Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Cell Analogy Project**

**Instructions**

Cells, the basic unit of life, are often compared to a pizza parlor, a factory, or even an entire city. In this project, you will need to make analogies to compare the function of the plant cell to parts and functions of an analogy of your choice. To do this, your group must complete the following tasks:

**Task 1:** Create analogies between the plant cell’s organelles and the analogy your group picked by completing the Cell Analogy worksheet.

* The analogies must be between the function of the cell and the role of the analogy. This means that appearance does not count!

**Task 2:** Draw a basic layout of your analogy complete with the materials your group will need to build the 3D model. This drawing should include all of the major parts of cell and its analogy as well as the materials that your group plans to use.

**Task 3:** Create a three-dimensional model of your group’s analogy. On this model your group must include labels of both the cell organelle and the analogy that goes along with it.

* The model must have color and have different objects representing the different organelles/ parts of the analogy.
* The labels need to be attached to the model or your group may create a key on a separate piece of paper that is turned in with the model.
* If your group creates a key than the key must include: both the organelle and part of the analogy as well as the object used to represent them on the model.

**Cell Analogy Worksheet**

What is your group’s analogy to the cell? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
| Cell Organelle | Function | Part in Analogy  | Explain the analogy between the part of the cell and the part your group chose |
| Cell Wall |  |  |  |
| Cell Membrane |  |  |  |
| Cytoplasm |  |  |  |
| Nucleus  |  |  |  |
| Chloroplasts |  |  |  |
| Vacuole  |  |  |  |
| Mitochondria  |  |  |  |
| Lysosome |  |  |  |
| Ribosomes |  |  |   |
| Rough Endoplasmic Reticulum (ER) |  |  |  |
| Smooth Endoplasmic Reticulum (ER) |  |  |  |
| Golgi apparatus |  |  |  |
| Cilia |  |  |  |
| Flagella |  |  |  |
| Nuclear Membrane |  |  |  |

Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Draw Your ANALOGY Model**

**Rubric**

|  |  |
| --- | --- |
| **Performance Criteria** | **Proficiency Levels**  |
|  | 0 | 1 | 2 | 3 |
| Functions for Organelles are Stated | No functions are stated for any of the 7 organelles. | Functions are stated for 1-3 organelles.  | Functions are stated for 4-6 organelles.  | Functions are stated for all organelles. |
| Analogy parts are stated and relevant to the parts of a cell | No analogies are stated. | Analogies are stated for a 1-3 organelles and may be relevant to the parts of a cell. | Analogies are stated for 4-6 organelles and are mostly relevant to the parts of the cells. | Analogies are stated and relevant for all parts of the cell. |
| Model contains parts of analogy and the cell | The model is not labeled. | The model contains only labels of parts of the analogy or parts of the cell. The model contains 1-3 labels that have both the analogy and the cell parts.  | The model contains 4-6 labels that have both the analogy and the cell parts. | The entire model is labeled with both the parts of the analogy and the cell parts.  |
| Rationale behind analogy  | There is no rationale behind the analogy.  | Worksheet contains rationale behind 1-3 organelles that may make sense. | Worksheet contains rationale behind 4-6 organelles that mostly make sense.  | Worksheet contains rationale behind all organelles and clearly makes sense.  |
| Rough Draft Sketch | A draft sketch for the model was not completed.  | The sketch has 1-3 parts of the model and the corresponding supplies.  | The sketch has 4-6 parts of the model and the corresponding supplies.  | The sketch contains all parts of the model and the corresponding supplies.  |

Total: \_\_\_\_\_\_\_\_\_/ 15