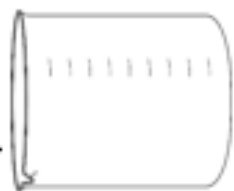
From this activity I can infer the following information about enzymes.

1. Enzymes, like your partner, _____ the rate of a chemical reaction.
2. They do this by lowering the amount of _____ needed to get the reaction started.
3. Enzymes can be used over and over because they do not _____ and they are not _____.
4. Each enzyme can only combine with a specific _____ because of their _____.
5. Enzymes are made of a biomolecule called _____.
6. Draw and label the enzyme/substrate complex and label the parts. As always, add color. Label the enzyme, the substrate, the active site, and the products.

Effects of Temperature and pH on Enzyme Action

Background:

Experimental Set-up



Analysis :

Purpose: _____

Claim: _____

Evidence: _____

Procedure:

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

Question:

Reasoning:

Data:

Height of Foam cm			
Beaker	1	2	3
Temperature			
pH			

Conclusion:

Materials

Name: _____ Date: _____ Period: _____

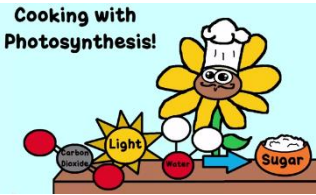
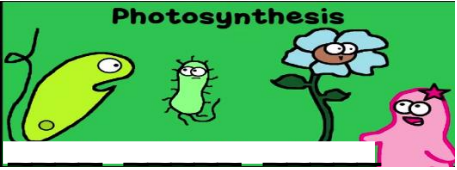
Photosynthesis

Content Objective: compare the products and reactants of photosynthesis in terms of energy and matter


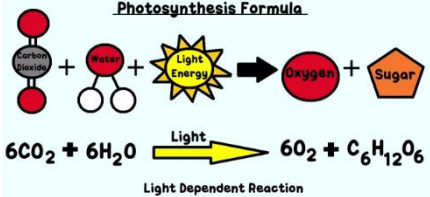
Language Objective: write to complete statements about the photosynthesis

TEKS: B9.B

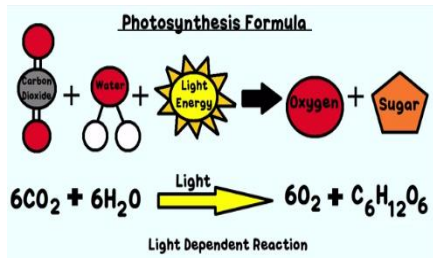
Essential Question: _____

Photosynthesis	
<p>Directions: go to www.youtube.com and search for Amoeba Sisters "photosynthesis and the teeny tiny pigment pancakes". Answer the questions.</p>	
<p>What trick can photosynthesis perform?</p> 	<p>Photosynthesis can combine _____ and _____ to make _____.</p>
<p>Who can photosynthesize?</p>	
<p>Besides sugar, what else does photosynthesis produce?</p>	<p>Photosynthesis produces sugar and _____.</p>
<p>How do plants, animals and all other living organisms use glucose?</p>	<p>All living organisms use glucose to produce _____ in a process called _____.</p>
<p>What advantage do plants have over animals when it comes to getting sugar?</p>	<p>Animals have to go find sugar, but plants can just _____.</p>
<p>Write the equation for photosynthesis.</p>	
<p>What is the definition of a reactant?</p>	<p>A reactant is _____.</p>
<p>What are the reactants for photosynthesis?</p>	<p>The reactants for photosynthesis are _____ and _____.</p>

Name: _____ Date: _____ Period: _____

What is a product?	A product is something that is made or _____ during a chemical reaction.
What are the products of photosynthesis?	The products of photosynthesis are _____ and _____.
What is $C_6H_{12}O_6$?	$C_6H_{12}O_6$ is the chemical formula for _____.
What is the name of the pigment used in photosynthesis?	The pigment used in photosynthesis is called _____.
Why does chlorophyll look green?	Chlorophyll looks green because it reflects green _____.
Where can you find chlorophyll?	Chlorophyll is found in the _____ of a _____.
What 2 reactions take place in photosynthesis?	1. _____ 2. _____
What are 2 names for the light independent reaction?	1. _____ 2. _____
Where does the light dependent reaction occur?	The light dependent reaction occurs in the _____.
What the heck is a thylakoid?	A thylakoid is _____.
Label the thylakoids in the drawing of the chloroplast. Color them light green.	
How do the Amoeba Sisters describe the granum?	The Amoeba Sisters refer to the granum as a _____.
What is the difference between a granum and grana?	Granum is _____ Whereas grana are _____.
Label the grana and granum on the chloroplast on the previous page.	
During the light dependent reaction, what molecule is split?	During the light dependent reaction, the _____ is split, releasing _____.
Circle 3 things that are involved in the light reaction in some way.	<p style="text-align: center;">Photosynthesis Formula</p>  <p style="text-align: center;">$6CO_2 + 6H_2O \xrightarrow{\text{Light}} 6O_2 + C_6H_{12}O_6$</p> <p style="text-align: center;">Light Dependent Reaction</p>
Where does the dark reaction occur?	The light independent reactions occur in the _____ inside a _____.

Name: _____ Date: _____ Period: _____

Describe the stroma.	The stroma is _____ _____ _____
Label the stroma on the chloroplast on # 19 and color it dark green.	
How does the ATP made during the light reaction help the dark reaction?	The ATP made during the light reaction _____ _____
What is the final and most important product?	The final product of photosynthesis is _____ which is a _____ the provides your body with _____.
<p>In the formula</p> <ul style="list-style-type: none"> • circle what is involved in the light dependent reaction. • Put a square around what is involved in the dark reaction. 	 <p style="text-align: center;">Photosynthesis Formula</p> <p style="text-align: center;">$6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow{\text{Light}} 6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6$</p> <p style="text-align: center;">Light Dependent Reaction</p>
What is the importance of photosynthesis?	Photosynthesis provides _____ to _____

Posters and Pancakes

NOM-
NOM!!

Objective: Diagram the process of photosynthesis on a poster.

1. Put your full names and class period on the in the upper right corner of the poster.
2. Label and color the following:

Thylakoids

Stroma

Glucose

Water (H_2O)

Carbon Dioxide (CO_2)

Oxygen (O_2)

Chloroplast membrane

Light energy



3. Glue the pictures on the poster with arrows to show the reactants entering the chloroplast and products leaving.
4. Write the word reactant under the 2 reactants.
5. Write the word product under the 2 products.

Name: _____ Date: _____ Period: _____

Photosynthesis

Content Objective: compare the products and reactants of photosynthesis in terms of energy and matter

Language Objective: write to complete statements about the photosynthesis

TEKS: B9.B

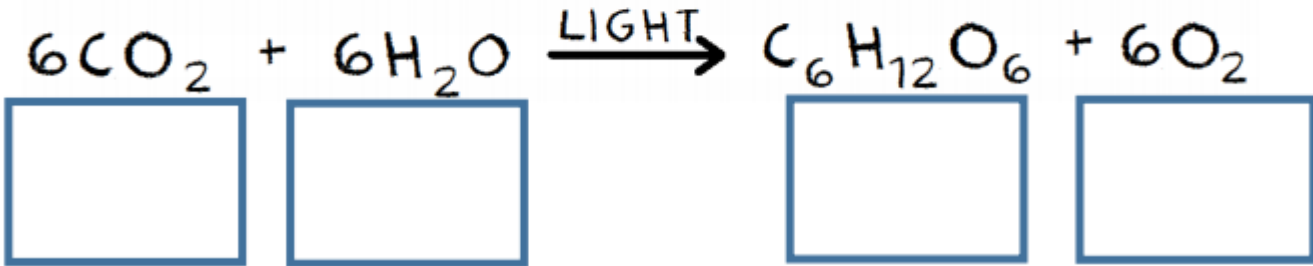
Glue the Teeny Tiny notebook from
Page 197 here after completed.

Comparing Photosynthesis & Cellular Respiration

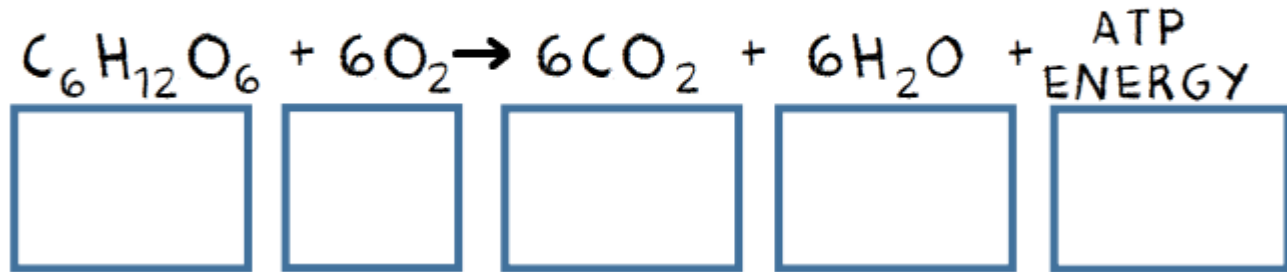
Formula Illustrations

For the following formulas, (1) determine whether the formula is photosynthesis or cellular respiration, (2) circle the products, and (3) creatively illustrate each reactant or product in the box underneath.

5. Formula is for: _____



6. Formula is for: _____



If Chloroplasts and Mitochondria Could Speak

If chloroplasts and mitochondria could only speak! Decide whether each quote could be stated by a chloroplast (label "C"), mitochondria (label "M"), or both organelles (label "C, M").

7. _____ My main goal is to produce a lot of ATP energy.

8. _____ I contain pigments to help capture light energy.

9. _____ Oxygen gas production will happen within me.

10. _____ I can be found in plant cells.

11. _____ I can be found in animal cells.

12. _____ Carbon dioxide gas production will happen within me.

13. _____ Muscle cells would contain a lot of me.

14. _____ Water production will happen within me.

15. _____ Glucose production will happen within me.



16. _____ I would be found within a photosynthetic protist.

17. _____ I am the site of aerobic cellular respiration.

18. _____ Krebs and the Electron Transport Chain both happen within me.

19. _____ I contain chlorophyll.

20. _____ The Calvin Cycle happens within me.

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Activities Pages

Name: _____ Date: _____ Period: _____

Traits of Living Organisms Graphic Organizer

Traits of ALL ORGANISMS!!

- Are multicellular (many cells) or unicellular (one cell)
- smallest living unit

- the ability of an organism to obtain and use energy

- The body's response to the environment that helps it maintain stability on a cellular level as well as the entire body

- Populations of organisms change over time as they better adapt to the environment

- changes that occur in organisms as they mature

- Molecules required for the survival of all living organisms

- Making more of the same

- Unicellular organism make more
- Multicellular organisms get bigger

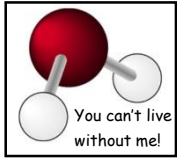
- genetic material
- Guarantees biodiversity (differences among living organisms)
- Recipe for making protein

Name: _____ Date: _____ Period: _____

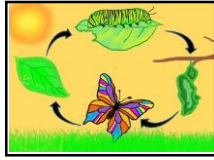
Name: _____ Date: _____ Period: _____

Characteristics of life Biocab

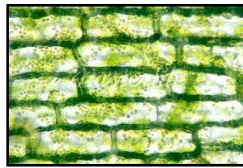
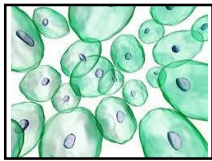
Use these pictures to match with the terms on pages 6 and 7.



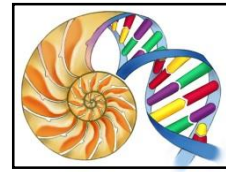
Hint: look how much I have changed!



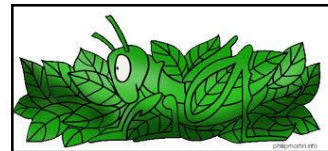
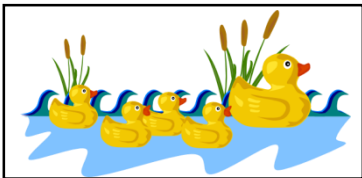
Hint: look how different we are!



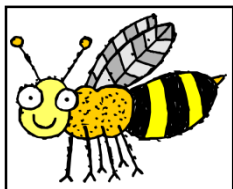
Hint: there are lots of us!



©images - illustrationsOf.com/1140385



Hint: can you see me in these leaves?!

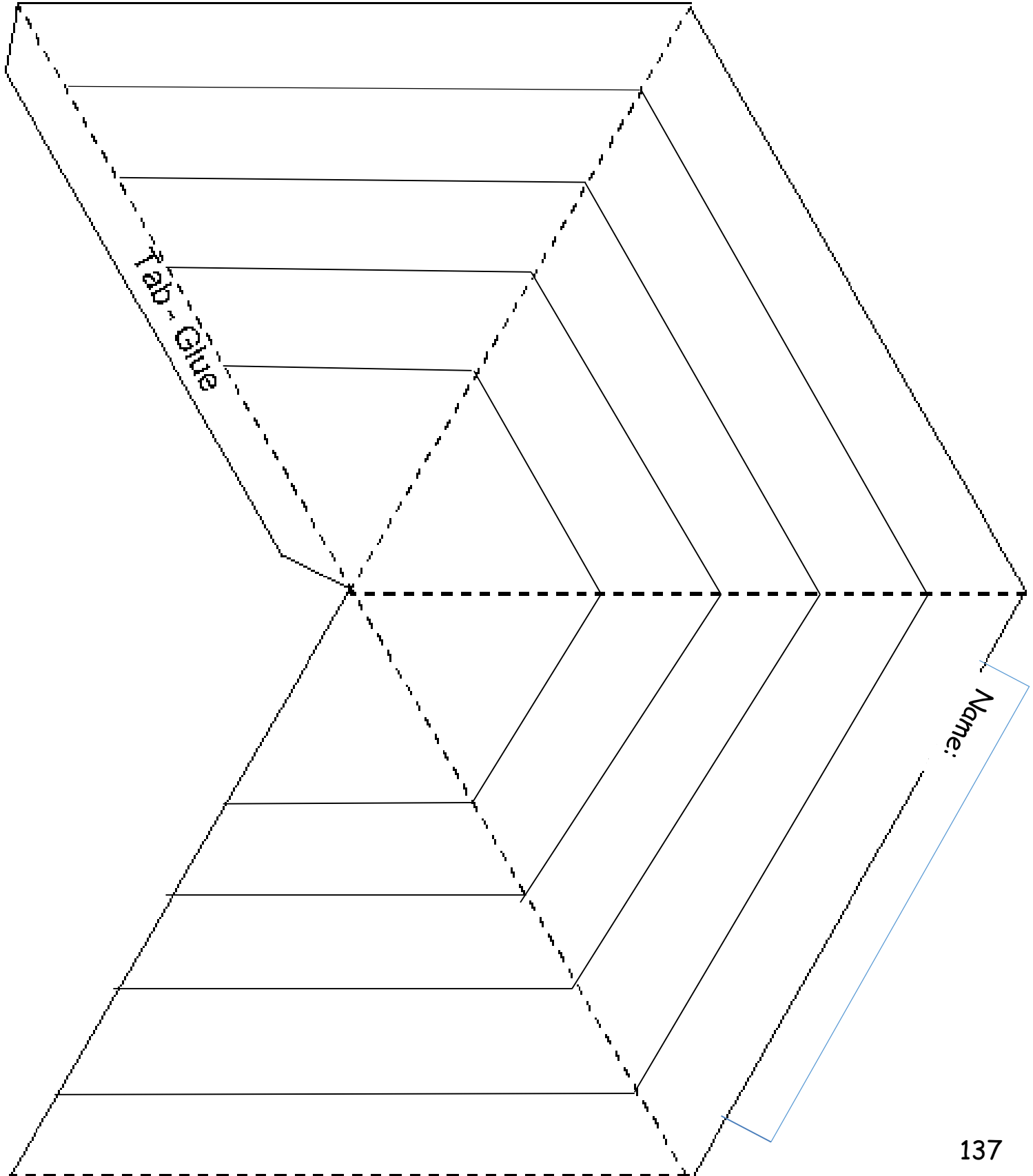


Hint: I'm a whole entire critter!

Name: _____ Date: _____ Period: _____

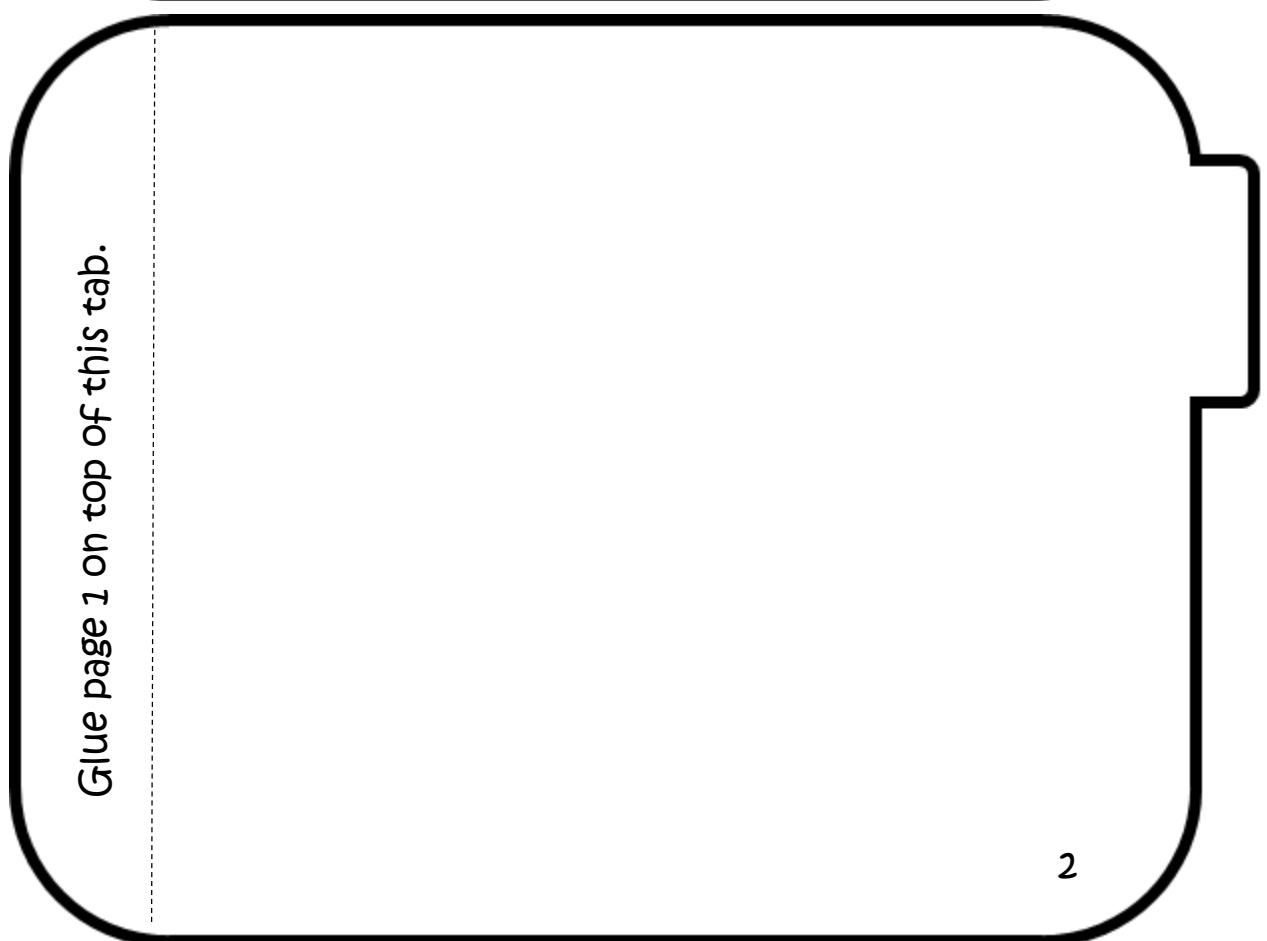
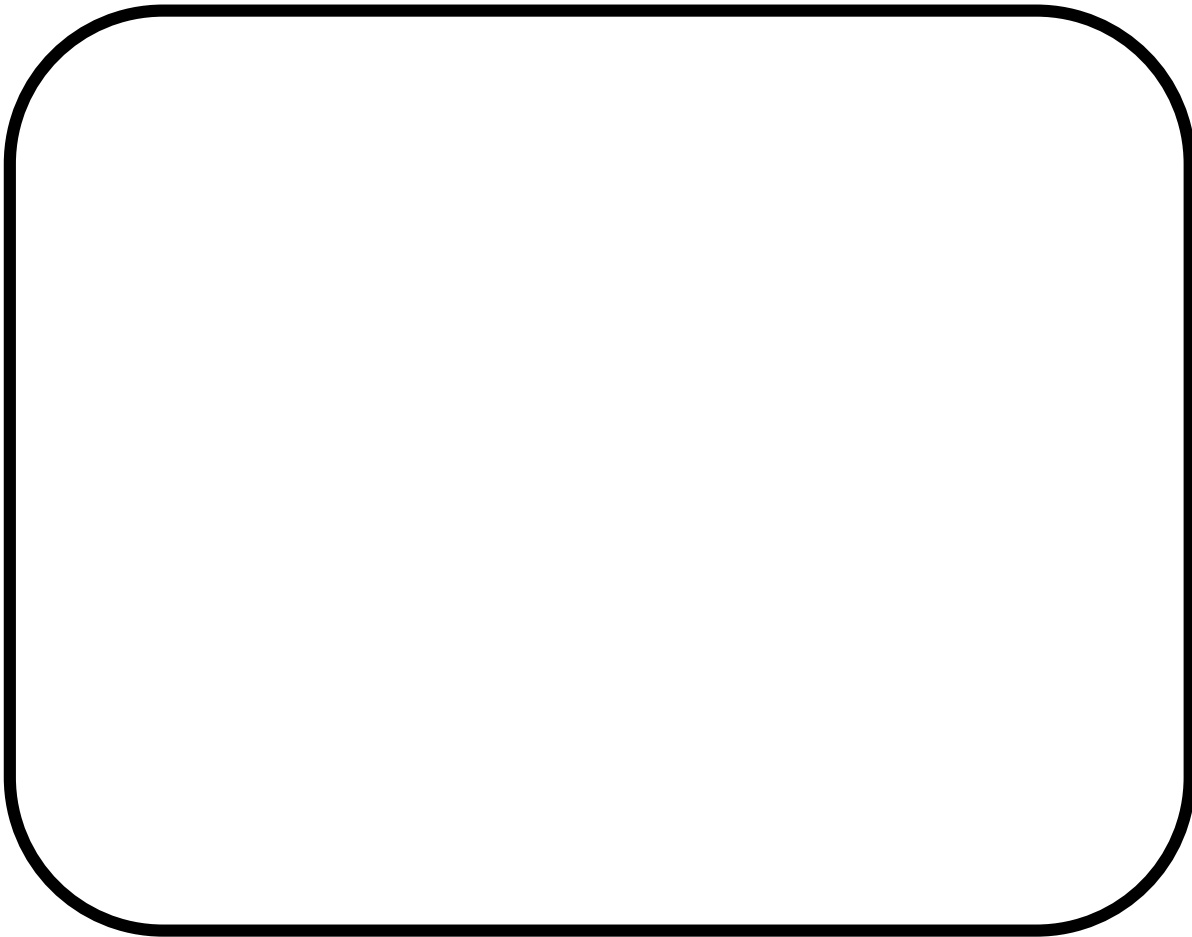
Name: _____ Date: _____ Period: _____

Energy pyramid template



Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____



Glue page 1 on top of this tab.

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Glue pages 1-2 on top of this tab.

3

Glue pages 1-3 on top of this tab.

4

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Glue pages on top 1-4 of this tab.

5

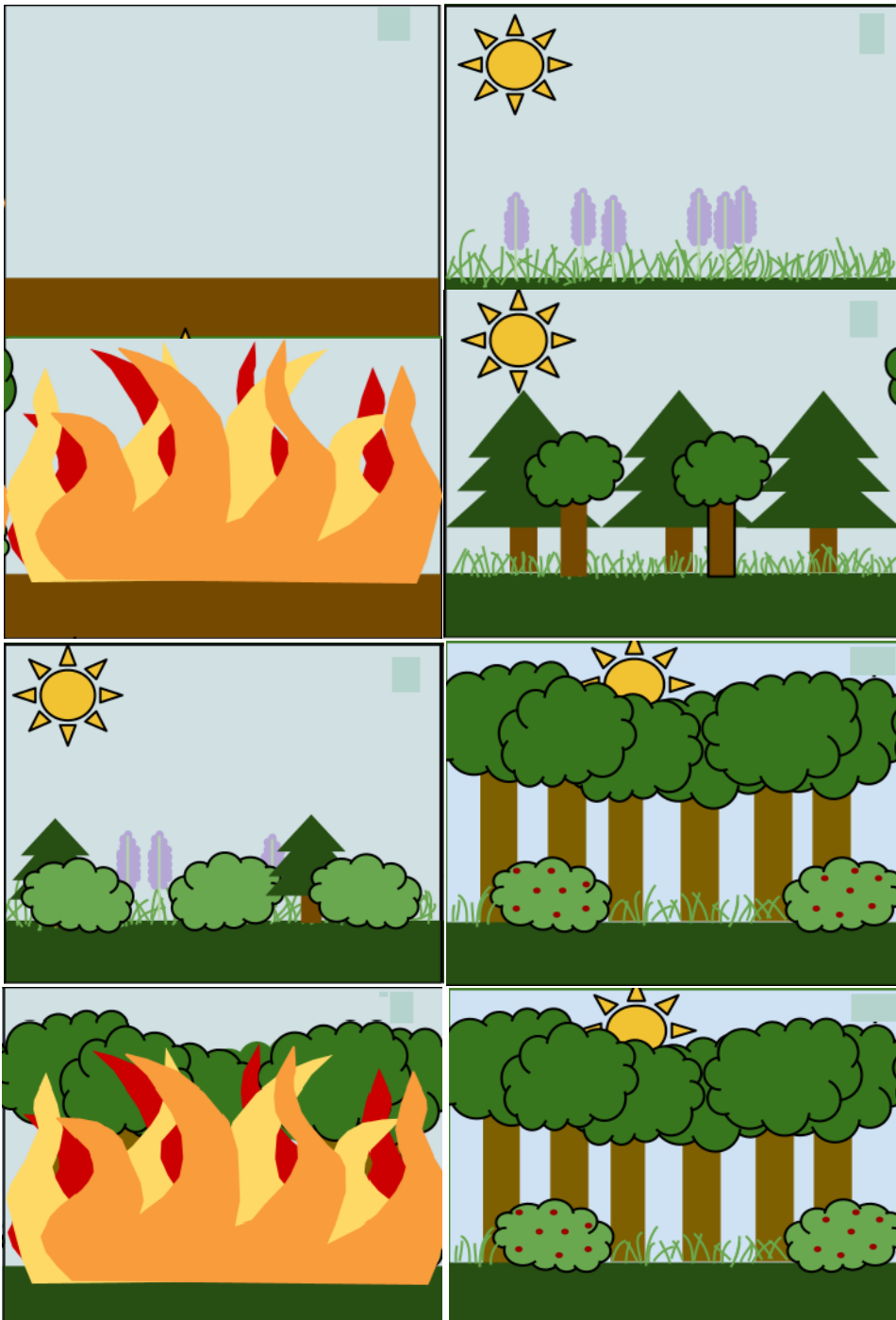
Glue all the pages on top of this tab.

6

Name: _____ Date: _____ Period: _____

Illustrating Secondary Succession

Directions: Cut out the pictures below and arrange them in the correct order based on the information in your foldable on the previous page.



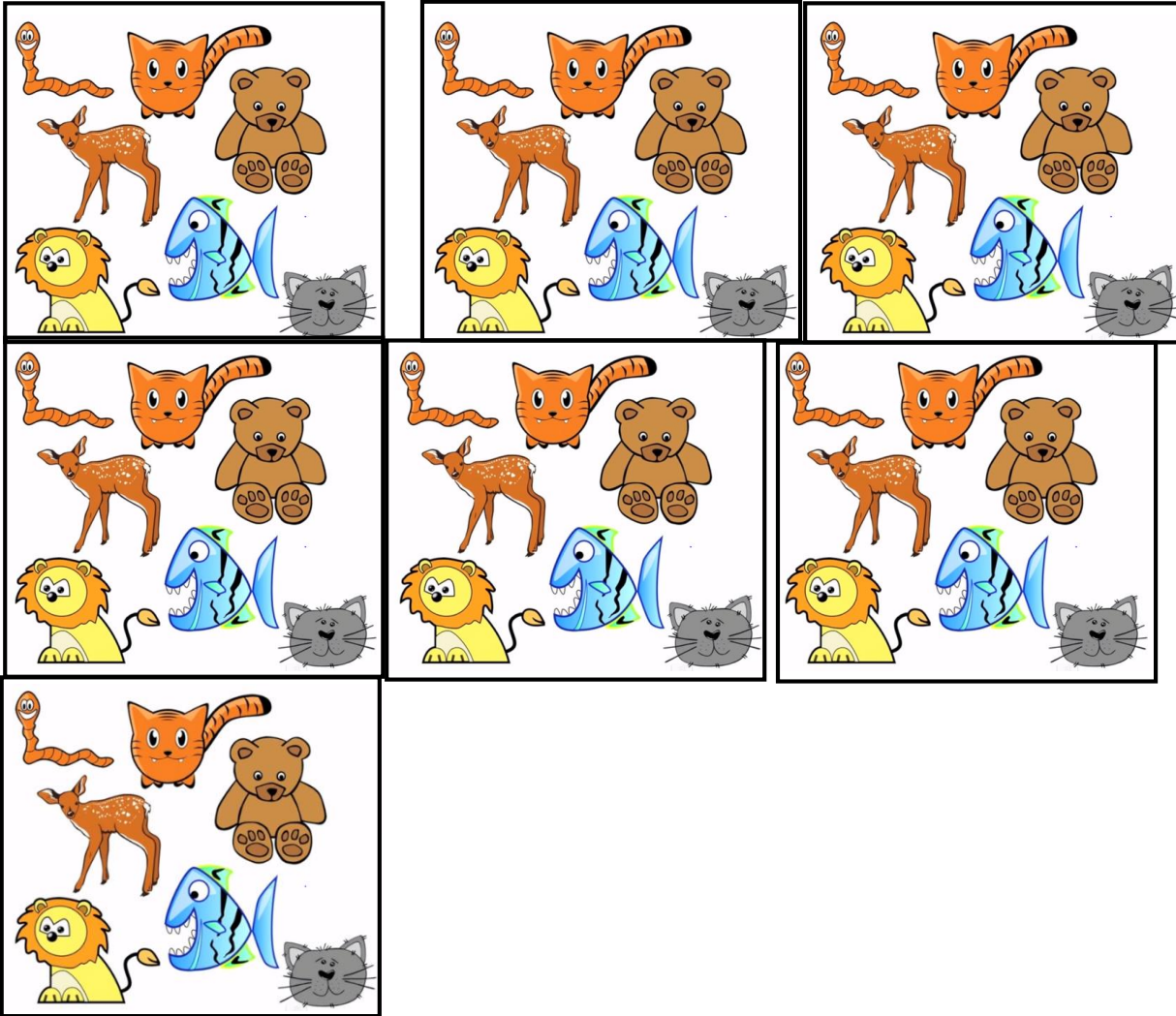
After you have your pictures in order, glue them to the strip of paper provided by your teacher, leaving enough space under each picture to describe what is happening. Be sure to leave room at the front for a title, and at the end to glue into your notebook.

When you are finished, fold your paper accordion style and glue into your notebook.

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Levels of Taxonomic Classification





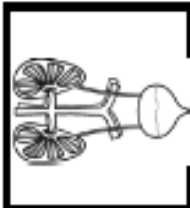


Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Activity 1

Directions: Cut out the squares on the right hand side of this page. Glue them down under the appropriate category: Levels, Definition, and Example and in the appropriate order.

Smallest working unit of life that serves a specific job or function.		Groups of one or more organs working together to perform the functions for the organism.		Organism
Organ		Cell	Entire living thing that carries out all basic life functions.	
Tissue	Made of several cells similar in structure & function that work together to perform a specific job.	Organ System		Made of similar tissues that work together to perform a specific activity

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The Levels of Organization

Example

Definition

Level

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Name: _____ Date: _____ Period: _____

Activity 2

The Levels of Organization

Level	Definition	Example

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Tissue	Smallest working unit of life that serves a specific job or function.	
Organ	Groups of one or more organs working together to perform functions for the organism.	
Organ System	Made of several cells similar in structure & function that work together to perform a specific job	
Organism	Entire living thing that carries out all basic life functions.	
Cell	Made of similar tissues that work together to perform a specific activity	

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Fold along dashed line and apply glue to this tab

Levels of Organization Slider Pocket

Fold along dashed line and apply glue to this tab

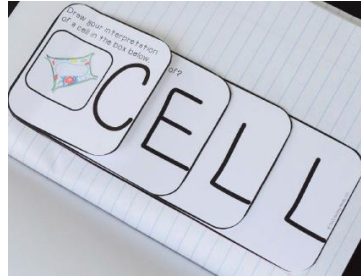
Apply glue under this area to seal the pocket closed

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Directions:

- Color and cut out the diagram below.
- Answer the questions in complete sentences.
- Glue them on to the next page as shown.



<p>Glue "L" page here</p> <p>Explain how technology has helped us better understand cell biology</p> <p>List the different kinds of cells you know.</p> <p>L</p> <p>© 2015 Getting Nerdy, LLC</p>	<p>© 2015 Getting Nerdy, LLC</p> <p>Glue "E" page here</p> <p>What are cells made of and where can you find cells?</p> <p>E</p> <p>© 2015 Getting Nerdy, LLC</p>	<p>Draw your interpretation of a cell in the box below.</p> <p>C</p> <p>© 2015 Getting Nerdy, LLC</p> <p>Glue "C" page here</p> <p>What does the word "cell" make you think of?</p> <p>E</p>
---	--	--

Name: _____ Date: _____ Period: _____

Directions

Number of blank white papers required: 2

Fold two pieces of white paper in half width-wise (like a hamburger). Cut along the fold.

Fold the four half-pieces of paper in half width-wise. Then, create a tab for all 4 pieces by folding the top portion about half an inch so that the overhang folds are facing away from each other (not over the each other). Take extra caution to make sure the tabs are all the same size.

Glue the 4 pieces together so that you form an accordion by gluing the bottom of one tab over the top of another.

(Note that the tabs on the ends of your "accordion" will not pair with another. Feel free to smooth it out or cut it off).

Use 2 pages per scientist. The crease between pages serves as the anchor for your pop-up. See picture below for an example.

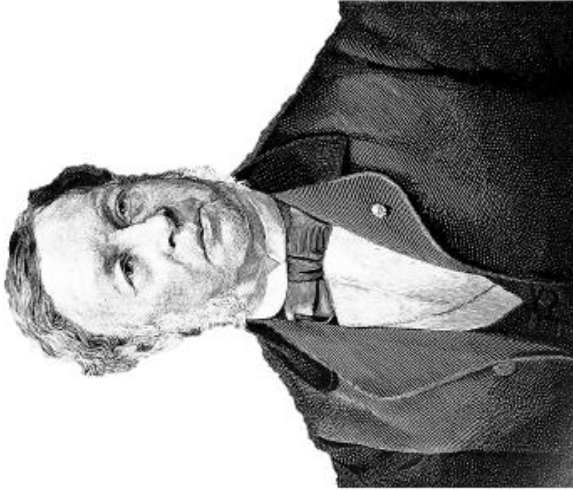
Each section should be dedicated to the 4 scientists that contributed the cell theory: Hooke, Virchow, Schwann, and Schleiden.



2 points	2 points (x 4)	1 point (x 4)	3 points (x4)	2 points (x 4)	Total possible points:
Colorful, visual cover is provided with a clear title.	Scientist pop up is neatly cut and glued.	The correct time frame or specific year is included.	The thoughts and or word bubbles adequately describe the scientist's role in the cell theory	Each page is colorful and visually appealing.	34

Name: _____ Date: _____ Period: _____

The Old Dead Guys of Cell Theory



Schleiden
Fold and glue for pop-up



Virchow
Fold and glue for pop-up



Schleiden
Fold and glue for pop-up



Hooke
Fold and glue for pop-up

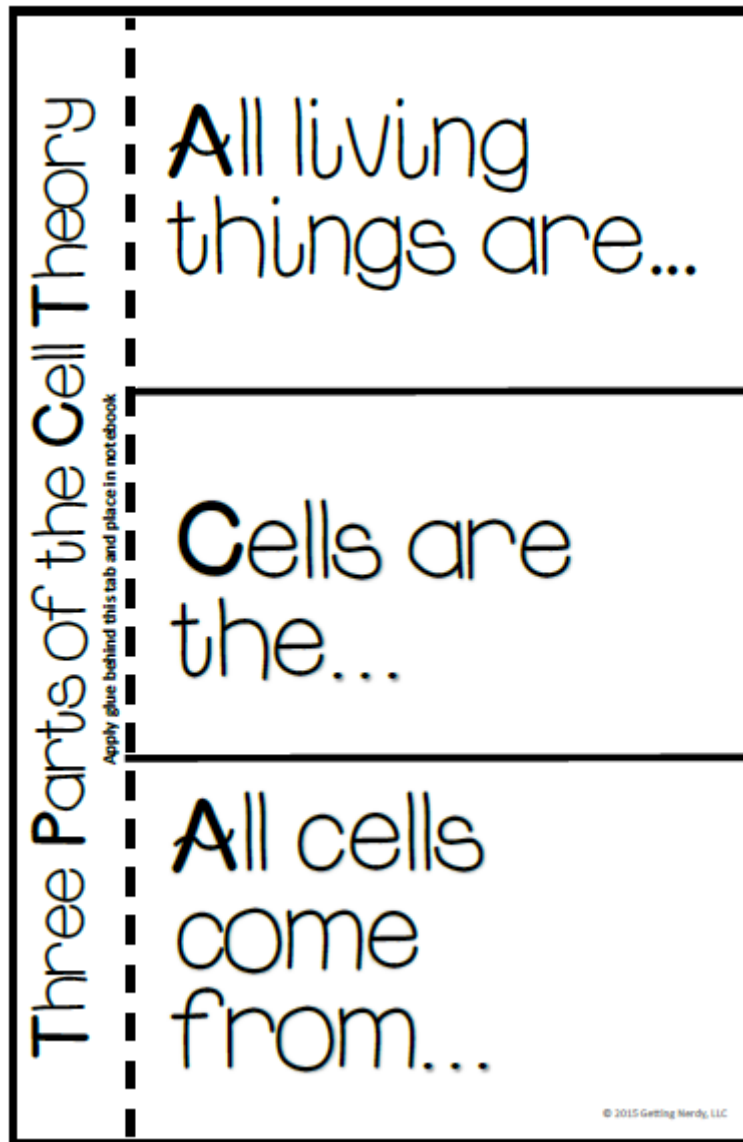
Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Three Parts of Cell Theory

Directions:

- Cut out the graphic below.
- Cut slits from the right edge to the dotted line between the sentence stems.
- Fold along the dotted line.
- Add glue under the tab that says "Three Parts of the Cell Theory".
- Glue on top of the lined box on the next page.
- Write the sentence stem and then complete it using the foldable from yesterday's activity.
- Add some color to make it interesting.



Name: _____ Date: _____ Period: _____

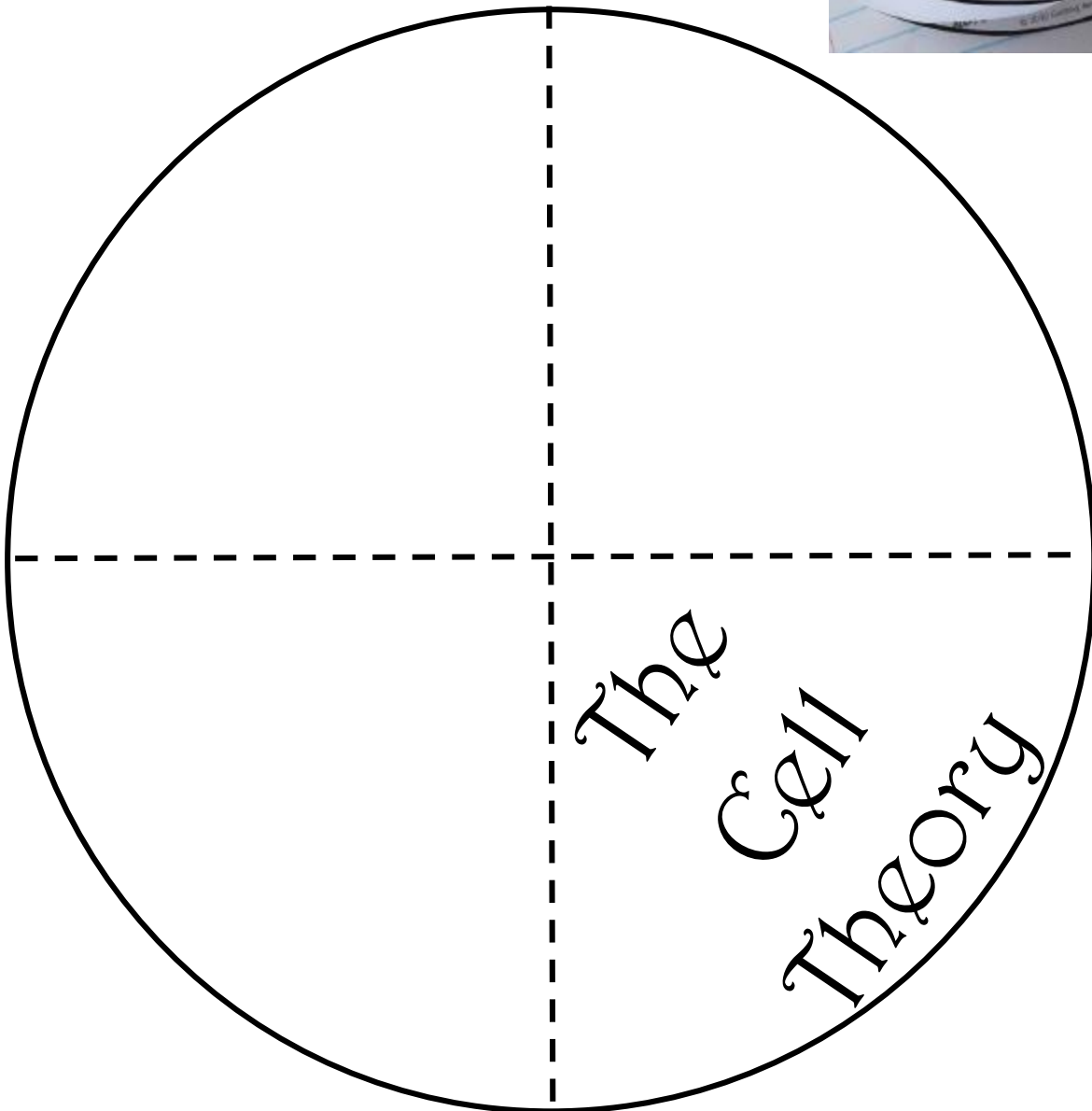
Name: _____ Date: _____ Period: _____

Cell Theory Foldable

directions: cut out the diagram. In each empty quadrant, write one of the 3 ideas of cell theory. Also draw an illustration to show each idea. Make it colorful. Fold along the dashed lines as shown.

Apply glue to the quadrant that says "the cell theory" and glue into book.

On the outside, draw

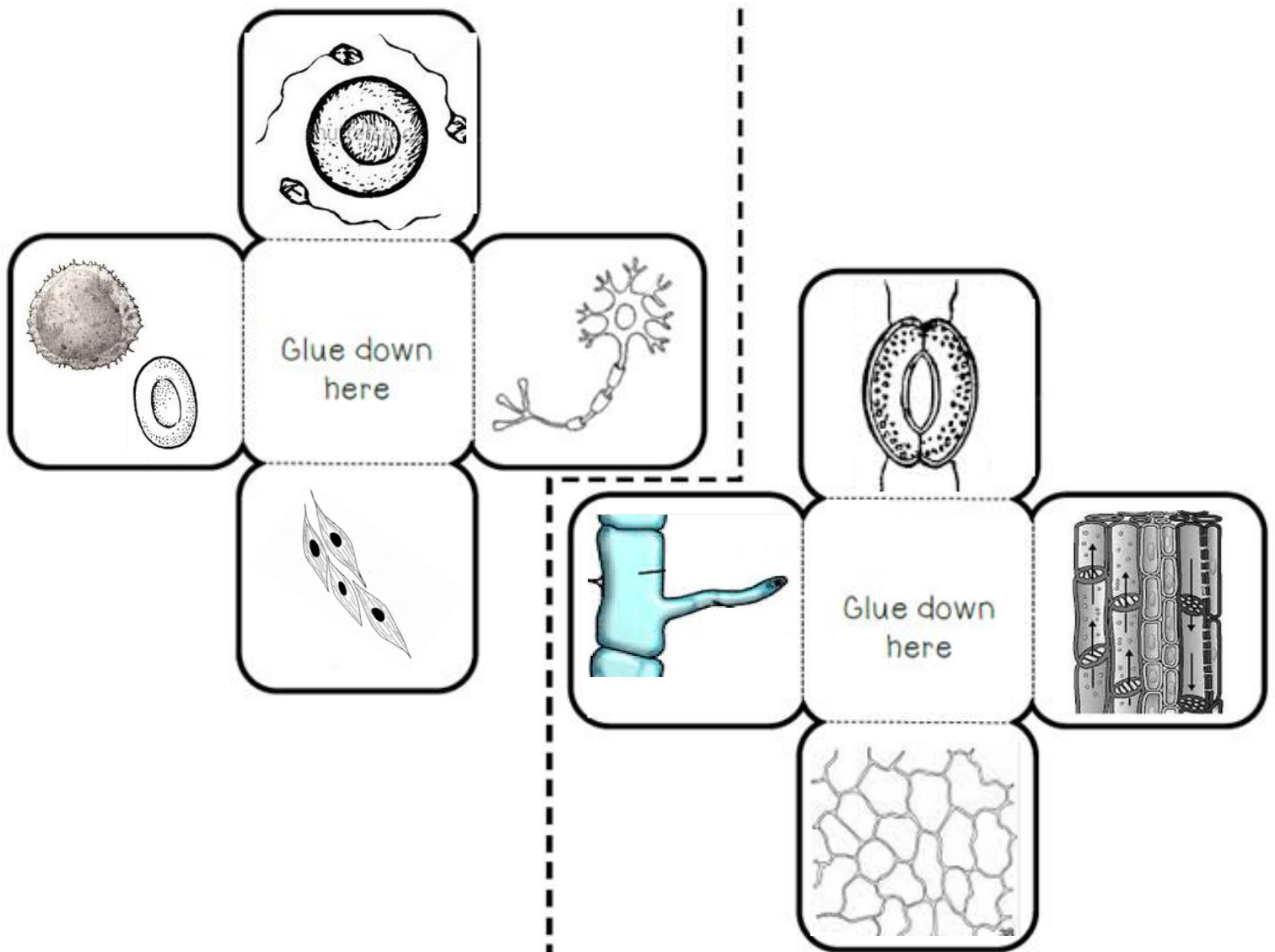


Name: _____ Date: _____ Period: _____

Cell Specialization Foldables

Directions:

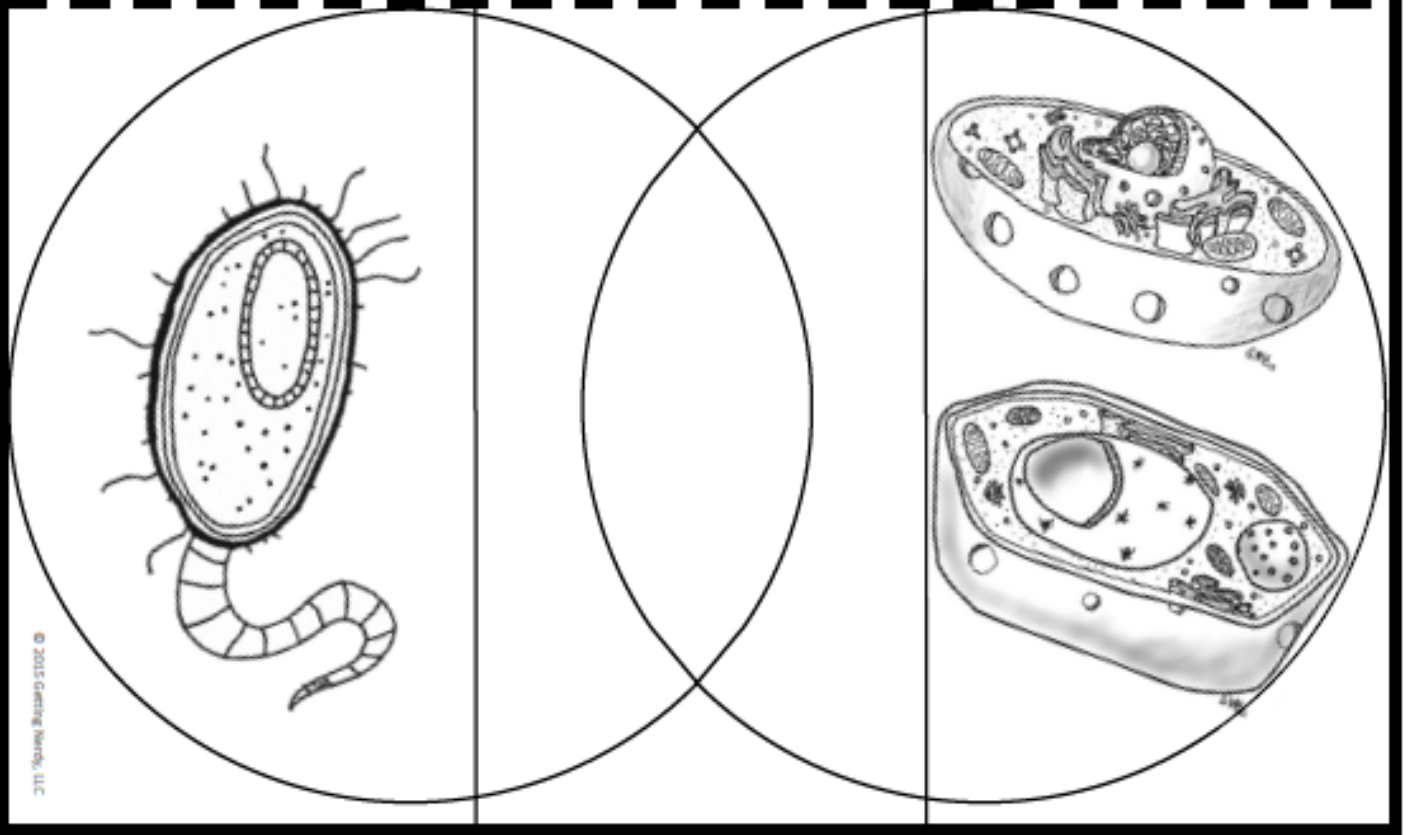
- Using the pictures on the previous page, write the name of each cell under the drawing.
- Color each drawing.
- Cut out the foldable.
- On the flipside, explain how the shape of the cells helps with its function, using complete sentences.
- Fold all the flaps on the dotted line and glue on page



Name: _____ Date: _____ Period: _____

Prokaryotic and Eukaryotic Cell Comparison

Apply glue behind this tab and place in notebook



Can have a cell wall (eukaryotic plant cells)	Has a nucleus with DNA enclosed inside
Can be unicellular (Protist/Fungi) or multicellular	No organelles (except ribosomes)
No nucleus with free floating circular DNA	Can be unicellular
Bacteria ONLY! Eubacteria & Archaeobacteria	Have organelles
Cytoplasm	Can have a method Of movement
Includes plants, animals, protists, and fungi	Always unicellular
Cell Membrane	Ribosomes
	DNA

Directions: Cut out the blank sheet on the previous page and glue into your INB. Cut out the venn diagram cell comparison sheet, then cut along the three vertical lines to split the picture in thirds. Fold the tabs back along the dashed line and apply glue to the back of the tab and glue to the diagram that says "glue here". Underneath the flaps, cut out and glue down the similarities and differences between prokaryotes and eukaryotes.

Name: _____ Date: _____ Period: _____

Cells From the Six Kingdoms

Directions:

- Cut out the concept map below and glue the top above the dashed line to the previous page.
- Cut out the descriptive circles and glue into the correct vacant spots.
- Refer to page 169 if necessary to determine where the circles belong.
- Color all the circles containing information about prokaryotic cells light blue, and the circles containing information about eukaryotic cells light green.
- Fold the map along the dashed line so that it makes a flap.
- Under the flap, draw AND color a picture of a cell from each kingdom, and label the following parts for each
 - Cell membrane
 - DNA
 - Ribosomes
 - Cytoplasm
 - Nucleus (where appropriate)

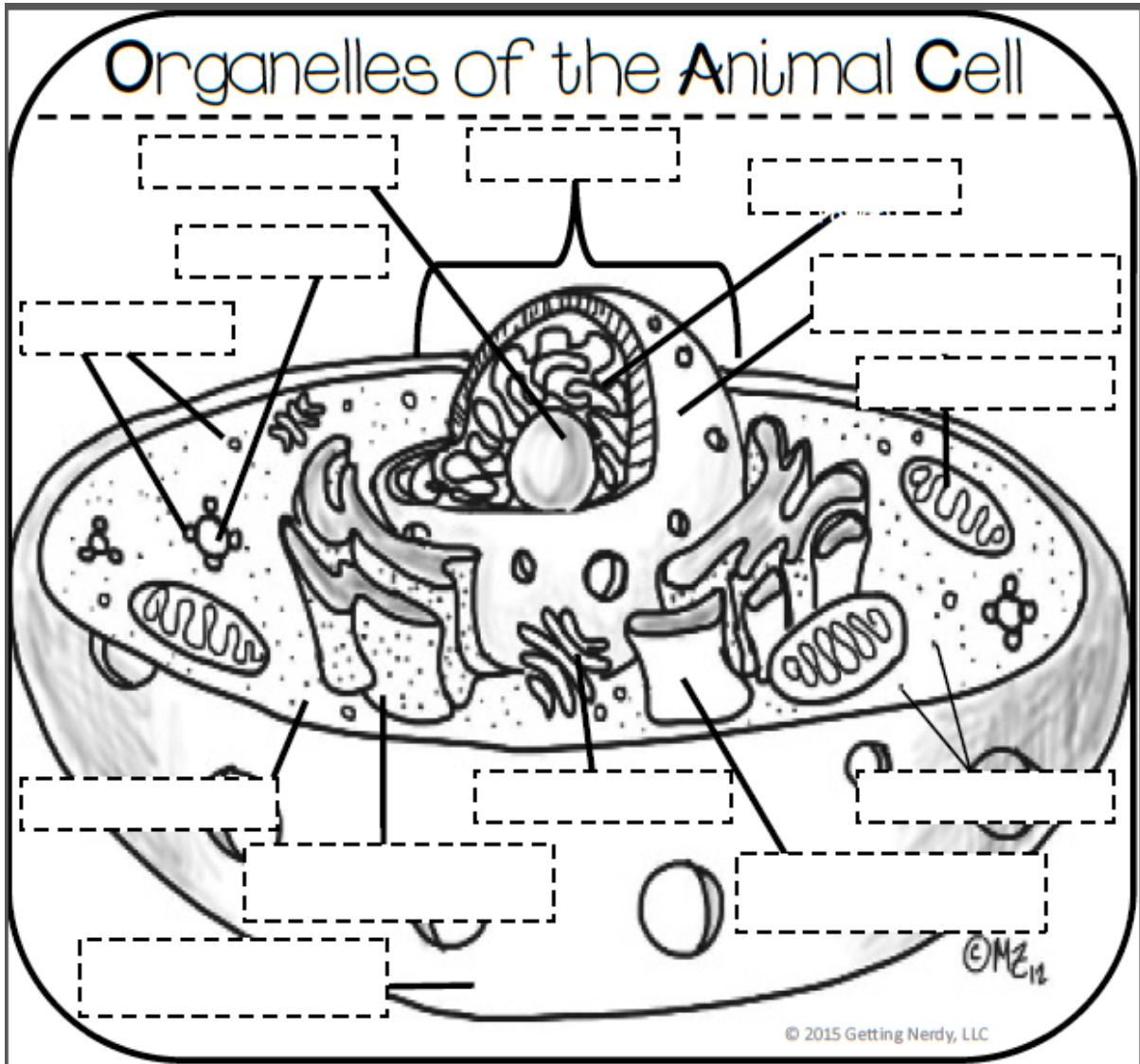
Cut out the blank concept map and glue into your notebook. Cut out the individual circles and complete the concept map for the cells of the six kingdoms.



Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

- Go to www.cellsalive.com
- Click on "animal cell" on the right.
- Start the animation to label the cell below and write the functions on the previous page.
- Color each cell part you label a different color and color the matching name the same color as the part.
- Cut out the template and glue it on the previous page at the top only.



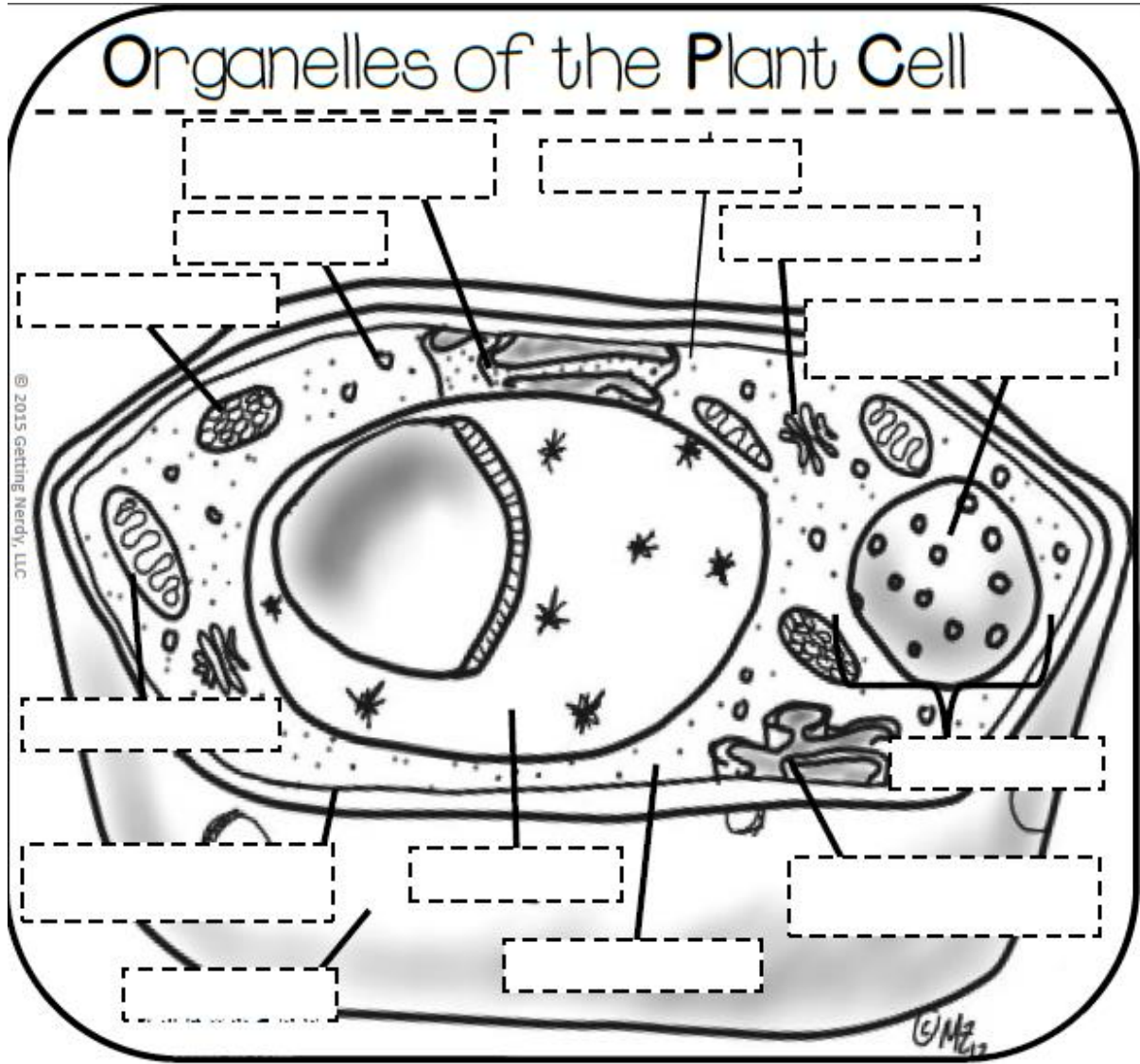
Directions: Cut out the cell organelle parts below and glue them onto the INB sheet to the right. Cut out the INB sheet.

- Nucleus
- Cell Membrane
- Cytoplasm
- Ribosome
- Rough Endoplasmic Reticulum
- Lysosome
- Smooth Endoplasmic Reticulum
- Mitochondria
- Nucleolus
- Nuclear Membrane
- Golgi Bodies
- Chromatin
- Vacuole

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

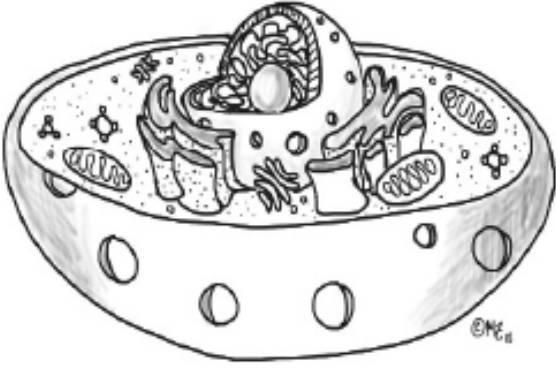
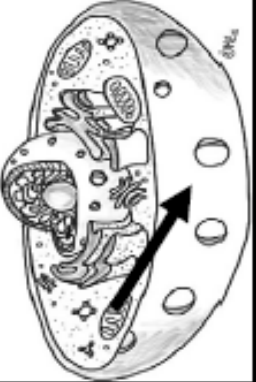





- Go to www.cellsalive.com
- Click on "plant cell" on the right.
- Start the animation to label the cell below and write the functions on the previous page.
- Color each cell part you label a different color and color the matching name the same color as the part.
- Cut out the template and glue it on the previous page at the top only.



Directions: Cut out the cell organelle parts below and glue them onto the INB sheet to the right. Cut out the INB sheet.

- Nucleus
- Cell Membrane
- Cytoplasm
- Ribosome
- Rough Endoplasmic Reticulum
- Lysosome
- Smooth Endoplasmic Reticulum
- Mitochondria
- Chloroplast
- Nuclear Membrane
- Golgi Bodies
- Cell Wall
- Vacuole

Name: _____ Date: _____ Period: _____

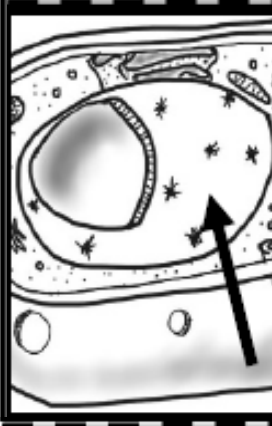
 <p data-bbox="727 1570 782 1915">The Animal Cell</p> <p data-bbox="516 1915 652 1936">© 2015 Getting Nerdy, LLC</p>	 <p data-bbox="435 1327 474 1507">What am I?</p> <p data-bbox="506 1264 545 1507">What is my job?</p> <p data-bbox="646 1171 685 1507">What if I took a vaca?</p>	 <p data-bbox="435 907 474 1087">What am I?</p> <p data-bbox="506 844 545 1087">What is my job?</p> <p data-bbox="646 751 685 1087">What if I took a vaca?</p>	 <p data-bbox="435 487 474 667">What am I?</p> <p data-bbox="506 424 545 667">What is my job?</p> <p data-bbox="646 331 685 667">What if I took a vaca?</p>
 <p data-bbox="1107 1747 1146 1927">What am I?</p> <p data-bbox="1179 1684 1218 1927">What is my job?</p> <p data-bbox="1318 1591 1357 1927">What if I took a vaca?</p>	 <p data-bbox="1107 1327 1146 1507">What am I?</p> <p data-bbox="1179 1264 1218 1507">What is my job?</p> <p data-bbox="1318 1171 1357 1507">What if I took a vaca?</p>	 <p data-bbox="1107 907 1146 1087">What am I?</p> <p data-bbox="1179 844 1218 1087">What is my job?</p> <p data-bbox="1318 751 1357 1087">What if I took a vaca?</p>	 <p data-bbox="1107 487 1146 667">What am I?</p> <p data-bbox="1179 424 1218 667">What is my job?</p> <p data-bbox="1318 331 1357 667">What if I took a vaca?</p>

Name: _____ Date: _____ Period: _____

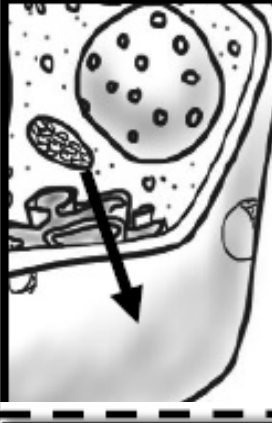
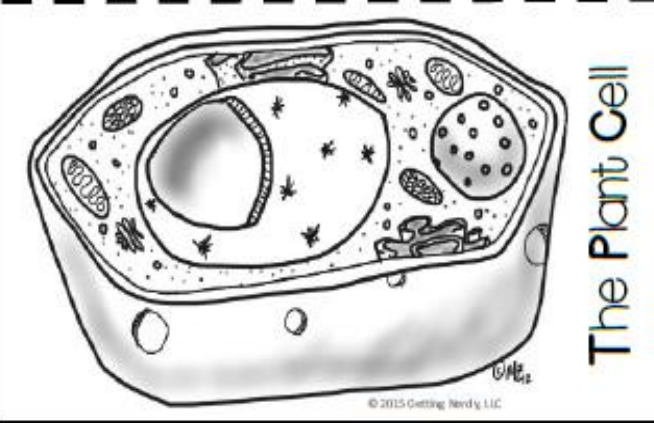
Glue next strip here.



What am I?
What is my job?
What if I took a vaca?



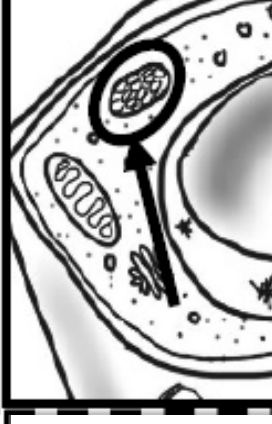
What am I?
What is my job?
What if I took a vaca?



What am I?
What is my job?
What if I took a vaca?



What am I?
What is my job?
What if I took a vaca?

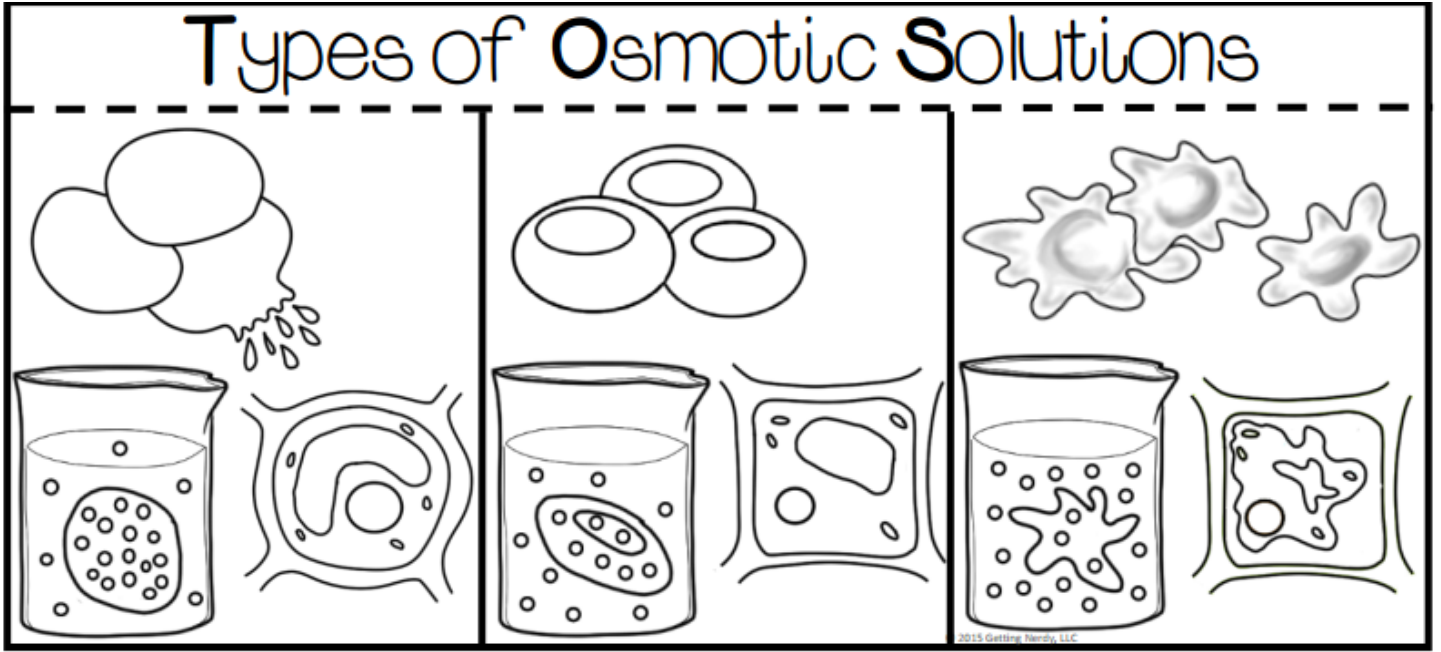


What am I?
What is my job?
What if I took a vaca?

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

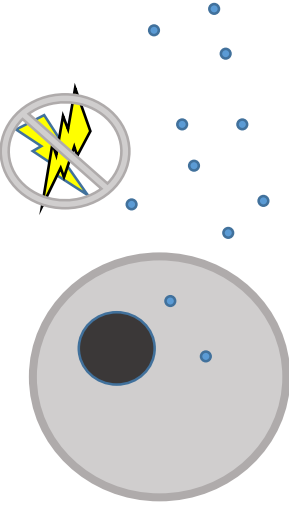
Osmotic Solutions



Name: _____ Date: _____ Period: _____

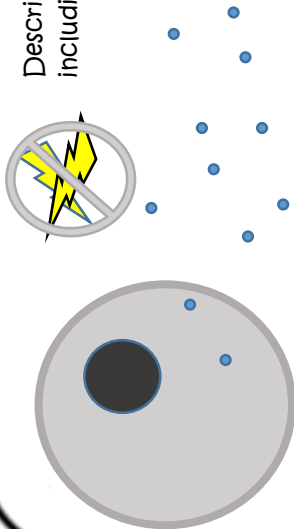
Sheet 2: Glue 1 on top of this tab.

Describe Diffusion



Diffusion

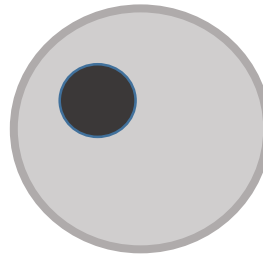
Describe Passive Transport including a list of the 3 types



Passive Transport

Sheet 3: Glue all 2 on top of this tab.

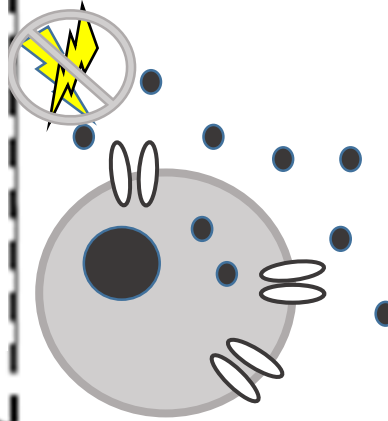
Describe Osmosis: how it is different from diffusion and how it is affected by solutions.



Osmosis

Sheet 4: Glue all 3 on top of this tab.

Describe Facilitated Diffusion



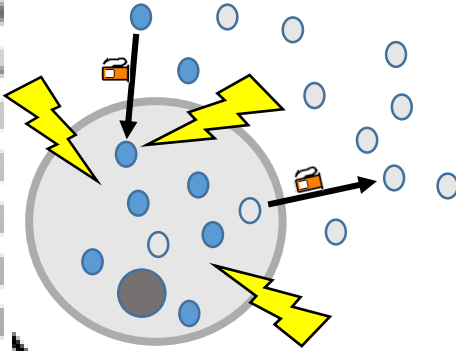
Facilitated Diffusion

Passive Transport Summary Booklet

Name: _____ Date: _____ Period: _____

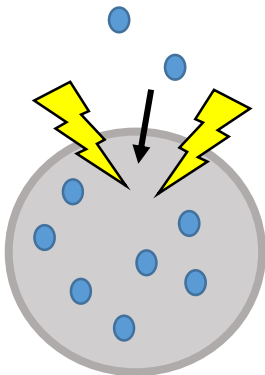
Sheet 3: Glue 1&2 on top of this tab.

Describe how the sodium potassium pump works.



Na/K Pump

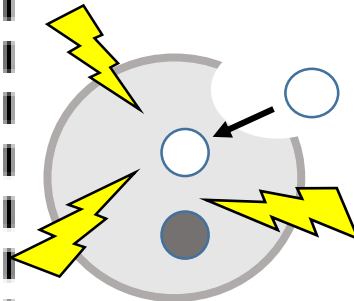
Describe Active Transport including a list of the 4 types.



Active Transport

Sheet 1: Glue 1 on top of this tab.

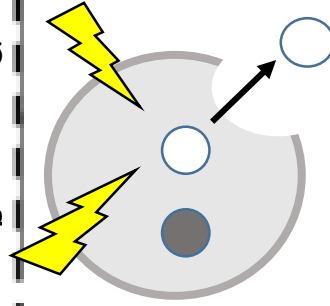
Describe endocytosis including the 2 types.



Endocytosis

Sheet 4: Glue all 3 on top of this tab.

Describe exocytosis:

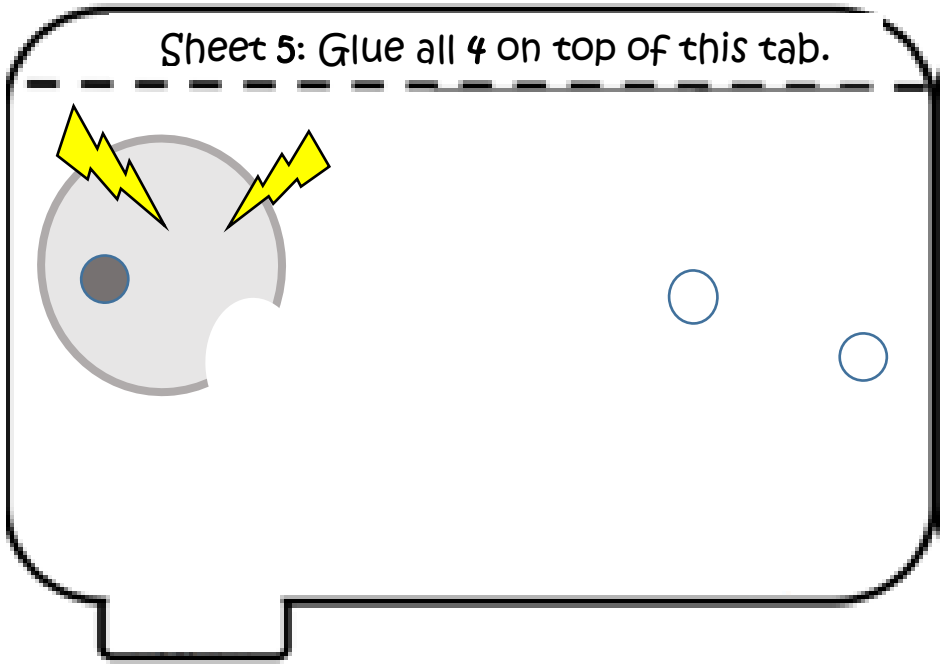


Exocytosis

Active Transport Summary Booklet

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____



Name: _____ Date: _____ Period: _____

□

Name: _____



Teeny Tiny Immune System

Pathogenic Organisms

1. A living organisms that causes disease is called a _____
2. List 4 examples of pathogens:
 - a. _____
 - b. _____
 - c. _____
 - d. _____
3. The job of your immune system is to fight the _____ caused by pathogens.

1

The End

Lines of Defense

4. What is the first line of defense? _____
 5. How does the first line of defense work? _____
 6. What is the second line of defense? _____
 7. How does a fever protect you against pathogens? _____
- 2

Lines of Defense

8. What role does swelling play in defending your body from pathogens? _____
 9. What is the immune response? _____
 10. Name 2 leucocytes (white blood cells)
 - a. _____
 - b. _____
- 3

Prevention is Key!

20. What is the purpose of M-cells? _____
 21. What is a vaccine? _____
 22. How does a vaccine prevent illness? _____
 23. What is the best prevention practice you can do to keep from becoming sick? _____
- 9

What Happens Next?

14. What type of biomolecule is an antigen? _____
 15. Antigens call in _____
 16. What is the job of a T-cell? _____
 17. How do B-cells work? _____
 18. What is the purpose of an antibody? _____
 19. How does a K-cell know what to do? _____
- 5

Macrophage

11. What is a macrophage? _____
 12. What active transport process does a macrophage use to capture a pathogen? _____
 13. Draw, color, label a macrophage, pathogen, and antigen below. _____
- 4

Name: _____ Date: _____ Period: _____

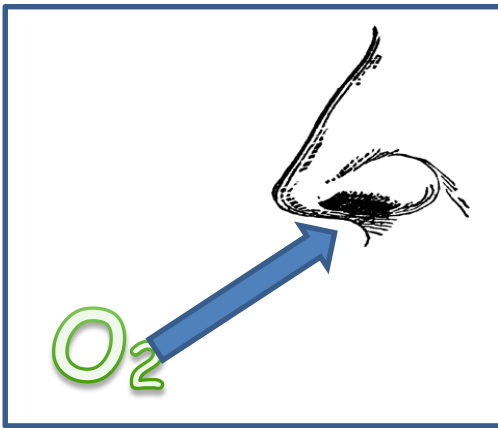
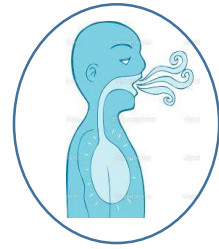
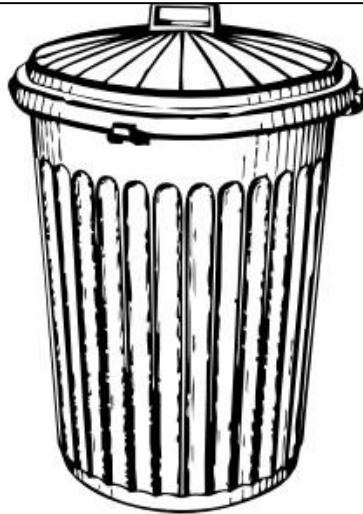
CELL RESPIRATION POSTER



Directions:

1. Color and cut out the pictures. Make the mitochondria red to show energy.
2. Arrange them to show what happens during cell respiration on your poster board.
3. Draw arrows to show what goes into or comes out of the mitochondria.
4. Label the following:

1. Mitochondria	2. ATP
3. Carbon dioxide	4. Water
5. Carbohydrates/glucose	6. Aerobic activity

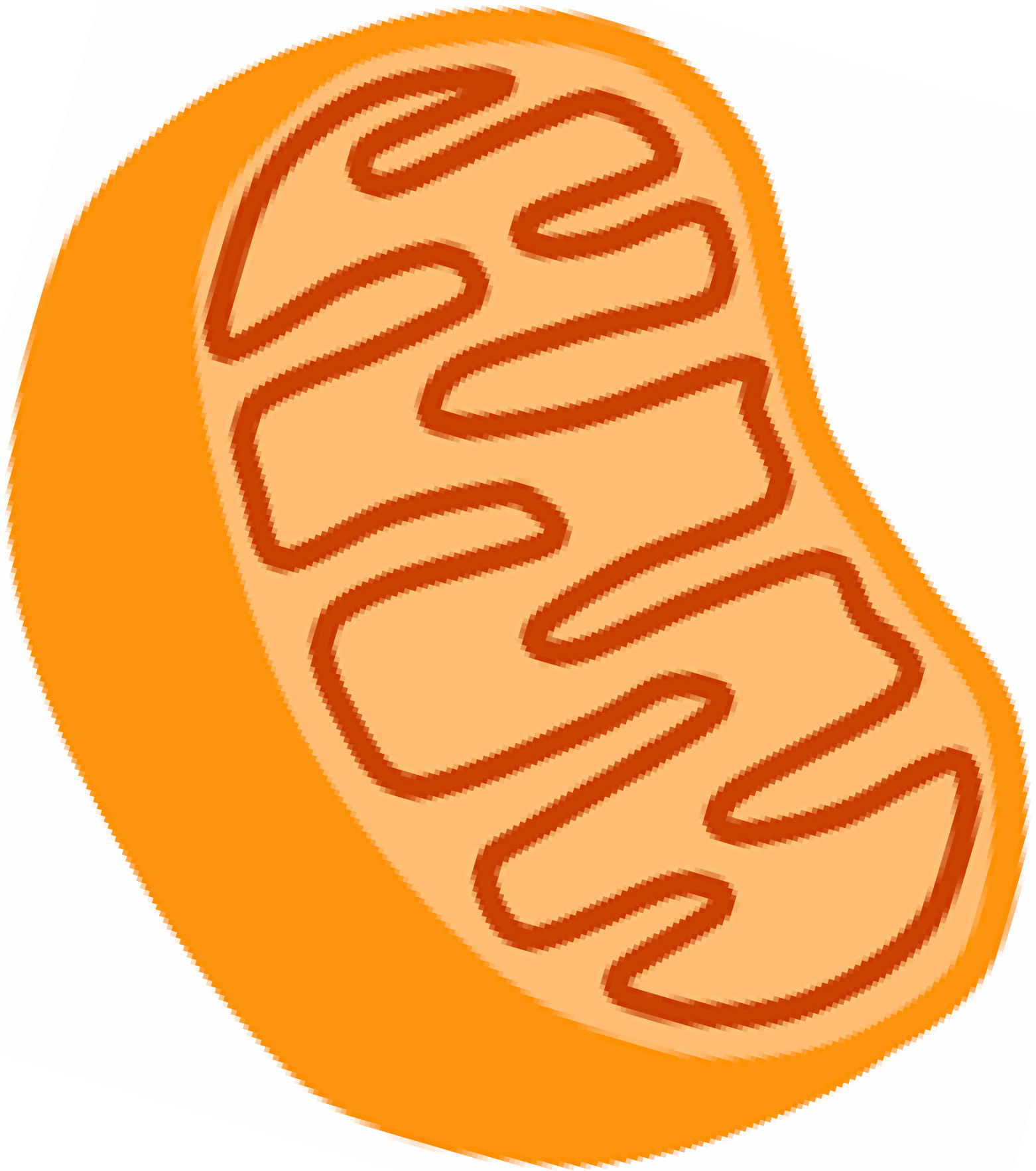


Name: _____ Date: _____ Period: _____

Name: _____

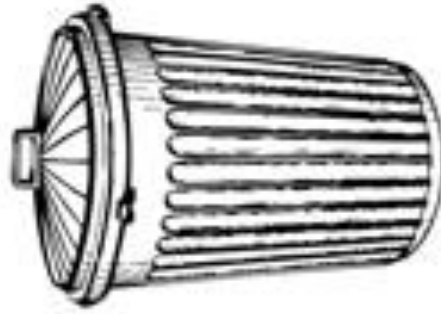
Date: _____

Period: _____



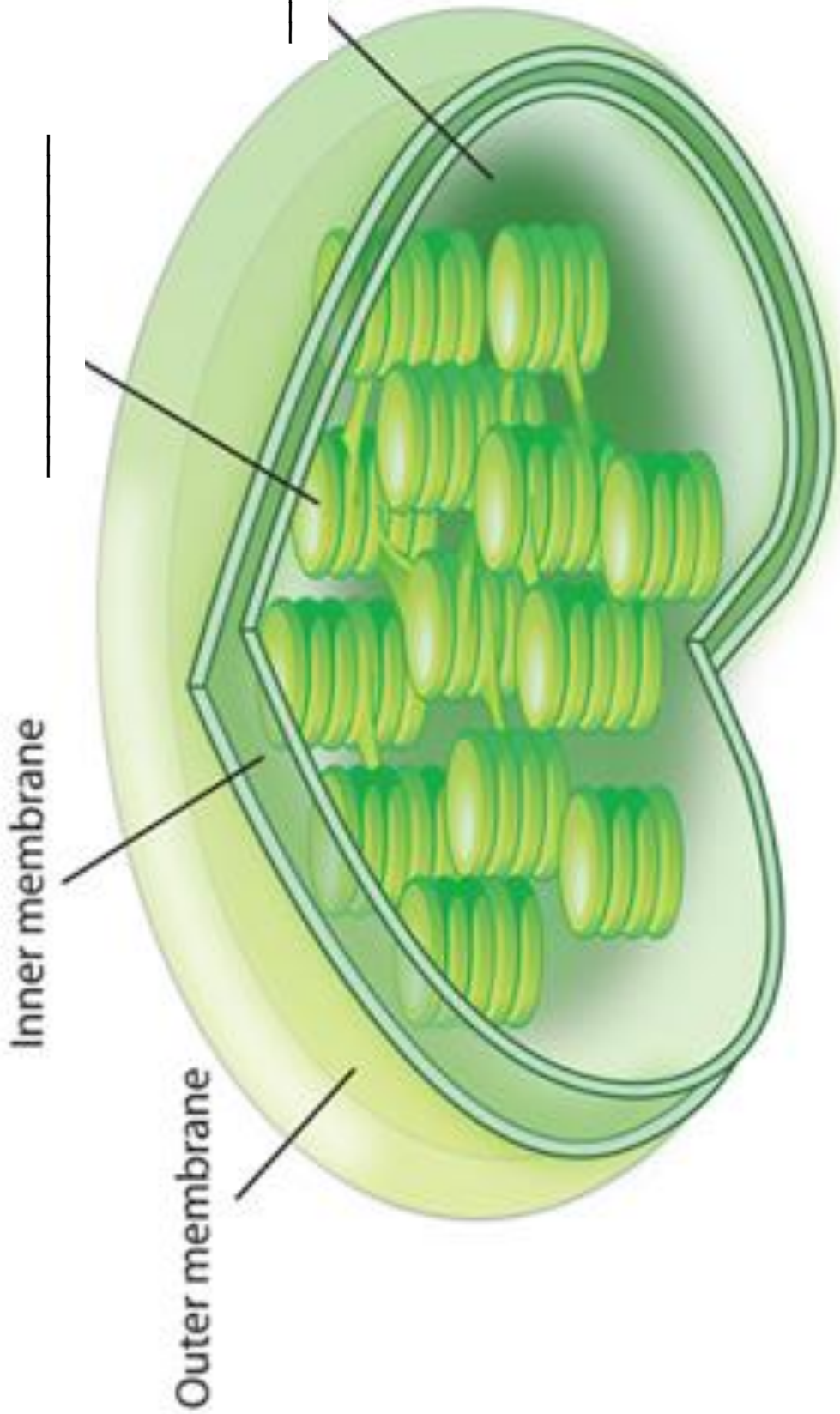
Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____



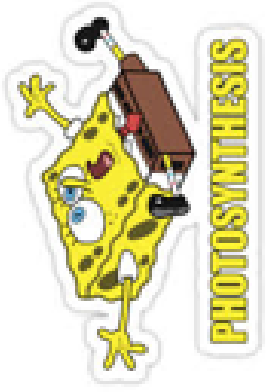
Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____



Name: _____ Date: _____ Period: _____

Name: _____



Teeny Tiny

About Photosynthesis

- Photosynthesis combines _____ and _____ energy to make _____.
- Three types of organisms that can photosynthesize: _____

The End

The Reactants

- A reactant is an input or output (circle one).
 - The gas:
 - The liquid:
 - The gas and the liquid are mixed with: _____ energy
- The reactants of photosynthesis are:

The Products

- A product is an input or output (circle one).
 - The waste product: _____
 - The formula for photosynthesis is:
 - The formula for glucose is: _____
- The products of photosynthesis are:
 - What the plant is making for itself: _____

Summary

- Photosynthesis is done by autotrophs or heterotrophs (circle one).
 - The reason plants do photosynthesis is to make _____ for themselves.
 - Photosynthesis is important because _____ must have a source of _____.

The Reactions

- The first reaction is called the _____ reaction _____ and it happens in the _____ of the _____ chloroplast.
 - The second reaction is called the light _____ reaction (or the _____ Cycle or the _____ and it happens in the _____ of the chloroplast.
- Capturing Light Energy
 - The pigment used in photosynthesis is _____.
 - Chlorophyll is found in the _____ which is a structure found in _____.
 - The two parts of the chloroplast are the _____ and the _____.
 - Stacks of thylakoids are called a _____.

Name: _____ Date: _____ Period: _____

Name: _____ Date: _____ Period: _____

Abdennour

Levels of questions for Cornell notes



3 - Applying

- | | | | |
|-------------|------------|-----------|-----------|
| Assemble | Build | Construct | Create |
| Design | Develop | Devise | Formulate |
| Imagine | Invent | Make | Plan |
| Produce | Write | Appraise | Forecast |
| Argue | Generalize | Speculate | Check |
| Hypothesize | Support | Critique | If/Then |
| Defend | Judge | Value | Predict |
| | | | Select |
| | | | Detect |
| | | | Test |
| | | | Value |

2 - Processing

- | | | | | |
|-------------|---------------|--------------|-------------|-----------|
| Attribute | Classify | Compare | Contrast | Criticize |
| Deconstruct | Differentiate | Discriminate | Distinguish | Examine |
| Experiment | Explain why | Infer | Integrate | Organize |
| Outline | Question | Sort | Structure | Carry out |
| Choose | Demonstrate | Do | Dramatize | Employ |
| Execute | Illustrate | Implement | Interpret | Operate |
| Schedule | Sketch | Solve | Using | |

1- Gathering

- | | | | | |
|----------|-----------|------------|-----------|---------|
| Classify | Complete | Describe | Discuss | Explain |
| Identify | Locate | Paraphrase | Recognize | Report |
| Select | Translate | Define | Duplicate | List |
| Memorize | Recall | Repeat | Reproduce | State |

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

a-, an-	Adip-	Aero-	Archaeo-	-ase

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

Auto-	Bacter-, bactr-	Bi-	Bio-	Cardi-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

Carn-	Cata-	-cell-	Chem-	-cul, -cule

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

-cycle, -cycl	Cyt-, cyte	di-, dipl	Ecto-	Endo-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

Eu-	Ex-	Fiss-	Gluc-, glyc-	Hetero-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

homo-	Hydr-	Hyper-	-ism	-kary-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

-logist	-logy	Macr-	Micro-	Mole-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

Mono-	Multi-	Neur-	Nuc-	-ose

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

Path-, pathy-	Pent-	Permea-	Phag-	Pheno-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

-phil-	Photo-	-phyll	Pino-	Plasm-, plast-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

Pro-	Sacchar-	-scribe, -script	-sis	-sperm-

Name: _____ Date: _____ Period: _____

Biology Prefixes, suffixes, and root words

-Spor-	Stat-, -stasis	Sub-	Sym-, syn	Tax-

Name: _____ Date: _____ Period: _____