



# Jelly Bean Genetics

Ages 7-10

*Prepared by University of Rochester iGEM*

## Background

Do you ever notice that you look like your parents or siblings? Why is that? In today's experiment, we will explore why family members have similar traits. (Hint: it has to do with your DNA!) We are going to use jelly beans to see how four siblings, Talia, David, Jason, and Sam, got traits from their parents and grandparents.

## Materials

1. 1 Jelly Bean Genetics Activity Sheet
2. 3 red, 3 orange, 3 yellow, 3 green, 3 blue, 3 pink, 3 black and 3 white jelly beans
3. Red, orange, yellow, green, blue, pink, black and white crayons
4. 10 plastic cups
5. 1 black marker

## Experiment

1. Label one of your ten plastic cups with the following
  - a. Grandma M
  - b. Grandpa M
  - c. Grandma D
  - d. Grandpa D
  - e. Mom
  - f. Dad
  - g. Kim
  - h. Talia
  - i. Jason
  - j. Sam

2. Add jelly beans to the following cups
  - a. **Grandma M:** 3 pink jelly beans and 3 green jelly beans
  - b. **Grandpa M:** 3 red jelly beans and 3 white jelly beans
  - c. **Grandma D:** 3 blue jelly beans and 3 yellow jelly beans
  - d. **Grandpa D:** 3 orange jelly beans and 3 black jelly beans
3. Using crayons, draw the jelly beans for each grandparent on the Jelly Bean Genetics Activity Sheet
  - a. Did you notice that there are squares and circles? In science, we use a square to represent boys and a circle to represent girls!
4. These jelly beans are the grandparents **genes**. Genes are small pieces of **DNA** that give people different traits such as hair color and eye color! You get your genes from your parents and your parents get them from their parents (your grandparents!) Which genes you get from your parents is **random!**
5. Each person must have 6 jelly beans, or genes. 3 will come from mom and 3 will come from dad. Since this occurs randomly, close your eyes and select 3 jelly beans from Grandpa M's cup and 3 jelly beans from Grandma M's cup. Place these jelly beans in Mom's cup.
6. Now let's do the same for Dad. Close your eyes and select 3 jelly beans from Grandpa D's cup and 3 jelly beans from Grandma D's cup. Place these jelly beans in Dad's cup.
7. Using crayons, draw the jelly beans for Mom and Dad.
8. Now let's determine which genes the four siblings will get from their mom and dad. Close your eyes and select 3 jelly beans from Mom and 3 jelly beans from Dad. Place these jelly beans in Sam's cup.
9. Using crayons, draw the jelly beans for Sam.
10. Place the jelly beans from Sam's cup back to their original cup (either Mom or Dad's cup)
11. Repeat steps 8-10 for Talia, Jason, and Kim.

## How does this experiment work?

Each jelly bean is a different a **gene**. But what is a gene? A gene is a small piece of your DNA that makes up a characteristic about you! Characteristics include your hair color, your eye color, and your favorite food! Today we learned that you get your genes from your parents, meaning they are **inherited**. We also learned that you get half of your genes from your mother and the other half from your father. But remember that which genes you get is **random!** This is why you look similar, but not identical, to your parents and siblings!

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Should this be live or recorded?

Live would be fun

Amazon links to materials

1. [Jelly beans](#)
2. [Crayons](#)
3. [Plastic cups](#)
4. [Black markers](#) (get 2)

# Jelly Bean Genetics Activity Sheet

