

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## The Cell as a Cookie Factory \*

**NGSS Standards: MS-LS1-2:** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.

**Objectives:** Relate the function of cell organelles to a cookie factory

### 1. Compare a cell to a cookie factory

Predict the cell organelle for each job and then write a description of the function. Use the definitions on the next page to help you

Nucleus	Mitochondria	Endoplasmic reticulum	Ribosomes	Cell membrane
Lysosome	DNA	Cytoplasm	Golgi apparatus	Vacuole

Job in the Factory	Cell Organelle
Boss	
Cookie Recipes	
Workers	
Assembly line (Where workers do their work)	
Packaging/Shipping department	
Cookie Warehouse (storage department)	
Security factory door	
Factory Wall, floor and ceiling	
Generators (electricity)	
Clean up crew	

---

## Function of each organelle

- Cell membrane – a membrane that surrounds the cell. Also called the *plasma membrane*, it regulates what enters and leaves the cell.
- Cytoplasm – a jelly-like substance, composed mainly of water, occupying most of the space between the cell membrane and the nucleus.
- Endoplasmic reticulum – a network of passageways in which chemical compounds are manufactured, processed, and transported.
- Golgi apparatus – a stack of membranes that collects, modifies, and packages chemical compounds.
- Lysosome – a small sac, or *vesicle*, that contains digestive chemicals.
- Mitochondria – organelles that, using oxygen, convert nutrients into energy that can be used by the cell.
- Nucleus – a round body in the center of the cell that contains DNA and regulates gene expression.
- Ribosome – tiny structure where proteins are synthesized.
- Vacuole – a type of vesicle that stores water, nutrients, and other chemicals. The large vacuole found in plant cells helps the cells maintain their shape.
- DNA – a molecule that contains the instructions an organism needs to develop, live and reproduce