**Name:** _____ **Date:** _____

# Answer Key: Squishy Science: Mapping the 9th Grade Micro-Metropolis

Examine how cellular components drive essential life processes through basic recall and identification of specific organelle systems.

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**1. Which specific organelle acts as the 'packaging center,' modifying proteins after they leave the Endoplasmic Reticulum?**

**Answer:** B) Golgi Apparatus

The Golgi Apparatus is responsible for receiving, sorting, and shipping protein products throughout the cell.

**2. The cell membrane is a rigid, solid wall that prevents all movement into and out of the cell.**

**Answer:** B) False

The cell membrane is semi-permeable and fluid, allowing the controlled movement of specific substances via metabolic absorption.

**3. The _____ is frequently called the 'control center' because it contains the genetic blueprints of the cell.**

**Answer:** B) Nucleus

The nucleus houses DNA, which directs the cell's activities, including growth and reproduction.

**4. If a muscle cell requires a massive amount of energy to facilitate movement, which organelle would you expect to find in high abundance?**

**Answer:** C) Mitochondria

Mitochondria perform cellular respiration to produce ATP, the primary energy currency for physical movement.

**5. Ribosomes are the primary site for protein synthesis within both prokaryotic and eukaryotic cells.**

**Answer:** A) True

Ribosomes read mRNA instructions to assemble amino acids into proteins, a universal biological process.

**6. The process of _____ involves the cell releasing waste materials through the membrane to maintain internal balance.**

**Name:** _____ **Date:** _____

**Answer:** A) Excretion

Excretion is one of the seven main functions of a cell, focusing specifically on the removal of metabolic waste.

**7. Which organelle is studded with ribosomes and helps transport newly made proteins?**

**Answer:** B) Rough ER

The 'Rough' Endoplasmic Reticulum (ER) gets its name from the ribosomes attached to its surface, which assist in protein production.

**8. Lysosomes are known as 'suicide sacs' because they contain digestive enzymes that break down old cell parts.**

**Answer:** A) True

Lysosomes use enzymes to digest macromolecules and recycle damaged organelles to keep the cell clean.

**9. In the context of cellular functions, what does 'conductivity' refer to?**

**Answer:** B) The ability to pass electrical signals along a surface

Conductivity is a cellular function, most notable in neurons, where electrical impulses are transmitted to communicate information.

**10. The _____ Endoplasmic Reticulum is primarily involved in the synthesis of lipids and the detoxification of chemicals.**

**Answer:** C) Smooth

The Smooth ER lacks ribosomes and focuses on lipid metabolism and metabolic detoxification.