

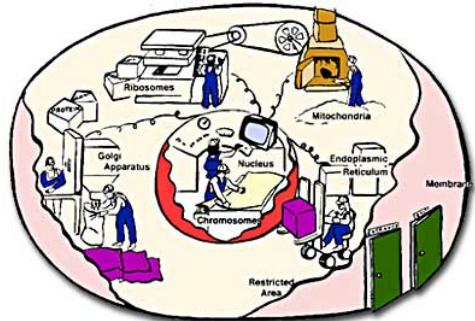
Name: \_\_\_\_\_

Period: \_\_\_\_\_

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## Making Analogies: The Eukaryotic Cell Structure

An analogy is a way of explaining something by comparing it with something else. In biology, "analogous" means a similarity in function between parts that are dissimilar in structure and origin. Think about the wings of an insect, a bird, and a bat. The section on cell structure discusses the structure and function of the various organelles found in plant and animal cells. The figure to the left is an analogy of the inner workings of a cell in which the artist compares the cell to a factory.



- I. Match the parts of the city (underlined) with the name of the organelle that functions most like it.

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 carpenters' 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.

Mitochondria	_____
Ribosomes	_____
Nucleus	_____
Endoplasmic Reticulum	_____
Golgi Apparatus	_____
Cell Membrane	_____
Lysosomes	_____
Nucleolus	_____

- II. Complete the table below by writing the name of the organelle that functions most like the factory part described in the first column. In the third column write a brief description of the function of the organelle in the cell.

<b>JOB IN FACTORY</b>	<b>CELL ORGANELLE</b>	<b>ORGANELLE FUNCTION</b>
Shipping / Receiving		
Chief Executive Officer		
Factory floor		
Assembly line		
Workers in the assembly line		
Finishing / Packing		
Maintenance crew		
Support beams		
Power plant		

- II. Complete the table below by writing the name of the organelle that functions most like the house part described in the first column.

PART OF MY HOUSE	CELL ORGANELLE	ORGANELLE FUNCTION	PLANT OR ANIMAL CELL OR BOTH
Furnace/Heating			
Exterior walls			
Parents			
Toilet			
Solar panel			
Hallways			
Mailbox			
Kitchen sink			
Food pantry			

- III. Using Analogies - Compare a cell to a school, a country, the president's cabinet or to something else. Include the type of cells (animal, plant, or both) in which the organelle is found, the function of the organelle in the cell, and an analogy that describe its function. The nucleus, for example, is found in both animal and plant cells, it contains the genetic information that directs cell activities; the nucleus is like the principal in a school, the president in a country or the mayor in a city. Use a sheet of construction paper or a poster board to create your analogy.