**Phases of Meiosis Lab**

The following lab was designed to help you understand the steps of meiosis, the alignment and movement of chromosomes during meiosis, and how meiosis differs from mitosis. Follow the links and steps below to complete this exercise.

**ONLINE LAB:**

***Site #1 🡪 Go to*** [***http://www.pbs.org/wgbh/nova/baby***](http://www.pbs.org/wgbh/nova/baby)***. Click on “How Cells Divide.”***

***Read the background information and answer the following questions:***

1. What process does asexual reproduction rely on?
2. What is meiosis?
3. How many total chromosomes does each cell in our bodies have?
4. How many total chromosomes are in each gamete (sex cell)?

***Click on “Launch interactive.” Click through the animations, answering the questions as you go.***

1. Why is it important that sperm and eggs have HALF the number of chromosomes as normal body (somatic) cells?
2. How does the animation show the difference between chromosomes inherited from a person’s mother and chromosomes inherited from a person’s father?
3. What structures form the spindle fibers during *both* mitosis and meiosis?
4. What two events occur during *Prophase I of meiosis* that do NOT occur during *Prophase of mitosis*?
5. Why does the animation show only 4 chromosomes, instead of typical 46 found in normal body cells?
6. How is *Metaphase I of meiosis* different from *Metaphase of mitosis*?

(Hint 🡪 LOOK AT THE CHROMOSOMES!)

1. At the end of *Anaphase I of meiosis*, what two things have not yet separated?
2. How is the second round of meiosis (Meiosis II) different in eggs compared to sperm?
3. Note that Mitosis is complete after cytokinesis – but meiosis is not. Sometimes cells in meiosis will undergo a short interphase before Meiosis II. What key event that normally occurs during interphase does NOT happen at this time?
4. How is *Metaphase of meiosis I* different then *Metaphase of meiosis II*?
5. At the *end* of meiosis II, compare the cells produced during meiosis to the cells produced during mitosis. How is the number of chromosomes different between these cells?

**MICROSCOPE LAB:**

You will be moving through 4 stations showing different phases of meiosis under the microscopes. You will NOT need to do much adjusting to focus the images, as this has already been done for you. Once you have viewed the image, you need to write a description of the phase in view and draw and color a picture of the phase, labeling the appropriate structures found in the box below when applicable.

***Labels:***

Nuclear membrane Nucleolus

Homologous chromosomes Chromatin

Sister chromatids Spindle

1. **Prophase I**

Description:

Picture:

1. **Telophase I and Cytokinesis I**

Description:

Picture:

1. **Metaphase II**

Description:

Picture:

1. **Telophase II and Cytokinesis II**

Description:

Picture:

Notes: