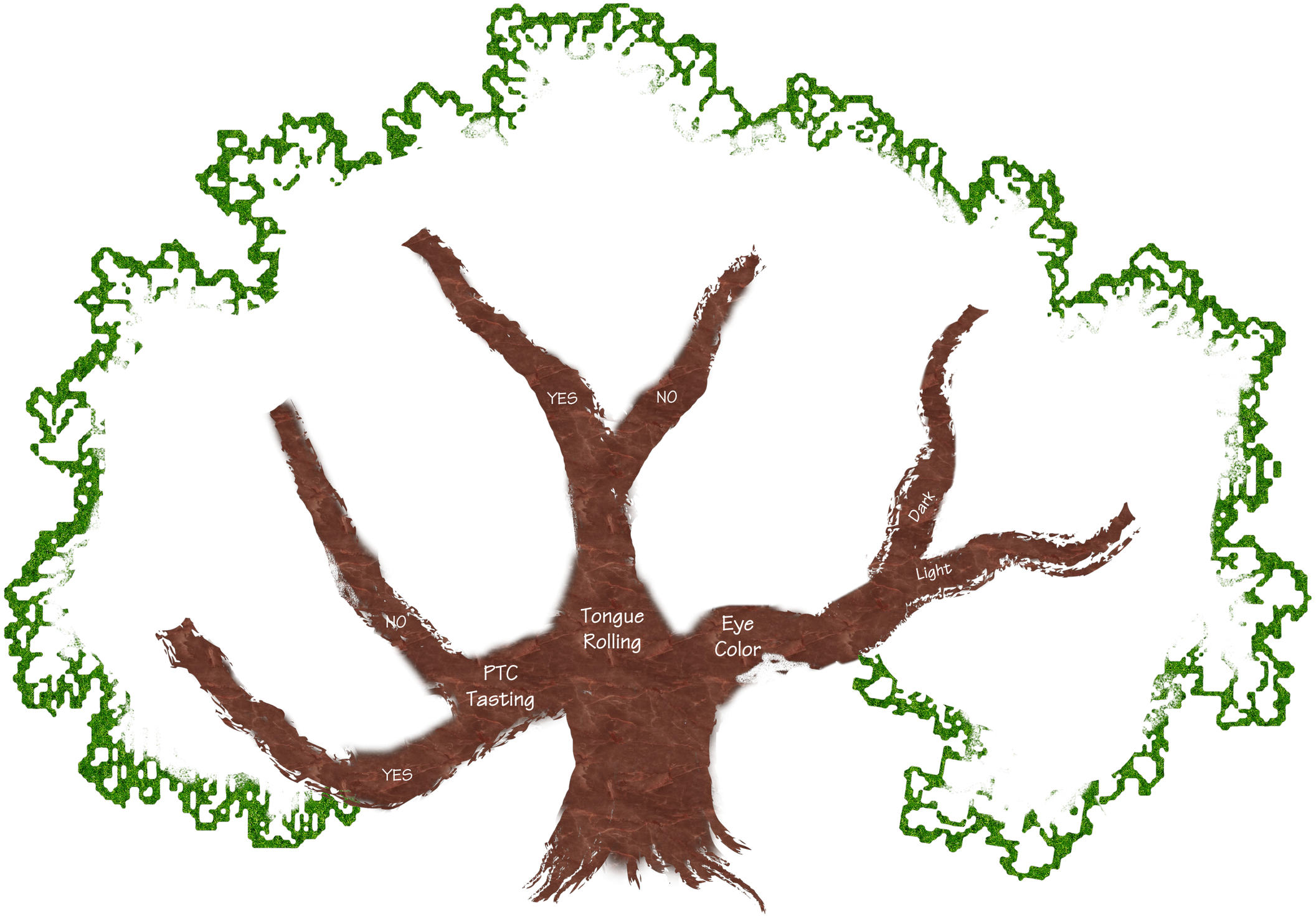
# A Tree of Genetic Traits



## A Tree of Genetic Traits Activity Instructions

This activity will help show you that there are physical features, like eye color, that are controlled by the genes that you inherit from your parents. Follow the instructions below to see what features you have for three traits: Bitter tasting, tongue rolling, and eye color.

For more information about important terms, see the glossary below.

1. First, you will test your genetic traits before moving on to family and friends.
2. To do this, cut out a set of colored leaves: 1 red, 1 green, and 1 yellow leaf.
3. Write your name at the top where it says "name."
4. You will test yourself for three genetic traits: Bitter tasting using PTC paper, tongue rolling ability, and eye color.
5. Place a piece of PTC paper on your tongue. Can you taste the bitterness? On the green leaf, write down your results.
6. Glue the leaf on the "yes or no," "PTC Tasting" branch of the tree on the other side of this page.
7. What color are your eyes? If you have blue, green, or hazel colored eyes, you have light colored eyes. If your eye color is brown or black, you have dark colored eyes. Write down your results on the yellow leaf.
8. Glue the leaf on the "yes or no," "Eye color" branch of the tree on the other side of this page.
9. Can you roll your tongue? Write down your results on the red leaf.
10. Glue the leaf on the "yes or no," "Tongue Rolling" branch of the tree on the other side of this page.
11. Repeat steps 1-10 with any parent or friend to see what you, your parents, or your friends inherited from their parents and how you might be similar to each other!

## Glossary of Terms

- DNA: Short for deoxyribonucleic acid, the name of the molecule that carries genetic instructions for all living things.
- Genetics: The study of genes and heredity in organisms.
- Gene: A basic physical unit made up of DNA that is passed from parents to their children.
- Inherited Traits: Features that are passed down from parents to their children and determined by genetics.
- Dominant and Recessive Traits: People receive two versions of a gene, one from each parent. The physical features that are seen depend on what version a person inherits.

| Gene Versions | Physical Characteristic |
|---|---|
| Both versions are the dominant type | Dominant Trait |
| One version is the dominant type and the other is the recessive type | Dominant Trait |
| Both versions are the recessive type | Recessive Trait |

- PTC: Stands for phenylthiocarbamide. It is a chemical that tastes bitter to some people and tasteless to other people. Tasting bitter is a dominant trait, while not tasting is a recessive trait.
- Tongue Rolling: The ability to roll your tongue is a dominant trait, while the inability to roll your tongue is a recessive trait.
- Eye Color: Shades of brown or black are dominant traits, while shades of blue, green, or gray are recessive traits.

For more definitions of genetic terms, please see the NHGRI Talking Glossary of Genetic Terms at http://genome.gov/Glossary/.

For more details about this activity and other NHGRI-sponsored USA Science and Engineering Festival activities, visit http://genome.gov/activities