

# MINE CRAFT 3-D CELL MINI-PROJECT

MRS. DEAN'S SCIENCE  
CLASSES

2019-2020

## OBJECTIVE:

- Compare the structure of plant and animal cells.
- Identify the structures present in plant cells: nucleus, nucleolus, chloroplasts, cell wall, cell membrane, mitochondrion, Golgi apparatus, lysosome, endoplasmic reticulum, cytoplasm, vacuole.
- Identify the structures present in animal cells: nucleus, nucleolus, cell membrane, mitochondrion, Golgi apparatus, lysosome, endoplasmic reticulum, cytoplasm.
- Understand that cells can be grouped together to form tissues, organs and organisms.
- Understand that all living forms are made of cells.

# GUIDING IDEAS:

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Throughout the project, students will follow the objectives checklist that is provided on the previous slide, while researching and completing small tasks regarding each of the objectives (watching a video, taking notes, answering orientated questions, etc.).

One of the main ideas is avoiding the misconception that cells are "flat"; Minecraft will give you the opportunity to fully recreate a 3D model and label the most important organelles.

# SKILLS:

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Collaboration



Research



Creativity



Project Based  
Learning

# TASK SPECIFICS:

- **THE FOLLOWING ORGANELLES ARE OPTIONAL:**

- \*Smooth ER
- \*Rough ER
- \*Nucleolus
- \*Lysosomes

- **BONUS POINTS WILL BE GIVEN IF INCLUDED**

## 3-D Cell Model

Objective: Make a 3-D model of a cell.

Guidelines:

- A.) You may choose to make a **plant or animal cell**. If you choose to
- B.) Your cell must be **3- dimensional** with front, back and sides.
- C.) The model may be edible or non-edible
- D.) All parts of your cell **must be labeled clearly**. Suggestion: use toothpicks and pieces of paper to make little flags.
- E.) Your organelles should **clearly represent the actual organelle**. By just looking at an organelle I should be able to tell what it is. Ex: Your nucleus should not be square. Your mitochondria should have a folded inner membrane.
- F.) **Actual numbers of organelles** found in real cells should be represented. Ex: Each cell has one nucleus. Plant cells have one large vacuole. Cells have multiple mitochondria and other organelles.
- G.) Functions of each organelle should be provided. Suggestion: use the back side of your label "flags" to write down the job of that organelle.
- H.) Be **unique and creative!** Use a variety of appropriate materials.

Organelles that should be included:

Eukaryotic Plant Cell	Eukaryotic Animal Cell
1. Cell Wall	1. Cell Membrane
2. Cell Membrane	2. Cytoplasm
3. Cytoplasm	3. Nucleus
4. Nucleus	4. Nucleolus
5. Nucleolus	5. Smooth ER
6. Smooth ER	6. Rough ER
7. Rough ER	7. Ribosomes
8. Ribosomes	8. Golgi Apparatus
9. Golgi Apparatus	9. Vacuole(s)
10. Vacuole(s)	10. Mitochondria
11. Mitochondria	11. Lysosomes
12. Chloroplast	



# GRADING:

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3-D Cell Model  
Grading Rubric (TEST GRADE!)

	Excellent (10)	Satisfactory (9-8)	Needs Improvement (6)	Unacceptable (3)
<b>Appearance</b>	Project stands out from the rest, shows evidence of considerable effort.	Appearance is neat, labels are typed or neatly written, project is organized, and shows evidence of good effort.	Labels are hard to read, project is not neatly done, more effort needed	Appears hastily built, lack of effort is evident.
<b>Creativity</b>	Cell model uses materials not often seen in most projects.	Good, creative use of materials that are often used by other students	Minimal creativity is used; project is a poster or other 2-D model.	Lacks creativity, copied from diagram in book.
<b>Cell Type</b>	Cell model clearly represents either an animal or a plant cell	Cell model represents a plant or animal cell	Model is a replica of a generalized cell.	
<b>Details</b>	All organelles & cell parts are accurately detailed and clearly represented. Actual numbers of organelles are represented.	Most organelles & cell parts are accurately detailed and clearly recognizable. Actual numbers of organelles are represented.	More detail needed to recognize cell parts. Some are not recognizable. Numbers of organelles are somewhat representative of an actual cell.	Parts of cell are generalized "blobs" of color. Numbers of organelles are NOT representative of an actual cell.
<b>Labeled Organelles</b>	11+ organelles are correctly located and labeled on the model.	8-10 organelles are correctly located and labeled on the model.	5-7 organelles are correctly located and labeled on the model.	<5 organelles are labeled OR there are errors with organelles identified.
<b>Functions of Organelles (on back of label)</b>	Functions of all organelles are correctly described in detail.	Functions of all organelles are correctly summarized.	Functions of some organelles are summarized with minor errors.	Functions are not clearly explained or contain errors.

Total Points Earned: \_\_\_\_\_ Grade: \_\_\_\_\_ /60

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# UPLOADING YOUR PROJECT:

Take a screen shot, or multiple shots if necessary and upload them to the following PowerPoint. The slide must include:

Group Members Names (First and Last)

Period

Plant or Animal Cell

Link to Live PowerPoint:

[https://ccisdnet-my.sharepoint.com/:p:/g/personal/kdean\\_ccisd\\_net/EUYSK4Dz2BBPsVLJIhIjlqwBKACV-jabqVP626wltaRohQ?e=KQbVn9](https://ccisdnet-my.sharepoint.com/:p:/g/personal/kdean_ccisd_net/EUYSK4Dz2BBPsVLJIhIjlqwBKACV-jabqVP626wltaRohQ?e=KQbVn9)