

Meiosis

Chapter 4.3 Guided Notes

Let's review....

- Mitosis produces two genetically _____ daughter cells.
- In sexual reproduction, offspring inherit traits from _____ parents (the mother and the father).
- Genetic traits are inherited in _____ patterns.

Meiosis is necessary for sexual reproduction.

- Most human cells (body cells) contain _____ chromosomes (23 pair).
- Any cell that contains the full number of chromosomes (two sets) for a species is a _____ cell, or _____ cell.

Gametes

- Gametes are cells that contain _____ the usual number of chromosomes - one chromosome from each pair.
- Gametes are _____ cells, and also called _____ cells. Human gametes contain 23 unpaired chromosomes.
- Gametes are found only in the reproductive organs.
- An _____ is the gamete that forms in a female.
- A _____ is the gamete that forms in a male.

Fertilization

- During sexual reproduction, _____ combine to become a $2n$ cell that can grow into a new offspring.
- _____ is the process that occurs when a sperm and egg combine to form one new cell.
- The egg (____ chromosomes) and the sperm (____ chromosomes) combine to form a new _____ cell with 46 chromosomes.

Mitosis vs. Meiosis

- Body cells divide by _____.
- Each daughter cell formed by mitosis is a standard _____ ($2n$) cell.
- But to produce gametes (which are haploid), a different kind of division is necessary - this is called _____.
- Meiosis produces haploid ($1n$) cells. During meiosis, a single cell goes through _____ cell divisions: Meiosis I and Meiosis II.
- Meiosis only occurs in the _____ tissues of an organism.

Cells divide twice during meiosis.

- Before meiosis begins, chromosomes of the parent cell are _____, so there are now _____ copies of each chromosome pair - twice as many as usual.
- So, to end up with cells that have half the usual number of chromosomes, there must be _____ divisions.

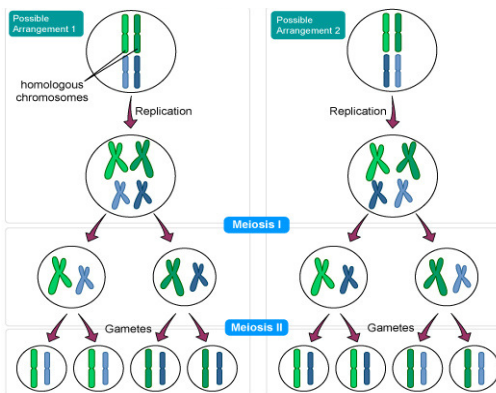
Meiosis I

- Remember, two chromosomes in a pair are called _____.
- During Meiosis I, the homologs _____ and the starting cell divides into two cells.
- One cell contains the two copies of one homolog of each pair, while the other cell contains the two copies of the other homolog of each pair.

Meiosis II

- During Meiosis II, each of the two cells is divided, producing _____ haploid cells.
- Each haploid cell has one _____ set of chromosomes.

Meiosis I and II: Male vs Female



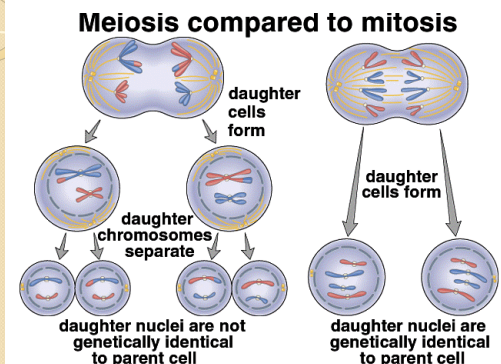
Functions of meiosis

- During meiosis, one cell in an organism's reproductive system divides _____ to form _____ cells.
- In males, these gametes become _____.
- In females, only one of these four new cells becomes an _____.
 - The rest of the cells dissolve back into the organism (or are never produced at all).

Differences of meiosis and mitosis.

- Meiosis only occurs in reproductive tissues!
- Only cells that are to become _____ go through meiosis. All other cells divide through _____.
- A cell that divide by meiosis goes through two cell divisions, but the chromosomes are not copied before the _____ division. In mitosis, the chromosomes are always copied _____ division.
- Daughter cells produced by meiosis, which are haploid ($1n$), only contain _____ the genetic material of the parent cell.
- Daughter cells produced during mitosis, which are diploid ($2n$), contain exactly the _____ genetic material as the parent.

Differences of meiosis and mitosis.



Video Clips...

- <http://ed.ted.com/lessons/sex-determination-more-complicated-than-you-thought> 5:46
- <http://www.youtube.com/watch?v=toVWK0flyFIY> 7:40
- <http://www.youtube.com/watch?v=qCLmR9-YY7o> 11:43
- Brainpop- Gender, Twins