

Name _____

Day 1

Weekly Question

Why are some people left-handed?

Do you look more like your mom or your dad? Do you have your mother's eyes, or your father's nose? Looking in the mirror, you probably can see in yourself at least a couple of traits from each parent. All living organisms inherit traits from their parents through the process of **heredity**. In some cases, traits don't show up in one generation but are evident in the next. This is why some people have traits that their grandparents have but that their parents do not.

The smallest, most basic unit of heredity is the **gene**. Each person has approximately 25,000 genes. Genes control all of your inherited traits, from how you look and grow to the way your body functions. They even help determine which hand you write with.

A. List four traits you have that your genes control. For each trait, write whom you think you inherited it from.

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

B. Traits aren't the only thing that can be inherited. Some diseases can also be inherited. How do you think our understanding of genes might affect doctors' ability to treat or prevent disease in the future?

C. Use the vocabulary words to complete the sentence.

Your inherited traits are determined by thousands of _____
passed down through the process of _____.



Vocabulary

gene

jeen
a part of the code that controls the development of traits

heredity

huh-RED-ih-tee
the transmission of traits from parent to offspring

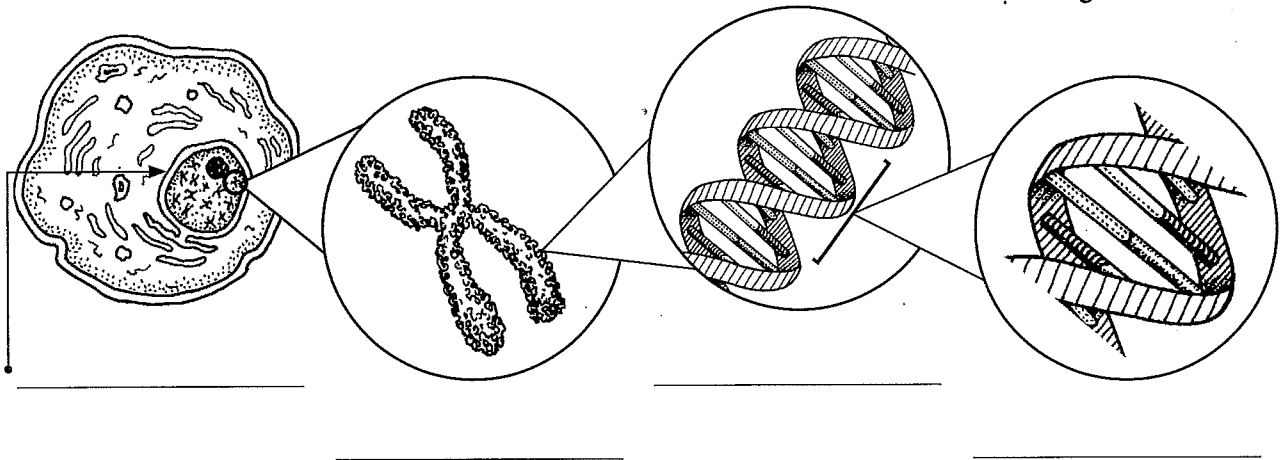
Name _____

Day 2
Weekly Question
Why are some people left-handed?

A gene is a segment of **DNA**. There may be hundreds of genes on each strand of DNA. A single strand of DNA coils up to form a **chromosome**. The chromosomes are located inside the nucleus of a cell. Humans have 23 pairs of chromosomes, and each parent contributes one chromosome per pair. This means that half of your DNA comes from your mother and half comes from your father. The DNA that your parents give you is copied over and over again as your cells reproduce and you continue to grow.

DNA is often compared to a recipe because it contains all the instructions needed to create an organism. Almost every living thing has DNA, from plants to animals to microscopic bacteria.

A. Label the pictures in the diagram using the terms *gene, cell, nucleus, DNA, and chromosome*.



B. Write true or false.

- 1. Genes are found in the nucleus of a cell. _____
- 2. Each parent contributes 23 pairs of chromosomes. _____
- 3. There are hundreds of DNA strands in each chromosome. _____
- 4. Genes are located on the chromosomes. _____

Daily Science
Big Idea 1
WEEK 2

Vocabulary

chromosome

KROH-muh-SOHM
a package of DNA and protein found within the nucleus of a cell

DNA

the genetic material of most living organisms

Name _____

**Day
3**

Weekly Question

Why are some people left-handed?

Remember that your chromosomes come in pairs. Therefore, the genes on those chromosomes are in pairs, too. Each of your parents contributes one gene to each pair. The **dominant** gene in a gene pair is the one that controls the appearance of a trait. If one or both genes in a pair are dominant, the dominant form of the trait is visible. For example, the gene for brown eyes is dominant over the gene for blue eyes. This means that if you receive a gene for brown eyes from at least one of your parents, you are guaranteed to have brown eyes.

By comparison, **recessive** genes have little or no observable effect on a trait. Only when both genes in a pair are recessive will the recessive form of the trait be visible. So if you have blue eyes, you know that both of your parents passed on the recessive gene for eye color to you.

Answer the questions.

1. If a girl has blue eyes, does she have two dominant genes, one dominant and one recessive gene, or two recessive genes for eye color?

2. If a boy has brown eyes, what two combinations of genes for eye color could he have?

3. If two parents each have a dominant and a recessive gene for eye color and have a baby, how many possible combinations of genes could there be? List them.

4. Will a person with two dominant genes for brown eyes ever be able to have a baby with blue eyes? Why or why not?



Vocabulary

dominant

DAH-mih-nent
controlling;
tending to be
expressed

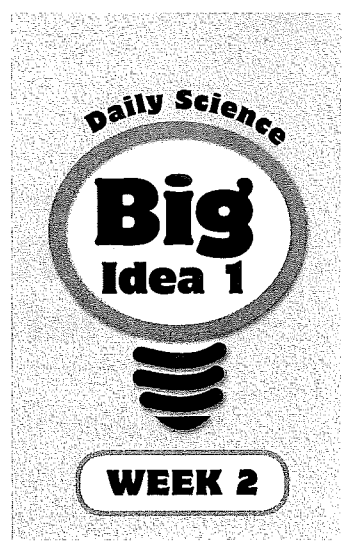
recessive

ree-SESS-iv
tending to recede,
or disappear
from view

Name _____

**Day
4**

Weekly Question
Why are some people left-handed?



Left-handedness is a recessive trait that is inherited, like blue eyes or red hair. But left- and right-handedness are not always determined by genes alone. Your environment can play a factor in which hand you use. For example, because there are more tools, such as scissors or can openers, made for right-handed people, left-handed people must learn how to use these tools with their right hand.

Also, the way people think and behave can affect a trait. In some countries, it is considered customary to use your right hand to greet someone or to eat. So people in these cultures learn how to perform daily tasks with their right hand. Similarly, some people may learn how to write with their left hand in order to stand out and be able to do what only 10% of the world can do!

- A.** Think about a sport you know. Name one disadvantage and one advantage that a left-handed athlete might have over a right-handed athlete in playing that sport.

Disadvantage: _____

Advantage: _____

- B.** Complete the analogies.

1. **Right-handed** is to **brown eyes** as **left-handed** is to _____.

2. **Brown hair** is to **dominant** as **red hair** is to _____.

- C.** Are you right-handed or left-handed? Complete the sentence and then rewrite it with your other hand!

I am _____-handed. _____

Name _____

Day 5

Weekly Question

Why are some people left-handed?

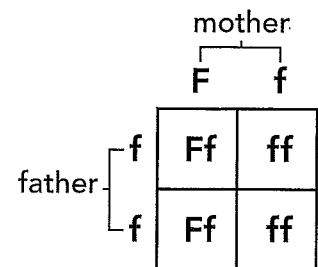


A. Next to each vocabulary word, write the letter of its definition.

- | | |
|-------------------|---|
| ___ 1. gene | a. made of DNA and proteins |
| ___ 2. chromosome | b. disappears from view |
| ___ 3. dominant | c. provides cells with detailed instructions |
| ___ 4. heredity | d. controlling |
| ___ 5. DNA | e. transmission of traits from parents to offspring |
| ___ 6. recessive | f. smallest unit of heredity |

B. A right-handed woman and a right-handed man have a baby. Could the baby be left-handed? Explain your reasoning.

C. The squares on the right show different combinations of genes that may be inherited from a mother who has freckles and a father who doesn't. The gene for freckles (F) is dominant, and the gene for no freckles (f) is recessive. Study the combinations and then answer the questions.



1. What are the chances that the mother and father above will have a baby with freckles? _____ out of 4, or _____%
2. What are the chances that the mother and father will have a baby with no freckles? _____ out of 4, or _____%