

Study Guide for Cell's

1. What are the three main concepts of the cell theory?

- 1) All living things are made of one or more cells
- 2) Cells are the basic unit of structure and function in living things.
- 3) All cells come from other cells.

2. Describe in your own words what an organelle is?

There are special parts called organelles that help the cell function as a living thing. They serve a certain purpose for the cell to maintain life.

3. Are organelles living things? Explain.

No, they are not living on their own. They make up a cell and the cell is considered the basic unit of life.

4. Do animal and plant cells have all of the same organelles? Explain.

They have many of the same organelles. But, plants have additional organelles called chloroplasts and cell wall.

5. Why would your heart cells have more mitochondria than your eye cells?

Your heart cells need a lot of energy to beat constantly. The mitochondria produce energy for a cell, so heart cells need a lot of mitochondria. The eye cells do not need as much energy, so they would have less mitochondria.

6. How do mitochondria and chloroplasts differ?

Mitochondria make energy from food and chloroplasts make food from sunlight.

7. Why is it unnecessary for our cells to have a cell wall?

We have an internal skeleton that helps to support us. Plants do not have a skeleton, so the rigid cell wall helps it to maintain its structure.

8. What might happen if the lysosomes inside a cell stopped working properly?

Waste materials and large particles of food would build up and eventually overcrowd the cell and it would no longer be able to function properly.

9. Describe the difference between rough and smooth ER.

Smooth ER does not have ribosomes attached to it and rough ER does have ribosomes attached.

ORGANELLE	LOCATION	DESCRIPTION	FUNCTION
<u>cell wall</u>	plant, not animal	*outer layer *rigid, strong, stiff *made of cellulose	*supports and protects the plant cell
<u>cell membrane</u>	both plant/animal	*plant - inside cell wall *animal - outer layer; *selectively permeable	*support *protection *controls movement of materials in/out of cell *barrier between cell and its environment
<u>nucleus</u>	both plant/animal	*large, oval	*controls cell activities; "brain" of cell
<u>cytoplasm</u>	both plant/animal	*clear, thick, jellylike material and organelles found inside cell membrane	*supports /protects cell organelles *site of chemical reactions
<u>endoplasmic reticulum (E.R.)</u>	both plant/animal	*network of tubes or membranes	*carries materials through cell; acts like transportation system
<u>ribosome</u>	both plant/animal	*small bodies free in cytoplasm or attached to E.R.	*produces proteins
<u>mitochondrion</u>	both plant/animal	*bean-shaped with inner membranes	*breaks down sugar molecules into energy; Powerhouse of cell
<u>vacuole</u>	plant - few/large animal - small	*fluid-filled sacs	*store food, water, waste (plants need to store large amounts of food)
<u>lysosome</u>	plant - uncommon animal - common	*small, round, with a membrane	*breaks down larger food molecules into smaller molecules *digests old cell parts
<u>chloroplast</u>	plant, not animal	*green, oval usually containing chlorophyll (green pigment)	*uses energy from sun to make food for the plant (photosynthesis)
<u>Golgi Bodies/</u>	Plant and animal	*folded tubular structure	*packages materials in vesicles to leave the cell.