Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Mitosis

**Purpose**

The purpose of this exercise is to observe plant and animal cells that are undergoing mitosis and to learn to recognize and illustrate the 4 major phases of mitosis.[[1]](#endnote-1)

**Procedure:**

 **Materials**

1. Microscopes
2. Prepared slides of plant mitosis (onion root tip) & animal mitosis

*\*Great resource “Home Science Tools” www.hometrainingtools.com “Biology Microscope Slide Set”. Inexpensive and useful for many labs!*

**Sequence of Steps**

*Plant Mitosis*

1. Select a prepared slide of onion root tip. Place it on the microscope stage under low power.
2. Focus the microscope to see cells in the onion root tip, and then change to high power objective.
3. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Search over the cells by moving the slide back and forth, left and right, to find cells in various phases of mitosis.
4. First find a “normal” cell. This is called an interphase cell. Make a drawing of this interphase in “observations”. Label the following parts: cell wall, cytoplasm, nuclear membrane, nucleus, chromosomes.
5. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Again search the cells to find a cell in prophase, metaphase, anaphase, and telophase.

 Make drawings of each phase in the appropriate spaces provided. Label the following parts: cell wall, cytoplasm, nuclear membrane, chromosomes, spindle fibers, cell plate.

*Animal Mitosis*

1. Select a prepared slide of the animal cells. Place it on the microscope stage under low power.
2. Focus the microscope to see cells on the slide, and then change to high power objective.
3. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Search over the cells by moving the slide back and forth, left and right, to find cells in various phases of mitosis.
4. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()First find a “normal” non-dividing cell (interphase). Make a drawing of this cell in “observations”. Label the following parts: cell membrane, cytoplasm, nuclear membrane, nucleus, chromosomes.
5. Again search the cells for prophase, metaphase, anaphase and telophase cells. Make drawings of each in the appropriate spaces provided. Label the following parts: cell membrane, cytoplasm, centrioles, spindle fibers, nuclear membrane.

![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]() **Observations**

1. Plant Mitosis

Interphase Prophase Metaphase

Anaphase Telophase

1. Animal Mitosis

Interphase Prophase Metaphase

Anaphase Telophase

**Conclusions:**

1. Why is mitosis important to living organisms?
2. How does mitosis insure that each new cell has the same kind of DNA?
3. What kind of cells go through mitosis?
4. Agriculture Application: Potatoes are grown by taking an existing potato, cutting it into chunks and planting the chunks with eyes. These chunks grow into new potato plants. Explain how mitosis is at work in this situation.



Potato Eye

1. Agricultural Biology Curriculum Lesson Plans. Sacramento: California State Department of Education, Agriculture Education Unit, 1990. [↑](#endnote-ref-1)