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| http://compsci.appstate.edu/sites/compsci.appstate.edu/files/imagecache/slideshow/slideshow/ASU_compsci_logo.png**The CS4ALL NSF Supported Program** | https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcQGzOU-XT8XZWIBUwiPs2jjgixLO3CvrEyNq90lu1dbXJ0BQume[**https://cs.appstate.edu/cs4all/**](https://cs.appstate.edu/cs4all/) |

**Activity Title:** “Cell Part Identification using SNAP”

**Summary:**

Using an existing SNAP simulation, students will identify different parts of a cell when prompted by a question. Students will answer the question by maneuvering a character to the cell part that is the answer. Students will also go into the program, look at the code and create their own program.

**Procedure**

**Background**:

First, you will answer some review questions. You may work with a partner, but make sure to record all of your answers below. They will help you with the lab activity.

1. What are the three main differences between plant and animal cells?

a.
b.
c.

1. How are the chloroplast and the mitochondrion similar?

-How are they different?

1. What is the name of the substance that holds all of the organelles in place? What is it mostly made of?
2. List the cell parts that plant and animal cells have in common.

**Preparation**:

* Open a browser on your computer and type in the following link: <https://snap.berkeley.edu/snap/snap.html>

**Lab Activity**:

**PART ONE**

1. Click the file button  on the top right of the screen and open the “CellActivity.xml” file.



1. Make the simulation full screen by clicking the full screen button  on the top left side of the screen.
2. Click the green flag  and begin!
3. When the lobster prompts you with a question, move your cursor to the correct cell organelle.
\*You MUST make sure your cursor is touching the colored part of the organelle that you think is the correct answer!
4. If you are correct, a message will display to congratulate you. Then wait a few seconds and the lobster will reappear and ask a new question. If you are incorrect, you will be prompted to try again and you should select a better answer.
5. You will notice a counter in the top left corner of your screen. This records your number of correct and incorrect guesses.
6. Once you have finished both the plant cell and the animal cell, press the red stop sign  to quit.
7. Use the information you learned in this simulation to make changes to your answers to questions 1-4 in the Background section above.
8. Using what you learned in this simulation and your notes on cells, fill in the missing blanks in the table below.

|  |  |  |
| --- | --- | --- |
| Cell Organelle | Color of Organelle | How Color Relates to Function |
| Nucleus |  |  |
| Vacuole |  |  |
| Mitochondrion |  |  |
| Chloroplast |  |  |
| Ribosome |  |  |
| Cell Membrane |  |  |
| Cell Wall |  |  |

**PART TWO**

1. You and a partner will create your own SNAP program that simulates the function of one of the following organelles:
2. Chloroplast – Photosynthesis
3. Mitochondrion – Cellular Respiration
4. Cell Membrane – Osmosis or Diffusion
5. This simulation may be in whatever form you like! It can be a review game, a mini-movie or a study tool. Think about what would help you learn the material!
6. Be creative!
7. If you need further assistance on how to write a SNAP simulation, feel free to look at the scripts for the SNAP program from Part One.
8. When you are finished, click the file button  at the top left corner of the screen and save your project. Submit the saved file to your teacher for them to grade.

**Assessment**

Make sure you have thoroughly and correctly answered questions 1-4 as well as filled in the chart in Part One of this activity. These will be taken as a classwork grade. For Part Two, you will be assessed based on the quality of your work, scientific accuracy, and user friendliness.