Cell Analogy

You have spent the last few weeks studying the structure of both plant and animal cells. You've used microscopes and iPads, taken notes, completed a Venn diagram and discussed how a cell can be compared to a factory. Now it’s time to show your understanding of how those organelles work together to make a cell a cell. You will use your MVSD Google Drive account to complete this assignment.

The Assignment.
In approximately 300 words, create and explain your own analogy to complete the sentence A cell is like a _________. You may not use the factory analogy talked about in class. You need to come up with your own. Connect the functions of the organelles we studied in class (include all 10 organelles from the Inside A Cell worksheet AND ribosomes) to your overall analogy.

Start with an introductory paragraph where you establish and state your analogy. The body of your essay will explain how your analogy works. End with a conclusion that reinforces your analogy. After reading your explanation your reader will have a greater understanding of cell structure and the different roles the organelles play. Use your notes to help you write this essay.

Rubric
Analogy. Writer presents a unified analogy comparing the structure of a cell to another self-contained system. The comparison incorporates and connects all the cell’s different organelles into the explanation of the analogy. The choice of analogy is novel and demonstrates the writer’s understanding of cell structure.

Essay Structure. Essay is organized by a strong introduction which establishes the analogy, followed by a body where the analogy is elaborated on and explained and ends with a conclusion. The paragraphs are connected by transitions between the beginning, middle and end. Organelle names are highlighted.

Explanation. Tone of the essay is informational. Writer uses the analogy to clearly explain how a cell works and uses the organelles to help make the point. Writer does not lose the science of cell structure in empty adjectives.
Words are well chosen and work to elaborate on the analogy and cell structure. It is clear that the writer knows what s/he is talking about.

**Deadlines and Correctness.** Work is carefully proofread. Document has the assigned file name and was shared with Ms. Patterson. All deadlines were met in the completion of this assignment.
# Cell Analogy Teacher Comments

## Analogy (15 points)

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## Explanation (15 points total)

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### Deadlines and Correctness (10 points)

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Total ____________ / ______55
Cell Analogy Essay
This is an example ONLY. It shows the stages that you should be going through to plan and write your paper. You should be BRAINSTORMING, OUTLINING, WRITING. This is NOT a complete example. You may NOT use the example of A Cell is Like an Airplane or Factory (unless I have given you specific permission to do so).

Brainstorming
A Cell is like an Airplane

- Nucleus- directs all functioning of the cell- the pilot
- Mitochondria-power house/energy supplier of the cell- jet engines (and the jet fuel)
- Cytoplasm- liquid space around the other organelles- air in the cabin
- Vacuoles- storage of food, waste, water- overhead storage compartments (store luggage and suitcases)

Outline

I. Introductory Paragraph (establish and state your analogy)
   A. Definition of a system
   B. Explain that a cell is a system (has parts working together to form a whole)
   C. State that a cell is like a(n) ________

II. Body (how your analogy works)
A. Cell Membrane/Cell Wall
   1. only lets certain things in and out
   2. cockpit/passenger doors
B. Cytoskeleton/Cytoplasm
   1. provides support/in between space between organelles
   2. steel beams and frame of the hull/air in the plane
C. Endoplasmic Reticulum
   1.
   2.
D. Golgi Apparatus
   1.
   2.
E. Lysosome
   1.
   2.
F. Vacuole
   1. storage of food and waste
   2. over head storage bins and luggage compartments
G. Mitochondrion/Chloroplast
   1. power house of the cell that turns raw products into energy
   2. jet engine (and jet fuel)
H. Ribosome
   1.
   2.
I. Nucleus
   1.
   2.

III. Conclusion (reinforces your analogy)
   A. Restate what is needed for a system to be a system
   B. State that your system has all of these parts
   C. State that a cell is like a(n)______________.

Essay
A system is a set of connected things or parts that form a whole. In order for a system to function properly, the individual parts must work together. Sometimes, the parts create a product; other times, they make something happen. A cell is a system that creates a product, protein. I will use the analogy, “a cell is like an airplane”, to better explain how the parts of the cell system work together.

There is usually one nucleus in a cell. The nucleus contains DNA and is responsible for controlling the cell actions. If a cell were an airplane, the nucleus would be the pilot. The pilot is responsible for all of the plane’s operations. He/She makes sure that the plane stays on course and takes off and lands safely. In order for the plane to fly, it requires energy just like a cell. An airplane’s energy comes from the jet fuel, which is burned in the engine. Therefore, the jet fuel and engines are akin to food and a cell’s mitochondrion respectively… Continue like this for the rest of the organelles. You may use two body paragraphs to split up the organelles if you would like.

As you can see, a cell is like an airplane. Just as the organelles in a cell each have a specific job to do, so do the parts of an airplane. If one part/organelle does not function, the complete system breaks down. I think that it is incredible that all of these parts are able to work together this way.