

7th Grade Life Science Cumulative Review Guide

Organization and Development of Living Organisms

Standards- SC.6.L.14.1, SC.6.L.14.2, SC.6.L.14.3, SC.6.L.14.4, SC.6.L.14.5, and SC.6.L.14.6
(also assesses SC.5.L.14.1 and SC.5.L.14.2)

The characteristics of living things

Directions- Use the word bank to complete the definitions and examples.

Use the terms to fill in the blanks

Heterotrophs	Autotrophs	Stimulus	Metabolism	Abiotic	Biotic
DNA	Evolution	Homeostasis	Sexual	Asexual	37
98.6	Multicellular	Unicellular			

1. Made up of cells-

- unicellular - single or one celled= **prokaryotes**, like bacteria
- multicellular - many cells= **eukaryotes**, like plants and animals
- Cells-> tissues-> organs-> organ systems-> organism*

2. Reproduction-

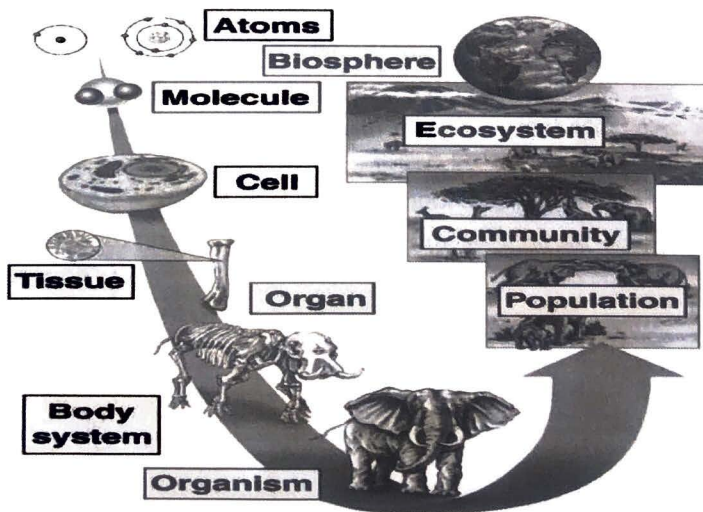
- Asexual - one parent, offspring is genetically identical to the parent.
 - Budding= Hydra
 - Fragmentation= Sea star
 - Binary Fission= Bacteria
- Sexual - two parents, gametes (sperm and egg). Offspring are genetically different.

- metabolism - chemical process that breaks down or builds up materials.
 - autotroph - make their own food through photosynthesis
 - heterotroph - eat other organisms. Cellular respiration.

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4. Homeostasis - maintenance or regulation of internal body conditions. Body is at a balance- temperature, blood sugar levels, and water, etc.
a. Normal body temperature is 98.6 °F and 37 °C.
5. DNA - deoxyribonucleic acid- the genetic material that codes for proteins of all organisms. *★ found in the nucleus of eukaryotic cells ★*
6. Stimulus *Causes a response* - responding to factors in the environment.
a. abiotic - non-living such as water, sand, temperature
b. biotic - Living things, such as plants and animals.
7. Growth and Development-
a. Growth- an increase in the amount of living things through cell division or cell enlargement. *more cells = growth.*
b. Development- changing from conception to death.
8. Evolution - change over time. Adapting to survive- behaviors, structures, processes that increase its chances of survival that are passed on from parent to offspring.

Raven/Berg, Environment, 3/e
Figure 4.1

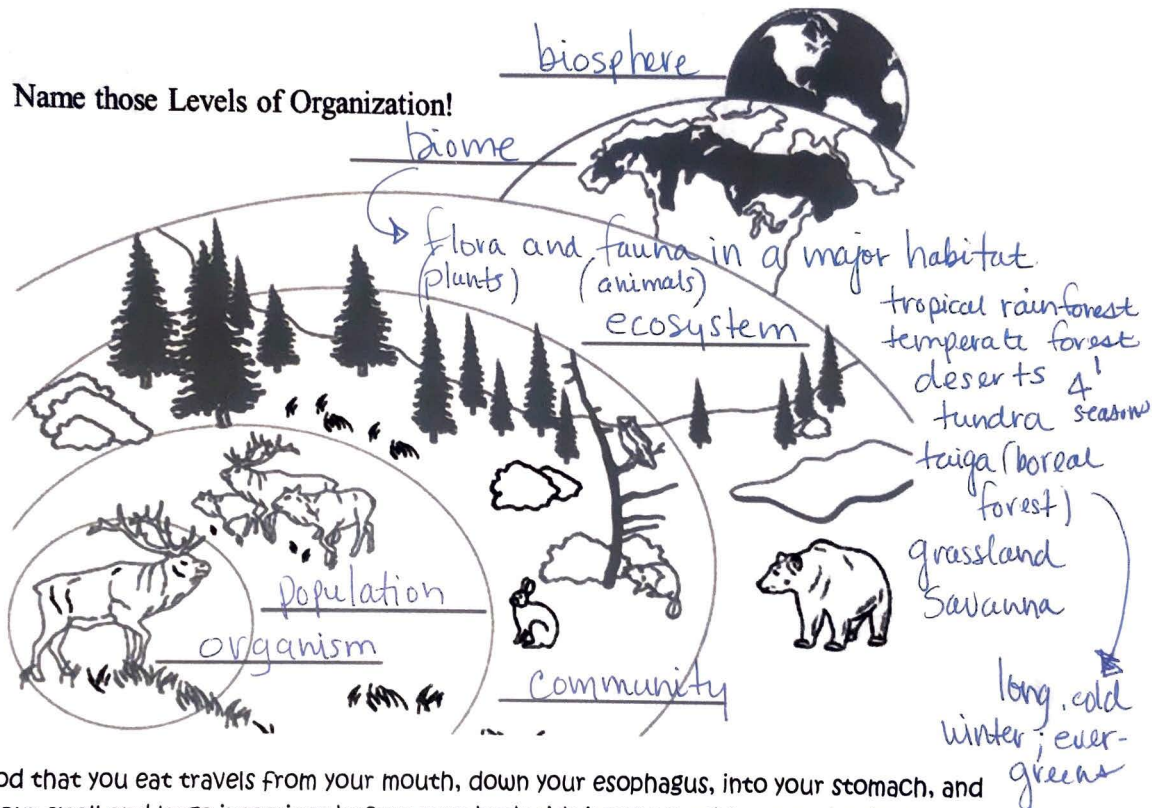


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Sample questions

1. Name the levels of organization!

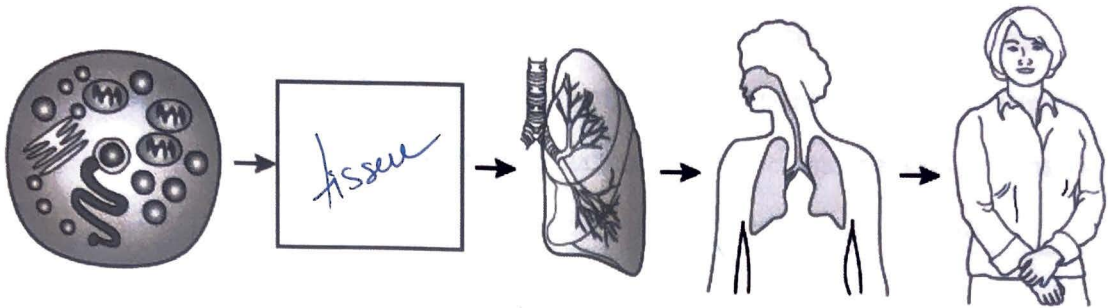


2. The food that you eat travels from your mouth, down your esophagus, into your stomach, and through your small and large intestines before your body rids itself of solid waste. As the food passes through your body, it is digested, and you get important nutrients from the food. (Which of the following is the correct term used to describe a group of body parts working together to perform a specific function?)

- A. an organism
- B. a tissue
- C. an organ system
- D. an organ

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3. Structures in the human body work together to perform specific functions. The diagram below shows the organization of structures found in the human body.



- A. cell
- B. organ
- C. organelle
- D. tissue

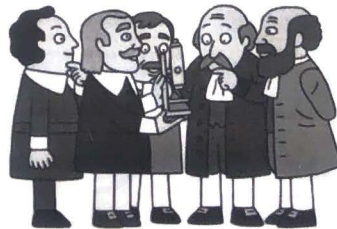
The Cell Theory!

List the three parts of the cell theory!

all organisms
are made of
cells

cells are the
basic unit of
life

all cells come
from pre-existing
cells

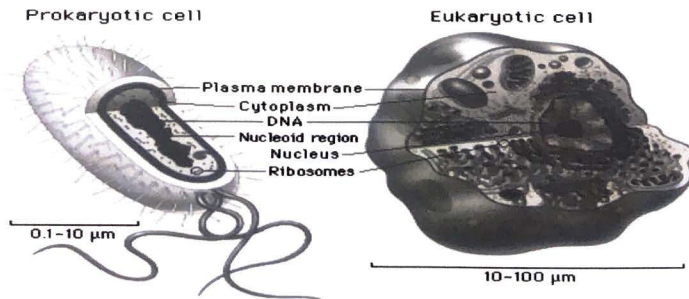
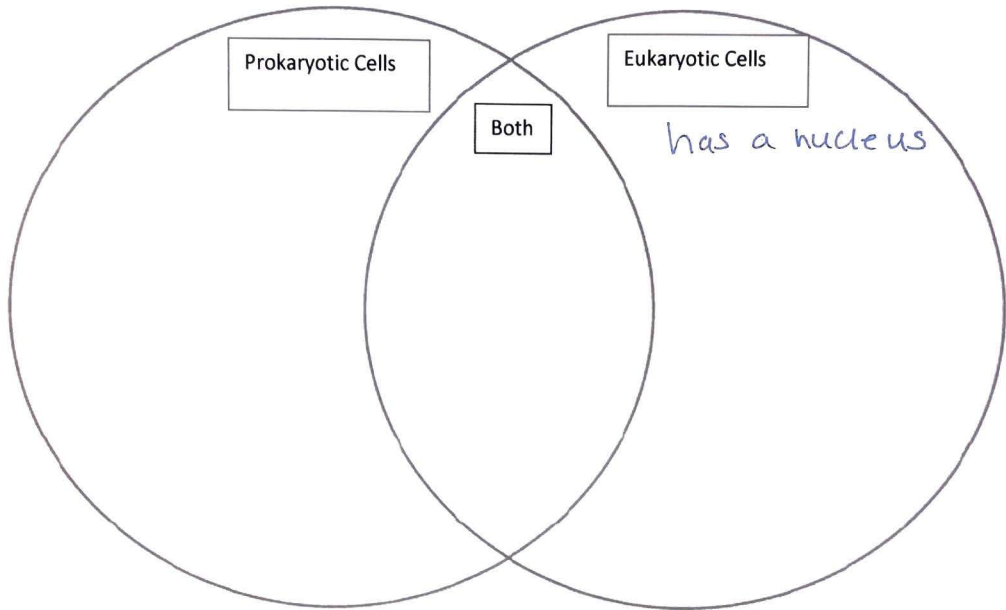


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Prokaryotic vs. Eukaryotic

Compare and contrast prokaryotic and eukaryotic cells. Use the word bank to assist.

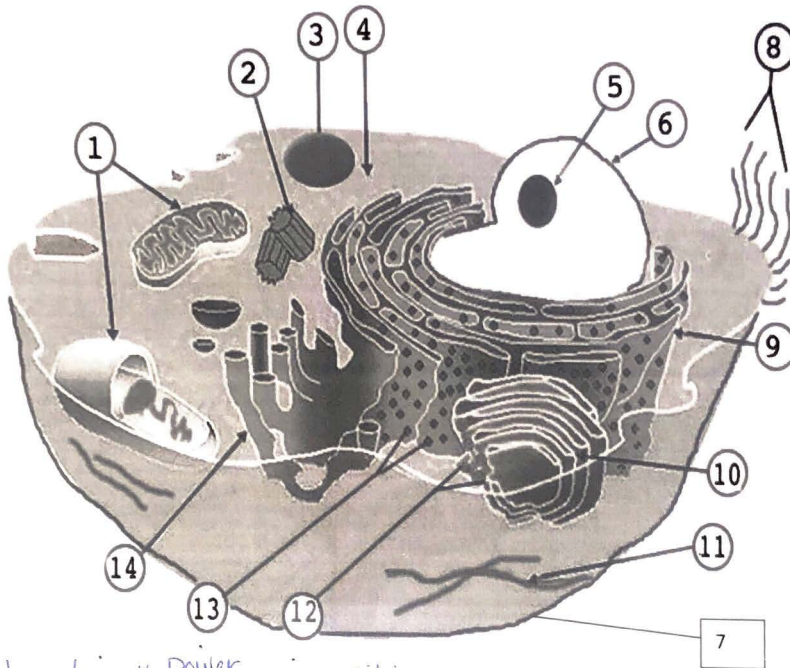
Has a nucleus E	Does not have a nucleus P	Single celled P	Multicellular or single celled E
Cytoplasm B	Cell membrane B	Ribosomes B	No membrane bound organelles P
Some sort of DNA B	DNA is located in the nucleus E	Has membrane bound organelles E	
DNA is suspended in the cytoplasm P	Bacteria P	Plants and Animals E	



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Animal and Plant Cells!

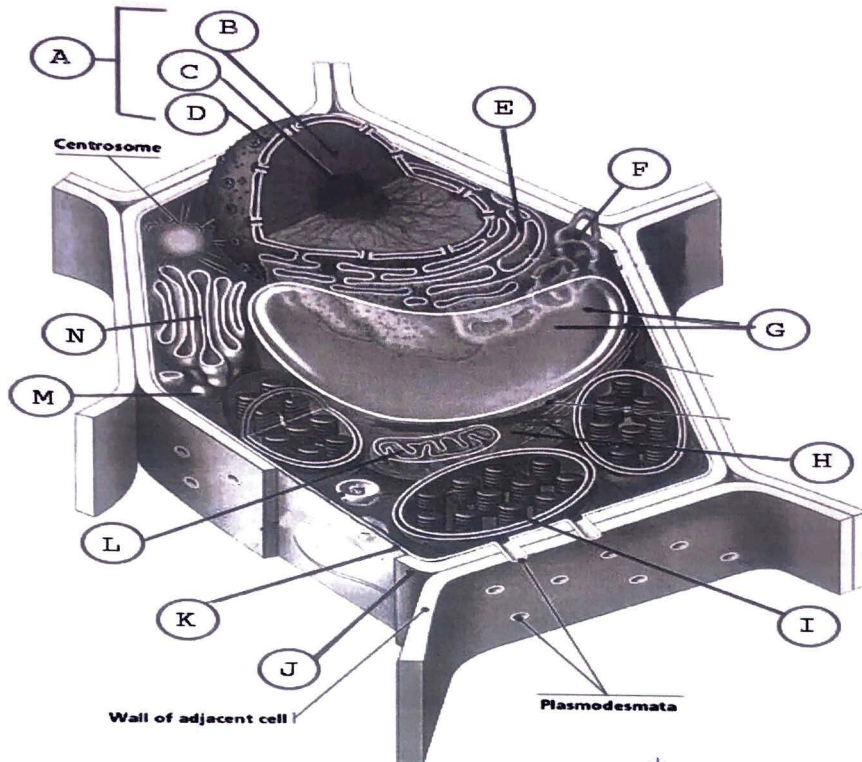
Label the animal cell



- | | |
|---|--------------------------------|
| 1. mitochondria* <small>Power house of the cell</small> | 8. cilia |
| 2. centriole | 9. rough ER |
| 3. vacuole | 10. Smooth ER golgi |
| 4. cytoplasm | 11. |
| 5. nucleolus *proteins* | 12. |
| 6. nucleus | 13. ribosomes |
| 7. cell membrane | 14. golgi smooth ER |
- in the ER
 ↓
 ribosomes

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Label the plant cell.



A. nucleus

DNA *

nucleolus
nuclear membrane

nuclear membrane

E. Smooth
rough ER (rough)

F. rough ER (smooth)

G. central vacuole

H. cytoplasm

I. chloroplast *

J. cell wall

K. cell membrane

L. mitochondria * powerhouse of the cell

lysosome

N. golgi

http://www.google.com/uf?sa=i&rc=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&docid=OXSaJol9XP131M&tbnid=1r2LUUCsU0jFOqM&ved=0CAUQjB0&url=http%3A%2F%2Fmarialombardic.blogspot.com%2F2011%2F12%2Fanimal-cell-labelled.html&ei=frkTU_i3BofpkAF_uIGADQ&bv=bv-62788935.d.eW0&psig=AFQjCNEjPnL4mtxglu-wMUA6MfUx-lbbA&ust=1394633467780504

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Organelle	Function	Plant / Animal or Both
Cell Membrane AKA Plasma Membrane	Forms a boundary between a cell and the outside environment. Regulates what enters and leaves the cell. Selectively permeable, key characteristic is the phospholipid bilayer.	B
Cell Wall	Rigid, outer surface that supports, protects, and gives shape to the cell. Made of cellulose.	P
Cytoplasm	Jellylike substance that contains dissolved molecular building blocks- such as proteins, nucleic acids, minerals, and ions. Surrounds all of the organelles, helps transport nutrients throughout the cell, and serves as a protective cushion.	B
Golgi Apparatus	Processes, sorts, packages, and delivers proteins and carbohydrates into vesicles for export out of the cell. Kind of like the "UPS" of the cell. Membrane contains enzymes.	B
Mitochondria	Powerhouse of the cell that supplies energy to the cell. Converts food into energy (glucose into ATP) Have ribosomes and DNA Site of cellular respiration	B
Ribosomes	Make proteins and carry out protein synthesis. Link amino acids together. Little ball like structures of proteins and RNA.	B
Smooth Endoplasmic Reticulum	No ribosomes Lots of folds, inner membrane- lumen Makes lipids Controls calcium levels in muscles Breaks down drugs and alcohol	B
Rough ER	Covered in ribosomes and site for attachment of ribosomes. Attached to the nucleus Produces and transports enzymes and proteins throughout the cell. Lots of surface area.	B
Nucleus	Control center of the cell. Storehouse of DNA	B
Nuclear Envelope	Double membrane around the nucleus Protects the nucleus	B
Nucleolus	Dense region in the middle of the nucleus Ribosomes are made here	B
Nuclear Pore	Allows large molecules to pass between the nucleus and cytoplasm.	B
Vacuole	Stores materials, such as water, nutrients, food, or enzymes that are needed by the cell.	A
Cilia	Hair like projections that aid in movement.	A
Flagella	Whip-like tail projection that aids in movement.	A
Chloroplast	Carries out photosynthesis by capturing and converting solar energy. Converts carbon dioxide and water into glucose and oxygen. Contains chlorophyll (pigment).	P
Central Vacuole	Large, fluid filled sac used for storage of materials needed by the cell such as water, food, enzymes, and inorganic molecules.	P

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Which organelles are specific to plant cells? Which organelles are specific to animal cells?



Chloroplasts
cell wall
1 large vacuole

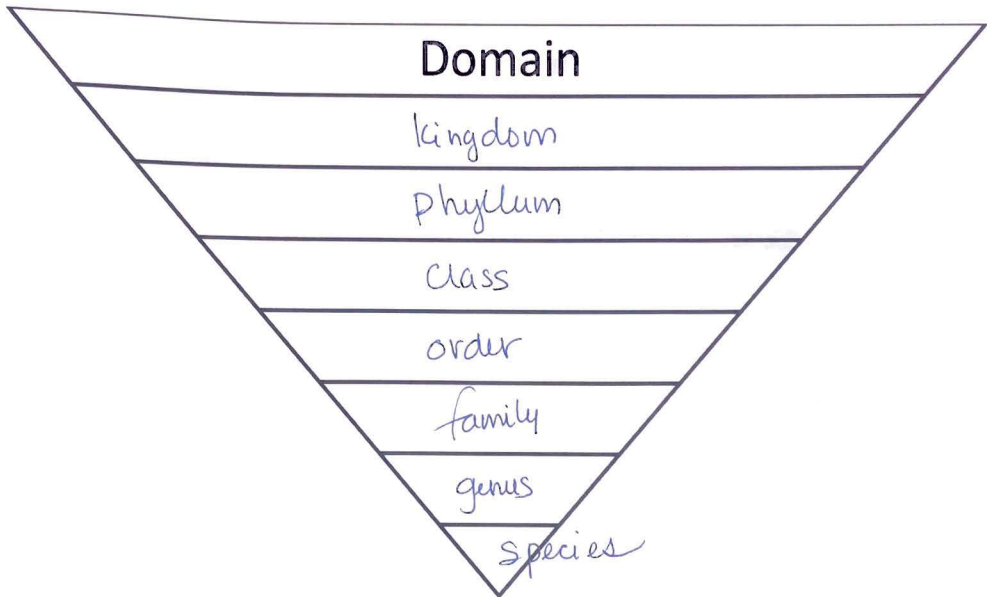
flagella
cilia
more than 1 vacuole

Identify the organelle

	Structure/Function	Cell Organelle
1.	Rigid, outer layer that supports, protects, and gives the plant cell shape.	cell wall
2.	Control center of the cell; DNA is made here. Manages	nucleus
3.	Supplies energy to the cell, site of cellular respiration, and ATP production.	mitoch.
4.	The jellylike region inside the cell except for the nucleus, where dissolved building blocks are transported.	cytoplasm
5.	Contains chlorophyll, a green pigment that traps energy from sunlight and gives plants their green color. Site of photosynthesis.	chloroplasts
6.	Small round ball like structures located on the rough endoplasmic reticulum, as well as in the cytoplasm, and they are made in the nucleolus where their main function is to make proteins.	ribosomes
7.	Semi-permeable membrane that regulates what enters and leaves the cell. Made up of a phospholipid bilayer. Also known as the plasma membrane.	cell membrane
8.	Double membrane around the nucleus that protects the nucleus.	nuclear membrane
9.	Center region of the nucleus and it makes ribosomes proteins	nucleolus
10.	Large, fluid filled sac used for storage of materials needed by the cell such as water, food, enzymes, and inorganic molecules.	central vacuole
11.	No ribosomes Makes lipids Controls calcium levels in muscles Breaks down drugs and alcohol	smooth ER
12.	Covered in ribosomes and site for attachment of ribosomes. Produces and transports enzymes and proteins throughout the cell.	rough ER
13.	Small, hair-like structures used for movement or sensing things.	cilia
14.	Processes, sorts, packages, and delivers proteins and carbohydrates into vesicles for export out of the cell. Kind of like the "UPS" of the cell.	golgi
15.	Long, whip-like structures used for movement	flagella

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Levels of Classification: Fill in the chart from broadest to most specific.



List the three domains and write which ones are prokaryotic and eukaryotic

1. Archaea bacteria
2. Bacteria
3. Eukaryote

List the six kingdoms and write which ones are prokaryotic and eukaryotic

1. plant - E
2. fungi - E
3. archaea bacteria - P
4. animal - E
5. protist - E
6. eubacteria - P