

## **ROKET TEK Integrated Lesson:** Cell and Organelles

**Subject:** Science

**Grade:** 8 (Junior High)

**Number of Days:** 1

**Teacher:** Adelaida M. Lolinco

**School:** Dishchii Bikoh Community School

### **Common Core/Next Generation Learning Standards:**

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 parts of cell contribute to the function.

**Learning Goals:** 1. We will investigate and understand that living things are made of cells.

2. We will identify the parts and functions of cells.

**Language Objectives:** Students will be able to (SWAT):

1. draw and label the parts of the cell.
2. match the functions of the organelles to the parts of the house.
3. connect the concepts learned to Apache culture.

**Vocabulary Words:** cell, organelles, cell membrane, cytoplasm, nucleus, cell wall, vacuole,

mitochondria, golgi bodies, cell wall, endoplasmic reticulum, chloroplast,

ribosome, nucleus

**Teacher Input and Activities:**

#### **1. Discussion Method (Teacher is motivating)**

**Motivation :** Cell Puzzle

The students will connect the puzzle and will find out that what they connected is a cell which will be the topic for discussion.

#### **2. Information/Sharing (Teacher is presenting)**

**Presentation:** The teacher will show the parts of the cell and the diagram of the house. The students will be asked to match the parts of the cell which corresponds to the parts of the house. (This will help the students to connect the new lesson to background knowledge. Matching the parts of the cell to each corresponding parts of the house will improve their understanding and comprehension).

**3. Coaching/Encouraging (Teacher is coaching)**

Students will form a small group according to their learning styles.

**Visual and verbal learners:** Students will draw the cell and organelles. They will use different colors to distinguish one from another. From the presentation given, the students will identify the functions of the cell parts.

**Active and reflective learners:** Students will act out or make a skit forming a cell. Each part will act out their function.

**Sensing and intuitive learners:** Students will make model of the cell. They will figure out how each part is connected to each other.

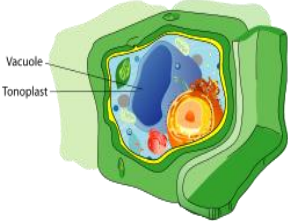
**4. Assessment:**

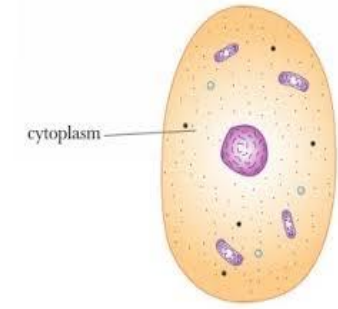
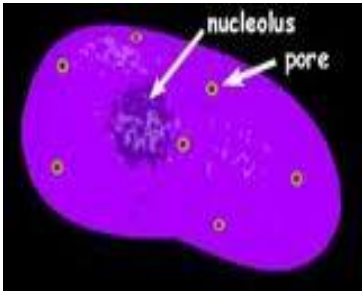
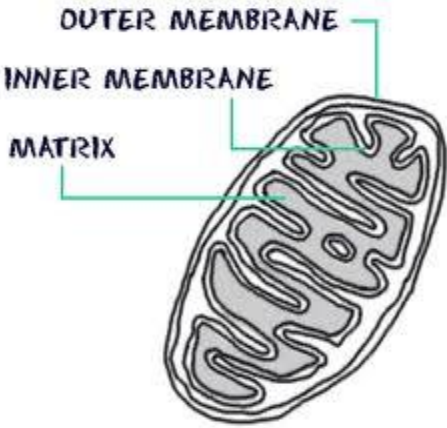
**Type of assessment: Performance tasks using rubrics and self-and peer-evaluation)**

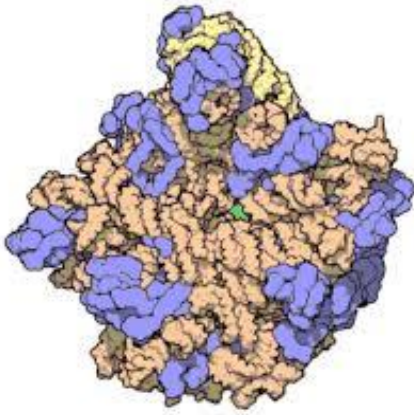

Each group will present their work to the class. They will discuss the importance of each cell parts and connect it to the real life situation and their culture. (TEK infusion: connection, cooperation, respect, creativity)


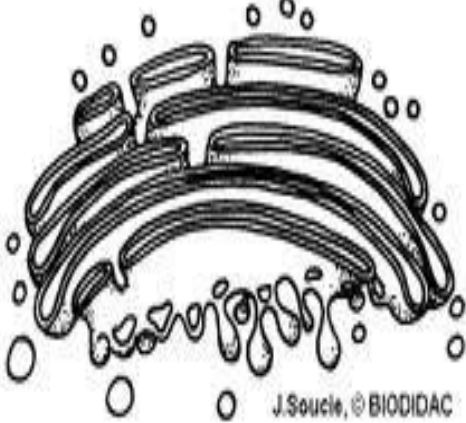
**Type of assessment: Teacher-made-test**

Direction: Complete the chart below. Draw the parts or fill out the missing column.

Name	How does it look like?	What does it do?
chloroplast		responsible for photosynthesis
vacuoles	 A 3D cutaway diagram of a plant cell. The cell is roughly rectangular with rounded corners and a thick green outer wall. Inside, there is a large, clear, blue central vacuole. A thin layer, the tonoplast, surrounds the vacuole. Other organelles like a nucleus and chloroplasts are visible in the cytoplasm. Labels 'Vacuole' and 'Tonoplast' point to their respective parts.	

	 <p>A diagram of an oval-shaped cell with a yellowish-orange interior. A central purple nucleus is visible. The surrounding area is filled with small black dots. A label 'cytoplasm' with a line points to the interior of the cell.</p>	<p>gel-like fluid that hold the organelles</p>
<p>nucleus</p>	 <p>A diagram of a purple, bean-shaped nucleus. A darker purple nucleolus is in the center. Several small orange circles representing pores are scattered on the surface. Labels 'nucleolus' and 'pore' with arrows point to their respective parts.</p>	
<p>cell membrane</p>		<p>protects the cell and allows nutrients to come into the cell</p>
	 <p>A diagram of a mitochondrion, an oval-shaped organelle with a highly folded inner membrane. Labels 'OUTER MEMBRANE', 'INNER MEMBRANE', and 'MATRIX' are positioned to the left of the organelle, with green lines pointing to the corresponding parts.</p>	<p>produces energy</p>

ribosomes		
	<p data-bbox="609 766 938 835">LYSOSOME STRUCTURE</p>  <p data-bbox="548 1041 997 1125">MEMBRANE PROTEINS/ENZYMES</p>	break down proteins
cell wall		provides shape for the plant cells

<p>endoplasmic reticulum</p>		
<p>golgi bodies</p>		

**5. Resources/Materials needed:**

- a. [http://www.google.com.ph/imgres?imgurl=http://upload.wikimedia.org/wikipedia/commons/1/11/Chloroplast-new.jpg&imgrefurl=http://commons.wikimedia.org/wiki/File:Chloroplast-new.jpg&h=501&w=748&sz=54&tbnid=GnXRm\\_V-cx1MjM:&tbnh=82&tbnw=122&prev=/search%3Fq%3Dchloroplast%26tm%3Disch%26tbo%3Du&zoom=1&q=chloroplast&usg=\\_\\_H-aK0qbnSBX0CP4xDitGEq18uak=&docid=uQHf8xwrVKcvfM&sa=X&ei=vBDgUZz2KcSSiAfcioCoDg&sqj=2&ved=0CDUQ9QEwAQ&dur=311](http://www.google.com.ph/imgres?imgurl=http://upload.wikimedia.org/wikipedia/commons/1/11/Chloroplast-new.jpg&imgrefurl=http://commons.wikimedia.org/wiki/File:Chloroplast-new.jpg&h=501&w=748&sz=54&tbnid=GnXRm_V-cx1MjM:&tbnh=82&tbnw=122&prev=/search%3Fq%3Dchloroplast%26tm%3Disch%26tbo%3Du&zoom=1&q=chloroplast&usg=__H-aK0qbnSBX0CP4xDitGEq18uak=&docid=uQHf8xwrVKcvfM&sa=X&ei=vBDgUZz2KcSSiAfcioCoDg&sqj=2&ved=0CDUQ9QEwAQ&dur=311)

b. Wikipedia

c. materials needed

- 1. visual and verbal learners
  - White paper (big)
  - Colored papers and pencils/crayons

- Tape
- Scissors
- 2. Sensing and intuitive learners
  - Styrofoam
  - Colored modeling clay/papers
  - Markers of different colors
  - Small beads
  - String
  - scissors
  - glue

6. Discuss science-related careers tied to the lesson (e.g. biologists, engineers, etc.)

**7. Reflection: (learning for the students and teaching for the teacher)**

- a. What did you **learn** today? Is there any part of the lesson related to your culture? Can you give examples related to your culture? **(If the students cannot relate the lessons learned to their culture, the teacher can show a video which will guide the students how lessons can be applied to their culture. Another option is to invite an elderly who can elaborate the connection of the lesson to their lives).**
- b. What **learning style** will help you learn the lesson well?
- c. What difficulty did you encounter?
- d. How will you improve your **learning**?

**Targeted Bloom's Taxonomy:** remembering, understanding, applying, analyzing, evaluating, and creating

**Note:** If majority of the students **did not master** the expected concepts, **remedial teaching** will follow the next day and **enrichment activities** related to the same topic will be for the rest of the students who **mastered** the concepts.