**Multiple Alleles**

A picture containing silhouette

Description automatically generated

Although individuals can only have \_\_\_\_\_\_\_\_\_\_\_ alleles for any given \_\_\_\_\_\_\_\_\_\_\_ (one from their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and one from their \_\_\_\_\_\_\_\_\_\_\_\_\_\_), multiple alleles recognizes that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ alleles may exist for a single gene.

Ex: there are more than two options for the alleles that make up the gene for hair colour, there are multiple

**Hair Colours:**

Black

Brown

Blond

Dirty blond

Ginger

Red

**Fruit Fly Eye Colour**

With fruit flies there are several options for eye colour: red also known as wild eyed, apricot, honey or white. The dominant hierarchy is as follows: Red > Apricot > Honey > White

In this case red eyed is most dominant and White eyed is most recessive.

We show this hierarchy by using subscripts to indicate dominance.

A close-up of a stethoscope

Description automatically generated

What are the possible phenotypes for each colour?

|  |  |
| --- | --- |
| **Phenotype** | **Possible Genotype(s)** |
| Red |  |
| Apricot |  |
| Honey |  |
| White |  |

**Multiple Allele Example**

A red eyed fruit fly (E1E4) is crossed with an apricot eyed fruit fly (E2E4). Calculate the phenotypic ratios of their offspring.

**Phenotype: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Genotype: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Alleles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

What is the allele hierarch?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Shape

Description automatically generatedShape

Description automatically generated

**X**

**Red eyed**

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

**Apricot eyed**

**Phenotypic Ratios:**

**\_\_\_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_\_\_\_**

Text

Description automatically generated

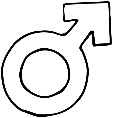
**Multiple Alleles & Codominance**

Diagram

Description automatically generated with low confidence

A picture containing diagram

Description automatically generated



**X**

**Phenotype: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Genotype: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Alleles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Multiple Allele & Codominance Example**

**A picture containing text, indoor

Description automatically generated**



**Phenotypic Ratios:**

**\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_**

**Genotypic Ratios:**

**\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_ : \_\_\_\_\_\_\_\_\_\_**

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

What are the possible alleles?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_