

Name:

Date:

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The Cell as a City Activity

Floating around in the cytoplasm are small structures called organelles. Like the organs in your own body, each one carries out a specific function necessary for the cell to survive. Imagine the cell as a miniature city. The organelles might represent companies, places or parts of the city because they each have similar jobs. Below are the descriptions of important parts of the Cell City.



A	City Limits - Controls what goes in and out of the city.
B	Road System - Allows for movement of materials throughout the city.
C	City Hall - Controls all the major activities of the city.
D	City Auditor/Library - Stores all the records for the city and passes them on as the city grows.
E	Construction Company - Builds complex structures for the city with the help of hundreds of little workers.
F	Packaging/Mailing Centers - Adds the finishing touches to products and then ships them to their destinations.
G	Recycling Centers/Garbage Trucks - Recycles used materials and transports waste out of the city.
H	Warehouse/Distribution Centers - Stores extra materials needed by the city.
I	Power Company - Produces energy for the city by "burning" fuel.
J	Solar Power Plant - Uses the sun's energy to produce power for the city.

As you move through this worksheet, see if you can match the important parts of the city listed on the first page of this packet to the specific organelles found in cells. Be sure to write neatly, and in complete sentences.

1. The **nucleus** is a large, round/oval structure usually located near the center of the cell. It is the control center for all the activities of the cell.

a) What company or place does the **nucleus** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

2. The **cell membrane** is a thin, flexible envelope that surrounds the cell. It allows the cell to change shape and controls what goes into and out of the cell.

a) What company or place does the **cell membrane** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

3. The **endoplasmic reticulum** consist of a network of tube-like passageways that proteins from the **ribosomes** are transported through. Proteins are constructed at the ribosomes.

a) What company or place does the **endoplasmic reticulum and ribosomes** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

4. The jelly-like area between the nucleus and the cell membrane is called the **cytoplasm**. It helps organelles and materials move throughout the cell.

a) What company or place does the **cytoplasm** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

5. The **mitochondria** are tiny bean-shaped structures in the cytoplasm with a smooth outer membrane, and a greatly folded inner membrane. They supply the energy for the cell by transforming sugars into energy.

a) What company or place do the **mitochondria** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

6. The **chromosomes** are rod-shaped bodies found in the nucleus. They are made of DNA and protein. They contain all the information to run the cell. They also pass on the hereditary traits of the cell to new cells.

a) What company or place do the **chromosomes** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

7. The **chloroplasts** are oval, green structures found in the cytoplasm of plant cells. They capture the sun's energy and use it to produce sugars in a process called photosynthesis.

a) What company or place does the **chloroplast** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

8. The **lysosomes** are small round structures found in the cytoplasm. They contain digestive enzymes that break down large food particles or dead organelles into simple substances and also transport waste so it is released outside of the cell.

a) What company or place do the **lysosomes** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

9. The **vacuole** is a large, round sac found in the cytoplasm. It stores water, food, wastes, or other materials needed by the cell.

a) What company or place does the **vacuole** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____

10. The **Golgi complex** consist of flattened sacs of membrane that surround materials, identify them, and bring them to where they need to go in the form of smaller membrane sacs called vesicles.

a) What company or place does the **Golgi complex and vesicles** resemble in a Cell City?

b) Why do you think so?

a) _____

b) _____
