Biology 1B
Book Web Site
Virtual Investigation

Name:
Name:
Date:
Hour:

Our *Modern Biology* book has a fairly comprehensive website. You will be able to find the book on-line and utilize numerous resources.

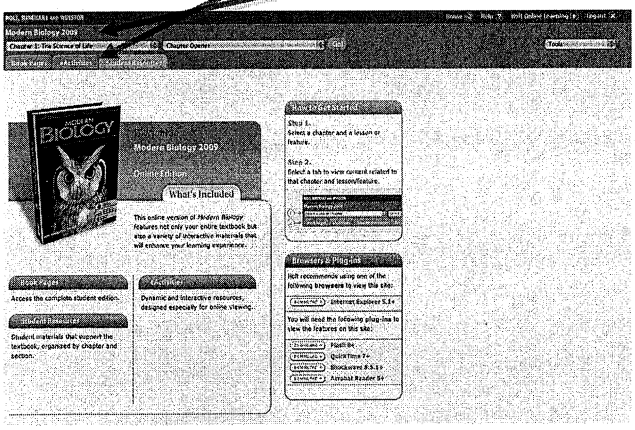
Go to the following website: **my.hrw.com**

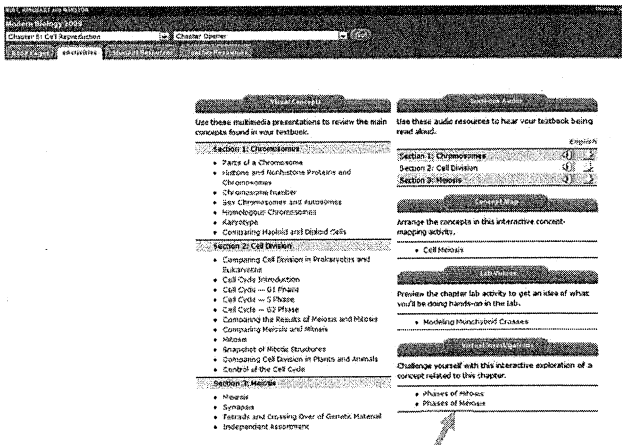
Your user name is: **astudents90**

Your Password is: **a7k7**

Click 'Go to the Online Textbook'. Here you will find a digital copy of your book. This will also give you access to audio files of vocabulary, digital copies of worksheets and virtual investigations (like the one we are doing today).

From the drop down menu at the top, select *'Chapter 8: Cell Reproduction'*.
Then click the yellow **eActivities** tab.



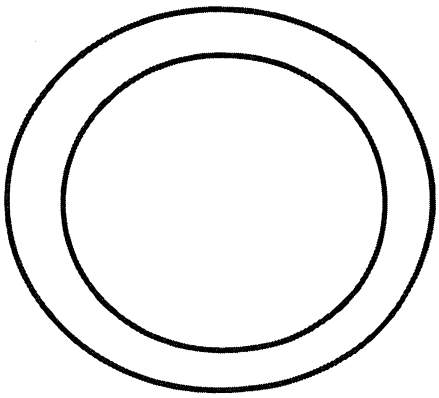


Now you are ready to try out our first Virtual Investigation. Click on 'Phases of **Meiosis**' link. BE CAREFUL! There is a link above it labeled 'Phases of *Mitosis*'... don't click on that one *(while it may be great review, it won't address the questions in this packet)*! Navigate through the Virtual Investigation for *Phases of Meiosis* on the Holt website. Answer these questions as you proceed. This should serve as a solid and repetitive way to nail down the processes that create gametes (sperm & eggs).

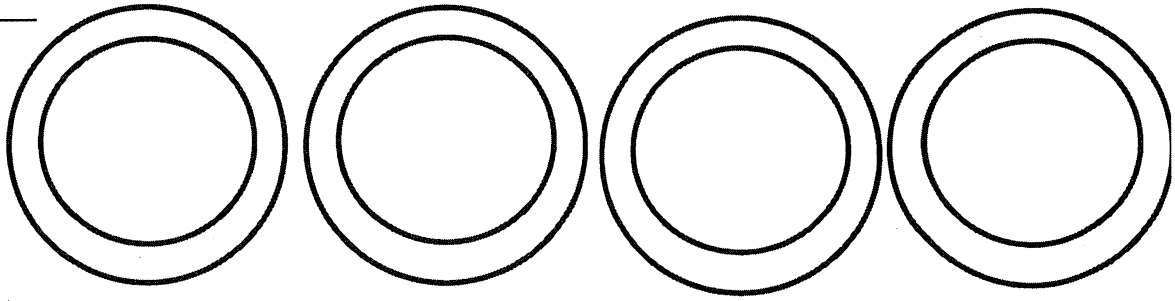
Remember, for full credit you must use complete sentences and use separate colors when appropriate!

Part 1 of 7

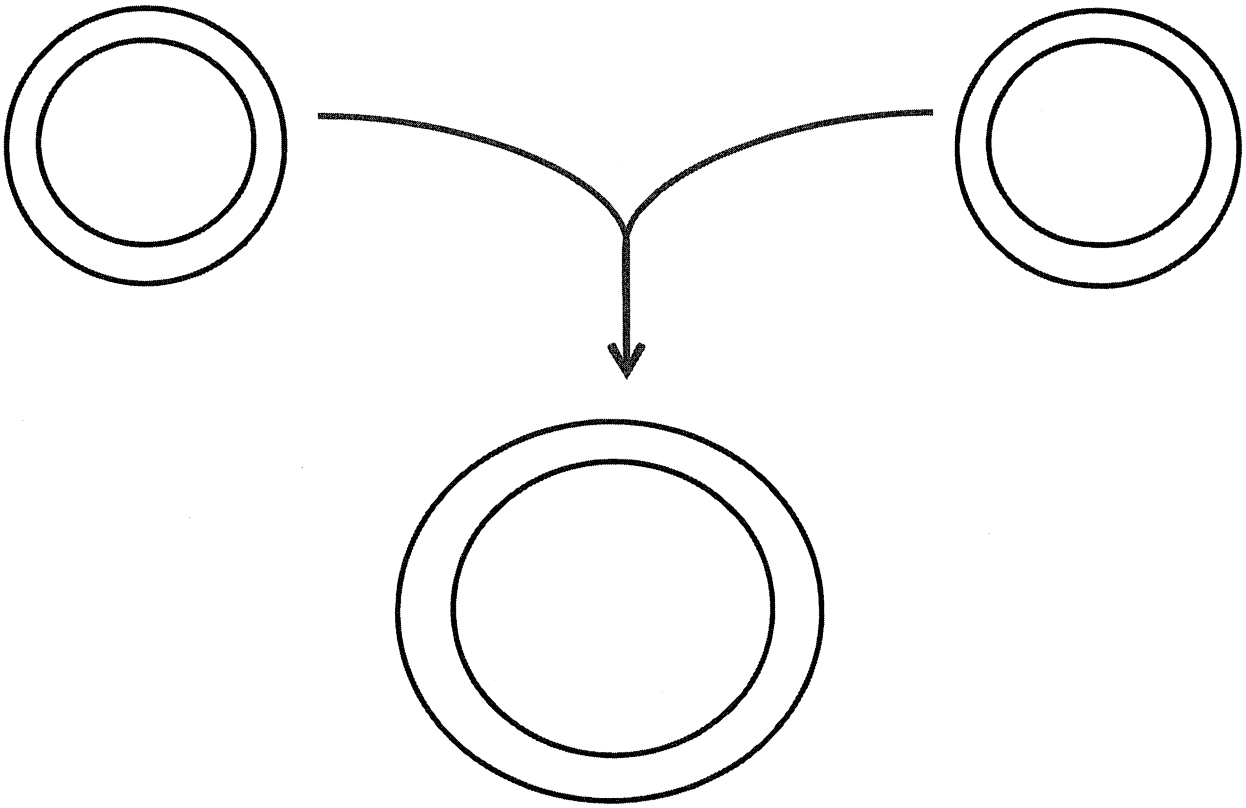
With what type of cell does meiosis start? *(label & draw with different colors)*



With what type of cell does meiosis end? *(label & draw with different colors)*



Fertilization involves the union of gametes (sex cells). Sketch and label this process below.



Part 2 of 7

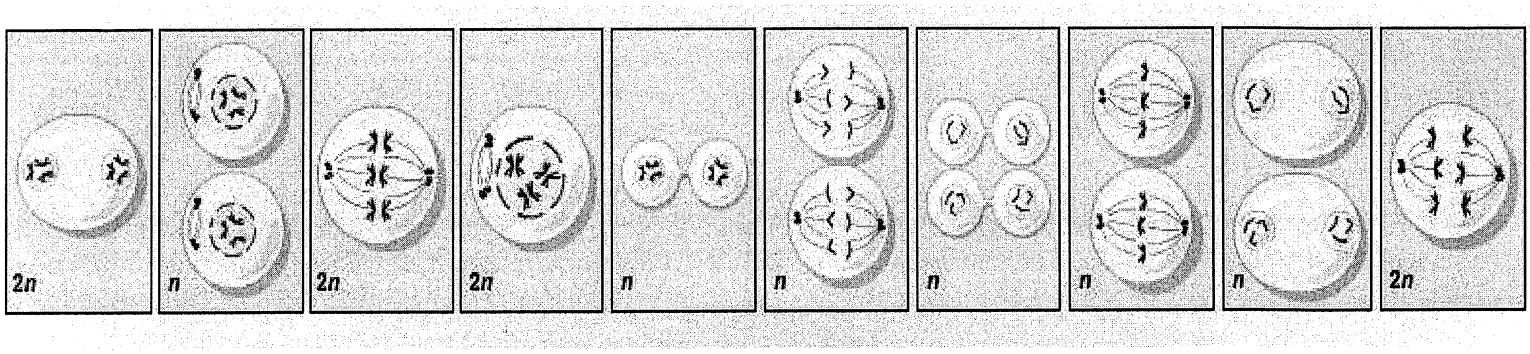
How is meiosis different from mitosis? Describe the number of cells, types of cells and number of chromosomes involved in each process.

_____

_____

_____

_____



#1 **#2** **#3** **#4** **#5** **#6** **#7** **#8** **#9** **#10**

Identify each stage of meiotic cell division with the correct picture/card:

Prophase I _____ Prophase II _____

Metaphase I _____ Metaphase II _____

Anaphase I _____ Anaphase II _____

Telophase I _____ Telophase II _____

Cytokinesis _____ 2nd Cytokinesis _____

Part 3 of 7

Describe the 5 'special features' of Meiosis

1.

2.

3.

4.

5.

Part 4 of 7

Phase of Meiosis	# of Sets of Chromosomes per Cell	# of Chromatids per Chromosome	Status of Homologous Chromosomes	Status of Sister Chromatids
Prophase I				
Metaphase I				
Anaphase I				
Telophase I				
Cytokinesis				
Prophase II				
Metaphase II				
Anaphase II				
Telophase II				
2nd Cytokinesis				

Part 5 of 7

How many different combinations could a human cell (with 23 chromosomes) create through the process of independent assortment?

_____

Part 6 of 7

Concept Challenge 1: Meiosis of homologous chromosomes

How many nuclei were produced through the meiotic division of one original cell? _____

How many unique nuclei were produced through this meiotic division? _____

Concept Challenge 2: Independent Assortment

How many nuclei were produced through the meiotic division of one original cell? _____

How many unique nuclei were produced through this meiotic division? _____
(with independent assortment)

Concept Challenge 3: Crossing-Over

How many nuclei were produced through the meiotic division of one original cell? _____

How many unique nuclei were produced through this meiotic division? _____
(with crossing-over)

Concept Challenge 4: Variation of Gametes

How many nuclei were produced through the meiotic division of one original cell? _____

How many unique nuclei were produced through this meiotic division? _____
(with both crossing-over & independent assortment)

Explain the advantages independent assortment and crossing-over lend to gamete formation. The answer is **not** listed in the virtual investigation. Simply look at the second answer to *Concept Challenge 4* and compare it to the second answer in *Concept Challenge 1 (or CC2 or CC3 for that matter).*

_____

_____

Part 7 of 7

If 2 parents have 8 different types of possible gametes, how many different chromosome combinations could their offspring have? _____