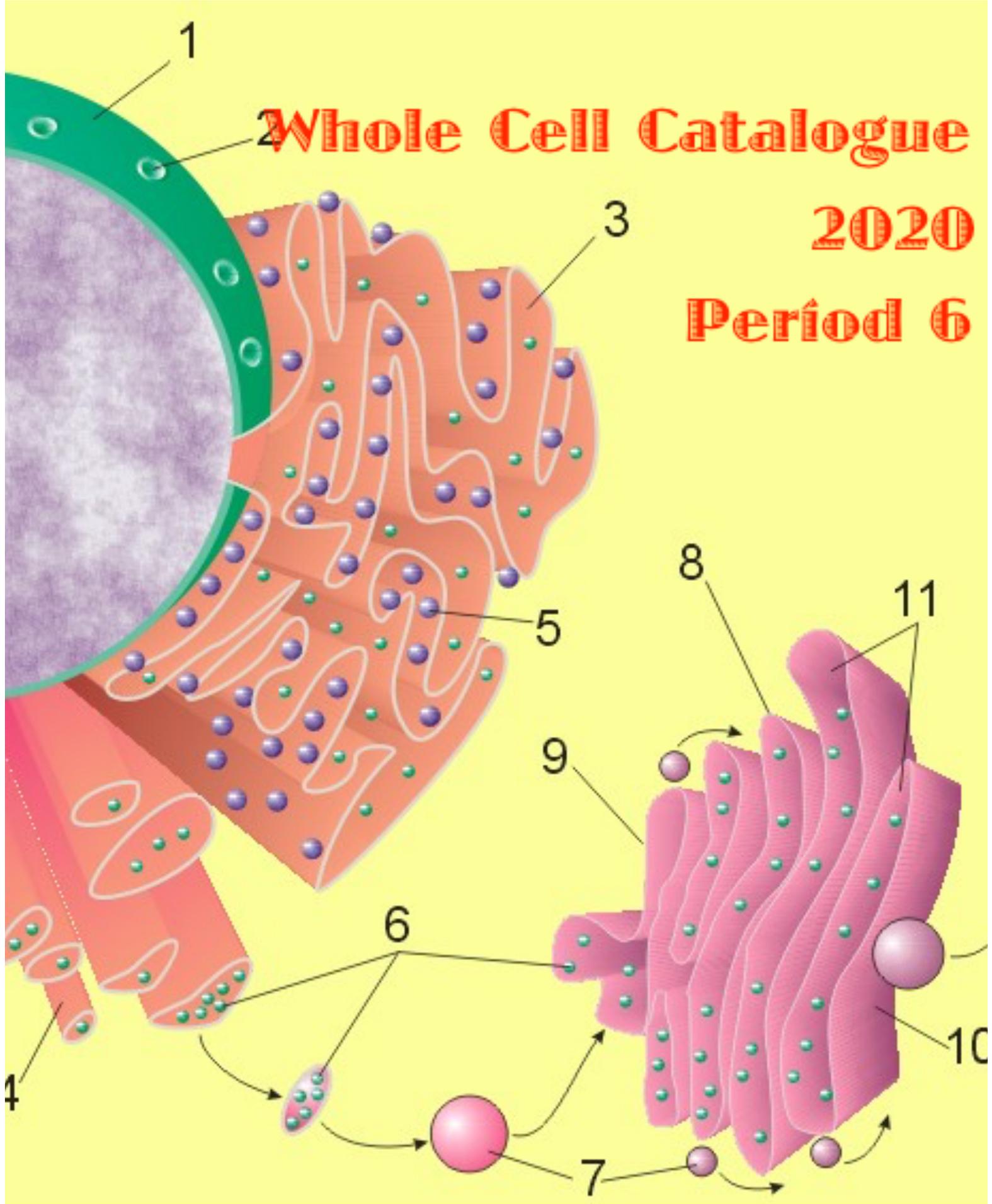


# Whole Cell Catalogue

2020

Period 6



## *Table of Contents (Period 6)*

---

*Page 1: Jasper & Liam (Table of Contents)*

*Page 2: Cynthia (Cell Wall)*

*Page 3: Cynthia (Ribosomes)*

*Page 4: Jasper (Chromatin)*

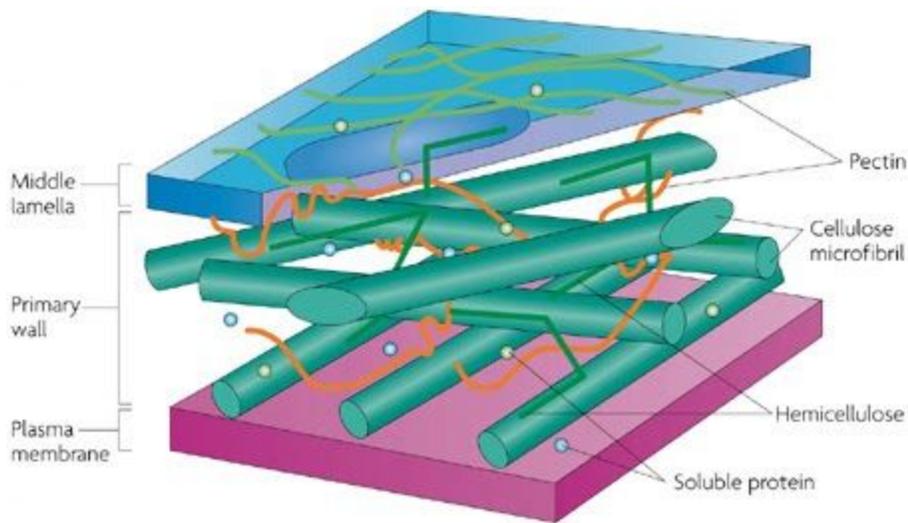
*Page 5: Jasper (Mitochondria)*

*Page 6: Liam (Nucleus)*

*Page 7: Liam (Cytoskeleton)*

# Cell Wall

A cell wall is a structural layer surrounding a variety of cells, located outside the cell membrane. The cell wall is bendable, tough, and firm. It gives the cell extra structural protection and support. The function of the cell wall is to give the cell extra structure and strength and to filter out molecules that pass through the cell. You should buy the cell wall because it's what holds the entire cell together. The cell wall provides you extra structural support and protection for the interior. The cell wall costs \$600.

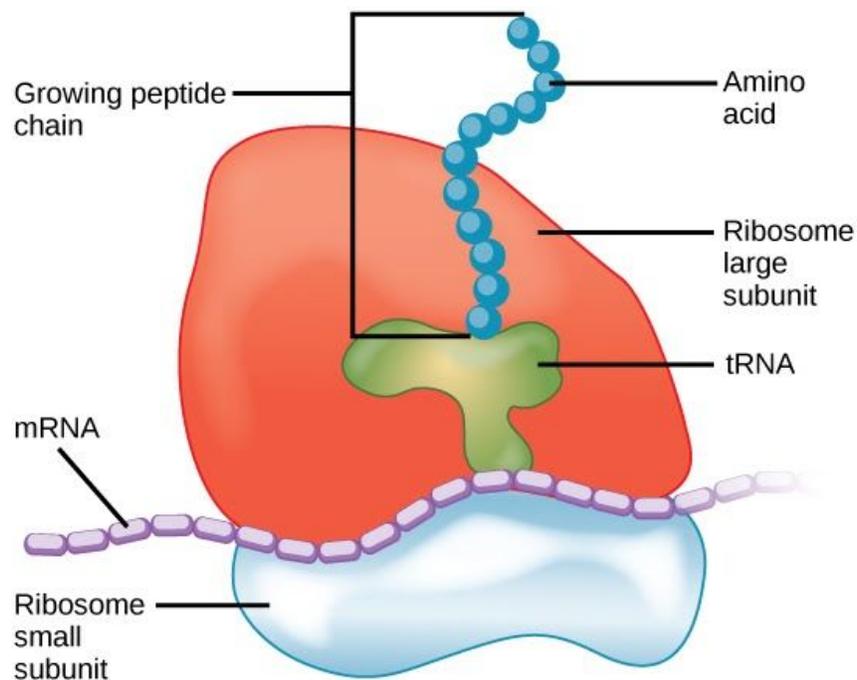


<https://www.nature.com/scitable/topicpage/plant-cells-chloroplasts-and-cell-walls-14053956/>

By: Cynthia

# Ribosomes

Ribosomes are made up of two subunits, large subunit, and small subunit. Both subunits are made up of rRNA and protein. The large and small subunit live by themselves in the cytoplasm until the small subunit sees and secures to a certain order of an mRNA message. The function of ribosomes is to incorporate proteins as controlled by the messenger RNA. You should buy ribosomes because ribosomes take in proteins controlled by the messenger RNA. Ribosomes cost \$5.00 each.

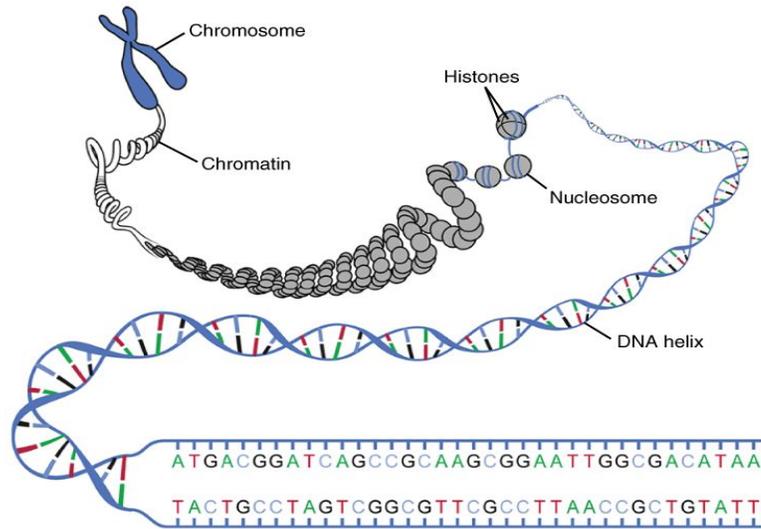


<https://www.microscopemaster.com/ribosomes.html>

By: Cynthia

DO NOT SKIP OVER THIS! THIS IS A DEAL YOU **WILL**  
**NOT**  
TO MISS  
ON!

**WANT**  
**OUT**



## *Chromatin* by Jasper

<https://socratic.org/questions/is-chromatin-a-dna-strand-not-yet-in-the-form-of-chromosomes>

Chromatin! If you want to undergo mitosis and meiosis, this is your *best bet!* Chromatin will compress DNA into a smaller unit that can fit into the nucleus. In fact, *Chromatin* can take DNA that would be two meters in length, and compress it to only be just a few micrometers in size! Isn't that just amazing? This DNA is then packed into the nucleus. In the nucleus, the Chromatin protects the DNA from breaking apart.

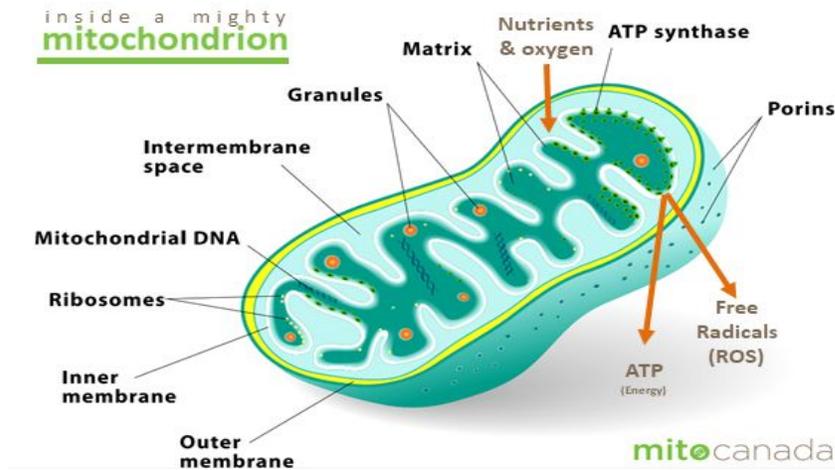
*Chromatin* is made up of a cell's DNA and proteins associated with it.

When Chromatin condenses, it turns into a chromosome!

Nucleosomes, a subunit of chromatin, are DNA wrapped around a core of proteins known as histones. This is demonstrated in our diagram.

Chromatin can come in two forms: heterochromatin, which is highly condensed and normally not transcribed, and then euchromatin: which are extended and can be transcribed. Our Chromatin normally would cost 900\$, but for a limited time (until the end of February) you can get yourself one of these bad boys for only 800\$! Just remember, if you have trouble managing massive amounts of DNA and are looking for a solution, it's *Chromatin for the win!*

# BEHOLD, THE MIGHTY *MITOCHONDRIA!*



*By Jasper*

<https://mitocanada.org/understand/>

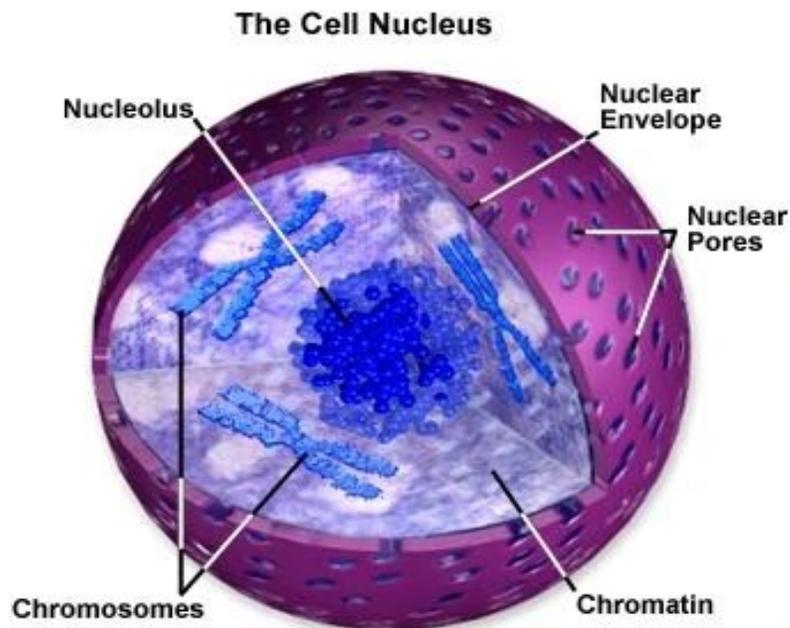
*\*DOES NOT WORK IN PROKARYOTIC CELLS\** Do your cells lack energy? Do you feel like you aren't getting what you want out of your cells? Say no more! The mitochondrion (plural *mitochondria*) is just what you need! Our mitochondria perform the stupendous task of providing energy to your cells through **cellular respiration**. Cellular respiration will take in nutrients from the cell, break them down, and transform the nutrients into energy rich molecules known as ATP (*Adenosine triphosphate*). The energy is then used by the cell for various chemical reactions, which are essential for all forms of life. The more complex and hardworking a cell is, the more mitochondria they require to function, as the cell uses more energy. The mitochondria float freely throughout the cell's cytoplasm, so you don't have to worry about keeping them organized! The structure of our mitochondria are innovative and simple. The mitochondria are composed of two membranes, one inner, and one outer. The inner membrane folds over several times, creating layered structures known as cristae. The outer layer serves as a coat that covers the mitochondria. For our prices, they are lower than any other! For only 5 dollars, you can get your very own, high-quality mitochondrion! ***What a steal!*** Just remember, the more the merrier!

Organelle: nucleus

Author: Liam

You should buy a nucleus, in fact you need to buy a nucleus because without it you would not be you. This is because the nucleus holds all of the DNA that you need to read so you can do the basic things that you need to do including even self replicate. The DNA even comes stretched out so you can read it perfectly. But wait there's more, you also need the new playlist inside the nucleus to create ribosomes, a completely different organelle. And please don't worry about all of these things getting caught up on other organelles because none of it will ever get into the cytoplasm because it comes with a round covering called the nuclear membrane. The nucleus goes for \$1000 and if you think that's too much let me remind you that this is the most important organelle that you can have except for the cell membrane.

The nucleus is a control center and the second most important organelle, with many other organelles inside of it. It holds the cell's precious DNA and will ultimately be the instigator of the cell's reproduction. It also puts together the RNA that makes up all of the ribosomes. The nucleus is always close to or at the center of all cells that contain one, on the outside is nuclear membrane which surrounds it and is dotted with holes that nucleic and amino acids enter and leave from. Past it is the DNA stretched out so it can be read on a daily basis for the cells normal procedures and in this tangled web of DNA is the nucleolus which is what clumps RNA together to make the ribosomes.



<https://micro.magnet.fsu.edu/cells/plants/nucleus.html>

## Organelle: Cytoskeleton

Author: Liam

You should buy a cytoskeleton because it is almost the most important organelle and is the most important organelle structurally. Without the cytoskeleton you will have almost no support inside of your cell and also no structure at all. That's just the most important thing it does. You must buy it in order to help keep all of your other organelles in place, move materials in as well as out of your cell and even helps both your cell to move and controls all of the cells inner processes by controlling their movement. The cytoskeleton only goes for \$100 and if you still think you might not buy it there is no point to even buying any other products if you need the cytoskeleton to make all of them work, and simply keep the cell supported and in its shape.

The cytoskeleton surrounds the entire inside of the cell. The Cytoskeleton is made up of three parts, they are intermediate filaments, microtubules and microfilaments. All of these structures are made of proteins. All of these structures are so small they are measured in nanometers. The intermediate filaments are keratin-based, they twist around one another in a cord shape, their purposes are to organize cells into tissues, reinforce them and help the Plasma membrane mechanically when it touches things that can interfere with it. Microtubules are many long hollow cylinders that are composed of stronger proteins and our the part of the cytoskeleton that gives the cell support, structure and the shape. Microfilaments are small even in comparison to the other parts, they are shaped like rods and have many different parts, doing many different things in order to move the cell.

<https://www.memorangapp.com/flashcards/98032/Basic+Cell+Biology+II%3A+Cytoskeleton/>

