

Animal and Plant Cells • Relationships/
Parts of a Whole/Comparison



Project Essential Questions

- How can we use drama to compare and contrast animal and plant cell organelles?
- How can we use informational and opinion writing to express our scientific discoveries?
- What are the functions of the various plant and animal cell organelles?

PROJECT DESCRIPTION

Students will integrate theatre and explore the roles of the organelles in both plant and animal cells. This project will require students to role-play in the various organelle roles and then write an informational opinion piece about why their organelle is the most crucial cell part. Students will rehearse and perform in a cell organelle debate where they will defend their arguments. Students will work as a team to debate a common goal together.

LEARNING TARGETS

“I Can...”

- Use informational writing to share my knowledge of my scientific discoveries
- Use opinion writing to express my viewpoint about a certain topic
- Use theatrical techniques to show my overall learning process

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Units provide differentiated ideas and activities aligned to a sampling of standards. The units do not necessarily imply mastery of standards, but are intended to inspire and equip educators.

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Cherokee County (GA) School District and ArtsNow, Inc.

DURATION: 1-3 days

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ESSENTIAL QUESTIONS

<ul style="list-style-type: none"> ● How can we use drama to compare and contrast animal and plant cell organelles? ● How can we use informational and opinion writing to express our scientific discoveries? ● What are the functions of the various plant and animal cell organelles?
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STANDARDS

Curriculum Standards	Arts Standards
<p>S5L3. Students will diagram and label parts of various cells</p> <p>a. Use magnifiers such as microscopes or hand lenses to observe cells and their structure</p> <p>b. Identify parts of a plant cell (membrane, wall, cytoplasm, nucleus, chloroplasts) and of an animal cell (membrane, cytoplasm, and nucleus) and determine the function of the parts</p> <p>ELAGSE5W1. Write opinion pieces on topics or texts, supporting a point of view with reasons</p> <p>a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer’s purpose</p> <p>b. Provide logically ordered reasons that are supported by facts and details</p> <p>c. Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically)</p> <p>d. Provide a concluding statement or section related to the opinion presented</p>	<p>TAES5.2. Developing scripts through improvisation and other theatrical methods</p> <p>TAES5.3. Acting by developing, communicating, and sustaining roles within a variety of situations and environments</p> <p>TAES5.7. Integrating various art forms, other content areas, and life experiences, to create theatre</p>

<p>ELAGSE5W2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly</p> <p>b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic</p> <p>d. Use precise language and domain-specific vocabulary to inform about or explain the topic</p>	
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KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
<ul style="list-style-type: none"> ● Cell membrane ● Cell wall ● Chloroplast ● Cytoplasm ● Function ● Informational writing ● Nucleus ● Opinion ● Persuasive/persuade ● Structure 	<ul style="list-style-type: none"> ● Character ● Concentration ● Diction ● Face-out ● Facial expression ● Gesture ● Monologue ● Objective ● Projection

TECHNOLOGY INTEGRATION

<ul style="list-style-type: none"> ● Song: <i>Cells</i> by Mr. Parr https://www.youtube.com/watch?v=wRZthGlzEUc ● Video Camera/Phone Camera (ability to immediately stream)

ASSESSMENTS

Formative	Summative
<ul style="list-style-type: none"> ● Informational Writing and Science content: (conversation/teacher observation) ● Students will work collaboratively in groups to determine debate points about why their organelle is best. ● Create different monologues for organelles in both plant and animal cells. 	<ul style="list-style-type: none"> ● Cell Debate Video Self-Assessment (see Downloads): Students will rate themselves on their recorded video debate after it is watched after the debate. ● Written Reflection (see Downloads)

MATERIALS

<p>Computer (to stream Student video and YouTube video clip), Video Camera/Phone Camera</p>

Activating Strategy (5-10 min)

- Have the song *Cells* by Mr. Parr <https://www.youtube.com/watch?v=wRZthGlzEUc> playing when walking into the room.
- Ask students to listen for familiar vocabulary words, and have students write down familiar vocabulary terms.
- As a class, discuss the vocabulary identified and reinforce the meaning of the words.

Main Activity

Part 1:

- Place students in small groups and give them each an index card in their group.
- Each group should have an individual index card for each of the plant cell's organelles.
- Tell students that today they will be role-playing and stepping into the role of the particular organelle listed on their card.
- Direct students to think about character traits that their organelle might possess if brought to life. (Example: the “nucleus” may be bossy and stern based on its function in a cell.)
- Direct students to write down 3 character traits for their organelle on the backside of the index card.
- Students introduce themselves and their traits to their peers in their small group applying vocal choices to their characters.
- Model for students how to use pitch and tempo to change your regular speaking voice.

Suggested vocal exercise:

- Try saying “Good Morning Class” using a gruff, low voice.
- Try saying “Good Morning Class” using a high, timid, squeaky voice.
- Try saying “Good Morning Class” using a smooth, sing-songy voice.
- Direct students to think about their own organelle character voice and make a vocal choice.

Part 2:

- Give students the following writing prompt:
“Today we are going to pretend that the cell we all live and work in is awarding a promotion to only one organelle. The most important organelle will get the promotion! We will be conducting a debate that determines which organelle is most worthy of a promotion. Before we have the debate you will need to prepare your argument.”
- The students will then be given a set amount of time to independently work on writing an informational monologue from the viewpoint of that specific organelle as to why they are the most important part of the cell.
*An example of a **Persuasive Monologue** can be found in Downloads.

Part 3:

- After students have completed their writing, the students will return into their small groups they were placed in during Part 1.
- Students will come up with discussion points about why their cell part is the most important.
- As a class, develop a list of questions that students could ask characters during the debate.
- Direct the questions to stay open-ended enough to really allow students to improvise and express their responses with evidence from their notes.
- Set up the room for a panel of guests to sit in front of the room in a line of chairs. This group should be one of the small groups that includes all of the different organelles in a cell.
- Ask that the remaining students step in-role as reporters to ask questions during the debate.

- The members of the group that was selected to participate in the debate perform their responses to each question in character as their organelles.
- During the debate, the teacher will use the **Assessment** (see Downloads) to assess students during the activity.
- On various days, you can allow for different groups to participate as guests in the debate, sitting in the front of the room.
- The teacher should be in role as the “moderator” to help facilitate the discussion and the time given to each character to respond to the given question.

REFLECTION

Reflective Strategies

Potential Reflection Questions:

- What acting choices did you make for your organelle? Why?
- What was the most persuasive point you made during the debate?
- What would happen if your organelle was not present in the cell?
- Next time you prepare for a debate, what things do you think are most important for you to think about?
- **Written Reflection Sheet** (see Downloads)

DIFFERENTIATION

Below Grade Level/EL Students:

- Cue cards for children who have trouble remembering their talking points
- Sentence Frames for scaffolding the opinion writing

Above Grade Level:

- Encourage these students to research further in order to add to the debate question: Why is their organelle the most powerful/important in regards to the respiration/photosynthesis cycle that happens in plants? They could also teach and explain their theory to other students.

(<http://www.vtaide.com/png/photosynthesis.htm>)

OPTIONAL RESOURCES

Song: *Cells* by Mr. Parr (<https://www.youtube.com/watch?v=wRZthGlzEUc>)

Great example of debate using cell organelles: https://www.youtube.com/watch?v=808kmKBBW_o

APPENDIX

- **Written Reflection Sheet Project 5**
- **Persuasive Monologue example**
- **Cell Debate Video Self Assessment**

CREDITS

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