

# Life Science



## Review

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Due Date: \_\_\_\_\_

CCG- Understand structure, function and interactions of living organisms and the environment.

### Classification Lab

The organization of living things can be seen like a pyramid or tree with seven major levels or categories along with the common name: Kingdom, Phylum, Class, Order, Family, Genus, Species (Subspecies). Taxonomy often includes the "Common Name" for reference.

In this lab you will classify twenty vertebrates into their classes.

Fish: Have gills, fins and live in water.

Amphibians: Live in water and land. Have smooth skin and lay eggs in water.

Reptiles: Cold blooded, have scales and lay eggs on land.

Birds: Have feathers, wings and are warm blooded.

Mammals: Warm-blooded, have air and give milk to their young.

- |     |     |
|-----|-----|
| 1.  | 11. |
| 2.  | 12. |
| 3.  | 13. |
| 4.  | 14. |
| 5.  | 15. |
| 6.  | 16. |
| 7.  | 17. |
| 8.  | 18. |
| 9.  | 19. |
| 10. | 20. |

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Due Date: \_\_\_\_\_

# Classify That!!!

Scientists have grouped millions of plants and animals into just five large "kingdoms." These are Animal, Plant, Fungus (like mushrooms), Protist (like algae), and Moneran (bacteria). The members of these kingdoms share similar traits, like cell structure, food procurement, movement, and reproduction. Each kingdom has smaller and smaller groups that are determined by more specific shared traits. For example, our classroom could be said to be on earth, in the United States, in Oregon, in Tigard, on our street, on our floor, on our side of the hall, etc.

Go to one of the computers and log onto the following web page  
<http://www.hhmi.org/coolscience/forkids/critters/critters.html>

Start with challenge number one and work your way through all five challenges. Answer the questions below while you work through the challenges.

## *Challenge One*

**Now...** Do you know  
what all birds have in common?

- A. All birds have teeth, a backbone, and feathers.
- B. All birds have feathers, wings and are cold blooded.
- C. All birds have beaks, wings and feathers.



### Challenge Two

**Now...** Do you know what all amphibians have in common?

- A. They're cold-blooded, born in water, and breathe through their skin and lungs or gills.
- B. All amphibians have scales, breathe through their lungs or gills, and are cold-blooded.
- C. All Amphibians lay eggs, have backbones and claws



### Challenge Three

**Now...** Do you know what all mammals have in common?

- A. Mammals are warm-blooded, nurse their young, and breathe through their gills.
- B. Mammals are warm-blooded, breathe through their lungs, and nurse their young.
- C. Mammals lay eggs, have a backbone, and are Warm-blooded.



### Challenge Four

**Now...** Do you know what all fish have in common?

- A. Fish are warm-blooded, have scales, and breathe through their gills.
- B. Fish lay eggs, have a backbone, and breathe through gills.
- C. Fish have scales, a backbone, and breathe through gills.



Challenge Five

**Now...** Do you know what all reptiles have in common?

- A. Reptiles have scales, are warm-blooded and live in water or on land.
- B. Reptiles are cold-blooded, have scales, and breathe only through their lungs.
- C. All reptiles lay eggs, have a backbone, and are cold-blooded.



Great Job!!! Now answer the following questions using complete sentences.

- 1) Can a bird be an animal and an invertebrate?
- 2) How can a dog be related to a cat?
- 3) Why would scientists find this way of grouping helpful?
- 4) Can scientists use what they have learned to establish a relationship between other vertebrates?
- 5) Why do you think scientists would be more interested in the details of internal and external features than the behavior or general appearance of an vertebrate?

# Classify That!

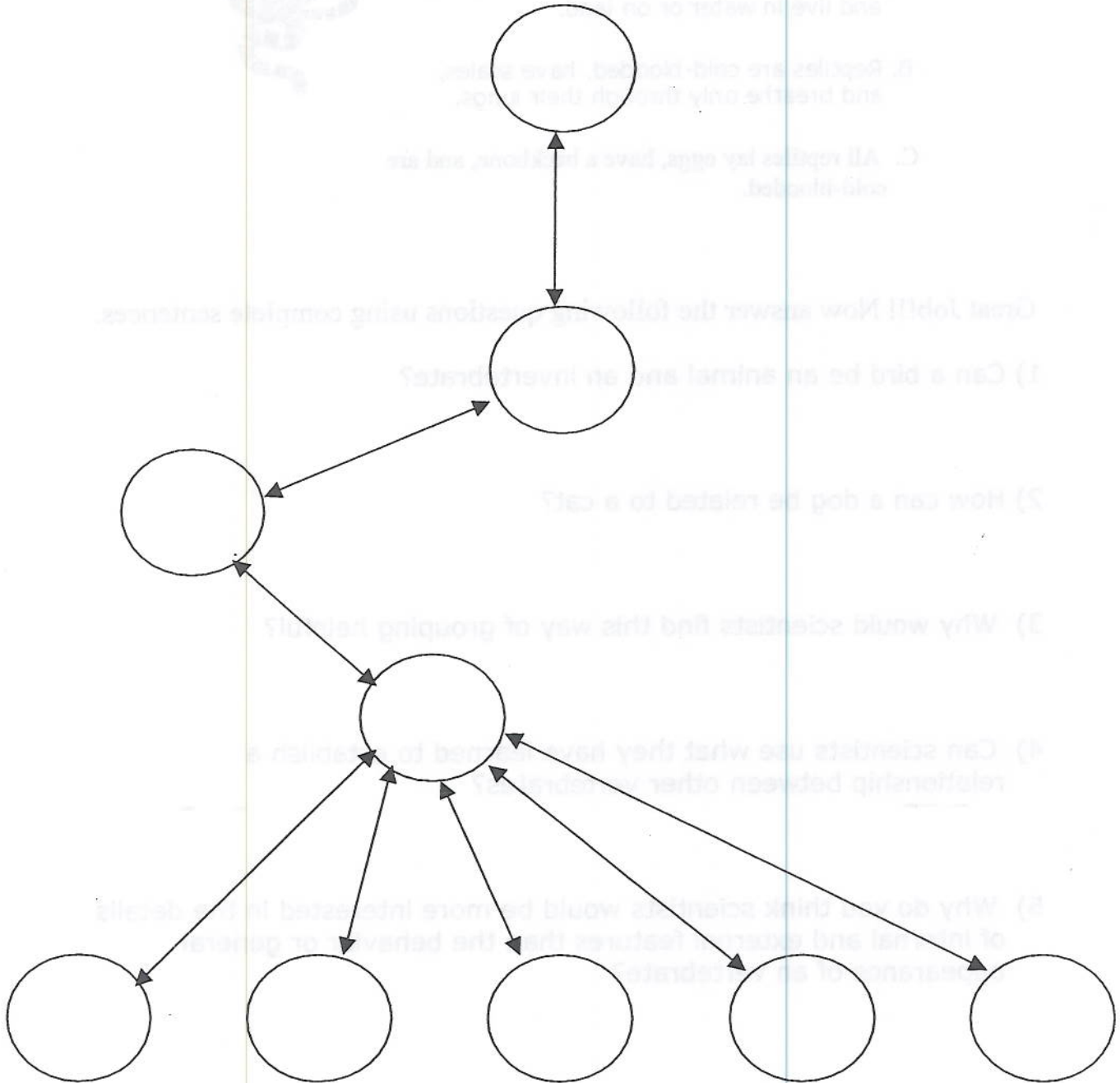
Lesson Title: Scientific Groupings

Page 1 of 1

Name: \_\_\_\_\_

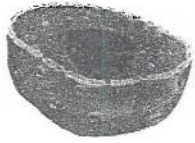
**Directions:** Illustrate the relationship between the following terms by placing them in the correct circles of the concept map: vertebrates, animals, genus, plants, and species. Also include the five vertebrates you learned about at the Classifying Critters website.

**Classifying Critters:** <http://www.hhmi.org/coolscience/critters/critters.html>

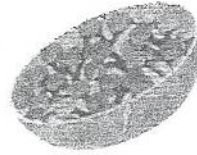


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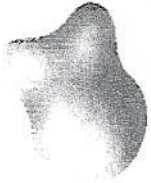
## Organelles and Their Functions



**Nucleus**  
contains the cell's DNA and is the control center of the cell



**Chloroplasts**  
make food using the energy of sunlight



**Ribosomes**  
the site where amino acids are hooked together to make proteins



**Golgi complex**



**Endoplasmic reticulum**



**Vacuole**  
stores water and other materials

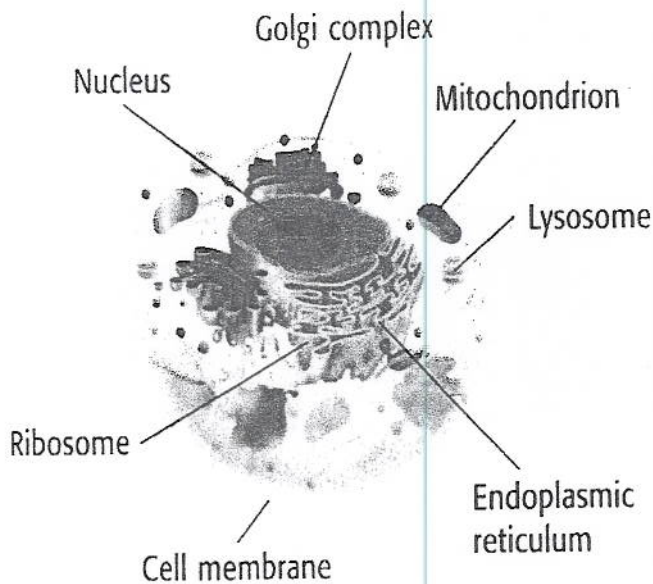


**Mitochondria**  
break down food molecules to make ATP

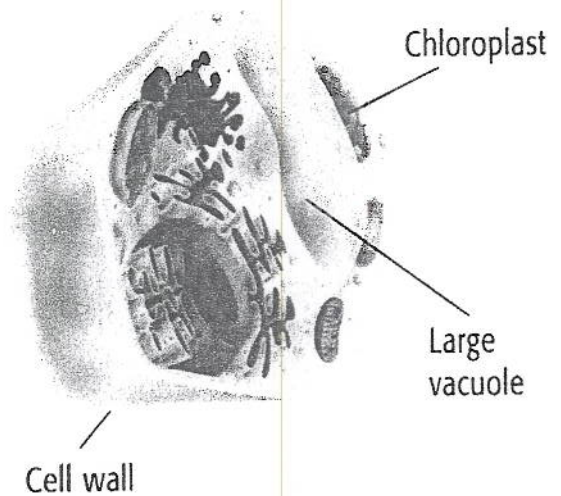


**Lysosomes**  
digest food particles, wastes, cell parts, and foreign invaders






### Found in Plant and Animal Cells



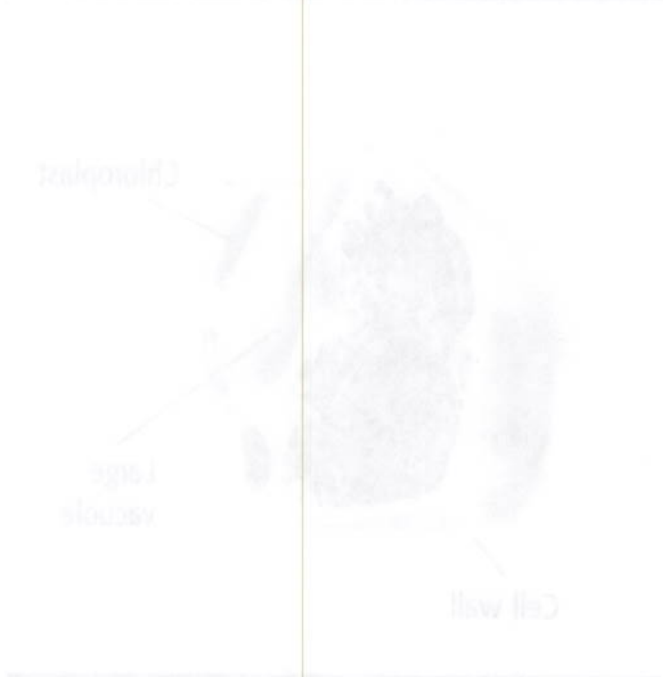
### Found Only in Plant Cells



**Organelles and their Functions**

<p><b>Chloroplasts</b> make food using the energy of sunlight</p> 	<p><b>Nucleus</b> contains the cell's DNA and is the control center of the cell</p> 
<p><b>Colgi complex</b></p> 	<p><b>Ribosomes</b> the site where amino acids are joined together to make proteins</p> 
<p><b>Vacuole</b> stores water and other materials</p> 	<p><b>Endoplasmic reticulum</b></p> 
<p><b>Lysosomes</b> digest food particles, wastes, cell parts, and foreign invaders</p> 	<p><b>Mitochondria</b> break down food molecules to make ATP</p> 

**Found Only in Plant Cells**



**Found in Plant and Animal Cells**





Bench Mark: Identify differences and similarities between plant and animal cells.

# Organelle Notes

1. **Nucleus:**

2. **Endoplasmic Reticulum:**

3. **Golgi Apparatus:**

4. **Mitochondrion:**

5. **Lysosome:**

6. **Vacuole:**

7. **Cytoplasm:**

8. **Ribosome:**



**Bench Mark:** Identify differences and similarities between plant and animal cells.

# Cellular Park

Congratulations you and a partner have been hired to produce a travel brochure that describes a plant or animal cell as if it were a large exhibit/amusement park. You must accurately describe/draw/explain at least 8 to 10 organelles (attractions) and their functions that will delight and amaze potential guests. Appropriate humor and creativity are strongly encouraged!!!

**Example:** Visitors might want to "visit the ribosomes, located just outside the nucleus, and watch as proteins are synthesized RIGHT BEFORE YOUR VERY EYES!", "Be sure to visit the Golgi center inside the gift shop, and have your purchases gift wrapped for you before you leave."

The organelles you will have to use are:

1. Nucleus
2. Nucleolus
3. Endoplasmic Reticulum
4. Golgi Apparatus
5. Mitochondrion
6. Lysosome
7. Vacuole
8. Cytoplasm
9. Ribosome
10. Centrioles

**Evaluation:** you will be evaluated on accuracy in describing the functions of the organelles, design, creativity and your class presentation.



**Bench Mark:** Identify differences and similarities between plant and animal cells.

**Directions:** Read the paragraph below and fill in the missing organelle terms from your organelle notes page.

Good afternoon everybody and welcome to the best cell tour in the body. We are standing here inside the \_\_\_\_\_ which is the control center of our cell. We will be touring the cell using the \_\_\_\_\_ which, everyone knows is the transportation network of the cell. But, first does anyone know where we get power to move around in the cell? That is right! The cell gets its energy from the \_\_\_\_\_. But where is all that energy stored until it is used. If you said the \_\_\_\_\_ then you are correct. What is that you say? You want to know about waste removal in the cell. Well if you look out to your left you can see a \_\_\_\_\_ which is the garbage disposer of our cell. Don't get too close though because there are a lot of enzymes in there which will destroy our little touring protein. This leads us to our next stop on our tour, the factory that engages in protein synthesis called the \_\_\_\_\_. Does anyone know where the proteins are wrapped and packaged to be moved in our cell? That is right! Proteins are wrapped in the \_\_\_\_\_. If you look carefully right now you can see a protein being wrapped right now. Before we return to the nucleus, if you would like you can roll down your window and take in a big fresh breath of \_\_\_\_\_ which is the fluid that surrounds all of our special organelles of the cell. Thank you very much for taking our tour today, we hope you enjoyed being here as much as we enjoyed having you. Don't forget to tip your flight attendants!!

Name \_\_\_\_\_

Period \_\_\_\_\_

Food Web

McCauley 2005

Squirrel

Opossum

Mosquito

Lettuce

Night Crawler

Pig

Seeds

Dung Beetles

Owl

Mouse

Salmon

Grass

Wheat

Raven

Hawk

Whale

Shrimp

# Plant Anatomy Notes

1. Pedicel:

2. Sepal:

3. Receptacle:

4. Ovary:

5. Style:

6. Stigma:

7. Filament:

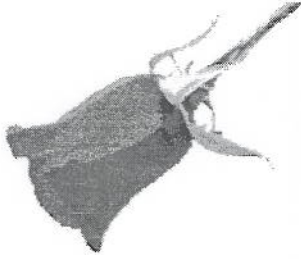
8. Anther:

9. Petal:

Flowers are all about?

McCauley  
2007

Choose from these words:  
Stamen,  
Anther,  
Stigma,  
Style,  
Pollen,  
Ovules,  
Ovary



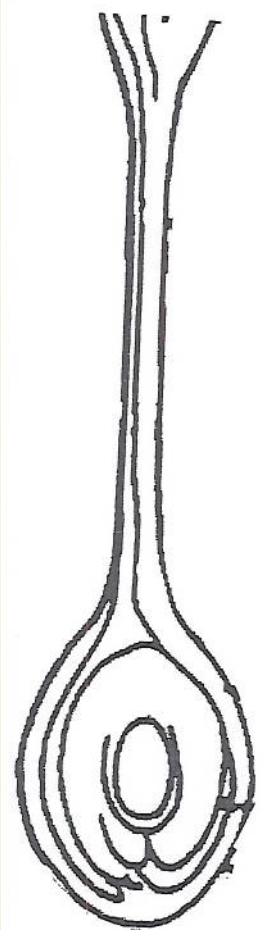
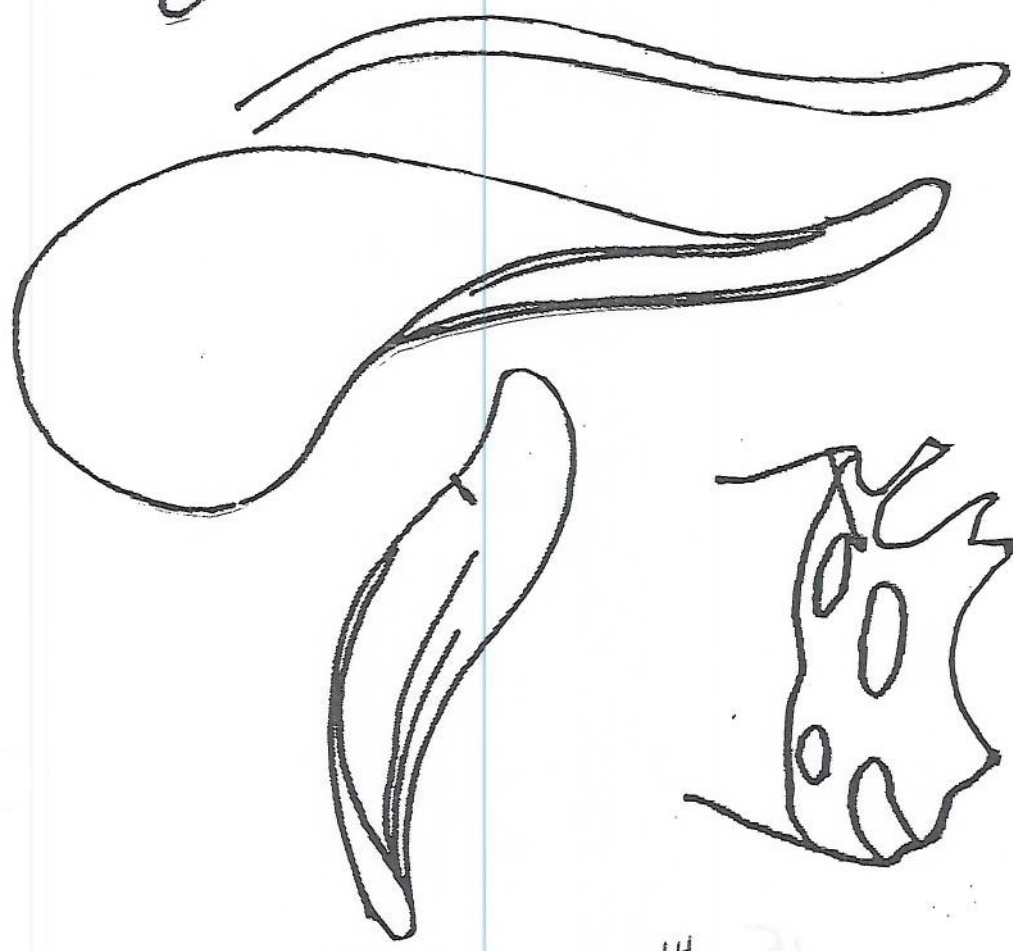
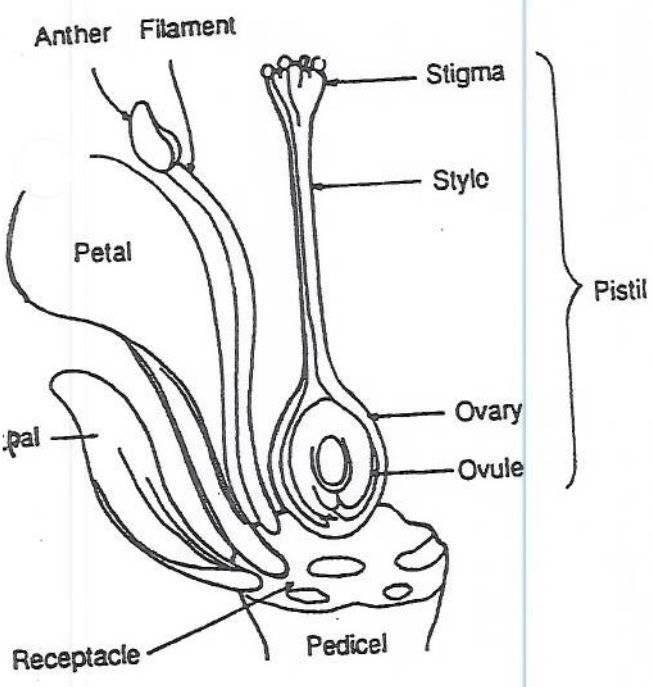
Flower Parts



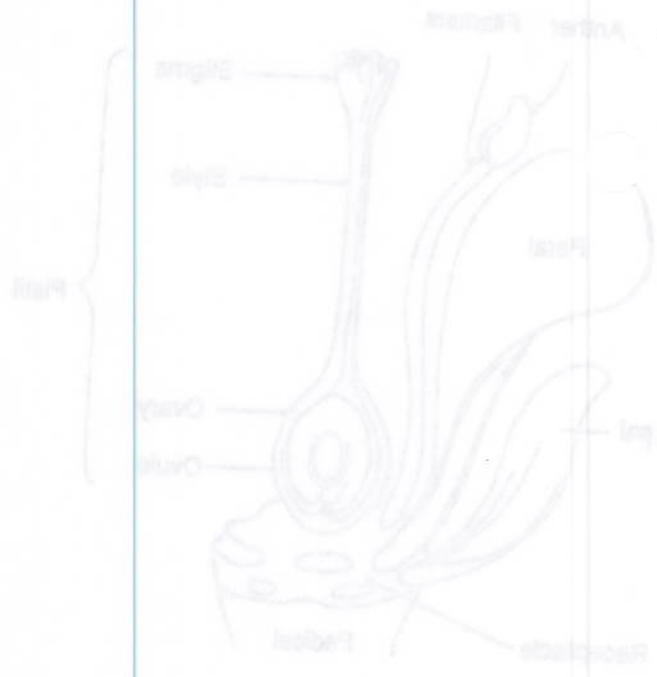
Male Parts of Flowers  
1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_



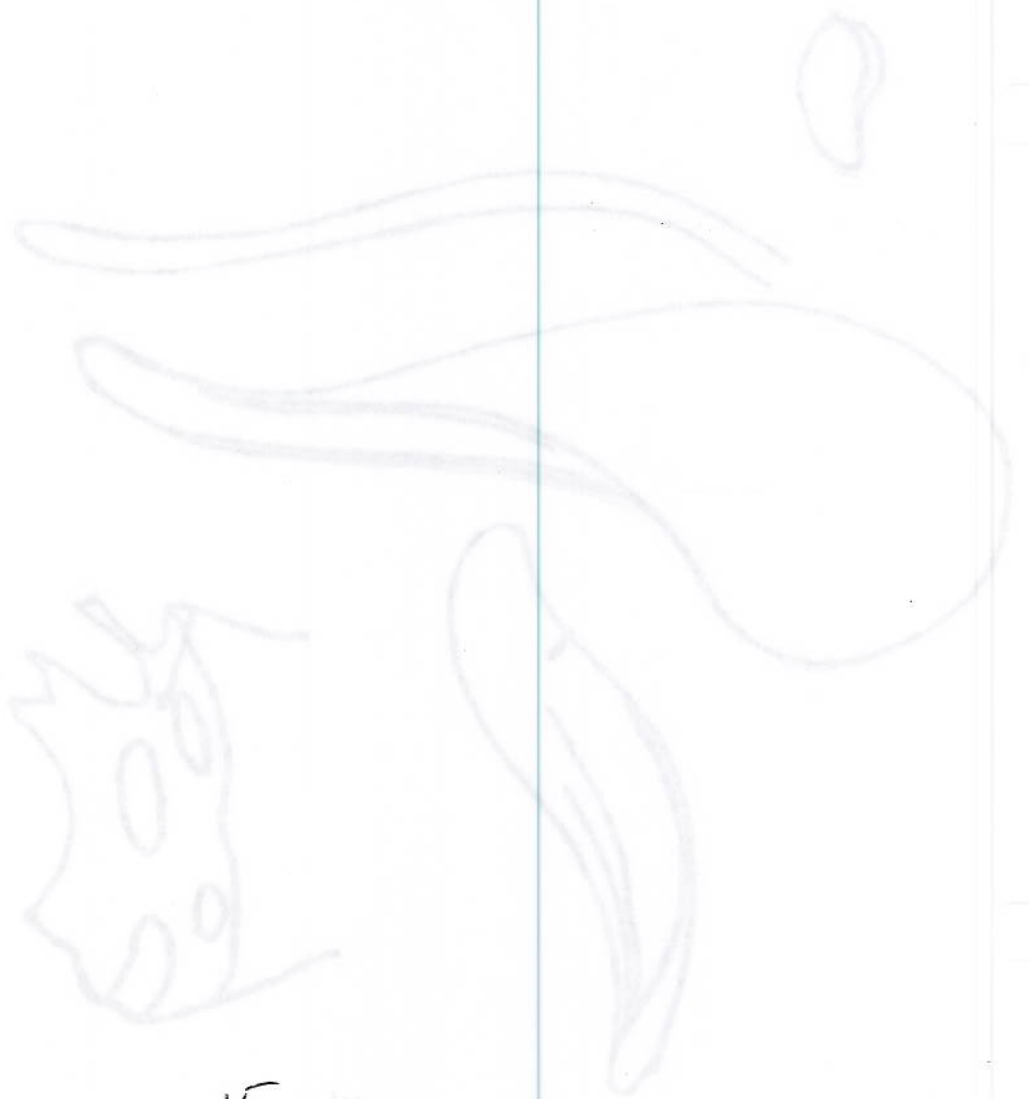
Female Parts of Flowers  
1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_



STY



2000





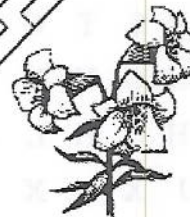
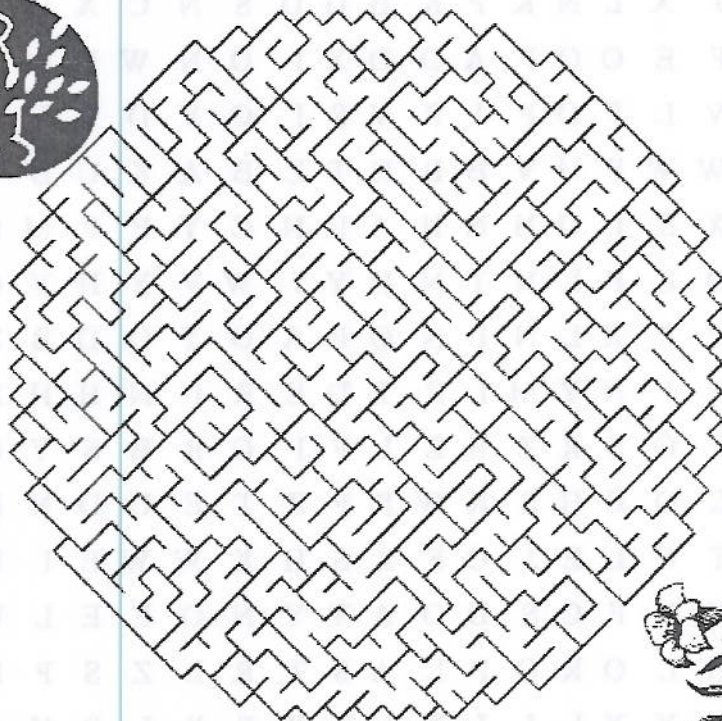
Name \_\_\_\_\_

Date \_\_\_\_\_

## Plants Maze Worksheet

### Directions:

Take the seeds to the flower garden.



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Name \_\_\_\_\_

Date \_\_\_\_\_

## Plants Word Search Worksheet

**Directions:** All words are positioned left to right, right to left, and diagonally.

A Z S G H J X L N K P K B G U S N C X C I X F  
P D S Y M F E O O F A O D X I O N W L I C Z U  
P E T A L V L F O P J P V S I O V D F Y J V R  
X V T G A W W F U V B B E T Z B A K U B W M Y  
K Q L O G X S I U H N H A E N C Y P P M O Z V  
C X P E O D Z P L N T N H Y J W V Y H V Q M I  
F S Y X A R K X L N I N Q P A O Y Q D B Z M C  
A C J K M F J N Y M I F T D E R I N H H N Y K  
R R Y N X F O S R Z E Z L F I G R B S Y G I G  
B L X O M C O E H S K W F F Z T E U D N K I T  
H R R N S T G L E J C F Z S H K W W E I K C U  
V M J H O V N F C S D O A V Y N O E E L U E B  
U H R H C H L O R O P L A S T R L Z S P F U M  
E J P J X N X Y L J J X L Z W F F I P H A W Y  
R K H Q N K P X P R Z E V G M S T E M A I X U  
H B S J M X F D B R S M E D V B G C D A R W A  
G K Q T K V V G A D J E S R I G Z I F U H F K  
H L F A H T O O V T V Z V O C P H F Z D X W L

GROW	ROOT	PETAL	SEEDS
CHLOROPLAST	LEAF	FLOWER	
PHOTOSYNTHESIS	STEM	GERMINATION	

# Heredity Terms

Allele-

Chromosome-

Darwin's point-

DNA-

DNA fingerprint-

Dominant-

Double Helix-

Gamete-

Gene-

Genetic Engineering-

Genetics-

Generation-

# Heredity Terms Cont.....

Genotype-

Heredity-

Heterozygous-

Homozygous-

Hybrid-

Mutation-

Phenotype-

Punnett square-

Recessive-

Trait-

Zygote-

## Punnett Squares

A Punnett Square is a graphic technique used to show the possible ways genes are combined when passed from parent to offspring. Upon completion, a Punnett Square shows the possible gene combinations for an offspring. The rules to follow when making a Punnett Square are:

- The dominant gene is shown with a capital letter. Example: B = brown eyes
- The recessive gene is shown with a lower case letter. Example: b = blue eyes
- The dominant gene is always written first. Example: Bb
- Letters representing the parents' genes are placed on the outside of the square.

The male's genes are put on the top and the female's genes are on the left side.

**Example:** Father is *homozygous* brown eyed = BB  
Mother is blue eyed = bb (this must be *homozygous* to be blue because blue is a *recessive* trait.)

### Punnett Square

Father →		B	B
Mother ↓	b	Bb	Bb
	b	Bb	Bb

**100% offspring will have brown eyes because they all contain the dominant trait B.**

**Benchmark:** Describe how the traits of an organism are passed from generation to generation.  
Use simple laws of probability to predict patterns of heredity.

**Directions:** Read the following scenarios below, draw a punnett square in the space provided and then answer the questions using complete sentences.

1. Nimitz was a lab and retired guide dog who was blind but handsome. Blindness is a *recessive* trait. Nimitz's human family decided that they wanted Nimitz to start his own dog family. So, Nimitz's human family borrowed a normal *heterozygous* or *hybrid* female named Paulette (who had already been recognized around the world as being the best guide dog ever, with special thanks to her trainer!) If they had four puppies how many blind puppies would Nimitz and Paulette have?


2. A parrot would like your help. He has just been married in a very private jungle ceremony and he would like to know what type of feathers his babies will have. He has a *homozygous* gg (green) genotype and his wife has a *homozygous* GG (white) genotype, can you help him?


3. In flowers red is *dominant*. If you wanted to produce white flowers what would the parent's colors be?

CCG- Use interrelated processes to pose questions and investigate the physical & living world. M.McCauley©2004

Name \_\_\_\_\_ Period \_\_\_\_\_ Due \_\_\_\_\_

**SCIENTIFIC BUMPER STICKERS V 1.1**  
**LIFE SCIENCE**

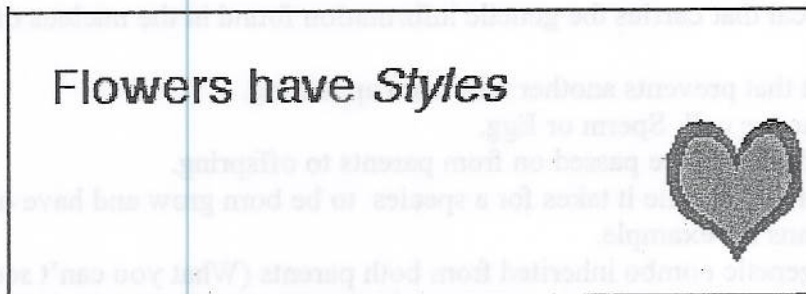
**BACKGROUND:**

Want to sell a product? Elect a president? Defeat money for schools? How about learn science vocabulary? The answer is bumper stickers! Bumper stickers take complex concepts and distill them into a few words that express what you want to accomplish... Wow! Cool! Lets ...Just do it!

**DIRECTIONS:**

1. Remember bumper stickers make the complex simple. One or two lines at most.
2. Bumper stickers can be funny but should always be witty or ironic!
3. Create one bumper sticker for each of the science vocabulary words below:
4. Must be colorful! Print Words! Big Letters! Art and beauty Count! (Make it Easy to Read!)
5. Remember **YOUR NAME!**
6. Staple together and turn in to the box.

**EXAMPLE:**



**VOCABULARY WORDS:**

Make one bumper sticker for each of the words below: Effort counts!

**Anther, Cell, Pistil, Style,**  
**Nucleus, Food Web, Food Chain,**  
**Adaptation, Mitochondrion**

A Allele	B	C Chromosome	D DNA Dominant	E	F
G Gamete Gene Generation Genotype	H Heredity Heterozygous Homozygous	TOPIC  Life Science		I	J
K	L			M Mutation	N
O	P Phenotype Punnett Square	Q	R Recessive	S	T Trait
U	V	W	X	Y	Z Zygote

MMcCauley 2003

Allele: A different form of a gene.

Chromosome: Structures found in cells that contain DNA.

DNA: The chemical that carries the genetic information found in the nucleus of cells in a double helix.

Dominant: A trait that prevents another trait from appearing.

Gamete: Reproductive cell. Sperm or Egg.

Gene: The unit of inheritance passed on from parents to offspring.

Generation: The average time it takes for a species to be born grow and have offspring. 20 years for humans for example.

Genotype: The genetic combo inherited from both parents (What you can't see).

Heredity: The passing of traits from parents to offspring.

Heterozygous: Composed of different genes, one dominant and one recessive for a single trait.

Homozygous: Composed of the same gene either dominant, dominant or recessive, recessive for a single trait.

Mutation: Change in genes or chromosomes that causes a new trait to be inherited.

Phenotype: The genetic trait you can see that is expressed.

Punnett Square: Tool used to show the possible ways genes are combined when passed from parents to offspring.

Recessive: A trait that does not appear when the dominant trait is present.

Trait: A distinguishing quality.

Zygote: Fertilized egg.