Name: Date:

**Science 10: Human Mendelian Traits**

Mendelian traits are those that follow Mendel’s rules of only 2 possible versions of a gene (1 dominant, 1 recessive). There are only a few examples of these in humans.

1. Use the chart below to determine your **phenotype** (observable characteristic) and possible **genotype(s)** (a pair or pairs of alleles). If you have the dominant phenotype, you should include both the homozygous and heterozygous genotypes – see the example for cleft chin in the first row.

|  |  |  |
| --- | --- | --- |
| **Trait** | **Your Phenotype** | **Possible genotype** |
| Cleft chin (Dominant C) vs. non-cleft chin (recessive c) | Ex. Cleft chin | Ex. CC (homozygous) or Cc (heterozygous) |
| Cheek dimples (dominant D) vs. no cheek dimples (recessive d) |  |  |
| Free earlobes (dominant E) vs. Attached earlobes (recessive e) |  |  |
| Freckles (dominant F) vs. no freckles (recessive f) |  |  |
| No hitchhikers thumb (dominant H) vs. hitchhikers thumb (recessive h) |  |  |
| Widow’s peak (dominant W) vs. no widow’s peak (recessive w) |  |  |

1. Did you have mostly dominant or recessive traits?
2. Compare your findings with other students
   1. For which trait were most students dominant?
   2. For which trait were most students recessive?
3. Complete the Punnett Squares below using your own genotype for each trait. If you have a dominant trait, choose to use either the heterozygous or homozygous genotype. The other person’s genotype is provided. After completing the Punnett square, identify possible phenotypes of offspring and the probability of each phenotype in percentage.
4. **Chin genotypes: Yours \_\_\_\_\_\_\_ & the other person’s Cc**

List of possible phenotypes: % probability of inheritance

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| --- | --- |
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|  |  |

1. **Dimple genotypes: Yours \_\_\_\_\_\_\_ & the other person’s dd**

List of possible phenotypes: % probability of inheritance

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| --- | --- |
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|  |  |

1. **Earlobe genotypes: Yours \_\_\_\_\_\_\_ & the other person’s EE**

List of possible phenotypes: % probability of inheritance

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| --- | --- |
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|  |  |

1. **Freckle genotypes: Yours \_\_\_\_\_\_\_ & the other person’s Ff**

List of possible phenotypes: % probability of inheritance

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| --- | --- |
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|  |  |

1. **Thumb genotypes: Yours \_\_\_\_\_\_\_ & the other person’s HH**

List of possible phenotypes: % probability of inheritance

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| --- | --- |
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|  |  |

1. **Widow’s peak genotypes: Yours \_\_\_\_\_\_\_ & the other person’s ww**

List of possible phenotypes: % probability of inheritance

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| --- | --- |
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