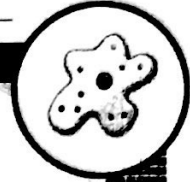


Name: _____

Date: _____

CELLS



Why Do I Look Like Me?

INQUIRY INVESTIGATION

Look at yourself in the mirror. Does your nose look like your mother's or father's nose? Does your sister look like you? Your **genes** determine your physical characteristics. They decide the color of your hair, the size of your feet, the shape of your chin, and many other things. Your parents pass their genes on to you. You receive two genes for every trait—one from your mother and one from your father. Some genes are **dominant** (represented by uppercase letters). If you do not have any dominant genes for a characteristic, your genes are **recessive** (represented by lowercase letters) for that trait.

PROCEDURE: Read about each of the physical traits that are listed below. Write the correct response in each blank based on the physical traits that you have.

WIDOW'S PEAK: A dominant gene causes a widow's peak. If you have a widow's peak, you have a dominant gene for that trait. You need only one dominant gene for this characteristic, so your genes are **W-**. Since you cannot tell whether the second gene is dominant or recessive, leave it blank.

If you do not have a widow's peak, you have a **recessive** gene for that trait. This means that neither of your parents passed the dominant gene to you, and your genes are **ww**.

My genes are (dominant/recessive) for a widow's peak. _____

My genes are (W-/ww). _____

UNATTACHED EARLOBES: A dominant gene causes earlobes to be unattached at the bottoms. If your earlobes are unattached at the bottoms, you have a **dominant** gene for that trait. If your earlobes are completely attached to the sides of your head, you have a **recessive** gene for that trait.

My genes are (dominant/recessive) for unattached earlobes. _____

My genes are (E-/ee). _____

TONGUE ROLLING: A dominant gene allows you to stick out your tongue and roll it into a U shape. If you can roll your tongue into a U shape, you have a **dominant** gene for that trait. If you cannot roll your tongue into a U shape, you have a **recessive** gene for that trait.

My genes are (dominant/recessive) for tongue rolling. _____

My genes are (T-/tt). _____



Name: _____ Date: _____

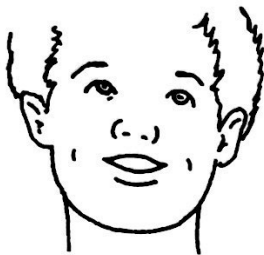
WHY DO I LOOK LIKE ME? (CONTINUED)



BENT LITTLE FINGER: A dominant gene causes your little finger to bend inward toward your ring finger. If your little finger bends inward, you have a **dominant** gene for that trait. If your little finger does not bend inward toward your ring finger, you have a **recessive** gene for that trait.

My genes are (dominant/recessive) for a bent little finger. _____

My genes are (B-/bb). _____



FACIAL DIMPLES: A dominant gene causes you to have facial dimples at the corners of your mouth when you smile. If you have dimples when you smile, you have a **dominant** gene for that trait. If you do not have dimples when you smile, you have a **recessive** gene for that trait.

My genes are (dominant/recessive) for having dimples. _____

My genes are (D-/dd). _____



STRAIGHT THUMB: A dominant gene causes your thumb to be straight when you give a thumbs-up. If your thumb is straight, you have a **dominant** gene for that trait. If your thumb is curved when you give a thumbs-up, you have a **recessive** gene for that trait.

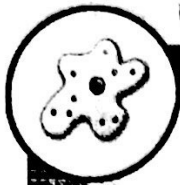
My genes are (dominant/recessive) for a straight thumb. _____

My genes are (S-/ss). _____

Based on the characteristics that you exhibit, predict which characteristics your parents have. Remember, in order for you have dominant genes for a trait, you need only one parent to have passed that gene on to you. If your genes are recessive, neither parent passed that gene to you.

Predictions

Characteristic	Mom		Dad	
	Yes	No	Yes	No
Widow's Peak				
Unattached Earlobes				
Tongue Rolling				
Bent Little Finger				
Facial Dimples				
Straight Thumb				



Name: _____

Date: _____

SIMPLE LIFE FORMS

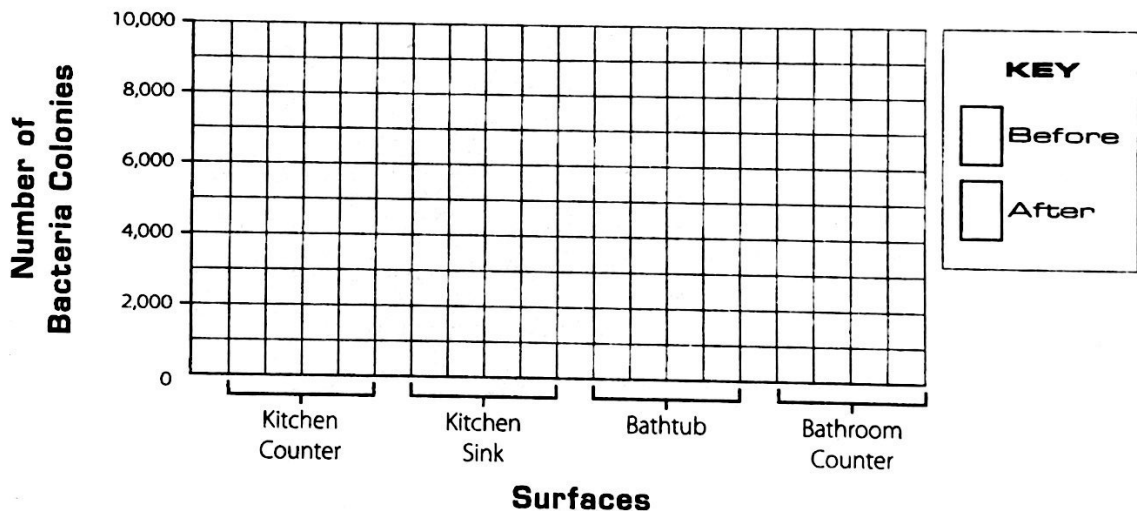
How Well Do Household Cleaners Work?

GRAPHING AND ANALYZING DATA

DIRECTIONS: Read the information and study the data chart below. Create a bar graph using the data in the chart. Then, use the data and graph to answer the questions below on a separate piece of paper.

Judy works in a hospital. Her job is to make sure that all of the areas are clean and disinfected. She is trying a new type of cleaner and wants to study how well it destroys bacteria colonies on different surfaces. First, she found the average number of bacteria in four areas of the hospital. Then, she cleaned each area and found out how many bacteria colonies were left in each location.

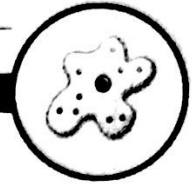
Surface	Before	After
Kitchen Counter	2,000	1,200
Kitchen Sink	3,500	3,000
Bathtub	10,000	8,000
Bathroom Counter	1,400	600



1. Does the cleaner show evidence of reducing the number of bacteria on all of the surfaces?
2. What percentage of bacteria was destroyed in the bathtub?
3. How many bacteria colonies were destroyed on the kitchen counter?
4. What is the total number of bacteria colonies that were destroyed?
5. Based on the data, where was the cleaner most effective in destroying bacteria? Use quantitative (numbers) data to support your answer.

Name: _____ Date: _____

WHY DO I LOOK LIKE ME? (CONTINUED)



After you make your predictions on page 26, check them by asking your parents which physical traits they have from pages 25 and 26. Then, complete the observations chart and questions below.

Observations of Parents

Characteristic	Mom		Dad	
	Yes	No	Yes	No
Widow's Peak				
Unattached Earlobes				
Tongue Rolling				
Bent Little Finger				
Facial Dimples				
Straight Thumb				

1. Which of your parents' traits did you predict correctly?

2. Which of your parents' traits were more difficult to predict? Why?

3. Is it possible for you to display recessive traits when one parent has a dominant trait? If so, how?

Name: _____

Date: _____



THE ANIMAL KINGDOM

Life Cycle of a Frog

LABELING AND SEQUENCING

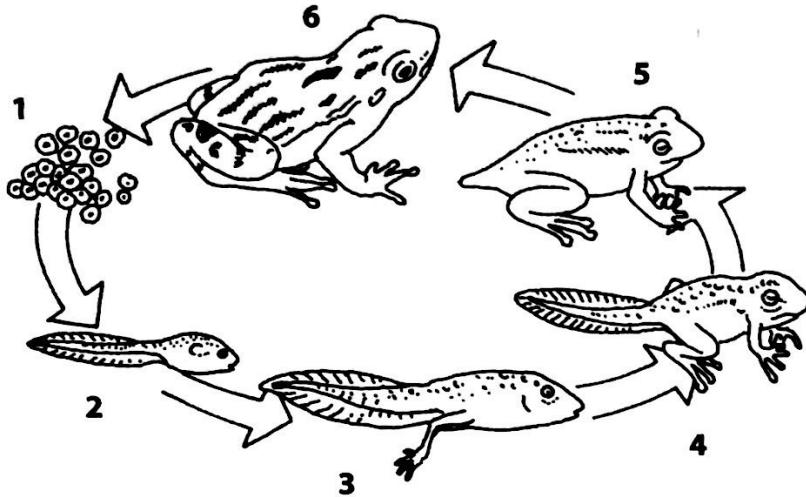
DIRECTIONS: Use the words in the word bank to label the frog life cycle below. Then, number the stages of the frog life cycle in the correct order, starting with an egg mass.

WORD BANK

frog
tadpole with hind legs

embryo
tadpole with hind and forelegs

froglet
spawn (egg mass)

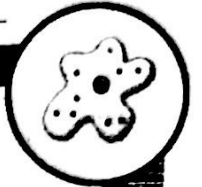


1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

- _____ The tadpole becomes more frog-like. The tail becomes even smaller, and the legs continue to grow. The lungs can breathe air.
- _____ The tadpole grows hind legs. It grows forelegs soon after. Its tail becomes smaller. Its lungs begin to develop to help it breathe air on land.
- _____ An embryo forms in the egg mass. Organs and gills begin to form.
- _____ The frog has lungs that are fully developed and lives on land most of the time. It eats insects and worms. It will find a mate and reproduce.
- _____ After 21 days, the embryo leaves the egg mass and develops into a tadpole. The tadpole has a long tail. The tadpole will eat small plants. It also uses plants as camouflage from predators.
- _____ A female frog lays a large clump of eggs, called spawn, in the water. The egg mass is too large and slippery to be eaten by other animals.

Name: _____

Date: _____



Life Cycle of a Butterfly

LABELING AND SEQUENCING

DIRECTIONS: Use the words in the word bank to label the butterfly life cycle below. Then, number the stages of the butterfly life cycle in the correct order, starting with an egg.

WORD BANK

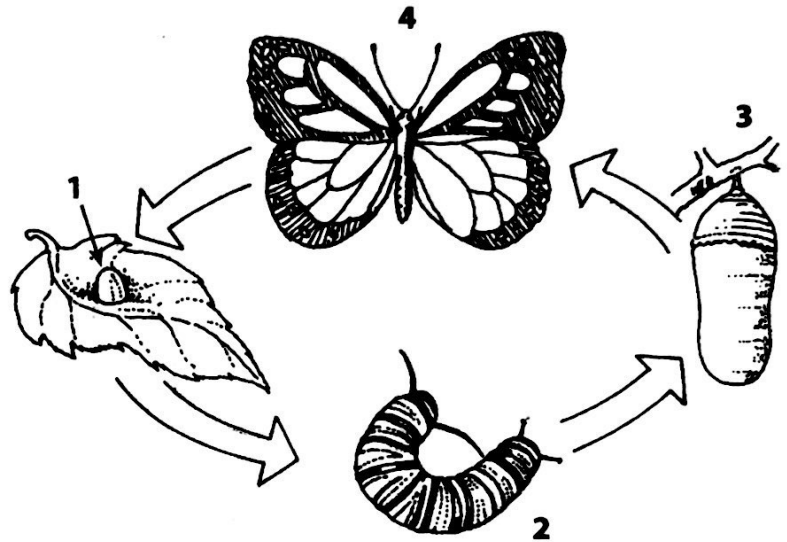
caterpillar

chrysalis

egg

butterfly

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



_____ In about 10–12 days, a butterfly emerges from the chrysalis.

_____ A larva (caterpillar) hatches from the egg in 3–5 days. The larva will eat the egg case and the milkweed leaves.

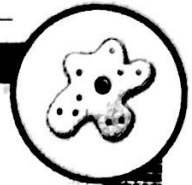
_____ A single egg is laid by an adult monarch butterfly and is attached to a milkweed leaf.

_____ The larva **molts**, or sheds its outer skin as it grows. Soon, it will stop eating and find a safe place to pupate. The larva molts for the last time. Its new skin dries and hardens into a jade green chrysalis.

Name: _____

Date: _____

ADAPTATIONS



Changes Over Time

WORD SEARCH

DIRECTIONS: Find the adaptations vocabulary words in the word search below. Words can be found down, across, and diagonally. Then, on a separate piece of paper, write sentences for five of the words.

WORD BANK

adaptation

Charles Darwin

camouflage

evolution

species

variations

finches

extinct

natural selection

characteristics

structure

tortoises

endangered

theory

HMS Beagle

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



Name: _____

Date: _____

ADAPTATIONS

Learning about Adaptations

CONTEXT CLUES

DIRECTIONS: **Context clues** help us learn new words when we read. Use the words, phrases, and sentences around new words to determine their meanings. Look at the words in the chart and fill in the column "What I Think It Means." Read the passage and look for context clues to help determine the meanings of the words. Then, fill in the last column, "What It Means in Context." If your answer in the first column was completely correct, use the second column to add something to the word's meaning beyond your original ideas.

Word	What I Think It Means	What It Means in Context
diversity		
adaptations		
marine		
finches		
theory		

In December 1831, an English naturalist named Charles Darwin set sail on a British naval ship, the *HMS Beagle*. Over the next five years, Darwin traveled around the world, taking careful notes about everything that he saw. He noticed many types of plants and animals that were not found in England. He was amazed by the great **diversity**, or variety of plants and animals, that he saw.

After a few years on the boat, he arrived at the Galapagos Islands, a group of small islands off the west coast of South America. Darwin observed that many of the animals on the islands had special **adaptations** that helped them defend themselves and collect food. For example, he knew that most iguanas lived on land and had small claws to help them climb trees to eat leaves. On the Galapagos Islands, he found a species of iguana that lived in the ocean. The shape of this **marine** iguana's body and tail helped it swim underwater. It had special claws that were adapted to help it grab onto slippery rocks. Its rounded head helped it eat algae that grew close to the ocean floor.

Darwin also noticed differences in other types of animals. He saw that tortoises on each island had differently shaped shells. **Finches**, a type of bird, had differently shaped beaks. After observing the finches, he found that each bird's beak was adapted to eat certain types of food. When Darwin returned from his trip, his observations helped him develop an important scientific concept called the **theory** of evolution by natural selection.



Name the Animal Adaptation

M Y S T E R Y W O R D S

DIRECTIONS: Fill in the blanks for each animal adaptation question below. Circle the designated letter or letters in each answer. Then, unscramble the circled letters to reveal the mystery words.

WORD BANK

wallaroo	sea otter	koala	squirrel monkey
camel	bullfrog	hedgehog	red panda
giraffe	python	beaver	

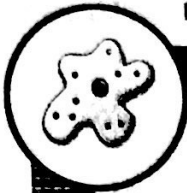
1. _____ has spiny armor that protects it from predators and cushions its falls from trees (first letter)
2. _____ has long eyelashes and hair-lined ears that block blowing sand; can close its nostrils to keep sand out (second letter)
3. _____ uses specially designed hands and feet and a thick, padded tail to hold on to tree branches for long periods of time (second and third letters)
4. _____ does not have a blubber layer; air trapped in its fur keeps it warm and helps it float (first and fifth letters)
5. _____ has heat sensors on its upper lip to help it find prey (sixth letter)
6. _____ inflates its body with air when it's threatened (sixth and seventh letters)
7. _____ has valves that close its nose and ears when underwater; uses its large front teeth to cut and chew wood (fourth letter)
8. _____ has furry pads on its feet that help with rock climbing (second letter)
9. _____ can live many weeks without water; neck is adapted so that it can feed on high treetops (second letter)
10. _____ can leap through trees with great force due to the special design of its legs (ninth and eleventh letters)
11. _____ has wide teeth and powerful jaws for chewing tough bamboo leaves (sixth letter)

MYSTERY WORDS: This animal swallows its prey whole by opening its mouth extremely wide.

White-Throated _____

Name: _____

Date: _____

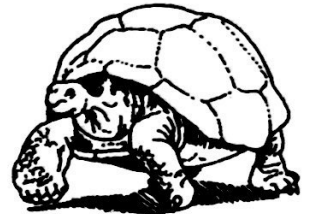
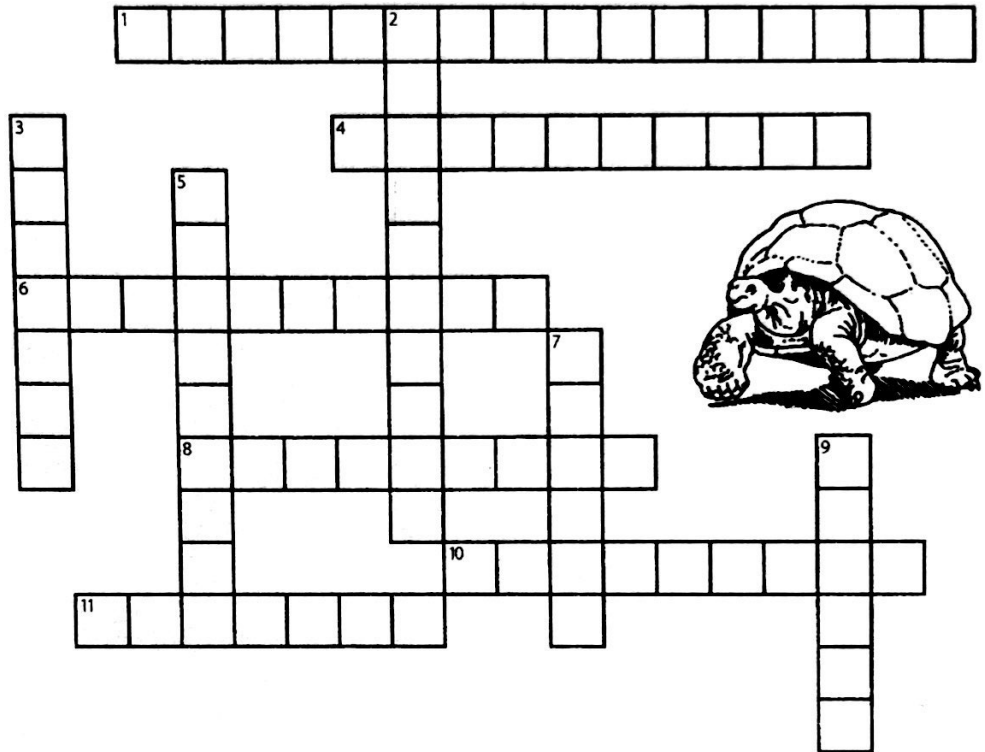
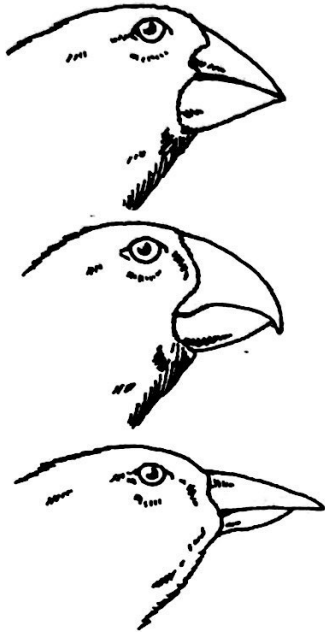


ADAPTATIONS

Changes Over Time

CROSSWORD PUZZLE

DIRECTIONS: Complete the crossword puzzle.

**ACROSS**

1. the idea that organisms that are better adapted to their environments will survive and create new organisms of their species
4. differences between organisms
6. the ability of an organism to blend in with its surroundings
8. Darwin noticed that these organisms had differently shaped shells, based on the islands where they were found
10. a part of an organism that can be used for identification

11. Darwin noticed that these birds had differently shaped beaks that helped them eat certain types of food

DOWN

2. trait that helps an organism survive and reproduce
3. a group of similar organisms that can produce offspring (children)
5. gradual change of organisms over time
7. an idea that is based on many detailed observations
9. English naturalist; developed the theory of evolution by natural selection



Name: _____ Date: _____

ADAPTATIONS

Bird Adaptations

INQUIRY INVESTIGATION

How are birds **physically adapted** to their environments? They have different structures that help them survive. Some birds have differently shaped beaks to eat specific of foods, while others have longer legs to stand in deep water while feeding. There are many different types of adaptations, like size, wing span, foot type, and feather shape. In this activity, you will create a model of a bird that is physically adapted to live in a specific habitat.

MATERIALS

- | | | | |
|--------------------------|-----------------------|--------------------|-------------------------|
| different colors of clay | feathers | construction paper | cotton swabs |
| drinking straws | chenille craft sticks | buttons | any additional teacher- |
| twigs | small pebbles | scissors | approved materials |

PROCEDURE:

1. Choose one of the habitats below.
 - a. dry, sandy desert; very little water or plant life
 - b. cold, mountainous area; very high elevation
 - c. Antarctic region; snow and ice cover the ground all year
 - d. tropical rain forest; full of colorful plant life
2. Use the provided materials to create a model of a bird that is physically adapted to survive in your chosen habitat.
3. Describe the bird's physical adaptations.

4. How might this bird species adapt if its habitat were changed by humans or nature?

Name: _____ Date: _____

ADAPTATIONS



Creating New Adaptations

CREATIVE WRITING

Over millions of years, many different species of plants and animals have adapted to their environments by developing characteristics that help them survive. For instance, mammals that live in cold, polar regions have developed thicker fur coats than animals that live in hot, tropical areas.

DIRECTIONS: Think of a plant or animal that is **native** to, or naturally found in, your area. Describe three adaptations that this plant or animal would need if it were to migrate to a different location with a different climate, vegetation, and food web. Then, draw before and after pictures of the plant or animal in the boxes below.

Before

After