**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_**

**What Are Genes and What Do They Tell Us?**

Many of your characteristics are determined by genes, sections of DNA that code for proteins. Each characteristic, or trait, is controlled by a pair of genes, or sometimes more than one pair. A dominant trait is one that only needs one copy of a gene to be expressed. A recessive trait needs both copies of the gene to be expressed. For example, a person with brown hair can have two dominant genes, BB, or one dominant and one recessive, Bb. A person with blonde hair will have two recessive genes, bb. Some traits, such as eye color or skin color, are determined by several sets of genes. With eye color, one set of genes plays the biggest role in determining whether the color will be light or dark.

1. Determine which of your traits are dominant and which are recessive. Use a pencil circle or check the trait you observe. You may need help from a friend or a mirror.

|  |  |  |
| --- | --- | --- |
| **Visible Trait (phenotype)** | **Dominant Form** | **Recessive Form** |
| Ear lobes | Free | Attached  |
| Hair type | Curly | Straight |
| Tongue rolling | Can roll | Cannot roll |
| Hair on middle joint of fingers | Hair present | Hair absent |
| Widows peak | Present | Absent |
| Freckles | Present | Absent |
| Eye color | Brown, hazel, green | Blue, gray |
| Hitchhiker’s thumb | Bent  | Straight |
| Hair color | Black, brown | Blonde, red |
| Dimples | Present | Absent |
| Eye lashes | Long | Short |
| Cleft chin | Present | Absent |
| Handedness | Right | Left |
| PTC tasting | Can taste | Cannot taste |

1. Log into Discovery Ed Techbook. Select the Biology Course and open the Heredity Unit. Select the Genetics topic. Click on the Explore tab and start reading about Mendel’s work with pea plants and what he concluded about heredity. Start on page 1 and continue through page 4.

While you are reading put definitions and sketches of the following words in your glossary: trait,

Allele, dominant, recessive, heterozygous, homozygous, genotype, phenotype

After you have finished reading, write a summary explaining Who, What, When, How, and Why. This should include *who* did the work, *what* he did and *when* he did it, *how* he did it (what method did he use) and what he concluded (*why* it was important). Do this on the back or attach a separate sheet.