

TIPS & TRICKS TO REMEMBERING CELL ORGANELLES

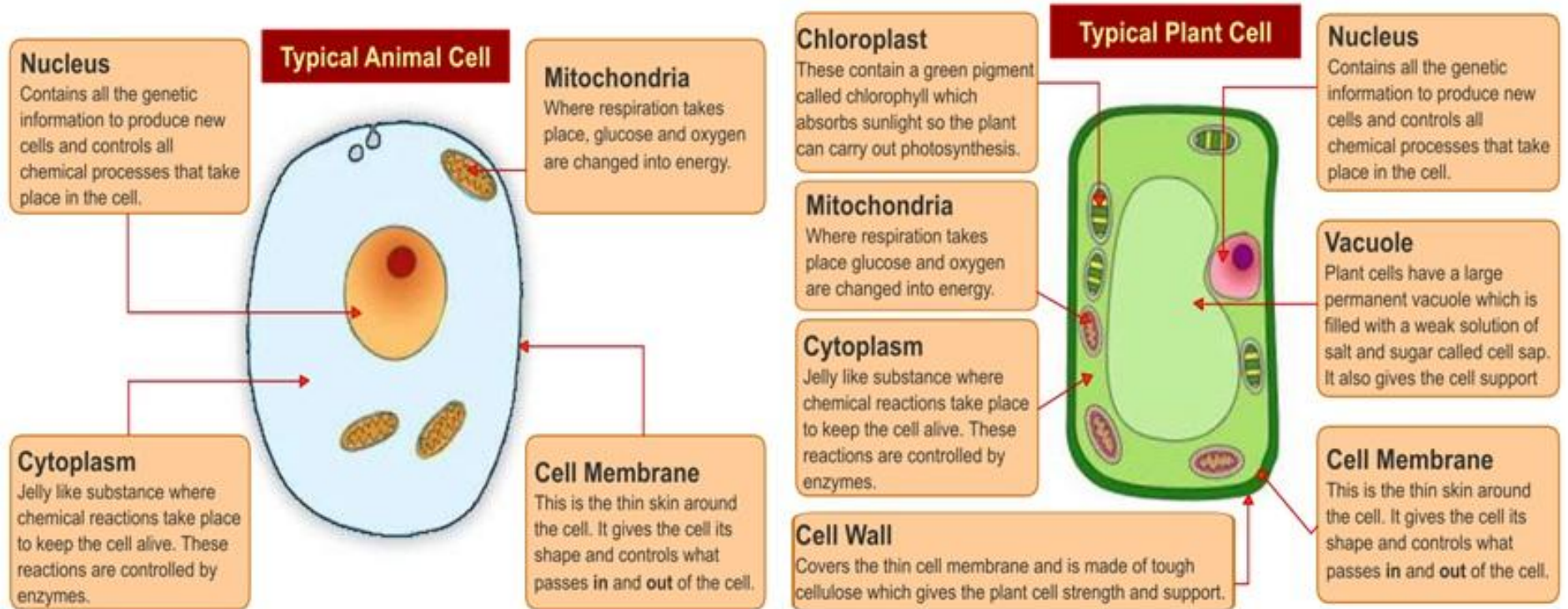


When it comes to certain questions, be it any subject, we can tell with a medical precision that the ‘question in question’ will definitely appear in the examination paper! These are termed as “favorites”. Not sure how or why, but almost any examiner is drawn to these while setting the question paper. Of the few such favorites, structure of an animal and plant cell take the cake as far as the sciences. I am sure all of us would have learned (or attempted to!) this at some point in our student life. Tough as it may be (as with most things biological) there are certain nuances to master any study. It is just a matter of time until the student learns the tricks of the trade.

The structure of cells be it a plant or animal cell is important because it forms the basic building block of the organism. As we may all be aware by now, learning the basic concepts is the key to successful long term learning. Cell structure can be broken up into small segments for ease of understanding. From the bits, we can start assembling the model, akin to using lego pieces to build a block.

First piece – Write it right: One of the easiest ways to memorize anything is to write it down. While we may try to read and memorize diligently, our eyes and mind are much more prone to distraction. Hence it is always worth our while to write down things that are difficult to keep in memory. Muscles have their own memory. That is why we can recall our age-old passwords when we put our hands to the keyboard!

Second piece – A Picture is worth a thousand words: This saying is so true especially when attempting to learn complex structures in science. What we see makes a greater impression than what we cannot. This is the reason why we stay glued to the television and computer, unable to tear our eyes away from the moving pictures that tell a story of their own! So draw (even a rough sketch will do) the structure of the cells. Make the diagram big and clear so that you can differentiate the parts and label them neatly.



Third piece – Compare and Contrast: What do we do when we want to buy anything? We generally google the features of the item and then compare it with other similar products in the market to get an idea of the distinguishing features. Same works for memorizing the cell structures as well. When you draw the diagrams of both the cells, draw it side-by-side to make a comparison. This helps the brain to remember and retain which parts are unique to which cell.

Fourth piece – Memory recall: This is the most significant of all. Logical thinking by being able to recall to memory the basics of the science. When we compare, it should be done in line with the basics. For instance what does any cell have in common?

Nucleus: This is the control center that contains all the genetic material required for reproduction of the cell. We can consider this similar to a human heart. Without the heart we would not be who we are.

Mitochondria: This is the powerhouse of the cell, where matter gets converted to energy. In other words, it does the function of the liver in our body.

Cytoplasm: This is the filling layer that is similar to a jelly where enzymes react chemically in order to keep the cell alive.

While the heart and liver are essential, without the brain, we cannot be alive and Cytoplasm is similar to our brains.

Cell membrane: This is like the first layer of skin covering the muscles in our body shielding it from outside force. Same is the function of the cell membrane. It is the skin around the cell that gives it, its shape.

These are the major blocks that are common to both cells. Now coming to the plant cell what differentiates the plant from the animal cell?

Cell wall: This is the outer skin that covers the cell membrane in plants for extra protection from wear and tear.

Chloroplast: This contains the pigment chlorophyll which aids in photosynthesis in plants.

Vacuole: This is the space in the center of the cell containing a weak solution of salt and sugar called cell sap, which gives support to the plant.

Final piece – Tabulate: Now that we have a broad picture of how the cells look and what they are made up of, tabulate the information. This helps to remember what we know with ease.

Similarities	Differences
1. Have a nucleus	1. Plant cells have a cellulose cell wall
2. Have a cytoplasm	2. Plant cells have a vacuole containing cell sap
3. Have a cell membrane	3. Plant cells have chloroplast
4. Contain mitochondria	4. Many plant cells have a box-like shape whilst animal cell shape varies
5. Contain ribosomes	5. Plant cells have the nucleus to the side of the cell, animal cells have a nucleus in the middle

DIRECTIONS

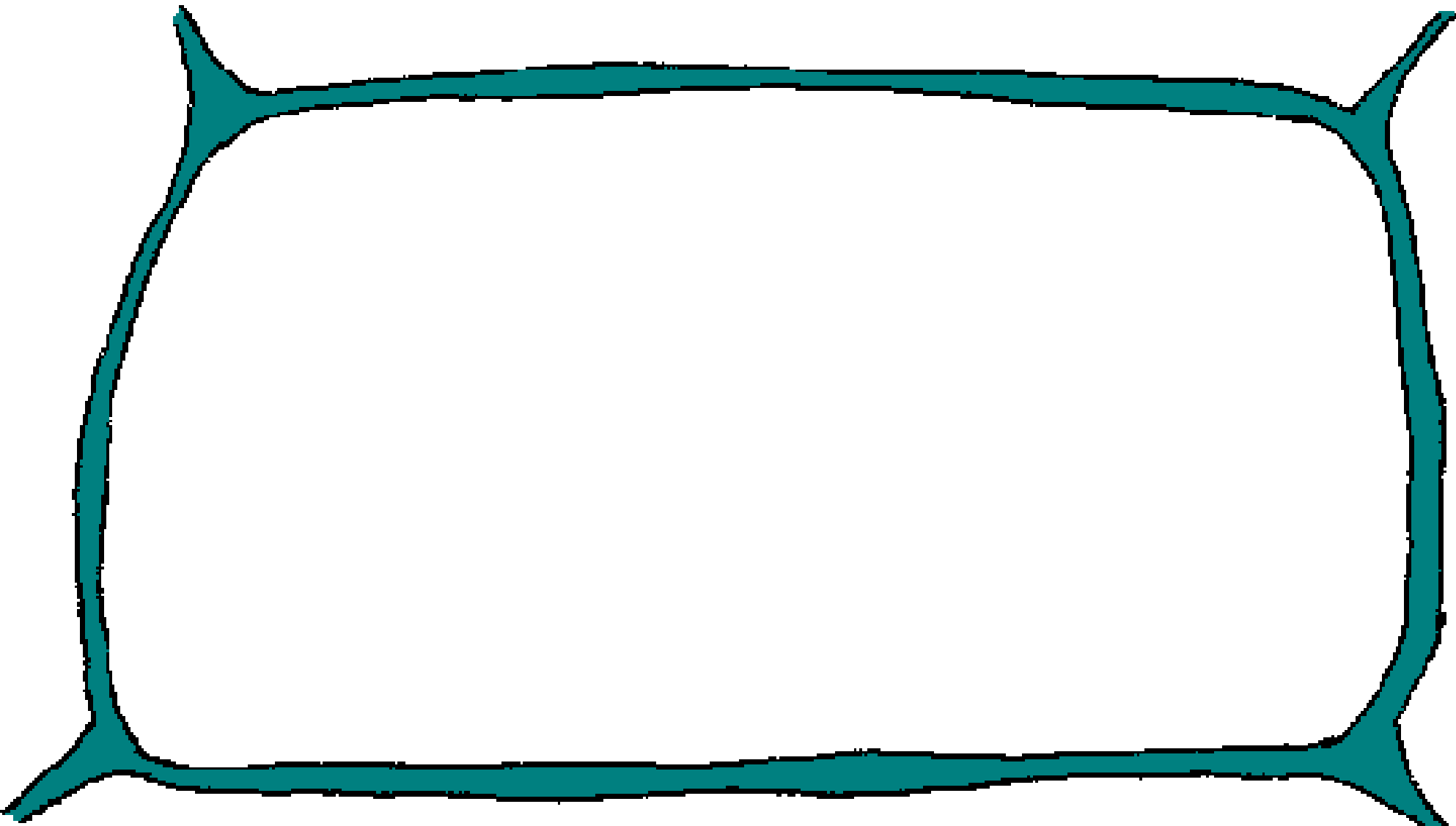
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On the following 2 pages, complete the diagram for the plant cell and the animal cell by drawing in the organelles found in each cell and labeling the organelles.

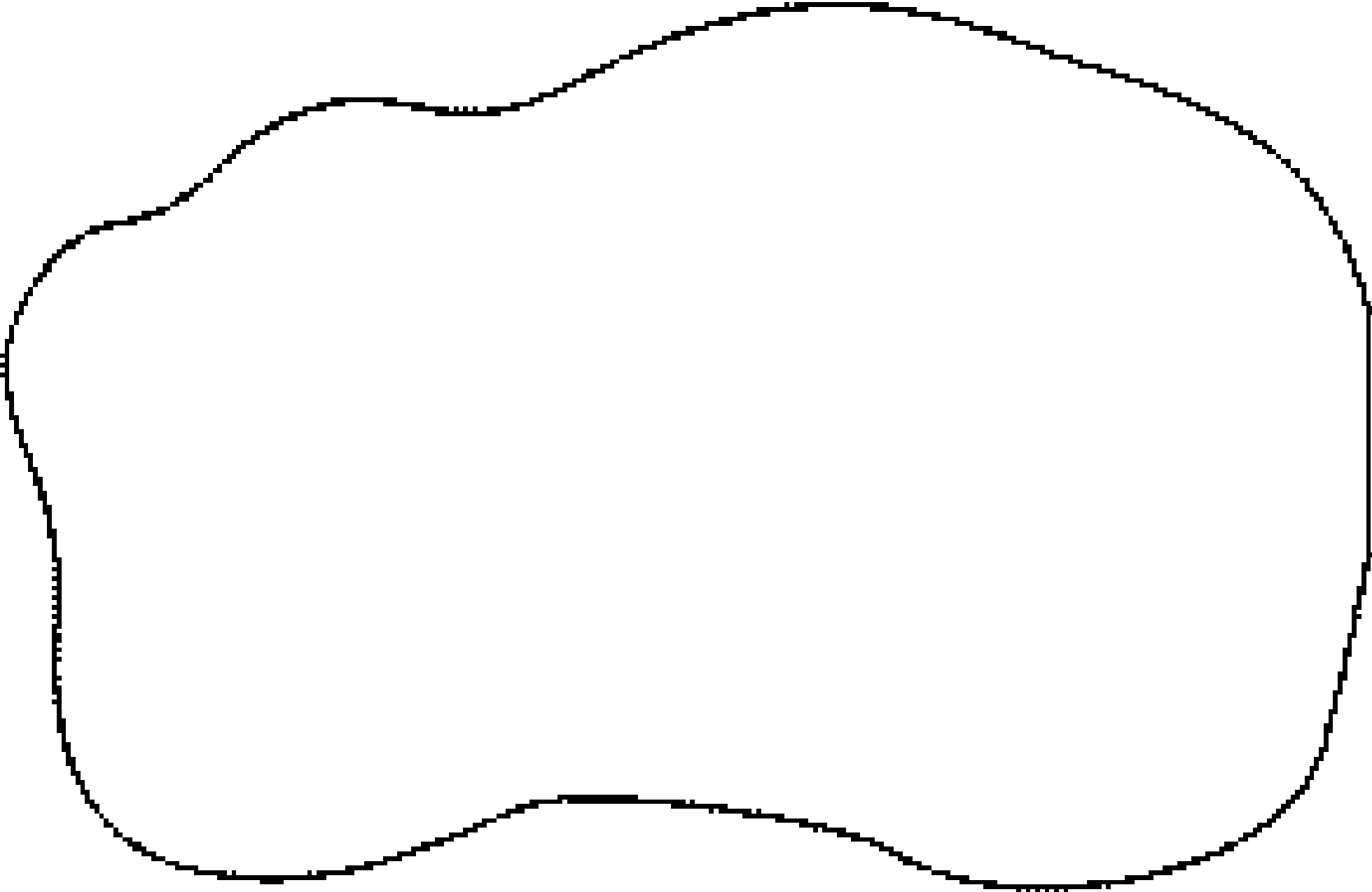
Next, complete the Venn Diagram showing what organelles are unique to plant cells, what organelles are unique to animal cells and what organelles are found in both plant and animal

Finally, complete the chart that explains the function of each organelle

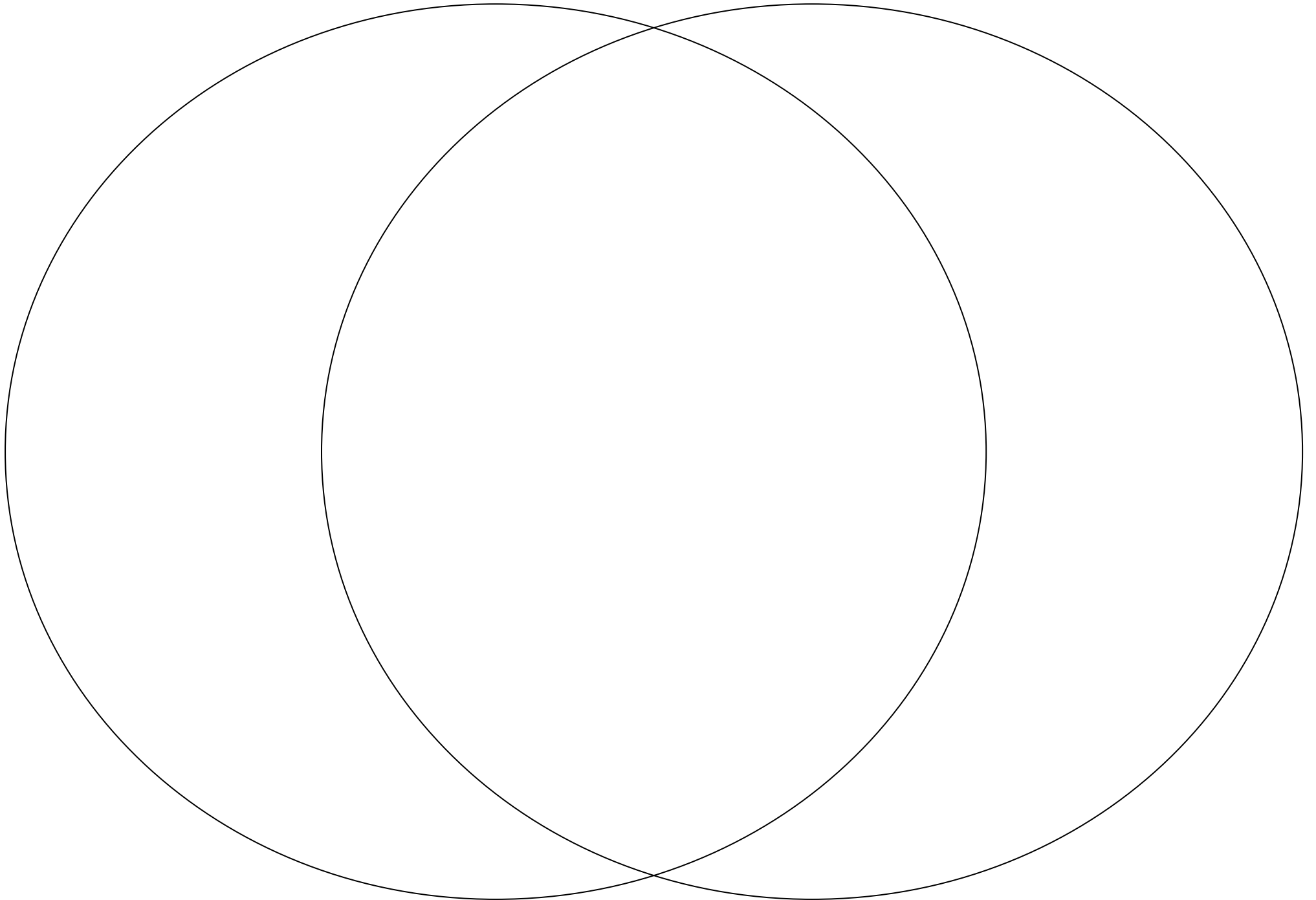
√ This is a(n) _____ Cell



This is a(n) _____ Cell



VENN DIAGRAM – PLANT vs. ANIMAL CELL



<u>CELL ORGANELLE</u>	<u>FUNCTION OF ORGANELLE</u>
Cell Wall	
Cell Membrane	
Cytoplasm	
Nucleus	
Mitochondria	
Ribosome	
Chloroplast	
Centriole	

Hint: You WILL have a quiz on organelles and knowing these functions is key to success on that quiz 😊