



Cell Theory, Structure and Transport

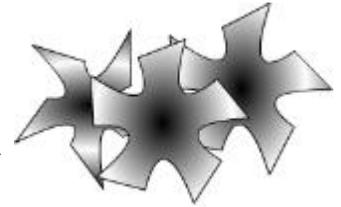
Name: _____

Period: _____

Cell Analogy Project – Scrap Book

Start thinking analogies...

Cell City Analogy : In a faraway city called Cookie 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 Cookie 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 builder'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 nuclear power plant 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.

Match the parts of the city (underlined) with the parts of the cell.

- | | |
|--------------------------------|------------------------|
| 1. Mitochondria _____ | 6. Protein _____ |
| 2. Ribosomes _____ | 7. Cell Membrane _____ |
| 3. Nucleus _____ | 8. Lysosomes _____ |
| 4. Endoplasmic Reticulum _____ | 9. Nucleolus _____ |
| 5. Golgi Apparatus _____ | |

Project Reminder!

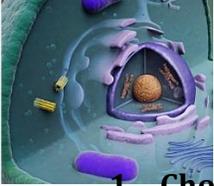
- include typed labels for all organelles?
- include a legend of analogies matching your model?
- cite all sources?

Plant Cell Checklist

- | | | |
|---------------------|-----------------------|-----------------|
| _____ Cell Membrane | _____ Nucleus | _____ Cytoplasm |
| _____ Mitochondria | _____ Golgi body | _____ Smooth ER |
| _____ Rough ER | _____ Ribosome | _____ Cell Wall |
| _____ Chloroplast | _____ Central Vacuole | _____ Lysosome |
| _____ Nucleolus | | |

Animal Cell Checklist

- | | | |
|---------------------|------------------|-----------------|
| _____ Cell Membrane | _____ Nucleus | _____ Cytoplasm |
| _____ Mitochondria | _____ Golgi body | _____ Smooth ER |
| _____ Rough ER | _____ Ribosome | _____ Lysosome |
| _____ Cytoskeleton | _____ Cilia | _____ Centriole |
| _____ Nucleolus | | |



1. Choose either a plant or animal cell. Below are the organelles required to be included in your book:



Plant Cell	Animal Cell
Cell Membrane	Cell Membrane
Nucleus	Nucleus
Cytoplasm	Cytoplasm
Mitochondria	Mitochondria
Golgi Body	Golgi Body
Endoplasmic Reticulum (smooth and rough)	Endoplasmic Reticulum (smooth and rough)
Ribosome	Ribosome
Cell Wall	Lysosome
Chloroplast	Cytoskeleton
Central Vacuole	Cilia
Lysosome	Centriole

2. Select an everyday object that has a *similar* function as each of the cell organelles required in your chosen cell.

3. Write an analogy to show the similarity between each cell organelle and the everyday object.

*YOU MUST INCLUDE YOUR JUSTIFICATION. (Ex. The nucleus is like a brain *because* it controls and coordinates the activities of the cell in the same way the brain controls and coordinates the activities of the body.)

*YOU MAY NOT USE ANY LIVING ORGANISMS OR THINGS THAT COME FROM LIVING ORGANISMS IN YOUR ANALOGIES (Note: you would not be able

to use the nucleus example above because a brain comes from a living organism).

*Some analogies that you may use could be a town or a factory/school

4. Create a visual for your analogies.

*EACH ORGANELLE PAGE IN YOUR BOOK SHOULD HAVE AT LEAST TWO VISUALS: AN IMAGE OF THE SPECIFIC CELLULAR ORGANELLE IN QUESTION and AN IMAGE OF THE OBJECT SELECTED WITH SIMILAR FUNCTION.

Remember this is a scrapbook so it should be *colorful and easy to read!!!*

5. Here are the *specific* requirements:

- Front Page: needs to contain a multi-colored, detailed, **labeled** picture of a plant or animal cell. You may draw this cell or print one out, but the labeling needs to be hand written. Please do not include an already labeled cell from the Internet. Also... be sure to include your name and your class period.
- Page two: List all 12 of the required organelles and their corresponding functions.
- Contents: Each organelle with its analogy should have its own page. (Ex. cell membrane + analogy = page 1, nucleus + analogy = page 2, cytoplasm + analogy = page 3, etc...)

Grading Rubric

Characteristic	Score
Correctly identified and labeled cell on the front cover (12 points- 1 point for each of the organelles) (-5 for a colorless image)	/12 points
List of organelles with corresponding functions on the second page (36 points -3 points for each organelle and function)	/36 points
Analogy for each of the cell organelles (36 points-3 for each of the	/36 points
Colorful visuals on each page (12 points-1 point for each visual)	/12 points
	/96points
Total Percentage	%