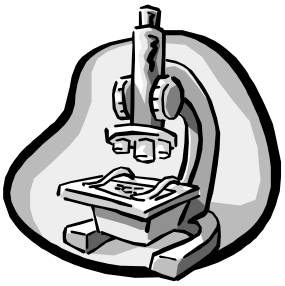
Science 10-Biology

Activity 5

Observing Plant and Animal Cells



10

Name _____

Due Date _____

Show Me ☐ Hand In ☐

Correct and Hand In Again By _____

Purpose:

To observe a prepared slide of plant cells and a prepared slide of animal cells.
To locate and draw some of the organelles in these cells.
To prepare a wet mount slide of living plant cells, stain it and observe it.

Part 1-Prepared Plant Cell Slide

Procedure:

1. Take a prepared slide of plant cells (spirogyra, leaf cross section, etc.) . First focus it under Low power, center it then focus under Medium power. Center it again and focus as well as you can under High power. (Magnification = 400X)
   As you look at the image, answer the following questions:

   Estimate how many cells in total you see in your field of view? _____cells

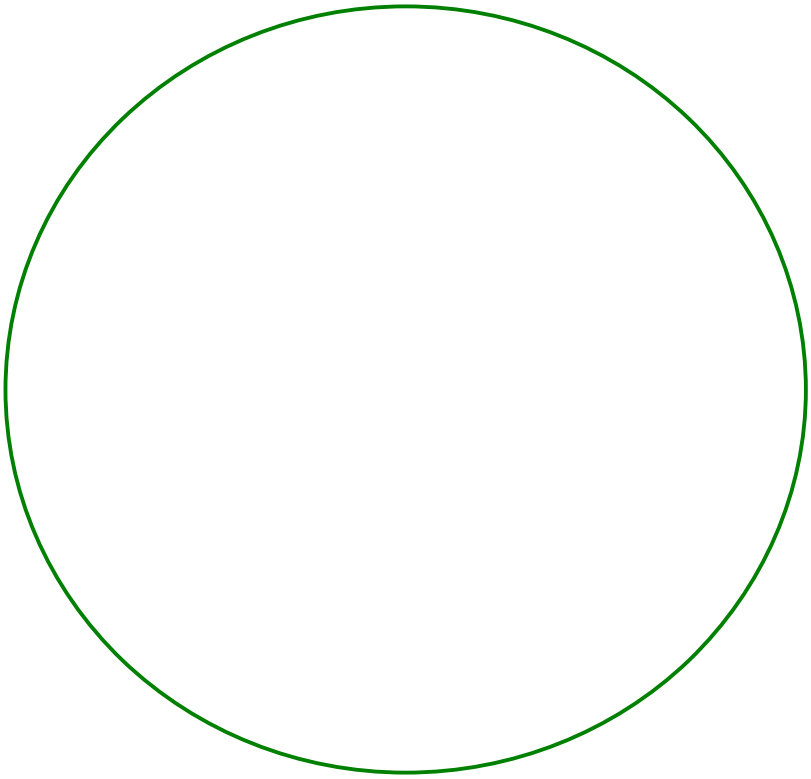
   Estimate how many different kinds of cells you see. _____ kinds

   On the diagram ***on the next page***, **sketch** several cells (an example of each type you see) and **label** the following organelles:

   Cell Wall
   Cell Membrane
   Central Vacuole
   Nucleus
   Chloroplast

   Use the diagram on **page 332 of the Text** to help you identify the parts you are looking at.

Slide Name:_____



Microscope Magnification_____X

2. State the **function** of each of the following:

Cell Wall –

Chloroplast –

Vacuole –

Nucleus –

Cell Membrane –

Why do you think it is hard to see the **cell membrane** in plant cells?

Part 2-Prepared Animal Cell Slide

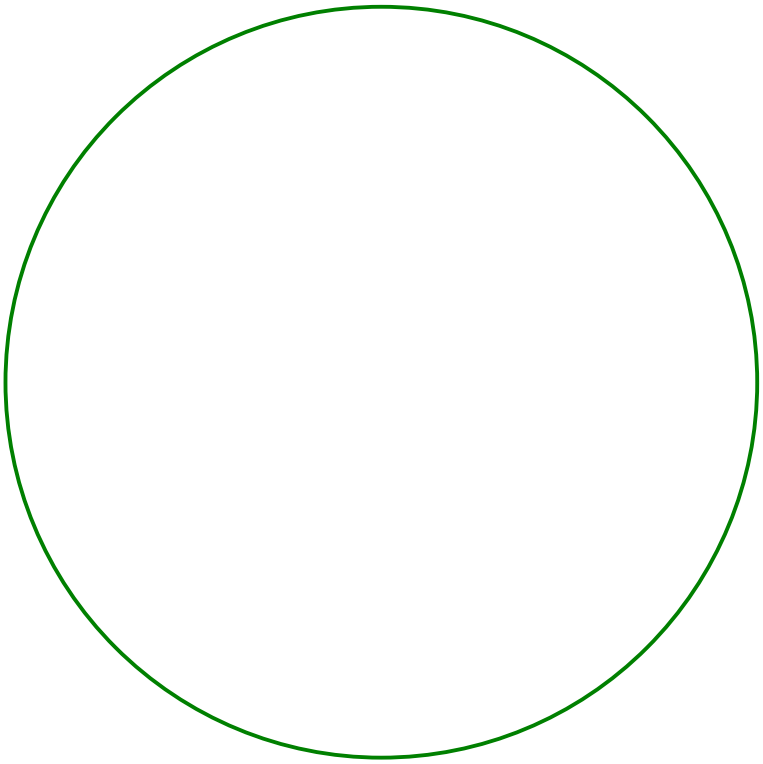
Procedure:

1. Take a prepared slide of an animal cell (epithelium, liver, etc.)
   Animal cells tend to be very specialized and it is not easy to get a "typical" animal cell. It is also not easy to distinguish animal cells that are side by side.

   Why do you think this is often the case?

   On the diagram below, **sketch** several cells and **label** the following parts:
   Cell Membrane, Nucleus, Cytoplasm

   Slide Name:_____



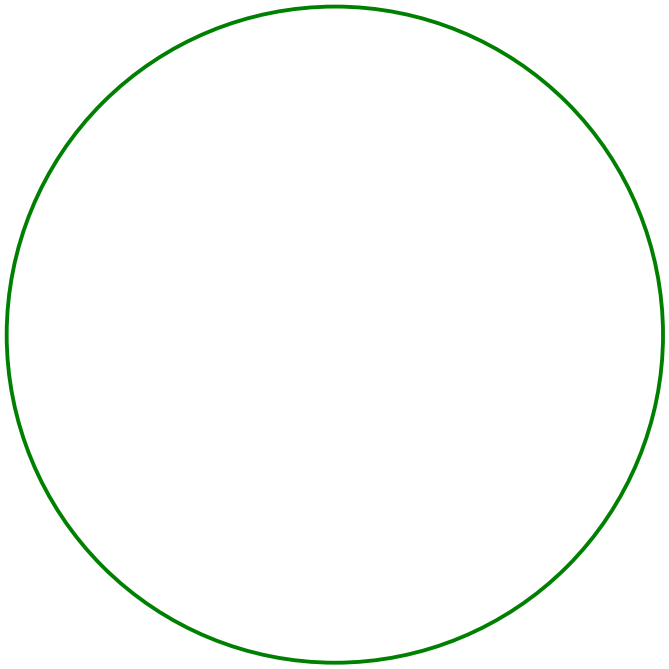
Microscope Magnification _____X

Part 3-Living Plant Cells

Procedure:

1. Using a scalpel, scissors, tweezers etc. pull a **thin** film of tissue from a piece of onion. It must be very thin and fairly transparent. Make a wet mount (See the diagram on the left of page 320 in the Text.)
   Focus on Low power first, get a good view, then move up to Medium or High power.
   Sketch what you see and label any parts you can recognize (cell walls, cell membranes, vacuoles, nuclei, chloroplasts etc.)

   Slide Name:_____



   Microscope Magnification _____X

2. Remove the slide from the microscope. Using a piece of paper towel, draw out the water from under the cover slip. (See the diagram on the left of page 333 in the Text).
   Place a drop or two of **IKI solution** so that it goes **under the cover slip**.
   Put your slide back under the microscope and focus on Medium or High power again.
   IKI is a stain that turns starch a blackish colour.

   Do you see any evidence that there is **starch** in onion cells? _____

   What parts **stained** (went blackish)? _____

   What parts **did not stain**? _____

   How does staining cells help us to see them?