



# HUMAN GENETICS

Is the dominant trait most prevalent?

Name \_\_\_\_\_

Data Analysis: color blind data

## Is red-green color blindness in humans an inherited trait like tongue-rolling?

### Directions

In your group, answer the following questions using your knowledge of genetics and the data from the Human Genetics Project.

Some resources that you might find helpful:

Pedigree analysis:

<http://www.ndsu.nodak.edu/instruct/mcclean/plsc431/mendel/mendel9.htm>

Sex linked genes:

[http://anthro.palomar.edu/biobasis/bio\\_3b.htm](http://anthro.palomar.edu/biobasis/bio_3b.htm)

### Questions

#### 1. Is color blindness dominant or recessive?

Using [pedigree analysis](#), determine whether or not color blindness is dominant or recessive. **Think about this, if a person is color blind and color blindness is dominant, then which or what parents would have to be color blind? Explain your answer.**

#### 2. Does Mendel's Laws apply to its inheritance?

IF red-green color blindness is an inherited trait, THEN at least one parent or grandparent must have been a carrier of a color blind allele if it is recessive and one parent must express the phenotype color blind if it is dominant. **Does that mean one of them had to be color blind? Can you find any evidence in a person's genetic history that supports inheritance? Explain your answer.**

**3. Anything odd about the inheritance of color blindness?** Investigating further, IF red-green color blindness is controlled by a gene on a normal body (X) chromosome, THEN the number of color blind males will equal the number of color blind females. (Remember males have one X and one Y chromosome while females have two X chromosomes. The Y chromosome is shorter than the X chromosome and thus is missing some genes. Males then have some characteristics that are expressed by one sex linked gene instead of two.)

**What percentage of students showing color blindness are male?**



**What percentage of students showing color blindness are female?**

**4. Now let's assume that red-green color blindness is controlled by a dominant gene on the sex linked X chromosome. Write a prediction for the percentage of female children that would be born to these parents: mother is not color blind; father is color blind.**

**5. Does the data from the Human Genetics project support your hypothesis? How about some of the archived data?**