**Objective 44-50 – Intro to genetics**

**Objective 44: I can define genetics**

Genetics : The study of heredity, \_**how traits are passed from parent to offspring**

Gregor Mendel: The Father of \_\_\_**\_Genetics\_\_\_\_\_\_\_\_\_\_**

* He observed pea plants and how they passed their genetic information on to produce different pea plants.
* Chromosomes are made up of **\_DNA\_\_\_\_\_\_\_**and divided into sections called \_\_\_\_\_\_**GENES\_\_\_\_\_.**

**Objective 45: I can describe genes and traits.**

**Small sections of DNA are responsible for a “trait”. These small sections are called “Genes”.**

**\_\_GENE\_\_\_\_-** A segment of DNA that codes for a specific trait

\_\_\_\_**TRAIT\_\_\_\_\_\_\_\_\_\_- A characteristic an organism can pass on to it’s offspring through DNA**

**Obj 46: I can describe the 4 types of genes**

\_\_**DOMINANT**\_\_\_\_\_\_- A gene that is always expressed and hides others

\_**RECESSIVE**\_\_\_\_\_\_\_- A gene that is only expressed when a dominant gene isn’t present

INCOMPLETE\_\_\_\_\_\_\_\_ - Genes that work together to produce a third trait (red flowers + white flowers = pink flowers)

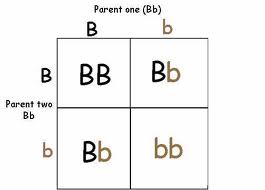
\_**CODOMINANT\_\_\_\_\_\_\_\_-** Genes that work together and both traits show up (red flowers + white flowers =patchy red and white flowers)

**Obj 47: I can describe how dominant genes mask recessive genes**

**A \_DOMINANT\_\_\_gene will always \_MASK (HIDE)\_\_\_\_a \_\_\_\_RECESSIVE\_\_\_ gene.**

**Objective 48: I can use a punnett square to predict the probability of traits**

**Punnett Square - A tool we use for predicting the traits of an offspring**

* + ***\_\_LETTERS\_\_\_\_\_are used as symbols to designate genes***
  + ***\_CAPITAL\_\_\_\_ letters are used for \_\_DOMINANT\_\_\_\_genes (W)***
  + ***LOWER CASE\_\_\_\_ letters are used for \_\_RECESSIVE\_\_\_\_\_ genes (w)***
  + ***Genes always exist in \_\_****\_PAIRS****\_\_\_\_\_\_\_\_* (WW, Ww, ww)**

**Obj 49: I can define homozygous, heterozygous, and alleles**

\_\_\_**HOMOZYGOUS**\_\_\_\_\_\_- Two copies of the same gene ie. BB

\_\_**\_HETEROZYGOUS**\_\_\_\_\_\_ - Two different genes ie. Bb

\_**\_ALLELE**\_\_\_\_:Each variation of a given gene, expressed as either an upper or lower case letter.

**Obj 50: I can describe genotype and phenotype**

\_\_\_**GENOTYPE**\_\_\_\_\_\_\_ the set of alleles (the letters: Ww)

\_**\_PHENOTYPE**\_\_\_\_\_\_\_\_\_ the physical appearance (widows peak or no widows peak)