

Chapter 1
1.1-1.2

Characteristics of Life
P. 6-19

Vocabulary & Concepts

unicellular
Cell Theory






multicellular

bacteria

virus

What makes something alive?

Brainstorm: What do all living things have in common? What characteristics do all living things have in common? What do all living things do? *In any order, as students brainstorm*

	1. Made of cells
	2. Take in nutrients (eat)
	3. Use energy
	4. Produce waste (poop)
	5. Respond to stimuli (internal + external)
	6. Grow - increase # cells
	7. Reproduce (make offspring)

Consider This: With a partner, read the following about a bacteria and virus, then decide whether they are alive or not.

Streptococcus Bacteria

The streptococcus bacteria is a single spherical cell, but can grow into long chains, like a microscopic pearl necklace. To grow, the bacteria splits itself in half and becomes two! If it ever finds itself in your throat, you develop strep throat. There, it absorbs nutrients through its thin cell membrane and releases wastes.

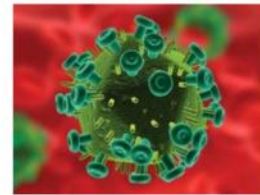


Is streptococcus alive? Why or why not? **YES**

- they grow
- they reproduce
- they take nutrients, make wastes

Human Immunodeficiency Virus (HIV)

The HIV virus is a round little capsule made of protein. It resides inside the white blood cells of other animals, but doesn't use them for nutrition. In fact, it doesn't eat at all. When conditions are right, the HIV virus will use the body parts inside the white blood cell host to make a copy of itself. It then busts out of the white blood cell, effectively killing it, to go on to infect others.




Is HIV alive? Why or why not? **NO**

- no growing, eating
- can't reproduce by themselves

The Cell Theory

The Cell Theory summarizes what we know about life:

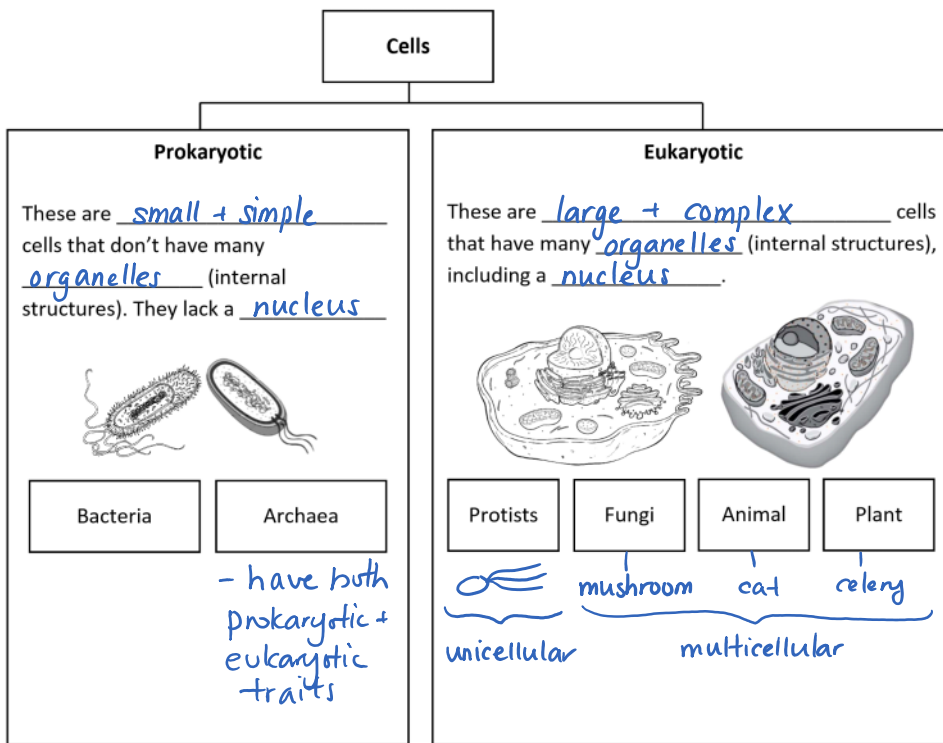
1. All living things are made of one or more cells	Unicellular (single cell) <u>amoeba</u> Multicellular <u>animals, plants, fungi</u>
2. All new cells come from pre-existing cells	
3. The cell is the basic unit of life	Smallest living thing is 1 cell large (algae, amoeba...)

1.3 - Types of Cells

Friday, October 7, 2016 10:08 AM

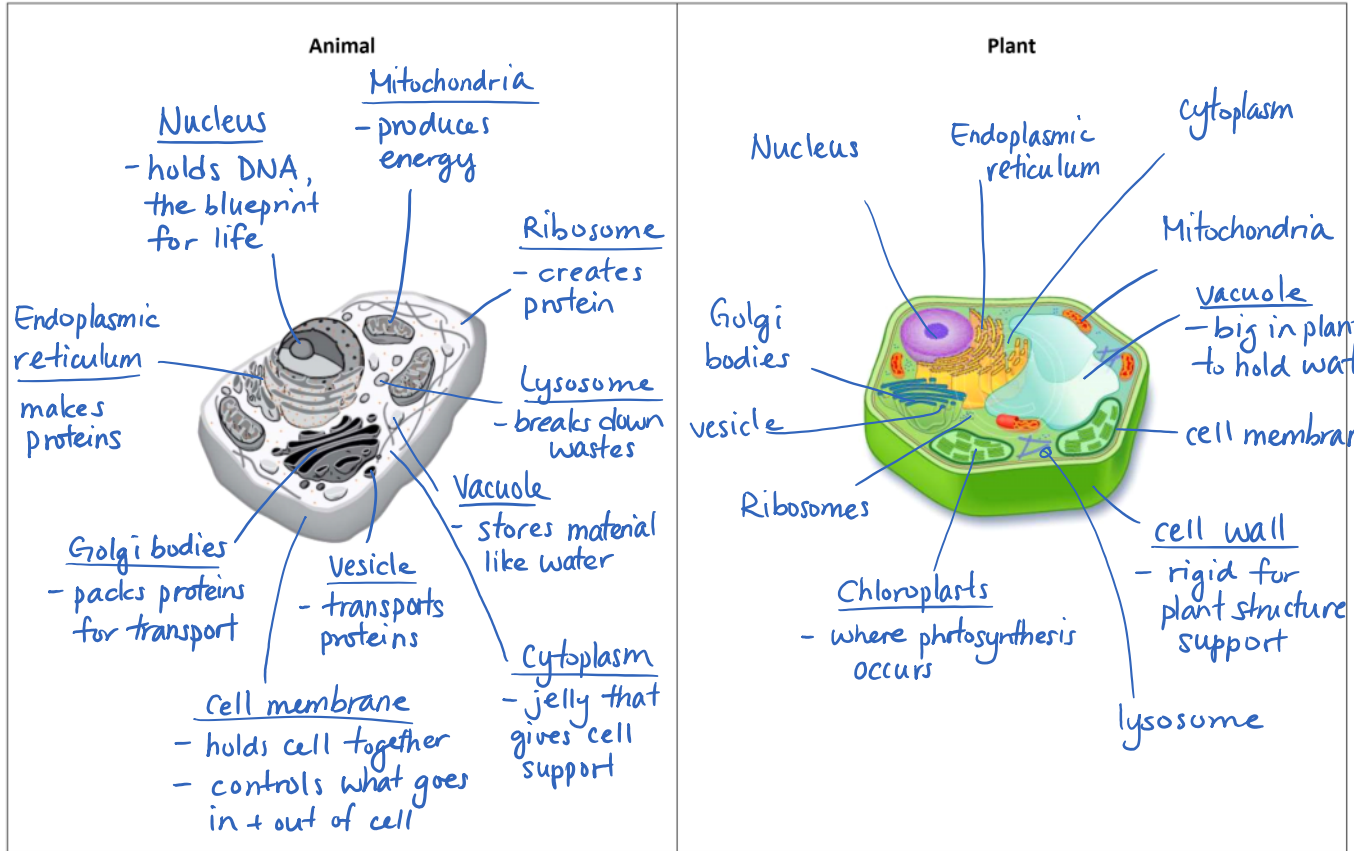
Chapter 1 1.3		Types of Cells & Their Parts P. 24-37	
Vocabulary & Concepts			
prokaryotic	eukaryotic	bacteria	organelle
nucleus	cytoplasm	endoplasmic reticulum	ribosome
Golgi bodies	vesicles	vacuoles	lysosome
chloroplast	cell wall	photosynthesis	cellular respiration

Types of Cells





If students write big, just label + do functions on next page

Animal and Plant Cells









See if students remember from the diagrams, or do some sort of matching activity - whatever you like

The BIG Summary			
Part / Organelle	Function	Animal 	Plant 
nucleus	- holds DNA, controls cell function	✓	✓
endoplasmic reticulum	- place for protein + lipid synthesis	✓	✓
ribosome	- manufactures proteins	✓	✓
Golgi bodies	- packages proteins for transport	✓	✓
vesicle	- transports material in the cell around (nutrients, proteins)	✓	✓
vacuole	- holds cell material like water - very large in plants	✓	✓
lysosome	- breaks down stuff (like digestion)	✓	✓
mitochondria	Carries out <u>cellular respiration</u> , a chemical reaction that gives the cell energy: $\text{sugar} + \text{oxygen} \longrightarrow \text{carbon dioxide} + \text{energy}$	✓	✓
chloroplast	Carries out <u>photosynthesis</u> , a chemical reaction that uses <u>sunlight</u> to make sugar. $\text{carbon dioxide} + \text{water} \xrightarrow{\text{light}} \text{sugar} + \text{O}_2$		✓
cytoplasm	- jelly fluid that gives cell shape	✓	✓
cell membrane	- controls what goes in + out of cell, holds cell together	✓	✓
cell wall	- very rigid material to give plants strength + shape		✓

Chapter 1 1.4	Micro-organisms P. 38-45		
Vocabulary & Concepts			
Micro-organism	microbe	bacteria	pathogen
red tide			

What are Micro-organisms?

A micro-organism, or microbe for short, is simply an organism that is really small. Two examples are bacteria and plankton. *Show pictures, ask students to come up with these*

Microbes are our friends! ☺	
	Phytoplankton + algae responsible for creating the majority of our O ₂ supply (not plants.)
	Some bacteria are used to clean oil spills
	Bacteria decompose dead things (and wastes) to recycle nutrients
	Bacteria create drugs like penicillin + insulin
	Lactobacteria create cheese, yogurt (others ferment for pickles, soy sauce)
	Bacteria in our intestines digest our food, create vitamins for us

Maybe even assign topics to pairs, have them look it up on phones for 15 min, then class share

Microbes are not our friends ☹️	
	Bacteria contamination in food create toxins → food poisoning
	Bacteria will spoil food, decrease food shelf life
	Pathogens are bacteria that harm us, like streptococcus bacteria → strep throat
	When phytoplankton grow out of control → red tide - causes toxins in shellfish, makes us sick