Cell Analogy Project Due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives:**

• Relate cell organelles functions to real world systems

• Illustrate the systems of a working cell in terms of the systems of the real world

• Produce a product that is neat, clear and creative

**Procedure:**

• Each student will work independently unless directed otherwise.

• Choose a real world working system and decide how each organelle of the eukaryotic cell can be compared to the components and functions of the real world system. It is best to choose a real world system that relates to something you are familiar with. Some ideas are:

School, Hospital, City, Mall, Country, Restaurant, Lab, Salon, Construction Site, Prison, Carnival, Amusement Park, etc.

• Illustrate the real world system **and** the cell you are comparing it to. This must be on poster board (will be provided for you), and neatly drawn by you. It must be colored and show very high effort. Not artistic? Trace diagrams, make pictures on the computer…get creative!

• The cell image and real world system image both must be labeled.

• On a separate sheet, attached to the front or back of your poster board, on a three column table include the organelle, the analogous structure, and a sentence that explains the analogy. Make sure you have all the organelles included

**Organelles to be included:**

1. Cytoplasm

2. Cytoskeleton

3. Endoplasmic reticulum (rough and smooth can be same structure)

4. Golgi Apparatus

5. Lysosome

6. Mitochondria

7. Nucleus

8. Plasma Membrane (Cell Membrane)

9. Ribosome

10. Vacuole

11. Cell Wall (plant cells only)

12. Chloroplasts (plant cells only)

13. Nucleolus

14. Centrioles

15. Nuclear Membrane

Optional: cilia, flagella

**Example of 3 Column Chart for a Football team (yours will include all organelles!)**

|  |  |  |
| --- | --- | --- |
| Cell Organelle | Analogous Structure | Explanation |
| Nucleus | Coach | The coach directs all of the activities and makes the plan for the game…**like** the nucleus directs all cell activities and contains all information. Cell Membrane Sidelines of the Field The sidelines of the field define what is in the field and what is out…like the cell membrane is the boundary between the inside and outside of the cell. |
| Cell Membrane | Sidelines of the Field | The sidelines of the field define what is in the field and what is out…**like** the cell membrane is the boundary between the inside and outside of the cell. |

***\*Notice: You must explain how the coach is like a nucleus in the above example by telling me both what the coach does for the team and what the nucleus does for the cell.***

***--------------------------------------------- Cut here and hand in with your poster ---------------------------------------------------------------***

**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cell Analogy Poster Rubric**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Standard:** *I can draw, label, and describe a complete and clear analogy for a plant cell.* | | | | |  |
| **Criterion** | **1 Doesn’t Meet** | **2 (Approaches)** | **3 (Meets)** | **4 (Exceeds)** | **Points Available** |
| **Cell analogy Poster** | | | | |  |
| Organelle Description | This portion of the poster is incomplete or not turned in. | **Some** functions of the organelles in a plant cell are **incorrectly** defined or missing. | All functions of the organelles in a plant cell are **correctly** defined in the 3 column table as required. Poster is not directly copied from another source. | All functions of the organelles in a plant cell are **clearly and correctly** defined in the 3 column table as required. Poster and analogy is well thought out and unique. | 35 |
| Analogy Description | This portion of the poster is incomplete or not turned in. | The analogy is **complete**. But not all of the parts on the analogy fit in with the theme or some parts are not related to the cell organelle function. | The analogy is **complete and clear**. All parts of the analogy fit in with the theme and arerelated to the cell organelle function. | The analogy is **complete and clear**. All parts of the analogy fit in with the theme and are **clearly and convincingly** related to the cell organelle function. | 35 |
| Analogy Illustration | This portion of the poster is incomplete or not turned in. | The poster contains pictures of **every** analogy.  BUT  The illustrations are **messy or unlabeled.** | The poster contains pictures of **every** analogy. The illustrations are **labeled and colorful.** | The poster contains pictures of **every** analogy. The illustrations are **clear, labeled, colorful, and neat.** | 30 |