**Meiosis Notes**

Organisms that reproduce sexually are made up of two types of cells:

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells are body cells contain the normal number of chromosomes, called the \_\_\_\_\_\_\_\_\_\_\_\_\_ number. (the symbol is \_\_\_\_\_)
* \_\_\_\_\_\_\_\_\_\_\_\_\_ cells are the sex cells that contain only ½ the normal number of chromosomes, called the \_\_\_\_\_\_\_\_\_\_\_\_\_ number (the symbol is \_\_\_\_\_)

The male gamete is the \_\_\_\_\_\_\_\_\_\_\_\_ and the female gamete is the \_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the fusion of a sperm and egg to form a **zygote**.

If an organism has the diploid number (2n), it has two matching homologues per set. One homologue comes from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the other homologue comes from the \_\_\_\_\_\_\_\_\_\_\_\_. The diploid number for humans is \_\_\_\_\_\_\_. (so the haploid number is \_\_\_\_\_\_\_)

Homologous chromosomes are a \_\_\_\_\_\_\_\_\_ of chromosomes that are similar in shape and size. Humans have \_\_\_\_\_\_\_ pairs of homologous chromosomes.

* 22 pairs of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (body chromosomes)
* 1 pair of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sex chromosomes)

The sex chromosomes code for the sex of the offspring. Females have two \_\_\_\_\_\_\_ and males have one \_\_\_\_ and one \_\_\_\_\_\_.

Meiosis is the process by which \_\_\_\_\_\_\_\_\_\_\_\_\_, with \_\_\_\_\_\_\_\_\_ the number of chromosomes, are produced.

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells are reduced to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cels.

Meiosis has two divisions: meiosis \_\_\_ and meiosis \_\_.

* Interphase I: similar to \_\_\_\_\_\_\_\_\_\_ interphase (chromosomes replicate during \_\_\_ phase)
* Prophase I: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ condense, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ disappears, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ appear, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs.
  + During\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_, segments of nonsister chromatids break and reattach to the other chromatid. **PROVIDES VARIATION.**
* Metaphase I: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ align on the metaphase plate and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs. **PROVIDES VARIATION**
* Anaphase I: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ chromosomes separate and move to opposite poles; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ remain attached at centromeres.
* Telophase I: Cell begins to split into \_\_\_ with sets of homologous chromosomes in each new cell.
* No interphase, instead there is a phase called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Prophase II: same as prophase in \_\_\_\_\_\_\_\_\_\_\_\_\_
* Metaphase II: same as metaphase in \_\_\_\_\_\_\_\_\_\_\_\_\_
* Anaphase II: same as anaphase in mitosis; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ separate
* Telophase II: same as telophase in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; \_\_\_\_\_\_\_\_\_\_\_\_\_ form and \_\_\_\_\_\_\_\_\_\_ occurs
  + \_\_\_\_\_ haploid daughter cells are produced
* Non-disjunction = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

It results with the production \_\_\_\_\_\_\_\_\_\_\_\_\_\_ with abnormal chromosome numbers…… remember…. An abnormal chromosome number (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) is damaging to the offspring.

* Non-disjunctions usually occur in one of \_\_\_\_\_\_ fashions.
* The first is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, the second is called **\_\_\_\_\_\_\_\_\_\_\_\_\_** If an organism has Trisomy 18 it has three chromosomes in the 18th set, Trisomy 21…. Three chromosomes in the 21st set. If an organism has Monosomy 23 it has only one chromosome in the 23rd set.

**Common Non-disjunction Disorders**

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Trisomy 21**
* **Turner’s Syndrome \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (X)**
* **Kleinfelter’s Syndrome – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (XXY)**
* **Edward’s Syndrome – Trisomy \_\_\_\_\_\_\_\_\_**