

# IS IT EDIBLE?

CALEDON EAST P.S., ELC CLASS OF 2011, EDIBLE CELL EXTENSION TASK

## Students Make Cells Edible!

You will be required to construct a model of a plant OR animal cell. All models must be made out of edible materials that will remain fresh for at least three days without refrigeration. Please look to your own kitchen cupboards for supplies. Be creative – it shouldn't be expensive. Avoid using materials that have an unpleasant odor or that may be considered offensive! The model must be larger than 12 inches on each side. Each model **must clearly** include the following organelles:

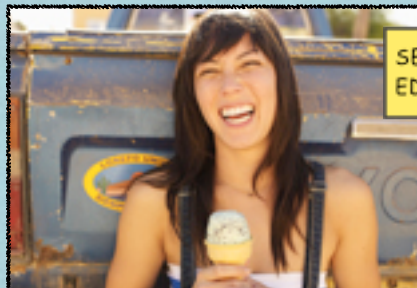
- ✓ Cell wall (plant cell only)
- ✓ Ribosomes
- ✓ Cell membrane
- ✓ Mitochondria
- ✓ Nucleus
- ✓ Vacuoles
- ✓ Cytoplasm
- ✓ Endoplasmic Reticulum
- ✓ Golgi bodies
- ✓ Lysosomes (animal cell only)
- ✓ Chloroplasts (plant cell only)
- ✓ Keep in mind that the entire cell must be edible!



## Cells can be eaten!

Learning about cells CAN be loads of fun (just wait until we crack open the microscopes soon!). And while we're gearing up to apply what we've learned to our upcoming integrated drama presentation, we need some background knowledge OR a way to demonstrate that we have

developed a firm(er) understanding of the integral parts of the cell (animal and plant). Not only do you have to list the organelle and represent them creatively (edible!), you need to make sure your finale efforts meet (or exceed!) the criteria on the next page. Read on NOW!



**INEDA SELTUEET** "Having learned about cells and their function way back in Grade 5 and then 7/8, I needed a way to refresh myself on the parts of the cell and a way to refresh!"

SERIOUS  
EDIBLE



**THE MORE IT'S PLANNED OUT, THE TASTIER THE CELL** A simple layer cake or animal cell? This cake, when cut into delectable slices revealed all the parts of the cell inside!

Make it  
edible!



**THRILL YOUR CLASSMATES** Think beyond the Jello molds. Explore other ways of presenting your cell in creative, tasty and dynamic ways. How far will you go?

But I  
wanna learn  
something!



# Your edible cell must display the minimum



## Plant or Animal?

...

The primary differences between these two types of cells (the building blocks of life don't you know?) are as follows:

- ✓ Plants cells have a cell wall over the cell membrane, whereas animals cells lack cell wall.
- ✓ In plant cells, there is a single large vacuole present in the middle, whereas, in animals cell, there are more than one vacuoles.
- ✓ Plant cells possess plastids, but, animal cells don't.
- ✓ Animal cells have centrioles, whereas, plant cells don't.
- ✓ Plant cells are more square shaped, animal cells are more round
- ✓ Plant cells create Photosynthesis (make their own food), and animal cells do not! (from WikiAnswers)

Animal and plant cells have some key similarities and noted differences. Understanding basic cell structure helps to understand how plant cells differ from animal cells.

They do differ in important ways, as plant cells provide different functions

for the plant, than animal cells provide for the body.

Both animal and plant cells have some similar structural elements. First off they are both eukaryotic, which means they have a defined **nucleus**. The nucleus contains **chromosomes**.

It is protected and surrounded by the **cytoplasm**, which is a watery or gel-like liquid. Further, animal and plant cells have a **cell membrane** that surrounds the cell.

This allows for the cell to exert control, in most cases, over what can

penetrate the cell, and what cannot. One of the primary differences between animal and plant cells is that plant cells have a cell wall made up of cellulose.

This helps the plant cells to allow high pressure to build inside of it, without bursting. A plant cell has to be able to accept large amounts of liquid through **osmosis**, without being destroyed. An animal cell does not have this cell wall.

If you start to fill the animal cell with too much **distilled water** or other fluid, it will eventually pop. (From WiseGeek.com).

**Curriculum Connections:** demonstrate an understanding of the basic structure and function of plant and animal cells, and describe the hierarchical organization of cells in plants and animals

1. cell wall
2. ribosome
3. cell membrane
4. mitochondria, golgi body
5. nucleus
6. vacuoles
7. cytoplasm
8. lysosome
9. endoplasmic reticulum
10. chloroplasts (plant)

## FROM YOUR TEACHER

This assignment is going to be fun don't you think? But, it's easy to get carried away in the design and with the edible nature of this presentation. Be careful to place your organelles in a way that they are easily visible and labelled accordingly. Also, ensure you place the right organelle in your cell. For instance, chloroplasts aren't in animal cells! Review the criteria.

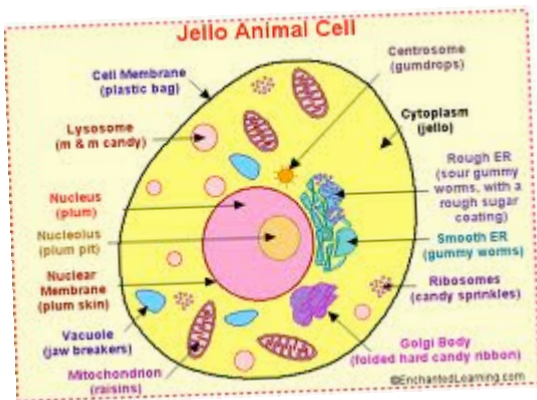
*Shm Tinschut*

<http://www.wisegeek.com/what-are-some-differences-between-plant-and-animal-cells.htm>

**Hey!** Is your project on time? Is your name on the project? Is the cell type identified? Is the model a 3-D representation of a cell? Are all of the organelles included? (11 for plant cells, 9 for animal cells) Are the organelles labeled with name and function? Are the relationships between the parts shown correctly? Are the materials acceptable? Is the model larger than 12 inches on each side? Signature to verify kitchen clean-up? Is the entire project edible?

# IS IT EDIBLE?

All cell structures and functions are included and are accurately represented and written?



Model is creatively constructed using a wide variety of food items?

Is your final model is organizer, neat and is appropriately proportioned/constructed, organelles cleared labelled and explained?



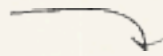
Was a draft of your model plan shared with a teacher and parent?

**Did you check out this handy checklist?**





**Very cool! Tells us the shape!**



Organelle	Description	Function
1. Cell membrane	1. Thin flexible membrane that contains phospholipids. 2. Forms the outside boundary that separates the animal cell from its environment.	1. Allows materials like food and oxygen to enter the cell and harmful waste products to leave the cell through the phospholipids. 2. Keeps the cytoplasm inside
2. Nucleus	Large oval structure	1. Acts as the brain of the cell 2. Directs all cells activities
3. Nucleolus	Small nucleus	Stores materials to makes ribosomes
4. Nuclear Membrane	Thin flexible membrane that contains pores.	1. Allows material to pass into and out of the nucleus. 2. Protects the nucleus
5. Chromosomes	1. Thin strand of DNA. 2. Doubled rod of condensed chromatin containing DNA.	Directs the functions of the cell
6. Vacuole	1. water filled sac floating in the cytoplasm. 2. Some animals cells have small vacuoles while others do not have any.	Stores water, food and waste products.
7. Mitochondria	1. Bean shaped structure. 2. The powerhouse of the cell.	1. Produces most of the energy the cell needs to carry out cell functions. 2. Muscle cells and vary active cells have large numbers.
8. Lysosomes	1. Small round structures that contain chemicals. 2. The cells clean up crew.	1. Break down large food particles into smaller ones. 2. Breaks down old cell parts into substances that can be used again.
9. Endoplasmic reticulum	1. Flattened sacks stacked side by side. 2. Cloth folded back and forth. 3. Maze of clear tube like passageways.	1. Carries protein and other materials around the cell. 2. Some lead to the cell membrane and out of the cell.
10. Ribosomes	1. Small bead like structures. 2. Found on the endoplasmic reticulum and floating within the cytoplasm	Makes proteins
11. Cytoplasm	Fluid	Surrounds all the cell's organelles