

Onion Cells - Investigation

Objectives: Observe plant cells

Materials per student (or team):

- onion
- microscope
- clean microscope slide and cover slip
- tweezers
- eye dropper
- stain - methylene blue staining solution (iodine solution can be used as an alternative stain)
- paper towel

Procedures:

1. Use the eye dropper to put a drop of water on the slide (will help to flatten out onion tissue).
2. With the tweezers, carefully peel the tissue thin sheet of cells lining the inside of one of the onion layers.
3. Lay the onion tissue gently on the slide (without wrinkling it).
4. Use the eye dropper to put a drop of stain on the onion tissue. (Be careful as it will stain skin/clothing.)
5. With tweezers, carefully place cover slip over the onion tissue (gently tap it to remove any air bubbles).
5. Observe the onion tissue under the microscope at 4x, 10x and 40x with lots of light (open diaphragm). Then slowly close the diaphragm while observing the image to find the best light for seeing cellular details.
6. Draw a section of onion skin cells at 10x magnification. Then switch to 40x and draw one cell and label it.

Questions:

1. Describe what you can see: _____

2. Describe any organelles that are visible: _____

3. How do the onion cells compare to the cheek cells in the cheek cell investigation? _____

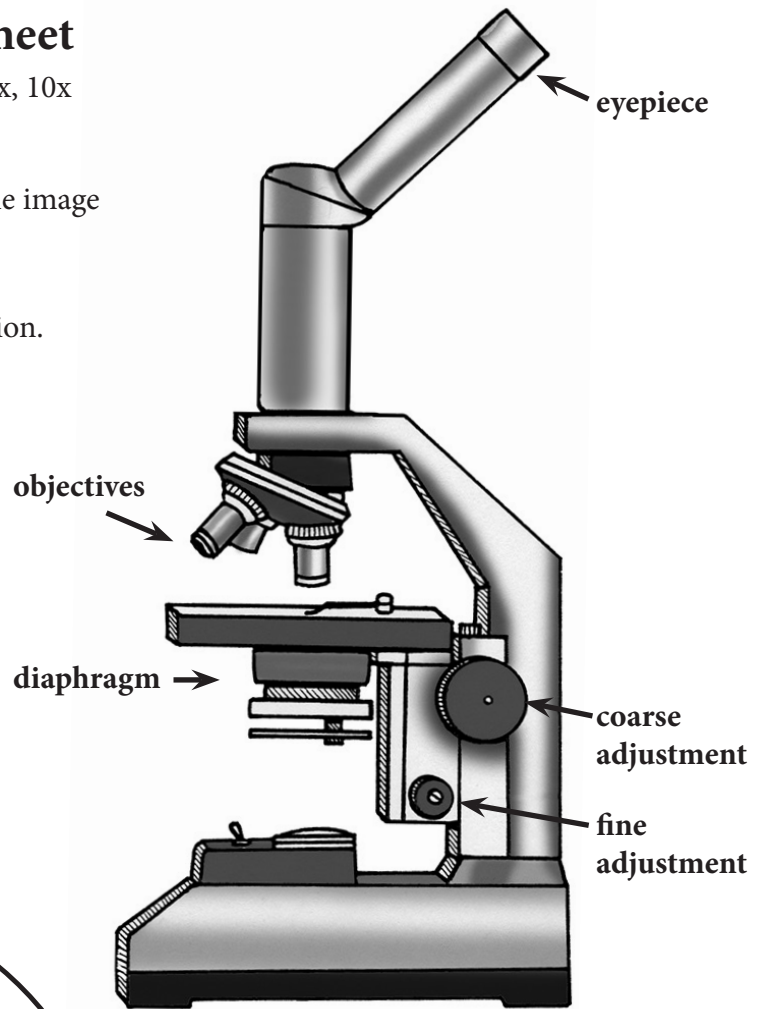
4. What organelles do plant cells have that animals cells do not? _____

5. Why do you use stain on the slide? _____

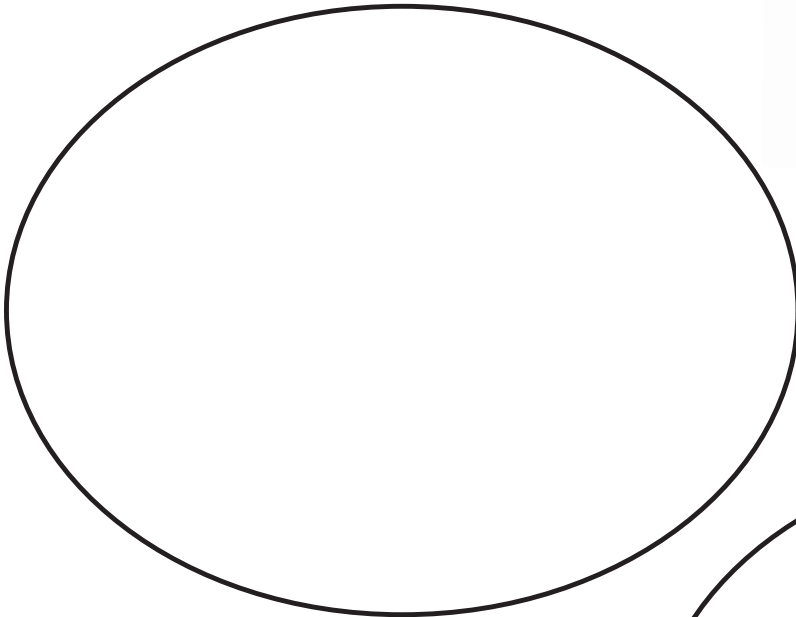
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. *[Clarification Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells.]*

Onion Cell Investigation Worksheet

1. Observe the onion tissue under the microscope at 4x, 10x and 40x with lots of light (open diaphragm).
2. Then slowly close the diaphragm while observing the image to find the best light for seeing cellular details.
3. Draw a section of onion skin cells at 10x magnification.
4. Switch to 40x and draw one cell and label it.



4X



40X

