

Name: _____ Date: _____

Answer Key: 5th Grade Cell City Mission Quiz

Examine cellular structures by troubleshooting why specific organelles fail and comparing their jobs to a busy town's essential services.

1. Imagine you are looking at a plant cell through a microscope. You see a large, central storage space for water and nutrients. What is this 'storage tank' called?

Answer: B) The vacuole

In 5th-grade biology, we learn that the central vacuole acts like a storage warehouse for plants, holding water to help the plant stay upright.

2. The cell wall is found in both plant cells and animal cells to provide a stiff, outer protection.

Answer: B) False

Only plant cells have a cell wall; animal cells rely on a flexible cell membrane because animals move and don't need the rigid structure plants do.

3. A cell that is very active, like a wing muscle in a hummingbird, would likely have a high number of _____ to produce enough energy.

Answer: A) Mitochondria

Mitochondria are the 'powerhouses' of the cell, converting nutrients into useable energy for movement.

4. If a cell were a busy restaurant, which organelle would act like the 'Head Chef' who holds the secret recipes and tells everyone what to do?

Answer: C) The Nucleus

The nucleus contains DNA (the 'recipes') and controls all cellular activities, acting as the brain or leader of the cell.

5. Chloroplasts are the organelles responsible for turning sunlight into food during photosynthesis.

Answer: A) True

Chloroplasts contain chlorophyll, which captures light energy so plants can make their own sugar (food).

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6. The jelly-like substance that fills the space inside the cell and keeps all the organelles in their place is known as the _____.

Answer: C) Cytoplasm

Cytoplasm is the gelatinous fluid that surrounds organelles and provides a medium for chemical reactions within the cell.

7. Which organelle is responsible for packaging and shipping proteins to different parts of the cell, much like a local post office?

Answer: A) Golgi Apparatus

The Golgi apparatus modifies, sorts, and packages proteins for transport, similar to how mail is sorted at a post office.

8. The cell membrane acts like a security guard by choosing which materials can enter or leave the cell.

Answer: A) True

The cell membrane is 'selectively permeable,' meaning it regulates traffic to maintain the cell's internal environment.

9. If a cell cannot break down its waste and starts to get 'cluttered' with old parts, which organelle is likely not working properly?

Answer: B) The Lysosome

Lysosomes contain digestive enzymes that act like a cleanup crew, breaking down waste and recycling old cell parts.

10. Ribosomes have the very important job of making _____, which are the building blocks for almost everything in your body.

Answer: C) Proteins

Ribosomes 'read' instructions from the nucleus to assemble proteins, which are essential for growth and repair.