

## Gene Bracelet

What makes you... you? Your genes! Genes are the code in each of the cells in your body that decide your different traits: what color your hair is, how tall you'll grow, and all kinds of other things about you. Your genes even affect the way you taste some foods! Not everyone likes the taste of cilantro, and that is linked to your genetics. The amazing thing is that 99.9% of your genes are exactly the same as everyone else in the world. We are all human, and the differences between us are tiny!



Today, we're going to learn about the traits that make you both different and the same as the people around you. Join Val on Vimeo to do the activity along with her:

<https://vimeo.com/monsantostem/genebracelet>

It's not just people that have traits. Farmers look for traits in the plants they grow, and they often select certain varieties of plants that have specific traits. Next time you're in the grocery store, take a look at the bell peppers in the produce section. Some bell peppers have three lobes (those lumps on the bottom), while others have four. Some farmers like to grow bell pepper plants with four lobes because they stand up easier in the pan when making stuffed bell peppers! Three lobes or four, they're all bell peppers!



The mustard plant is another example of a plant whose traits farmers have paid close attention to over the years. Many of the vegetables you can find in the produce section of your grocery store came from the wild mustard plant. People from different parts of the world had different taste preferences and preferred different traits, so through plant breeding and selection, which is simply bringing two specific parent plants together to produce new offspring, over hundreds of years, humans were able to create everything from the modern day broccoli and cauliflower to cabbage, kale, and many others.



CABBAGE



BRUSSELS  
SPROUTS



KOHLRABI



KALE



BROCCOLI



CAULIFLOWER

While all of these plants come from the same ancestor, they all have different traits: cabbage has big leaves, broccoli has thick stems and flowers, and Brussels sprouts have lots of buds along the stems.

Let's think about our own traits, and make a colorful bracelet so we can easily see those traits that make us special. This activity is most fun when you do it with one or more friends!

### What you will need:

- **Yarn**
- **Scissors**
- **Plastic Beads to represent each trait (see below for our recommendations)**
- **Gold or silver beads for tying off the end of your bracelet and for using if your traits don't quite match the ones listed.**
- **Yarn Threaders (optional)**

We are giving our color recommendation for beads, but you can use whatever colors you want as long as you decide ahead of time which trait each color will represent. You will need at least 8 different colors of beads for this activity.



**1.** Cut the yarn to a length that will become your bracelet, and tie one of the gold or silver beads to the end to keep your trait beads from slipping off as you string your bracelet. It's a good idea to cut the yarn longer than you will need in case you have to trim the end to make it easier to thread through beads.



**2. Eye Color:** What color are your eyes? Select the bead that most closely matches the color of your eyes and string it onto your yarn.

Brown



Blue



Green



Select a gold or silver bead if none of these bead colors are close to your eye color.

**3. Hair Color:** What color is your hair? Select the bead that most closely matches the color of your hair and string it onto your yarn.

Black



Brown



Yellow



Red



Select a gold or silver bead if none of these bead colors are close to your hair color.

**4. Hair Texture:** Is your hair curly, straight, or wavy? Select the bead that represents the texture of your hair.

Curly – Green

Straight – Dark Blue

Wavy – Purple



**5. Hairline:** Pull your hair back from your forehead. Does it form a straight line across or does it make a point in the middle? This point is called a widow's peak. Select the bead that best represents your hairline pattern.

Straight hairline – Clear Red

Widow's Peak – Clear Orange





**6. Handedness:** For most people, one of their hands is dominant to the other. Do you tend to use your right hand or your left hand more? If you use both hands equally, you may be ambidextrous, meaning you are both left and right handed. Select the bead that represents which of your hands is dominant.

Left Hand – Dark Blue

Right Hand – Yellow

Ambidextrous – Green



**7. Thumb-edness:** This one seems similar to the right-hand/left-hand question, but the results may surprise you. Open your arms wide and stretch your fingers out. Quickly, without thinking about it, clasp your hands together. Which thumb is on top? Your right thumb or your left thumb? Is your dominant thumb the same as your dominant hand? Select the bead that represents your dominant thumb.

Left thumb on top – Clear Blue

Right thumb on top – Clear Yellow



**8. Hitchhiker's Thumb:** When you give a thumbs-up sign, does the top of your thumb bend backwards? Thumbs that can bend backwards are called hitchhiker's thumbs and it was long thought that you either had a hitchhiker's thumb or you did not. Now we know that the angle of a thumb's bend can range from a sharp bend backwards, to straight, to somewhere in-between. There's no clear line where a "hitchhiker's thumb" ends and a straight thumb begins. Take a look at your thumb. Do you have a hitchhiker's thumb, a straight thumb, or is your thumb somewhere in between?

Straight thumb – Red

In-between thumb – Orange

Hitchhiker's thumb – Yellow



**9. Tongue Rolling:** Some people are able to roll their tongue into a taco shape, while others cannot. There is some discussion as to whether this trait comes from your genes or if it is something that can be learned. Can you roll your tongue like a taco? Select the bead to represent whether or not you can roll your tongue.

Can roll tongue – Purple

Can't roll tongue – Blue





**10. Dimples:** Look in a mirror and smile as big as you can. Do you have dimples in your cheeks? Some people have them, and others don't. Select the bead to represent whether or not you have dimples.

Have dimples – Pink

Do not have dimples – Dark Blue



**11. Freckles:** Do you have freckles? Freckles are caused by concentrated spots of melanin, the pigment in skin, and while freckles most often show up after playing in the sunshine, whether freckles will appear is determined by your genes. Select the bead to represent whether or not you have freckles.

Have freckles – Clear Orange

Do not have freckles – Light Purple



**12. Chin Shape:** Is your chin smooth or does it have a line, called a cleft, in the middle? Choose the bead that represents your chin shape.

Smooth chin – Green



Cleft chin – Red



**13. Earlobes:** Examine your earlobes in a mirror. Do they connect directly to the side of your head, called attached earlobes, or do they loop up before attaching to your head, called detached earlobes. Select the bead that represents your earlobe shape.

Attached – Yellow



Detached – Blue



**14.** Finish your bracelet by tying the ends together. You may need some adult help to get the size right. Make sure it's loose enough so that you can take it on and off easily, but not so loose that it falls off when you're playing.



#CampSci