

Chapter 8, part 2; Meiosis

MEIOSIS, THE BASIS OF SEXUAL REPRODUCTION

•Sexual reproduction depends on _____ and _____

•Homologous Chromosomes;

- Different organisms of the same species have the same _____ and _____ of chromosomes

Somatic cells and karyotypes

•A _____ cell is a typical body cell - Has 46 _____ in a human

•A _____ is an orderly arrangement of chromosomes

• _____ **chromosomes** are matching pairs of chromosomes (one from each _____)

Human chromosomes

•Humans have _____ pairs of matching chromosomes, called _____

- Two different _____ chromosomes, X and Y

- Males have the combination _____ - Females have the combination _____

Gametes and the Life Cycle of a Sexual Organism

•The life cycle of a multicellular organism is the sequence of stages leading from the _____ of one generation to the _____ of the next

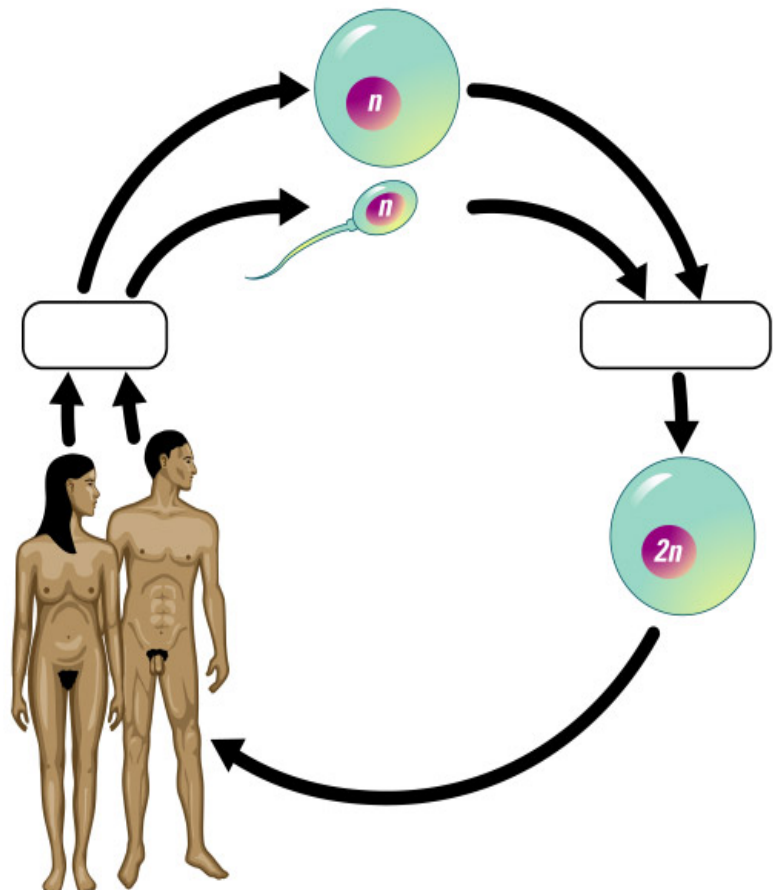
•Fill in this figure. Be able to explain what is happening.

Haploid versus Diploid

•Humans are _____ organisms meaning that their cells contain two sets of chromosomes, one set from their _____, one from their _____.

•Their gametes are

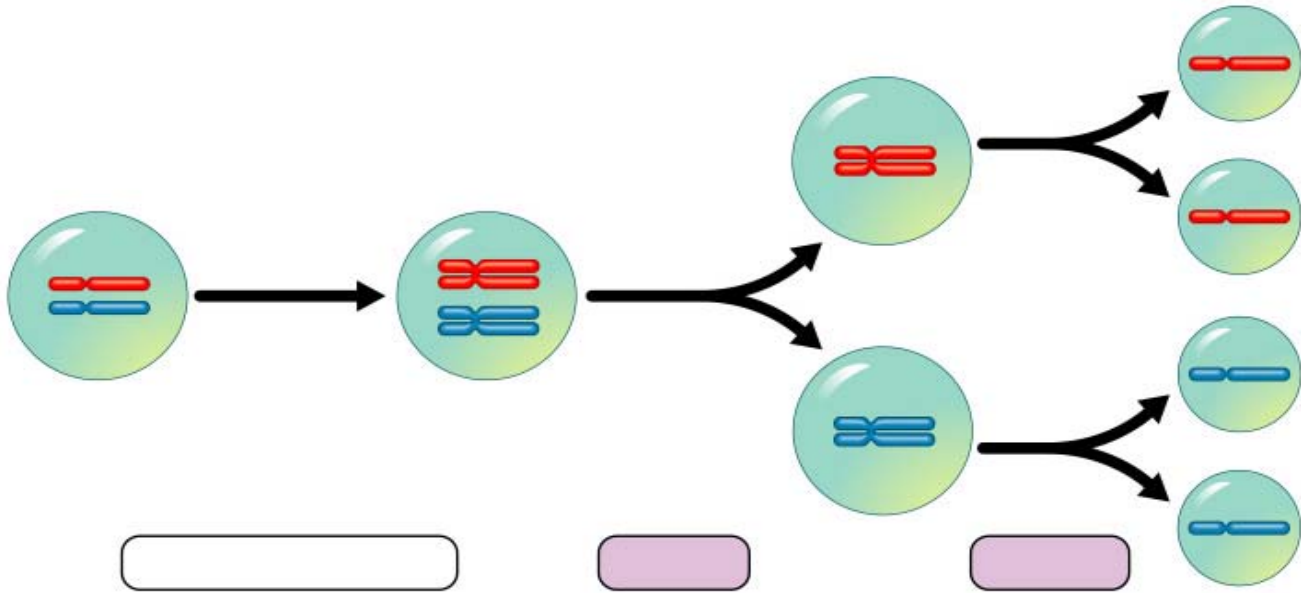
_____, having only one set of chromosomes



Fertilization

- Fertilization is the fusion of _____ (N) sperm and egg
- Creates a diploid (2N) _____, or fertilized egg

Meiosis; an overview



The Process of Meiosis

- Haploid _____ are produced in diploid organisms
- Two consecutive _____ occur, meiosis I and meiosis II, preceded by _____
- _____ occurs

Crossing Over

- In _____; homologous chromosomes exchange a small piece of _____ (for same genes)
- This happens during _____ I only
- Genetic** _____ occurs; a rearrangement of genetic _____

Meiosis I

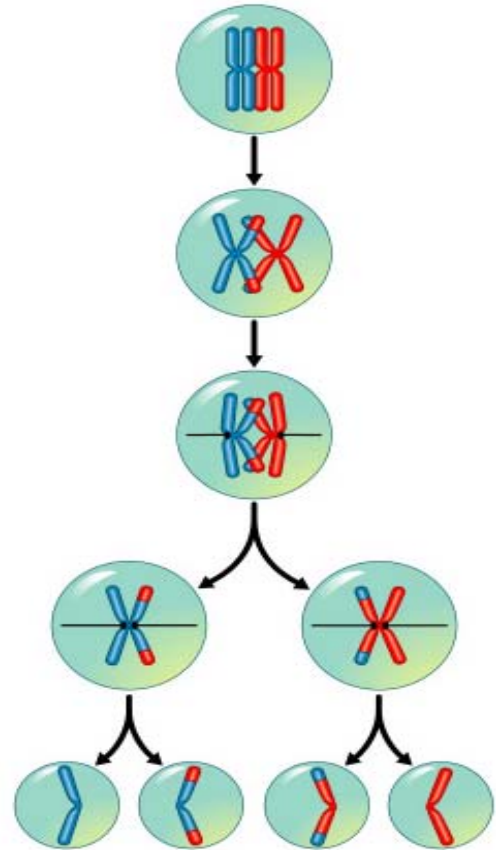
- Main point; separate _____ chromosomes
- Divides number of chromosomes in _____ (46 → 23)

Meiosis II

- Separate _____ chromatids to make haploid _____

Independent Assortment of Chromosomes

- In _____ every chromosome pair orients _____ of the others during meiosis



Review: Comparing Mitosis and Meiosis; Be able to compare and contrast the two types of cell division

Mitosis: _____

Meiosis _____

Review Questions:

1. There will be several figures from these notes on the test. Please study all of them.
2. Sexual reproduction depends on what two factors?
3. Different members of the same species (like humans) can each have different numbers of chromosomes (normally); T/F

4. Two similar chromosomes, one from each parent are called a _____ pair
5. A typical (non-sex) cell is called a _____ cell
6. An orderly arrangement of chromosomes is called a;
7. The 22 chromosomes that do not code for sexual characteristics are called;
8. The two types of sex chromosomes are;
9. The term that means a cell has two copies of all chromosomes (one from each parent) is;
10. The term that means a cell has only one copy of all chromosomes is;
11. When a sperm cell fuses with an egg cell, this **process** is called;
12. Fertilization results in a haploid (2N) cell called a;
13. Haploid gametes are produced in diploid organisms T/F
14. The main reason that gametes have to have half of the parental chromosomes is; (**think about it.** What do the gametes have to do? This is not specifically in the notes)
15. When homologous chromosomes exchange a small piece of DNA with each other, this is called;
16. When does crossing over occur?
17. Each half of a duplicated chromosome is called a _____ _____
18. The term that means that each chromosome orients independently of every other chromosome is;
19. **Essay**; How is mitosis different from meiosis?