**Genotype to Phenotype**

**Instructions**: Complete the chart using the information about the human genes below

**Tongue Rolling Gene**: T = tongue roller; t = non-tongue roller

**Albinism Gene**: A = normal skin color; a = no melanin in skin (albino)

**Ear Lobe Gene**: E = free ear lobes; e = attached ear lobes

**Eye Color Gene**: B = brown eyes; b = blue eyes

**Thumb Shape Gene**: H = hitchiker’s thumb; h = straight thumb

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| --- | --- | --- | --- | --- |
| **Gene** | **Genotype** | **Description of Genotype** | **Which gene is expressed?** |  **Phenotype** |
| **Tongue Rolling** | tt | Homozygous Recessive | t | non-tongue roller |
| **Albinism** | Aa |  |  |  |
| **Ear Lobe** |  | Homozygous Dominant |  |  |
| **Eye Color** |  |  | b |  |
| **Thumb Shape** |  |  |  | straight thumb |
| **Tongue Rolling** |  | Heterozygous |  |  |
| **Albinism** | aa |  |  |  |
| **Ear Lobe** |  |  |  | attached |
| **Eye Color** | BB |  |  |  |
| **Thumb Shape** |  | Heterozygous |  |  |

1. Explain how a dominant gene and a recessive gene interact. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Who is the scientist who discovered the basic rules of genetic inheritance? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which one can you determine by looking at someone, their phenotype or genotype?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What is an allele? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. How many alleles make up your genotype for one trait? \_\_\_\_\_\_\_\_
6. Explain WHY you have this number of alleles instead of just one. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. If man has blue eyes, what is his genotype? \_\_\_\_\_\_\_ If a man has brown eyes, can you tell his genotype? \_\_\_\_\_\_\_ ***Explain*** why you cannot.