



LESSON PLAN

PLANT AND ANIMAL CELLS GRADES 6-8

SUMMARY

Students learn that all living things are made of cells. They will also learn that plant and animal cells have organelles with specific functions.



- 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.
- MS-LS1-2.** Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function.

Science & Engineering Practices	Connections to Classroom Activity
<p>Engaging in Argument from Evidence All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1)</p> <p>Developing and Using Models Develop and use a model to describe phenomena. (MS-LS1-2)</p>	<ul style="list-style-type: none">• Students will use evidence to decide if something is living or nonliving.• Students will create visual models of cells.

Disciplinary Core Ideas

LS1.A: Structure and Function

All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1)

Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2)

Connections to Classroom Activity

- Students will research specific organelles and their functions within a cell.

Cross Cutting Concepts

Structure and Function

Complex and microscopic structures and systems can be visualized, modeled and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. (MS-LS1-2)

Connections to Classroom Activity

- Students will share the specific structure and function of their organelle with their classmates.
- Students will also create a visual model of a cell that includes all the organelles.

DURATION

60 minutes

PRE-ASSESSMENT QUESTIONS

See the questions under the video.



ENGAGE

Place a Petri dish of water on an overhead projector. Next, place one drop of Duco cement into the water (it should not touch the bottom and it will begin to move). Students will watch the droplet zoom around the dish via the projector ([see video](#)). Ask students to consider if what they see is living or not living. Guide a discussion. Students will probably say things like, "It's moving around so it must be living." Remind them that many things that move are not living like ocean waves or flames of a fire. If the droplet slows down or stops moving, you can add another.

MATERIALS

- Duco Cement (available at Walmart for \$3)
- Petri dish of water
- Overhead Projector
- Paper and colored pencils
- Computer for researching organelles
- Science Notebooks

DIY Activity

- 1/4 Red Cabbage
- 4 Cups of water
- Blender
- Strainer
- Saucepan
- 4 Packets of gelatin
- Tsp of ammonia
- Baking dish
- Knife
- Ruler
- Large Tupperware
- Cup of vinegar



EXPLORE

Continue the conversation and ask students to help you make a list of characteristics of living things on the board. Be sure to include the requirement of nutrients, growing and reproducing. Finally, end the discussion by pointing out that all living things are made of cells. Ask students how they could use this knowledge to find out if the moving object on the projector is living or not. They should suggest that they could look at the droplet under a microscope to see if it is made of cells. Tell students, "Today, we are going to learn about cells and their parts."



EXPLAIN



WATCH THE GENERATION GENIUS PLANT AND ANIMAL CELLS VIDEO AS A GROUP

Facilitate a conversation using the Discussion Questions.

After the video, assign each group of students a specific organelle to research and have them do a short presentation to the class. Students should include a description of the organelle, its function and if it is found in animals, plants or both. Have student groups present information about their specific organelle to the entire class. The class should take notes on each one.

Major Organelles:

- Nucleus
- Cell wall
- Cell membrane
- Cytoplasm

- Mitochondria
- Chloroplast
- Vacuole
- Lysosome

For More Advanced Levels:

- Endoplasmic reticulum
- Golgi apparatus
- Centrioles
- Flagella



ELABORATE

Students can work independently or in groups to create a visual model of a cell in their notebooks, labeling each organelle. This can be done in their science notebooks.



EVALUATE

Students can play the online Kahoot! quiz game located below the video which provides downloadable scores at the end of the quiz game. Alternatively, you can use the paper quiz or the exit ticket questions. All these resources are located below the video in the Assessment section.



EXTENSION

For middle school science, only some of the main organelles are covered. Challenge your more advanced students to research some of the other organelles.