**Meiosis**

**and Heredity**

**Living organisms are distinguished by their ability to reproduce their own kind**

*Vocab Review:*

 **Genetics -** study of heredity and variation

**Heredity -** transmission of traits from one generation to the next

**Variation** is the differences

**How does heredity happen?**

 Genes:

 Children inherit \_\_\_\_\_\_\_\_\_\_\_\_\_ not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Inheritance of Genes**

 Genes are passed on via \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sex cells – egg/sperm)

 Most DNA is packaged into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Asexual VS. Sexual Reproduction**

 Asexual -

 Clone -

 Sexual -

**What About Us?**

Humans have \_\_\_\_\_\_\_\_\_ pairs of chromosomes in a somatic cell (any cell other than a gamete)

Somatic cells are \_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because

The 2 chromosomes in each pair are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are:

 -

 -

 -

For Humans, the diploid (2N) number is \_\_\_\_\_\_\_\_\_\_\_.

Somatic cell = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Gamete =

Sex Chromosomes: \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_

Human females: \_\_\_\_\_\_\_\_ Human males: \_\_\_\_\_\_\_\_\_\_

Autosomes:

**Technique**: Karyotype 🡪

**Fertilization and meiosis alternate in sexual life cycles**

Or, in terms of chromosome sets…

**There are 3 main types of Sexual Reproduction**



**Animals…**

**Some plants and algae do things differently, and we call it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

You don’t need to concern yourself with the details of the other types of sexual reproduction. Just be aware they exist and there is more than way to have a diploid and haploid state during the reproduction cycle.

**A NOTE ON HAP AND DIP: (1N and 2N)**

**In all three life cycles, the halving and doubling of chromosomes contributes to…**

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

**Meiosis…**

The Order of Events

**In Brief,**





**And at the END of Meiosis…**

Non-disjunction in meiosis 🡪

Comparison of Meiosis and Mitosis

**Mitosis Meiosis**





**Genetic Variation –** Origins in Offspring

Three mechanisms contribute to genetic variation:

 1.

 2.

 3.

1. Crossing Over



 Creates \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ chromosomes

2. Independent Assortment of Chromosomes



3. Random Fertilization

That Good Ole’ Evolution Connection…

**Genetic variation produced in sexual life cycles contributes to evolution**

**Therefore….**

**Sexual reproduction contributes to the genetic variation in a population, which originates from mutations**

