

## Chapter 10: Meiosis & Sexual Reproduction

### Reproduction

- In \_\_\_\_\_ reproduction, the parent passes on a \_\_\_\_\_ set of DNA through \_\_\_\_\_
  - This process is very effective for producing \_\_\_\_\_ numbers of offspring \_\_\_\_\_
  - If the parent has \_\_\_\_\_ traits, all of the offspring will have \_\_\_\_\_ traits as well
- In \_\_\_\_\_ reproduction, each parent contributes \_\_\_\_\_ per \_\_\_\_\_
  - Genes for each trait come in different forms called \_\_\_\_\_
  - Meiosis \_\_\_\_\_ the \_\_\_\_\_ during gamete formation, therefore fertilization produces offspring that are genetically \_\_\_\_\_
  - \_\_\_\_\_ from sex is crucial to \_\_\_\_\_

### Overview of Meiosis

- Meiosis begins with \_\_\_\_\_ (2n) \_\_\_\_\_ cells and ends with \_\_\_\_\_ (n) \_\_\_\_\_
- In \_\_\_\_\_ cells, there are \_\_\_\_\_ chromosomes of each type, called \_\_\_\_\_ chromosomes
- Meiosis \_\_\_\_\_ pairs up the homologous chromosomes and sorts them so \_\_\_\_\_ from each pair goes to each new \_\_\_\_\_
- In some ways, mitosis and meiosis resemble each other:
  - Chromosomes are \_\_\_\_\_ during Interphase
  - Chromosomes are moved by \_\_\_\_\_
  - Nuclear division is followed by \_\_\_\_\_
- In some ways, mitosis and meiosis are very different:
  - Meiosis has \_\_\_\_\_ rounds of nuclear division (Meiosis I and Meiosis II)
  - Meiosis produces \_\_\_\_\_ new cells
  - Meiosis produces \_\_\_\_\_ cells

## Events of Meiosis

- Pairing of \_\_\_\_\_ chromosomes
  - Homologous chromosomes pair up (this process is called \_\_\_\_\_) during Prophase I
  - The grouping of \_\_\_\_\_ chromatids is sometimes called a \_\_\_\_\_
  - Homologous chromatids may exchange segments (“\_\_\_\_\_”)
    - This will produce even more \_\_\_\_\_
- \_\_\_\_\_ of homologous pairs
  - During Metaphase I, the \_\_\_\_\_ line up along the \_\_\_\_\_
  - In Anaphase I, the homologous chromosomes \_\_\_\_\_ away from each other (“\_\_\_\_\_”)
  - The two \_\_\_\_\_ cells formed at the end of Meiosis I will have a random \_\_\_\_\_ of maternal and paternal replicated chromosomes
- Separation of sister \_\_\_\_\_
  - Meiosis II looks very similar to \_\_\_\_\_, except all of the cells are \_\_\_\_\_
  - Anaphase II splits the sister \_\_\_\_\_ apart in each cell to produce a total of \_\_\_ new cells with single-chromatid chromosomes

## Gamete Formation

- The process of making gametes is often referred to as \_\_\_\_\_
- In \_\_\_\_\_, the life cycle is:  
gamete formation (\_\_\_\_\_) --> \_\_\_\_\_ --> growth & development (\_\_\_\_\_) --> gamete formation . . .
- Spermatogenesis (in \_\_\_\_\_ animals)
  - Germ cell (2n) --> primary \_\_\_\_\_ (2n) --> Meiosis I --> 2 secondary spermatocytes (\_\_\_\_) --> Meiosis II --> 4 \_\_\_\_\_ (n)
  - Spermatids mature and change in form; once a \_\_\_\_\_ is formed, they are called \_\_\_\_\_
- Oogenesis (in \_\_\_\_\_ animals)
  - Germ cell (2n) --> primary \_\_\_\_\_ (2n) --> Meiosis I --> 1 secondary oocyte (\_\_\_\_, large) and 1 polar body (n, \_\_\_\_\_) --> Meiosis II --> 1 \_\_\_\_\_ (n, large) and \_\_\_\_\_ polar bodies (n, small)
  - Only the \_\_\_\_\_ is capable of being fertilized
  - The polar bodies wither and \_\_\_\_\_ due to a lack of \_\_\_\_\_ material

- In \_\_\_\_\_, the life cycle is very different:
  - \_\_\_\_\_ formation (meiosis) --> growth and development (mitosis)  
--> gamete production (\_\_\_\_\_) --> fertilization --> growth and development (\_\_\_\_\_) --> spore formation . . .
  - Sporophytes (\_\_\_\_) are a generation that produces spores (n)
  - Gametophytes (\_\_\_\_) are a generation that produces gametes (n)
  - Generations alternate chromosome \_\_\_\_\_