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

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

# The Cell

**Purpose**

The purpose of this exercise is to study and compare the structures of several different animal and plant cells; to be able to identify the common parts of a cell; to be able to see that plants and animals are composed of cells.[[1]](#endnote-1)

**Procedure:**

**Materials**

1. Microscope 7. Methyl blue die
2. Glass slides & cover slips 8. Iodine
3. Forceps/Tweezers 9. Onion
4. Medicine droppers 10. Elodea
5. Scissors 11. Pond water or trough water
6. Toothpicks 12. Assorted prepared slides if available

**Sequence of Steps**

1. Cheek Cells (animal cells)
   1. Place a small drop of water in the center of a clean glass slide.
   2. Touch the tip of the medicine dropper from the methyl blue bottle to this drop of water.
   3. With a clean toothpick, gently scrape the inside lining of your cheek. Stir this into the water on the slide.
   4. Place a cover slip on the slide and place the slide on the stage of the microscope. View under low power.
   5. C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmfSwitch to high power. Under “observations” draw 2 or 3 of the cheek cells you observe and label the following parts: cell membrane, cytoplasm, nucleus, vacuoles, and mitochondria.
2. Onion Cells (plant cells)
   1. Place a small drop of iodine on the center of a clean glass slide.
   2. Use the forceps to peel a small (1-2mm) piece of the onion skin from the inside of a section of the onion.
   3. Place the onion specimen in the iodine on the slide and cover with a cover slip.
   4. C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmfView under low power and switch to high power. Make drawings of 2-3 onion skin cells and label the following parts: cell wall, cell membrane, cytoplasm, nucleus, and vacuoles.
3. Elodea Leaf (plant cells)
   1. Place a drop of water on a clean glass slide.
   2. Cut a small section of leaf from the Elodea plant and place it in the water on the slide. Cover with a cover slip.
   3. View under low power then switch to high power.
   4. C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmfMake a record of any activity you observe. Look for movement of cytoplasm with chloroplasts in it. Record what you see in “observations”.
   5. C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmfMake drawings of 2-3 Elodea cells and label the following: cell wall, cell membrane, cytoplasm, nucleus, chloroplasts.
4. Pond Water (various kinds of cells)
   1. Place a drop of pond water on the center of a clean glass slide.
   2. Place several strands of cotton on the water in a criss cross pattern. This will act as a net to catch fast swimming organisms!
   3. C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmfPlace a cover slip over the pond water. View under low power, then switch to high power.
   4. Make drawings of at least 4 different kinds of cells or organisms you observe under the microscope.
   5. Using references available from the teacher, try to identify the organisms you observed.
5. Assorted Prepared Slides
   1. Select 2 prepared slides to view.
   2. View the slide under low power, then switch to high power.
   3. C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmfMake drawings of the 2 organisms or cell types in “observations”, and place their names below the drawings

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**Observations**

1. Cheek Cells: Magnification = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Illustrate:

1. Onion Cells: Magnification = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Illustrate:

1. Elodea Cells: Magnification = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Illustrate & describe the movement you observed:

1. Pond Water: Magnification = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Illustrate and identify:

1. Assorted Slides: Magnification = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Conclusions:**

1. Compare and contrast the cells you observed.

What are the similarities? What are the differences?

1. What differences did you see between cheek and onion cells?
2. What differences did you see between cheek and Elodea cells?
3. What differences did you see between onion and Elodea cells?
4. Why do you believe there are differences between the onion and cheek cells?

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