**Multiple Alleles**



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.



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?

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



**X**

**Red eyed**

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

**Apricot eyed**

 **Phenotypic Ratios:**

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



**Multiple Alleles & Codominance**







**X**

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

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

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

**Multiple Allele & Codominance Example**

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 **Phenotypic Ratios:**

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

**Genotypic Ratios:**

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

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

 What are the possible alleles?

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