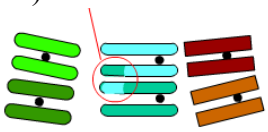
Meiosis - Internet Lesson **Name: Michael Plasmeier**

In this investigation, you will view sites that illustrate the process of meiosis. For each site answer the questions associated.

Site 1 - Lew-Port's Meiosis Page

http://www.lewport.wnyric.org/jwanamaker/animations.htm -->
click on Meiosis

1. How many chromosomes does the cell in this animation start with ? 3
2. The homologous pairs are represented by similar colors
3. Copies of chromosomes are held together by the centromere
4. Each chromosome finds its partner
5. Draw "crossing over" - using your pencil to shade in the areas that exchange parts. (yes, you have to draw it….).



6. How many chromosomes are at each pole of the cell? Half
7. During meiosis 2, chromosomes line up again along the cell's equator.
8. Only one copy of each chromosome moves toward the poles. Which means only 3 chromosomes of the original six.
9. New membranes form around each new nucleus of a gamete cell
10. Each cell divides, forming a total of 4 cells.

Site 2 - Sumanas Inc., Animation of Meiosis

http://www.sumanasinc.com/webcontent/anisamples/majorsbiology/
---> click on Meiosis

11. Read the introduction. Explain the difference between sexual and asexual reproduction.
Asexual reproduction just involved mitosis and creates an identical copy of the cell (genetically identical diploid cell). On the other hand meiosis produces 4 genetically different haploid cells. These cells must then mate with another gamete (from another parent perhaps) in order to create an offspring which is genetically different.

(Click to Animation)

12. DNA replication takes place when? During interphase I before meiosis
13. Meiosis consists of two cell divisions: meiosis I & meiosis II
14. Centrosomes migrate to opposite poles of the cell
15. The pairing of homologous chromosomes is called: synapsis
16. Crossing over points are called chiasmata
17. What happens in metaphase I: homologous chromosomes have lined up on the equatorial plate in a pair wise fashion, with one chromosome on each plate
18. What happens during anaphase I chromosomes from each pair move to opposite poles of the cell. The centromeres do not divide, so each chromosome still consists of 2 sister chromatids (may not be identical)
19. What is interkinesis? A short interphase period which occurs in some organisms after the cell has split in two during meiosis I – no DNA replication!
20. In prophase II, each cells is haploid
21. In metaphase II, chromosomes line up in single file on the equatorial plate.
22. What happens during telophase II? Chromosomes again decondense and nuclear membranes re-form. Depending on the species, cytokinesis may occur.

23**. (Click to Conclusion).** Each of the four daughter cells produced by meiosis is unique

(Click to Quiz)
24. With respect to meiosis, when does DNA replication occur? Before meiosis I only
25. When does crossing over occur? Prophase 1
26. During which phase do chromosomes line up along the equator? Metaphase I and II
27. During which phase does the nuclear membrane form around the chromosomes? Telophase II

Site 3 - Biology in Motion - Meiosis

Go to
http://www.biologyinmotion.com
--> click on "Cell Division Exercise" --> Click on "Practice Meiosis"

28. There are two ways in which the chromosomes can end up after meiosis. Sketch the two ways and indicate by color the chromosomes (use the following color codes: Purple, Dark Purple, Green, Dark green)

Site 4: PBS: Mitosis vs. Meiosis

http://www.pbs.org/wgbh/nova/baby/
Click on "How Cells Divide" --> Click on "Mitosis vs. Meiosis"
29. After viewing the animation, fill out the chart below, by placing a check in the box or boxes to indicate which the event occurs in (some events might have checks for both mitosis and meiosis).

	Mitosis	**Meiosis**
Two cell divisions	x	?at first
Centrioles appear	x	x
Homologous chromosomes pair		x ??
Spindle fibers form	x	x
Homologous chromosomes split		x ??
Cytokinesis	x	x
Four daughter cells		x
Sister chromatids split		x