

Name: _____

CASE



Project 4.1.1 Cell Analogy Collage

Purpose

What does a nucleus look like or function like? Being able to relate newly discovered information with things already known will help you understand the purpose of new objects and remember their features. An analogy is a comparison between two things, which are similar in some respects, but otherwise different. In this project, you will make analogies between cell organelles and everyday objects to highlight the similarities.

For example, an analogy for the human kidney could be a pool filter. The kidneys filter out wastes from the human body just as a pool filter removes particles from the swimming pool. More specifically for plants, you can say the nucleus of a cell is like the brain of a human because the nucleus controls and coordinates the activities of the whole cell just as the human brain controls and coordinates the activities of the human body.

Since cells are hard to see without the help of a microscope and their functions are even harder to visualize, you will use analogies to help you remember the various aspects and functions of cells.

Materials

Per student:

- Computer with Internet access and word processing software
- Poster paper
- Glue sticks
- Permanent markers
- Colored pencils
- Printer
- Scissors
- Push pins
- Pencil
- Agriscience Notebook

Procedure

For this project, you will design and create a collage for an assigned organelle using analogies describing how the organelle functions. When you have completed your collage, you will share your interpretation of the organelle. During your classmates' presentations, you will need to take good notes of all presentations so that you will have a complete record of all the organelles on your worksheet.

1. Your teacher will assign you one of the following organelles:

- Cell Membrane
- Centrosome
- Cytoskeleton
- Endoplasmic Reticulum
- Lysosome
- Nucleolus
- Peroxisome
- Secretory Vesicle
- Cell Wall
- Chloroplast
- Cytosol (Cytoplasm)
- Golgi Apparatus
- Mitochondria
- Nucleus
- Ribosomes
- Vacuole

2. Your teacher will assess your display using *Project 4.1.1 Scoring Guide*. Review the criteria that your grade will be based on prior to starting the project.
3. Either draw or glue a quality picture of your organelle in the center of your poster. Make sure the image is large enough to see detail, leaving enough room to add smaller analogous images around the edges of the illustration. Use Figure 1 as a guide for placement.
4. Use the Internet and a textbook to write a complete description of the function for the organelle. Use this description as a caption for the illustration you added in Step 3. Type this description using at least a 20-point font size. Use information from at least two sources.
5. Answer the questions on the student worksheet and glue the sheet to the lower right hand corner of the poster.
6. Draw or glue to the poster pictures of two everyday items that answer the question – “My organelle looks like...” Use Figure 1 as a guide for placement.
7. Type the name of each everyday item to attach to the collage above the picture and write a brief analogy beginning with “My organelle looks like...” that explains the similarities between the everyday item and the organelle. Be sure to explain your reasoning behind your selection of each everyday item.
8. Draw or glue to the poster pictures of three everyday items that answer the question – “My organelle functions similar to (everyday item) because a (everyday item) does...” Use Figure 1 as a guide for placement.
9. Type the name of each everyday item to place above the corresponding pictures and write a brief statement beginning with “My organelle functions similar to (everyday item) because a (everyday item) does....” that explains the similarities between each everyday item and the organelle. Be sure to explain your reasoning behind your selection of each everyday item.
10. Print the function description and analogy descriptions and cut apart as appropriate.
11. Glue the statements you typed with their respective illustrations on the poster.

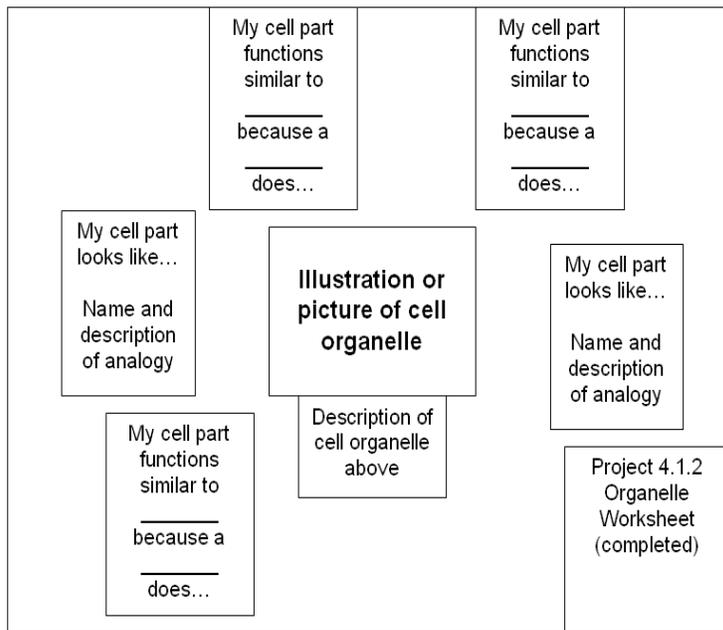


Figure 1. Poster Layout Sample

12. Display your completed collage in the area identified by your teacher.
13. Review the collages around the room and record information about each organelle in Table1.

Table 1. Organelle Functions and Analogies

Organelle	Function in a Plant Cell	“Looks Like” Analogy	“Functions Like” Analogy
Cell Membrane			
Cell Wall			
Centrosome			
Chloroplast			
Cytoskeleton			
Cytosol (Cytoplasm)			
Endoplasmic Reticulum			
Golgi			
Lysosome			

Table 1. Organelle Functions and Analogies

Organelle	Function in a Plant Cell	“Looks Like” Analogy	“Functions Like” Analogy
Mitochondria			
Nucleolus			
Nucleus			
Peroxisome			
Ribosomes			
Secretory Vesicle			
Vacuole			

Conclusion

1. How does the use of analogies help you to remember the function and anatomical features of a plant organelle?

14. Which was the most creative cell analogy collage you observed? Why do you think it made an impression on you?

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Project 4.1.1 Student Worksheet

Directions: Answer the following questions after you have created your collage for *Project 4.1.1 Cell Analogy Collage*.

1. Where is your organelle or structure located in the plant cell? Why do you believe it is located there?

15. What is the function or structure of your cell organelle? Why is it important for plant cell function?

16. Research the organelle you have presented and describe some general features of the organelle including what it is made of.

17. What would happen to the plant cell if this organelle or structure were missing?