

Concept Development 1A: THE MANUAL OF CELLS

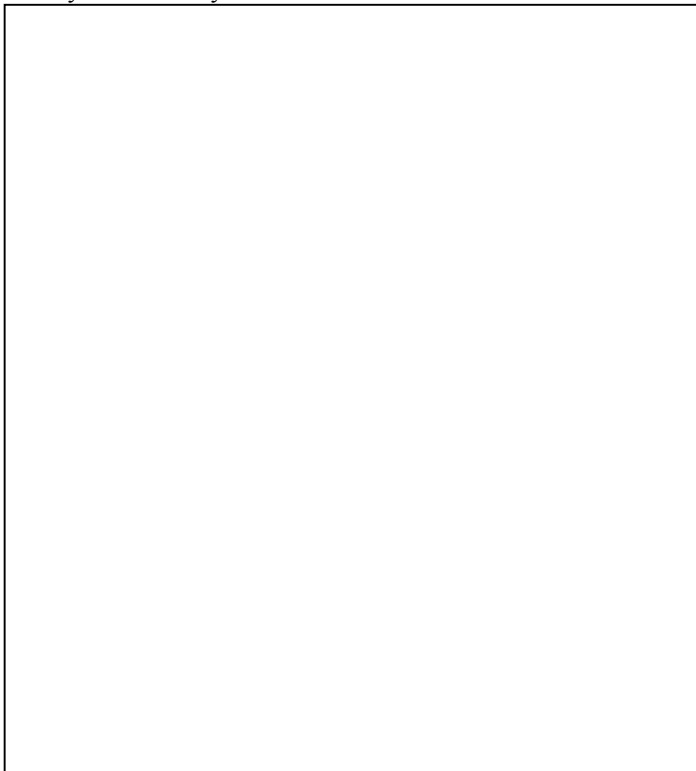
You have just been commissioned by the Red Cross to investigate a problem in Wilkes-Barre, Pennsylvania on the bank of the Susquehanna River. The rains and flooding caused by the remnants of Tropical Storm Lee in September 2011 led to the evacuation of more than 100,000 people in the Northeast and dumped enough rain to fill Dallas Cowboys Stadium more than 50,000 times. As experts in Cell Biology, you have been asked to investigate the flood basin of the Susquehanna River for signs of contamination. In order to tell this, you need to find out what types of living things are present in the flood waters. Use the following list of resources in order to develop a manual which will help you identify different types of cells. You will then use that manual in order to classify samples of cells found in the community of Wilkes-Barre, Pennsylvania.

RESOURCES

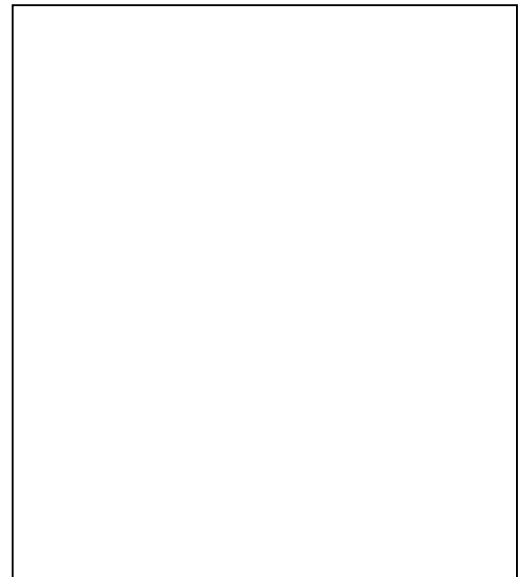
- Textbook Especially Chapter 4
- Section 14.4→14.6 (3rd edition text) **OR** Section 13.4→13.6 (2nd edition text)
- See Blackboard for a long list of helpful website links

CHARACTERISTICS OF EUKARYOTIC CELLS

Sketch of diagram of the general eukaryotic cell in the space below. Be sure to include all of the structures which are characteristic of Eukaryotic cells in your sketch.



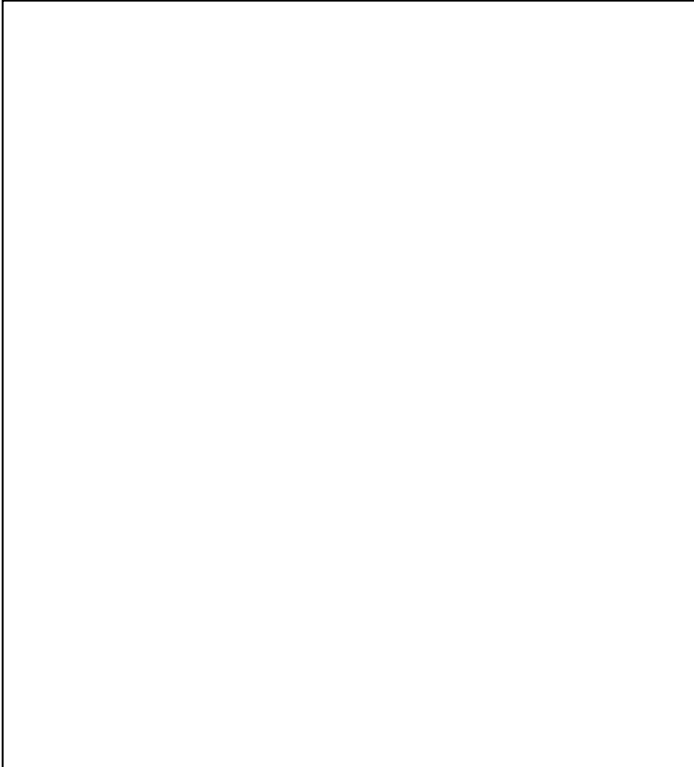
Eukaryotic cells could have these Characteristics.



Provide some examples of specific types of eukaryotic organisms in the space below.

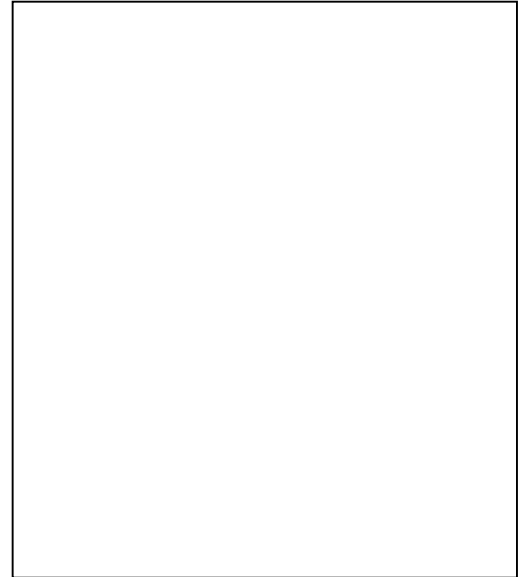


Sketch of diagram of the general prokaryotic cell in the space below.
Be sure to include all of the structures which are characteristic of prokaryotic cells in your sketch.



Prokaryotic cells could have these

Characteristics.



Provide some examples of specific types of prokaryotic organisms in the space below.



A COMPARISON OF MAJOR CELL TYPES

Create a sketch of the general animal cell in the Space below. Be sure to include all major Organelles in your sketch.



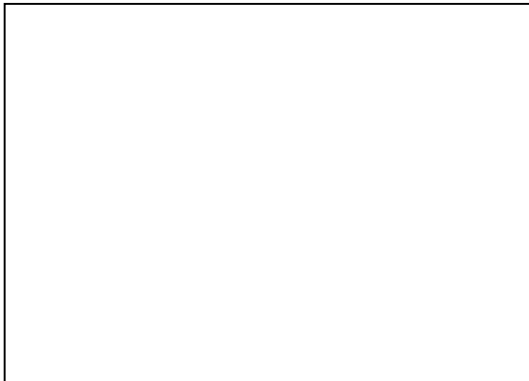
List the things which make an animal cell unique from other types of cells below. Be sure to include all major characteristics also!

Create a sketch of the general plant cell in the space below. Be sure to include all major Organelles in your sketch.



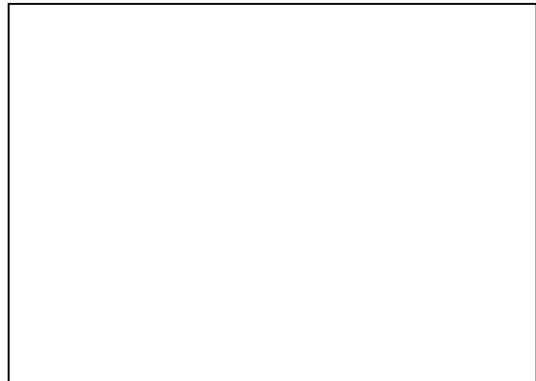
List the things which make a plant cell unique from other types of cells below. Be sure to include all major characteristics also!

Create a sketch of the general bacteria cell in the Space below. Be sure to include all major Organelles in your sketch.



List the things which make a bacteria cell unique from other types of cells below. Be sure to include all major characteristics also!

Create a sketch of the general protist cell in the space below. Be sure to include all major Organelles in your sketch.



List the things which make a protist cell unique from other types of cells below. Be sure to include all major characteristics also!

IT'S WORK TIME

Fresh new samples of flood waters from Wilkes-Barre, Pennsylvania have just arrived in our labs this morning. Your task is to provide Red Cross officials with information describing the life present in the water. The Red Cross is concerned about contamination of the water with bacteria. Five different types of life were found in the flood waters during preliminary investigation. We need you to tell us the identity of the life found in the waters. The Red Cross will then use that information in order to develop a plan which will remove any harmful life from the water. Additionally, the information will be useful to doctors treating patients who have been exposed to the contaminated water. You will observe the five samples and provide the Red Cross with the following specific information:

- Presence of prokaryotic life in the flood water
- Presence of eukaryotic life in the flood water
- Presence of plant life in the flood water
- Presence of animal life in the flood water
- Presence of bacterial life in the flood water
- Presence of protist life in the flood water

Presence of a large amount of eukaryotic, plant, animal, and protist life may indicate that the water is safer than first imagined. However, presence of a large amount of prokaryotic and bacterial life may indicate that the water is dangerous for use and consumption by humans.

SAMPLE A

Provide the CDC with a sketch of the cells you observe in the space below. Please label all cellular structures present in the cells. Color is important! Relative size is also very important!

MAGNIFICATION

Determine the identity of the cells in this sample.
(mark all that apply)

PROKARYOTIC		EUKARYOTIC
PLANT	ANIMAL	BACTERIAL
	PROTIST	

Justify your conclusion of cell classification by listing the visible characteristics which helped you conclude the identity of the cells in this sample.

Lastly, list the characteristics that this sample's cells are missing which disclude them from the other classification categories.

SAMPLE B

Provide the CDC with a sketch of the cells you observe in the space below. Please label all cellular structures present in the cells. Color is important! Relative size is also very important.!

MAGNIFICATION

Determine the identity of the cells in this sample.
(mark all that apply)

PROKARYOTIC		EUKARYOTIC
PLANT	ANIMAL	BACTERIAL
	PROTIST	

Justify your conclusion of cell classification by listing the visible characteristics which helped you conclude the identity of the cells in this sample.

Lastly, list the characteristics that this sample's cells are missing which disclude them from the other classification categories.

SAMPLE C

Provide the CDC with a sketch of the cells you observe in the space below. Please label all cellular structures present in the cells. Color is important! Relative size is also very important.!

MAGNIFICATION

Determine the identity of the cells in this sample.
(mark all that apply)

PROKARYOTIC		EUKARYOTIC
PLANT	ANIMAL	BACTERIAL
	PROTIST	

Justify your conclusion of cell classification by listing the visible characteristics which helped you conclude the identity of the cells in this sample.

Lastly, list the characteristics that this sample's cells are missing which disclude them from the other classification categories.

SAMPLE D

Provide the CDC with a sketch of the cells you observe in the space below. Please label all cellular structures present in the cells. Color is important! Relative size is also very important.!

MAGNIFICATION

Determine the identity of the cells in this sample.
(mark all that apply)

PROKARYOTIC	EUKARYOTIC	
PLANT	ANIMAL	BACTERIAL
	PROTIST	

Justify your conclusion of cell classification by listing the visible characteristics which helped you conclude the identity of the cells in this sample.

Lastly, list the characteristics that this sample's cells are missing which disclude them from the other classification categories.

SAMPLE E

Provide the CDC with a sketch of the cells you observe in the space below. Please label all cellular structures present in the cells. Color is important! Relative size is also very important.!

MAGNIFICATION

Determine the identity of the cells in this sample.
(mark all that apply)

PROKARYOTIC	EUKARYOTIC	
PLANT	ANIMAL	BACTERIAL
	PROTIST	

Justify your conclusion of cell classification by listing the visible characteristics which helped you conclude the identity of the cells in this sample.

Lastly, list the characteristics that this sample's cells are missing which disclude them from the other classification categories.