

CELL CITY INTRODUCTION!

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 cells 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:

<i>City Part</i>	<i>Function</i>	<i>Cell Part</i>
City Limits	Controls what goes in and out of the city	
Road System	Allows for movement throughout the city	
City Hall	Controls all the activities in of the city	
City Auditor	Stores all the records of the city and passes them on as the city grows	
City Planning Office	A place in the city hall where plans are made for the construction of the city	
Construction Company	Builds structures for the city	
Delivery Van	Delivers products made at the construction company to other locations in the city	
Food Processing Plant	Processes large quantities of food entering the city into smaller packages that can be used more easily	
Warehouse	Stores materials needed by the city	
Power Company	Produces energy for the city	
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 above 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?

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?

3. The **endoplasmic reticulum** consists of a network of a tube-like passageway that proteins from the ribosomes are transported through.

a. What company or place does the **endoplasmic reticulum** resemble in a Cell City?

b. Why do you think so?

4. The **ribosomes** are small grain-like bodies made mostly of RNA and produced in the nucleolus. Proteins are constructed at the ribosomes.

a. What company or place do the **ribosomes** resemble in a Cell City?

b. Why do you think so?

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

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

b. Why do you think so?

6. 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?

7. 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?

8. The **C** is an oval, green structure found in the cytoplasm. It contains chlorophyll. It captures the sun's energy and uses 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?

9. The *lysosomes* are small round structures found in the cytoplasm. They contain digestive enzymes that break down large food particles into sugars and other simple substances.

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

b. Why do you think so?

10. 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?

11. Now that you made the comparison between the parts of a city and the organelles of a cell, **draw out your city!**
- a. Make sure to label all 10 of the parts you identified in the Cell City, as well as which cell organelle they resemble.