



Cell City Analogy

Name _____

Period _____ # _____

In a far away city called Grant City, the main export and production product is the steel widget. 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 Grant can get the instructions and begin making their own widgets. Widgets are generally produced in small shops around the city, these small shops can be built by the carpenter's union (whose headquarters are in town hall).

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.

Directions: Each of the underlined parts in Cell City match with an actual cell part. For each underlined part, write the description of what it does and which actual cell part it is like.

Cell City part	Description	Actual cell part
Widget		
Town hall		
Small shops		
Carpenter's Union		
Special carts		
Postal office		
Scrap yard		
Hydraulic dam		
Wooden fence		

Cell parts to use: cell membrane, endoplasmic reticulum, Golgi apparatus, lysosomes, mitochondria, nucleolus, nucleus, protein, ribosomes

Create your own analogy of the cell using a different model.

Some ideas might be: a school, a house, a factory, or anything you can imagine.

Requirements:

Create a colorful **picture** of what you are comparing your cell to. This is NOT a picture of a cell, but of an amusement park, car, etc. The picture can be drawn by hand or created on the computer.

Include a **key** that tells which organelle compares to which part of your analogy.

Include a **chart** with the function of each part of your analogy, and why it is like the organelle (similar to what is on the front of this paper) The function of the analogy part should match the "real" one. Like the wooden fence allows certain things in and out, just like the cell membrane. The chart will be stapled to picture...on a separate piece of paper.

Please choose **ONE** type of cell (plant or animal), and check off each organelle as you add it in your chart/picture

Plant Cell

- | | |
|--------------------------------------|--|
| <input type="checkbox"/> Nucleus | <input type="checkbox"/> Mitochondrion |
| <input type="checkbox"/> Cell wall | <input type="checkbox"/> cell membrane |
| <input type="checkbox"/> Chloroplast | <input type="checkbox"/> ribosomes |
| <input type="checkbox"/> Golgi body | <input type="checkbox"/> Endoplasmic reticulum |
| <input type="checkbox"/> vacuole | <input type="checkbox"/> lysosome |

Animal Cell

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> Nucleus | <input type="checkbox"/> Mitochondrion |
| <input type="checkbox"/> cytoskeleton | <input type="checkbox"/> cell membrane |
| <input type="checkbox"/> lysosome | <input type="checkbox"/> ribosomes |
| <input type="checkbox"/> Golgi body | <input type="checkbox"/> Endoplasmic reticulum |
| <input type="checkbox"/> vacuole | <input type="checkbox"/> centriole |

Grading:

2 points for each cell part drawn in analogy, 3 points for being "correct" (30 points)

10 points for neatness

15 points for colorfulness

10 points for key, on front of picture

10 points for chart listing part and why it's like the "real cell" part

25 points for working alone (maximum you can earn is 75/100 = C)

