

Review Study Guide for Meiosis

Types of cells

1. There are 2 types of cells in multi-cellular organisms, _____ cells (body cells) and _____ cells (sex cells).
2. What are 2 examples of gametes in humans? _____ and _____
3. What are 2 examples of gametes in plants? _____ and _____
4. Somatic cells are haploid or diploid? _____
5. Gametes are haploid or diploid? _____

Types of Chromosomes

6. Inside all of your cells are chromosomes. The 2 types of chromosomes are _____ and _____.
7. Autosomes are chromosomes, pair # ____ thru ____, that contain genes that code for traits that do NOT have to do with your _____.
8. Each autosome has a matching copy. One of each autosome in your body cells came from mom's egg and one of each autosome in your body cells came from dad's sperm. These matching chromosomes that came from mom and dad are called _____ chromosomes.
9. Homologous chromosomes share 3 major things in common:
 1. _____
 2. _____
 3. _____
10. Sex chromosomes are chromosomes, pair # _____, that contain genes that code for traits that DO have to do with your _____. They can also contain genes that code for traits like color-blindness and hemophilia.
11. If your a girl, your mother gave you a ____ sex chromosome from her egg and your father gave you a ____ sex chromosome from his sperm. If your a boy your mother gave you a ____ sex chromosome from her egg and your father gave you a ____ sex chromosome from his sperm.

Cells and Chromosomes Relationship

12. How many total chromosomes do you have in each of your somatic cells? _____
13. A HUMAN somatic cell has _____ total autosomes and ____ total sex chromosomes. The sex chromosomes would be ____ in a female somatic cell. The sex chromosomes would be _____ in a male somatic cell.
14. Somatic cells are represented by n or 2n? ____ Therefore they are called diploid or haploid?

15. How many total chromosomes do you have in your gamete cells? _____
16. A HUMAN gamete cell has _____ total autosomes and ____ total sex chromosome. The sex chromosome would always be a ____ in a female egg cell. The sex chromosome would be either an ____ or a ____ in a male sperm cell.
17. Gamete cells are represented by n or 2n? ____ Therefore they are called diploid or haploid?

Meiosis as a process

18. Meiosis is a type of cell division that produces _____ for the organism.
19. These gametes end up with ____ the number of chromosomes as the original cell when meiosis is over.
20. The cells in a female's body that go through meiosis and create eggs are _____ cells. The cells in a male's body that go through meiosis and create sperm cells are _____ cells.
21. Are the original cells in males or females that make sex cells (egg or sperm) somatic/diploid cells or gamete/haploid cells? _____
22. At the beginning of meiosis you start with ____ (#) _____ cell and at the end of meiosis 2 you end up with ____ (#) _____ cells.
23. List as many differences as you can between meiosis and mitosis.

Mitosis

Meiosis

Meiosis in DETAIL (major importance features)

Interphase 1: the _____ gets replicated

Prophase 1: the _____ chromosomes pair up with each other to form a structure called a _____, which allows for _____ to occur

Metaphase 1: the _____ chromosomes get lined up in the middle of the cell like a "double-file" line, either homologous chromosome (from mom or dad) can be on either side (left or right) which follows the Law of _____

Anaphase 1: the _____ chromosomes get pulled apart from each other and move to opposite ends of the cell

Telophase 1: the _____ forms around each of the chromosome sets

Cytokinesis 1: the _____ splits forming ____ cells

Prophase 2: the _____ disappears in each cell

Metaphase 2: the _____ chromosomes get lined up in the middle of the cell (single file line) in each cell

Anaphase 2: the _____ get pulled apart from each other in each cell

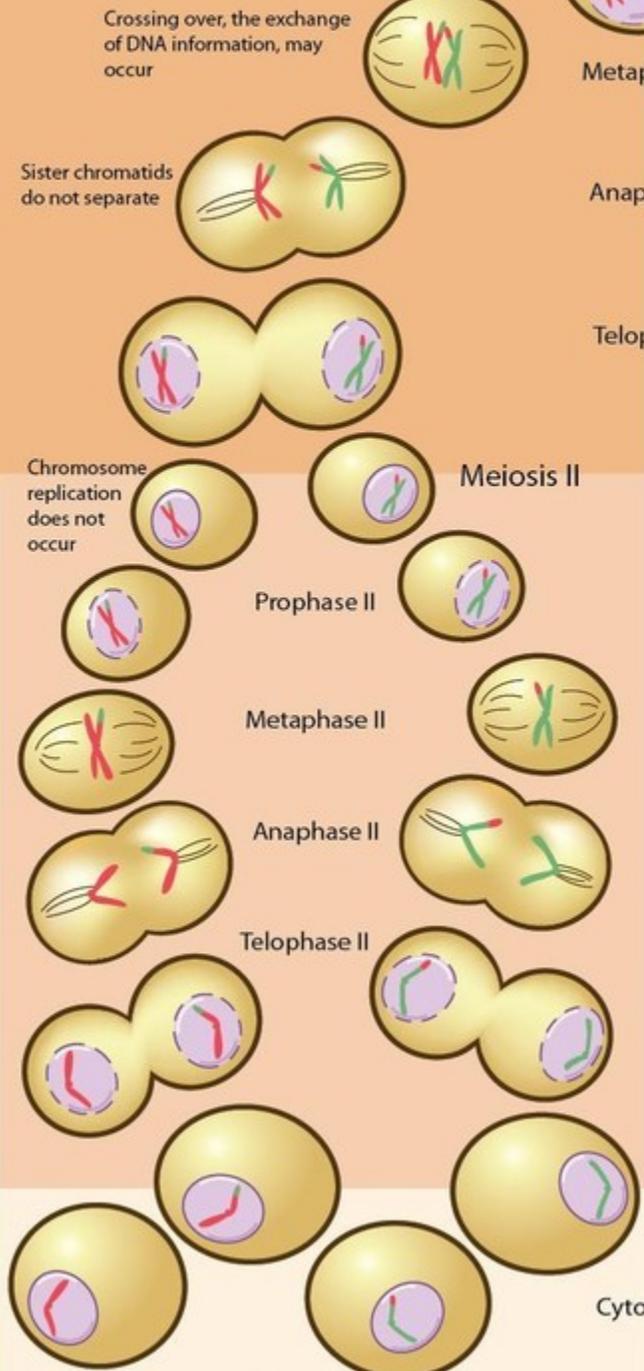
Telophase 2: the _____ reforms around each set of chromosomes in each cell

Cytokinesis 2: the _____ splits forming ____ cells total

AT the end all of the cells look the same or different? _____

Meiosis

the process by which haploid sex cells are created, each containing 23 chromosomes



4 haploid cells- Meiosis is complete

Interphase



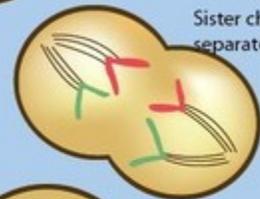
Prophase



Metaphase

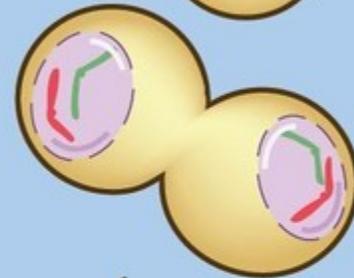


Anaphase



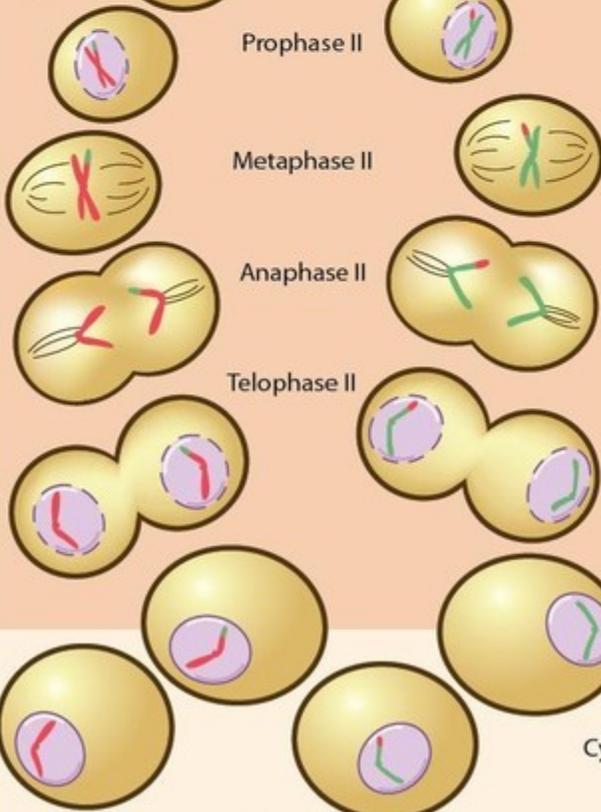
Sister chromatids separate

Telophase



Meiosis II

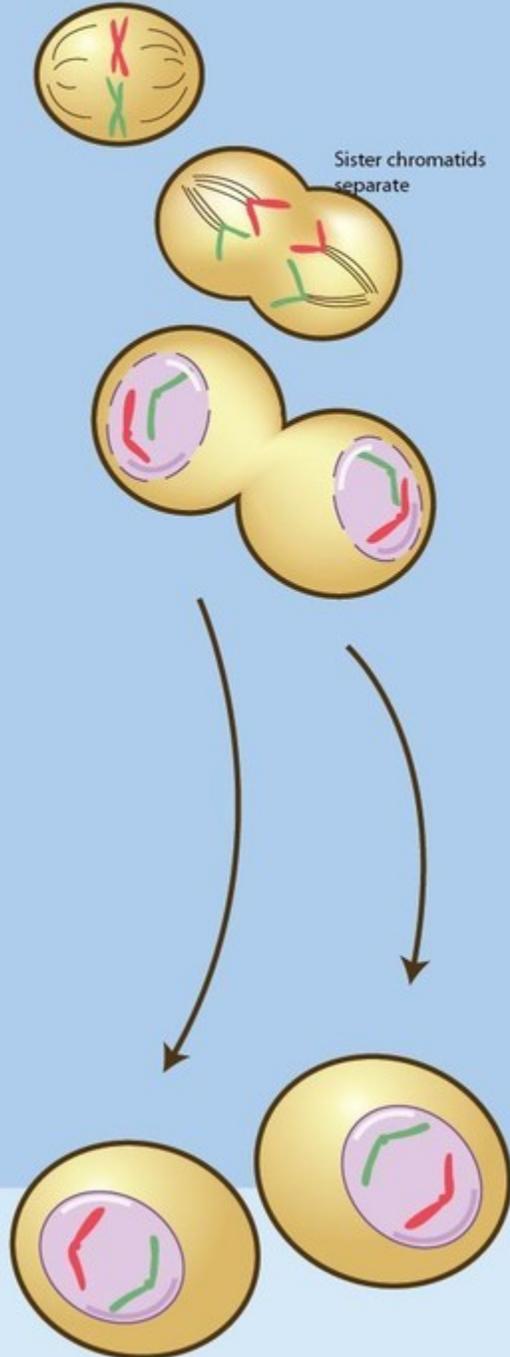
Chromosome replication does not occur



Cytokinesis

Mitosis

the process by which diploid cells are created, each containing an identical copy of DNA with 46 chromosomes



2 diploid cells - Mitosis is complete

What happens after meiosis?

24. Once meiosis has created sex cells (gametes) for you, they will be used in _____ reproduction.
25. Sexual reproduction then, is just the joining of gametes to create a new individual. When egg and sperm cells physically join it is called _____. This forms a _____, which is the first cell of a new individual.
26. Now this new individual will go through mitosis to make body cells in order to form all the cells of its organs. Then its ovaries or testes cells will eventually go through meiosis to make sex cells so they can then produce a child of their own later in life.