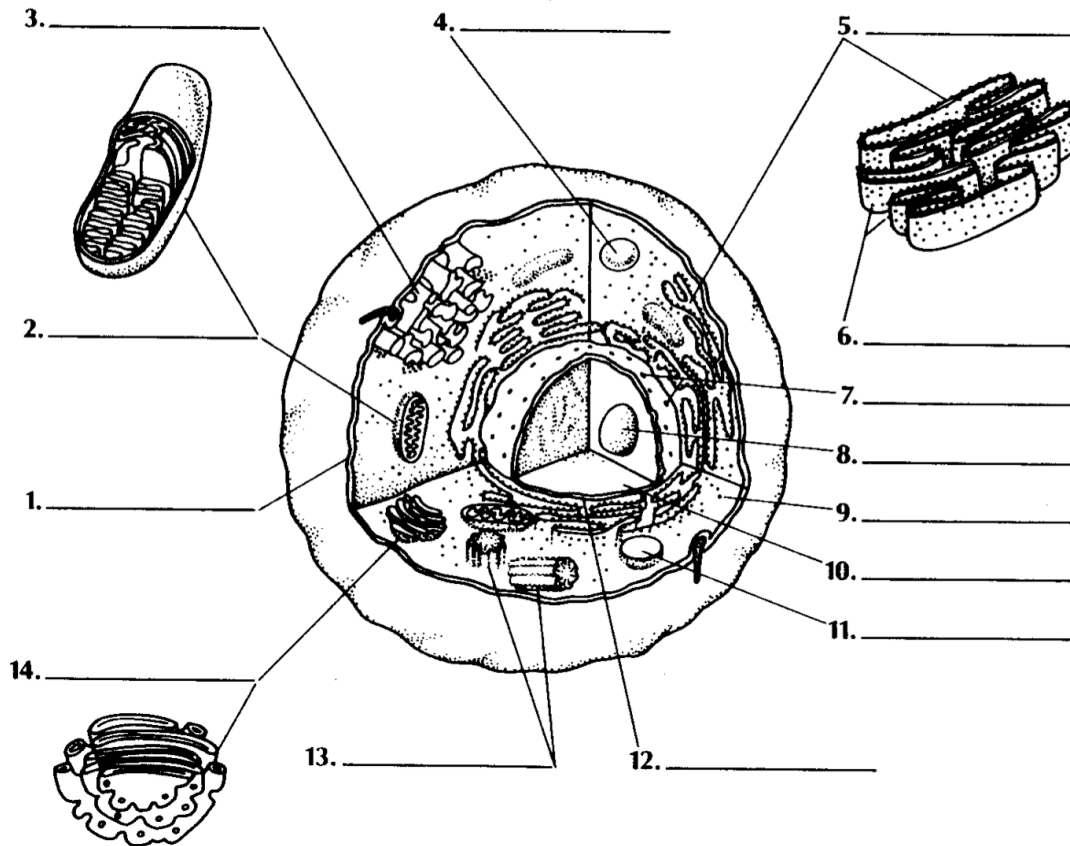


THE CELL SONG: ANIMAL CELL STUDY DIAGRAM

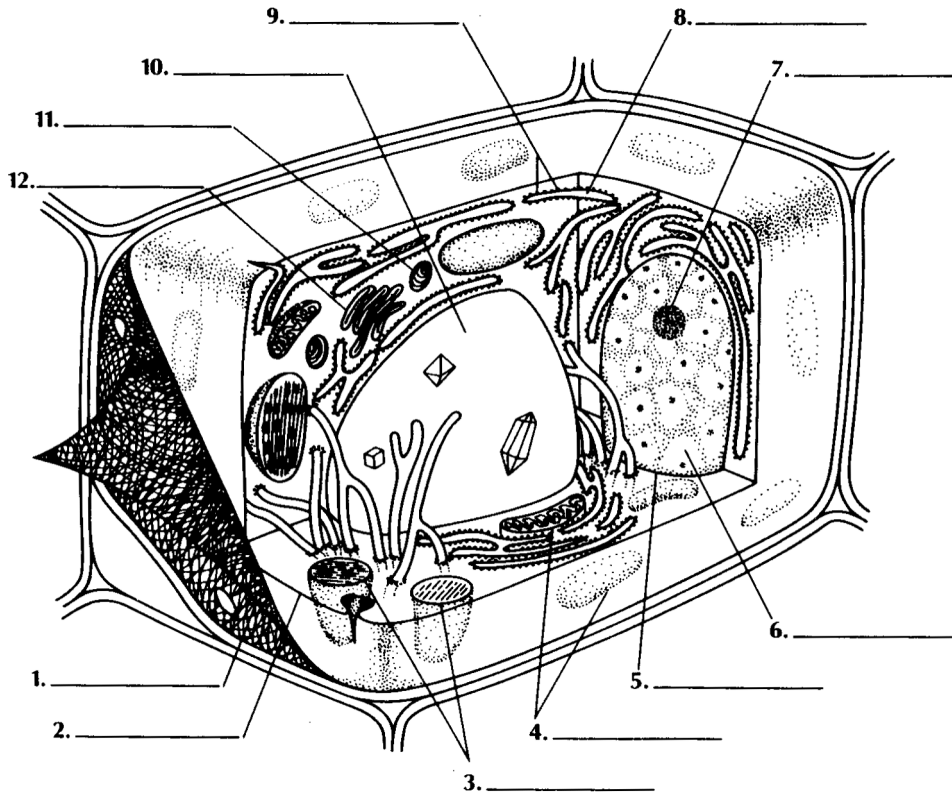
Study the animal cell diagram and table below. Your goal is to be able to list the name and describe the function of each part. Note that some parts (like the lysosome at 4 and the vacuole at 11) are indistinguishable in the diagram. For these, focus on function.



Name	Function/Additional Notes
1. Cell membrane	The gatekeeper. This selectively permeable barrier allows needed substances to enter into the cell and allows wastes to leave. At the same time, it keeps needed substances in the cell, while keeping out harmful substances.
2. Mitochondrion	The energy factory. Mitochondria, which are practically cells in their own right, take food and convert it into ATP, the moment-to-moment energy source for the cell. Mitochondria are the key players in aerobic respiration.
3. Smooth Endoplasmic Reticulum (ER)	This network of channels and tubes is responsible for synthesis of lipids. In muscle tissues, the smooth ER helps regulate calcium during the contraction and relaxation of muscle.
4. Lysosome	Responsible for intracellular digestion, and recycling of worn out cell parts.
5. Rough ER	Rough ER is rough because it is studded with ribosomes. The rough ER manufactures proteins that are either stored in lysosomes, or destined for export.
6. Ribosomes	Protein factories. Ribosomes make proteins based on instructions they receive from the nucleus.
7. Nuclear Pore	Allows signals into the nucleus (for gene activation) and allows signals (like messenger RNA) to leave the nucleus.
8. Nucleolus	The site of ribosome synthesis
9. Cytoplasm	The gel-like fluid that fills the cell.
10. Nucleus	The cell's control center. Contains the genetic material DNA, which is organized into chromosomes (not shown)
11. Vacuole or Vesicle	A generalized storage or transport organelle.
12. Nuclear membrane	Holds and protects the cells DNA/chromosomes
13. Centriole	During mitosis, the centriole creates a spindle of microtubules that separates chromosomes.
14. Golgi Complex/ Body/ Apparatus	Packages and sorts materials received from the rough and smooth ER. Along with those other organelles, the Golgi's cisterns and sacs provide the cell with increased surface area where membrane-bound enzymes can do the cell's work.

THE CELL SONG: PLANT CELL STUDY DIAGRAM

Study the diagram and table below. As with the animal cell diagram, the goal is to be able to list the name and describe the function of each part.



Name	Function/Additional Notes
1. Cell wall	Located outside of the cell's membrane, one of the wall's major functions is to give the plant cell its strength and overall form. Chiefly composed of the carbohydrate cellulose, cell walls are a primary component of wood and bark.
2. Cell Membrane	See the animal cell diagram.
3. Chloroplast	Like the mitochondrion, this organelle is practically a cell in its own right. Chloroplasts are responsible for photosynthesis – using sunlight to power the creation of sugars and oxygen from carbon dioxide and water.
4. Mitochondria	See the animal cell diagram.
5. Nuclear Membrane	Holds and protects the cell's genes. Nuclear pores (not shown) signals into the nucleus (for gene activation) and allows signals (like messenger RNA) to leave the nucleus.
6. Nucleus	See animal cell diagram
7. Nucleolus	See animal cell diagram
8. Rough E.R.	See animal cell diagram
9. Cytoplasm	See animal cell diagram
10. Vacuole	The large, central vacuole of a plant cell stores water and food. Through osmotic pressure, it helps plant cells maintain their shape and form.
11. Vesicle	A generalized storage or transport organelle.
12. Golgi Apparatus	See animal cell diagram