**Eukaryotic Animal Cell Analogies Name:**

**Part A:** A cell is like a country

* For my analogy, I picked the analogy a cell is like a country. In the analogy, the government represents the **nucleus.** The nucleus is like the main control of the entire cell, like how the government runs the country.
* In this analogy, coal power plants are like **mitochondria.** The mitochondria make energy that the cell uses to perform functions. The coal power plants use coal to create energy. The energy is used to power the country.
* The **endoplasmic reticulum** is like a post office. It is an area within the cell where packaging of protein is done so it can be sent to other parts of the cell. The postal service packages stuff.
* The **lysosomes** are like the sanitation department of a cell. The lysosomes eat away dead parts and old waste. The sanitation department cleans the entire country they get rid of old waste. Note: Lysosomes are ONLY in animal cells.
* The **Golgi** is like the highway. The highway sends stuff to important places quickly like the endoplasmic reticulum does. Then it sends it to places all over the country like a cell.
* The **cell membrane** is like the Immigration and Customs of the cell. The cell membrane controls what come in and out of a cell. If it does not want something to come in or out it would not let it. The Immigration and Customs control what goes in and out of a country.
* The **cytoplasm** is like the ground. The cytoplasm is a fluid all the organelles float around in. The ground it what all of the things a country need to function is a part of.
* The **vacuoles** are like water towers. They store substances, such as water, for use later.
* The **protein** is like the citizens of the country. The citizens are sent all over the country and help make many different things.
* As you can tell, there are many ways that you can say a cell is like a country. There are many parts to a country for it to work properly. The same goes for a cell. That is why I chose to compare the cell to a country.

**Part B:Cell City Analogy** 

Directions: Read the story, then match each underlined part with the cell organelle that has the same or similar job.

In a far away city called Redmen City, the main export and production product is the steel widget. The entire town is below sea level and is filled with a watery fluid. Everyone in the town has something to do with steel widget making and the entire town is designed to build and export widgets. The town hall has the instructions for widget making. Widgets come in all shapes and sizes and any citizen of Redmen can get the instructions and begin making their own widgets. Widgets are generally produced in small shops around the city.

After the widget is constructed, they are placed on special carts which can deliver the widget anywhere in the city. In order for a widget to be exported, the carts take the widget to the postal office, where the widgets are packaged and labeled for export. Sometimes widgets don't turn out right, and the "rejects" are sent to the scrap yard where they are broken down for parts or destroyed altogether. The town powers the widget shops and carts from a hydraulic dam that is in the city. The entire city is enclosed by a large wooden fence, only the postal trucks (and citizens with proper passports) are allowed outside the city.

|  |  |
| --- | --- |
| 1. Mitochondria  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 2. Ribosomes | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 3. Nucleus | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 4. Endoplasmic Reticulum | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 5. Golgi  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 6. Protein  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 7. Cell Membrane | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 8. Lysosomes | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 9. Cytoplasm | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Part C:** On a separate sheet of paper, create your own DETAILED analogy of the cell using a different model.

* Start with the protein. The protein is the main production product or material that is being made(such as the widget in the analogy)
* Some ideas might be: a school, a house, a factory, or anything you can imagine. Use the analogy on p1 as a model.
* You must include all of the 9 organelles from the widget story above.
* DESCRIBE why you chose each part. Prove to me that you know the function each organelle.