# Pre-Lab Information

**Purpose** Use a microscope to investigate differences between a variety of cells.

**Time** Approximately 60 minutes

**Question** What are the characteristics of different cell types?

**Summary** All living organisms are composed of cells. Your own body is composed of trillions of cells. Cells are the smallest units of life that can satisfy all of the characteristics that define something as “living”: they respond to stimuli, grow and develop, reproduce, and need energy.

Using a microscope, you will investigate and describe similarities and differences between cells. Every cell has a cell membrane, cytoplasm, and genetic material. Some cells, called eukaryotic cells, have nuclei. Other cells, called prokaryotic cells, do not. Plant and animal cells are eukaryotic cells. They differ in that a plant cell has chloroplasts and a rigid cell wall, which gives the cell a more defined shape and contains the cell as it swells with water. Animal cells do not have these features.

# Scenario

Jessie is a young scientist who has her own lab. As a scientist, she knows the importance of keeping her lab clean and her experiments well labeled. In her lab she has 12 slides, each containing a different organism. Jessie has just discovered that her dog, Lab-E, has made a mess of the lab. Jessie will need to analyze the unknown cells under a microscope to determine what each group of cells is and relabel it.

# Lab Procedure

1. **View each organism under the microscope.**
   1. Select the slide to view it under the microscope.
   2. Focus the microscope by selecting each circled part.
      * 1. Set the stage level by selecting the red circle labeled number 1. (Note: Only the first organism requires the stage level to be set.)
        2. Set the objective lenses by selecting the red circle labeled number 2. (Note: Only the first organism requires the objective lenses to be set.)
        3. Set the coarse focus by selecting the red circle labeled number 3. You may need to do this a few times to adjust the coarse focus correctly.
        4. Set the fine focus by selecting the red circle labeled number 4. You may need to do this a few times to adjust the fine focus correctly.
   3. Use the drop-down menus to identify the cell structures.
   4. Sketch the organism in Table A.
   5. Label the cell structures in your sketch.
2. **Record the classifications for each organism.**
   1. Once the SMART Cell Label Printer starts to identify the organism, record the information from the buttons in the first three columns of Table A.
   2. When the label printer reads “Ready to Print,” select **Print** to see the label for this organism.
   3. Record the name of the organism in the last column in Table A.
3. **Repeat Steps 1 and 2 for the next seven slides.**
4. **View each organism under the microscope.**
   1. Select the slide to view it under the microscope.
   2. Focus the microscope by selecting each circled part.
      * 1. Set the coarse focus by selecting the red circle labeled number 3. You may need to do this a few times to adjust the coarse focus correctly.
        2. Set the fine focus by selecting the red circle labeled number 4. You may need to do this a few times to adjust the fine focus correctly.
   3. Use the drop-down menus to identify the cell structures.
   4. Sketch the organism in Table A.
   5. Label the cell structures in your sketch.
5. **Record the classifications for each organism.**
   1. Choose the correct classification buttons for this organism. Record this information in the first three columns of Table A.
   2. When the label is ready, press **Print**.
   3. Record the name of the organism in the final column in Table A.
6. **Repeat Steps 4 and 5 for the next three slides.**
7. **Review the different cell types from the lab.**

# Data

Record your data either in your lab notebook or in the table below.

**Table A**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sketch** | **Prokaryote or Eukaryote** | **Plant, Animal, or Neither** | **Unicellular or Multicellular** | **Name of Organism** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

**Table A (continued)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sketch** | **Prokaryote or Eukaryote** | **Plant, Animal, or Neither** | **Unicellular**  **or**  **Multicellular** | **Name of Organism** |
| **5** |  |  |  |  |
| **6** |  |  |  |  |
| **7** |  |  |  |  |
| **8** |  |  |  |  |

**Table A (continued)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sketch** | **Prokaryote or Eukaryote** | **Plant, Animal, or Neither** | **Unicellular**  **or**  **Multicellular** | **Name of Organism** |
| **9** |  |  |  |  |
| **10** |  |  |  |  |
| **11** |  |  |  |  |
| **12** |  |  |  |  |