**Polygenetic traits**

•Traits that are \_\_\_\_\_\_\_\_\_\_\_\_\_ by more than one gene.

–Ex. Skin color and \_\_\_\_\_\_\_ color

**Eye color**

•There are three \_\_\_\_\_\_\_\_ eye colors.

–1. Brown – a lot of \_\_\_\_\_\_\_\_\_\_\_\_\_ pigment

–2. Red- no melanin and we see the \_\_\_\_\_\_\_\_\_.

–3. Blue- a \_\_\_\_\_\_\_\_\_ amount of melanin in the lower layer of the \_\_\_\_\_\_ which reflects blue light waves.

•This does not explain the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of colors.

•So it can’t be that simple!

•There are at least three \_\_\_\_\_\_\_\_\_\_ responsible for eye color.

•Chromosome 15 - bey 2 Brown/blue

•Chromosome 15 - bey 1 Brown/nothing

•Chromosome 19 - gey Green/blue

**Blue Eyes**

•In order to have blue eyes you need to have all three genes indicate blue or \_\_\_\_\_\_\_\_\_\_\_\_\_.

• bey 2 - Brown/blue blue

• bey 1 - Brown or nothing nothing

• gey - Green/blue blue

**Brown eyes**

•Individuals with brown eyes have one of the \_\_\_\_\_\_\_ genes expressing brown. IF one is brown, it will \_\_\_\_\_\_\_\_\_\_\_ the other colors.

•bey 2 - Brown/blue blue

•bey 1 - Brown or nothing brown

•gey - Green/blue green

**Green eyes**

•For green eyes, the two \_\_\_\_\_\_\_\_\_\_ genes are not expressed and the green gene is \_\_\_\_\_\_\_\_.

•bey 2 - Brown/blue blue

•bey 1 - Brown or nothing nothing

•gey - Green/blue green

**Other colors**

•Scientists are not sure exactly how to get \_\_\_\_\_\_\_\_\_\_\_\_\_ but this is their latest idea.

•They gey gene has a second gene which \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the amount of melanin produced.

•M= modifier

–MM or Mm will produce \_\_\_\_\_\_\_\_\_\_ eyes

– \_\_\_\_\_\_\_ will produce green eyes

**Violet eyes**

•Genetically similar to \_\_\_\_\_\_\_\_\_\_ eyes

•Extremely \_\_\_\_\_\_\_\_\_\_\_.

**Different color eyes**

•\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

•Both eyes are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ colored or one eye has two different colors.

•Many causes: trauma at birth, joining of \_\_\_\_\_\_\_\_\_\_\_\_ in the womb, etc…

**Changes in Chromosome \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Changes in chromosome number are important for \_\_\_\_\_\_\_ and evolution
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ syndrome is caused by a change in chromosome number.

**Aneuploidy**

* Aneuploidy occurs when one of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is present in an \_\_\_\_\_\_\_\_\_\_\_\_ number of copies.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and monosomy are two forms of aneuploidy.

  

**Down Syndrome is Caused by \_\_\_\_\_\_\_\_\_\_\_\_ for Chromosome \_\_\_\_\_\_\_**

* Aneuploidy is remarkably \_\_\_\_\_\_\_\_\_, causing termination of at least \_\_\_\_\_\_\_% of human conceptions.
* Aneuploidy is also a driving force in \_\_\_\_\_\_\_\_\_\_\_\_\_ progression (virtually all cancer cells are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_).

**Chromosome \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in Meiosis Causes Aneuploidy**



**The Frequency of Down Syndrome Rises Sharply with Age of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_**



**Sex \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Aneuploid Conditions are \_\_\_\_\_\_\_\_\_\_\_\_\_**



**Polyploidy**

* Polyploidy occurs when all the chromosomes are present in \_\_\_\_\_\_\_ or more copies.
* Polyploidy is common in \_\_\_\_\_\_\_\_\_\_ and rare in \_\_\_\_\_\_\_\_\_\_\_.



* Polyploids are \_\_\_\_\_\_\_\_\_\_\_ when chromosome number \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A common way for this to occur is for the \_\_\_\_\_\_\_\_\_\_\_\_\_ fibers to fail, leaving all chromosomes in \_\_\_\_\_\_\_\_ cell.
* Roughly 35% of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ plants (the most familiar plant species) arose through polyploidization.
* Most crop species are polyploid.

**Chromosome Structural Changes**

* There are \_\_\_\_ types of chromosome structural change – all of them associated with human \_\_\_\_\_\_\_\_\_\_\_\_\_\_.



* Cri-du-Chat \_\_\_\_\_\_\_ – a debilitating disorder caused by chromosome \_\_\_\_\_\_\_\_\_\_\_\_\_.
* Cri-du-Chat is caused by the \_\_\_\_\_\_\_\_ of the short arm of one copy of chromosome \_\_\_

**Searching for Chromosomal \_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Chorionic Villus Sampling**



* Pre-Implantation Genetic Diagnosis (\_\_\_\_\_) - Removing a \_\_\_\_\_\_ for diagnosis from a human \_\_\_\_\_\_\_\_\_\_\_\_\_.