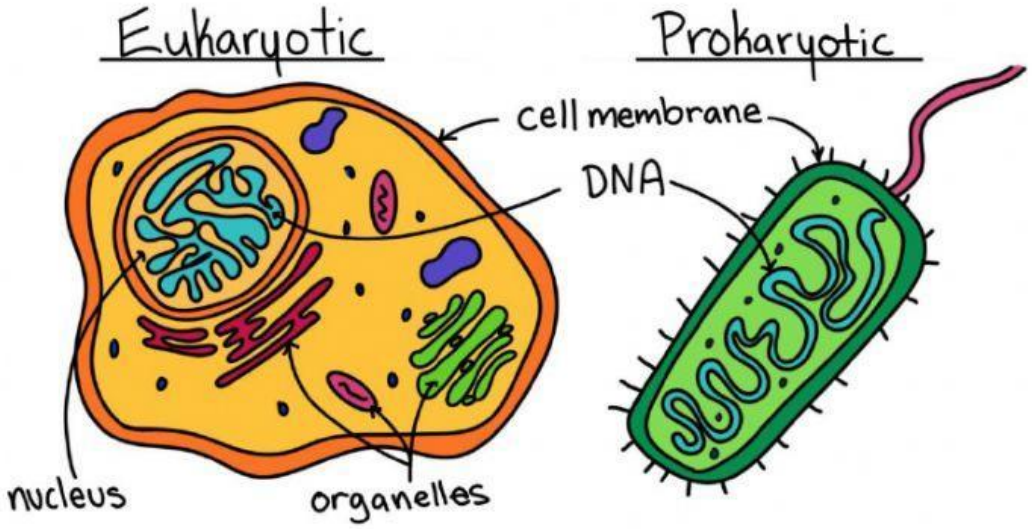
LIVE WORKSHEET – FIRST TERM

SCIENCE - 6TH GRADE (2019-2020)

Answer each question of this workshop with the sources of information that are in the last page of this file.

WHAT ARE CELLS?

1. All living things have cells. These tiny building blocks work together to create simple bacteria as well as more complex organisms, such as people and animals. Cells types are categorized based on complexity and include prokaryotic and eukaryotic. Choose the correct definition for each type of cell:



DEFINTION OF EUKARYOTIC:

DEFINITION OF PROKARYOTIC:

2. Now, compare the differences between prokaryotic and eukaryotic cells:

Prokaryotic Cells	Eukaryotic Cells
___ _____	Nucleus
No membrane-covered organelles	_____-_____ organelles
_____ DNA	_____ DNA
_____	All other cells

EVOLUTION OF EUKARYOTES TO MULTICELLULAR LIFE

Several different specialized prokaryotes began to live together in a symbiotic relationship. These cell types took on specialized functions, and became organelles in a larger cell.

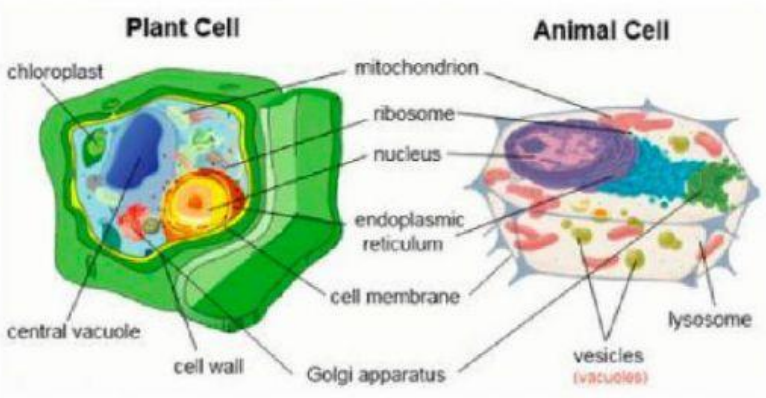
3. Fill in the blanks: All animals and plants have three basic parts: the _____, the _____ and the_____. In plants cells there is also a _____ outside the membrane.

4. Based on the picture below, choose your answer:

What is in a plant cell but NOT in an animal cell? _____

Study Tip

To remember the difference between eukaryotes and prokaryotes, remember that **you** are a **eukaryote**. Humans are large, complex organisms whose eukaryotic cells have nuclei.



5. Read the information in the boxes and label a plant and an animal cell:

Cell Membrane
controls what moves in and out of the cell

Mitochondria
where respiration takes place

Nucleus
contains DNA and controls the functions of the cell

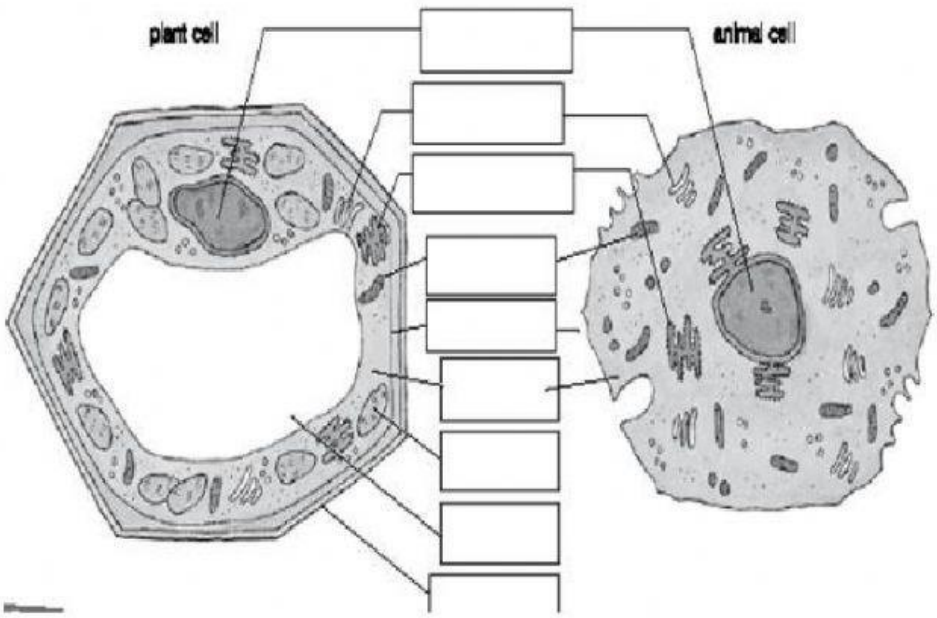
Ribosome
where protein synthesis occurs

Cytoplasm
where the majority of the activities take place

Cell Wall
made of cellulose and strengthens the cell

Vacuole
space filled with cell sap which keeps the cell turgid

Chloroplast
contains chlorophyll and location of photosynthesis



THE CELL AS A SYSTEM

6. The sentences of the text are disorganized, so it doesn't make sense. Organize the sentences of the text in the correct order:

A finishing department processes and prepares the product for shipping, and a packaging department wraps the product.	First sentence
Finally, a custodial staff keeps everything clean and in good working order. Cells are very similar to factories.	Second sentence
Imagine a bustling factory manufacturing the latest must-have gadget.	Third sentence
To stay alive and function properly, cells have a division of labor similar to that found in factories.	Fourth sentence
In the following step, you will examine cells as protein-producing factories.	Fifth sentence
Whether they make bicycles, cell phones, or hot air balloons, most factories are set up in essentially the same way.	Sixth sentence
In addition, a factory has a receiving department that brings in the components it needs to make its product, a communications department that allows it to contact suppliers, and a power plant that provides the energy it needs to run.	Seventh sentence

They usually have some kind of production line where a product is assembled and an executive department that decides what product is made.	Eighth sentence
All factories have exterior walls that protect and support them and interior walls that create separate work areas.	Ninth sentence

7. Match the function of different cell's organelles of animal cells with the corresponding job in the factory:

JOB IN THE FACTORY
Shipping/Receiving Department
Chief Executive Officer (CEO)
Factory floor
Assembly line (where workers do their work)
Workers in the assembly line
Finishing/packaging department
Maintenance crew
Support beams (walls, ceilings, floors)

CELL ORGANELLE
Releases energy from food for the cell to use: Mitochondria
Breaks down and recycles food, cell wastes, and old cell parts: Lysosomes
Large and flattened membranes that move materials throughout the cell and act as a workstation for the ribosomes: Endoplasmic reticulum
Gel-like substance that fills the space between organelles: Cytoplasm
Protein fibers (or microfibers) composed of actin (a specialized protein) within the cytoplasm of a cell that act as support structures: Cytoskeleton
Controls what goes into and out of a cell: Cell membrane
Directs all of the cell's activities: Nucleus
Packages materials and moves them out of the cell: Golgi Apparatus

Power plant	Makes proteins, which are the building blocks of cells: Ribosomes

8. Find the corresponding name of the organelle for each Job in the factory as an ANALOGY:

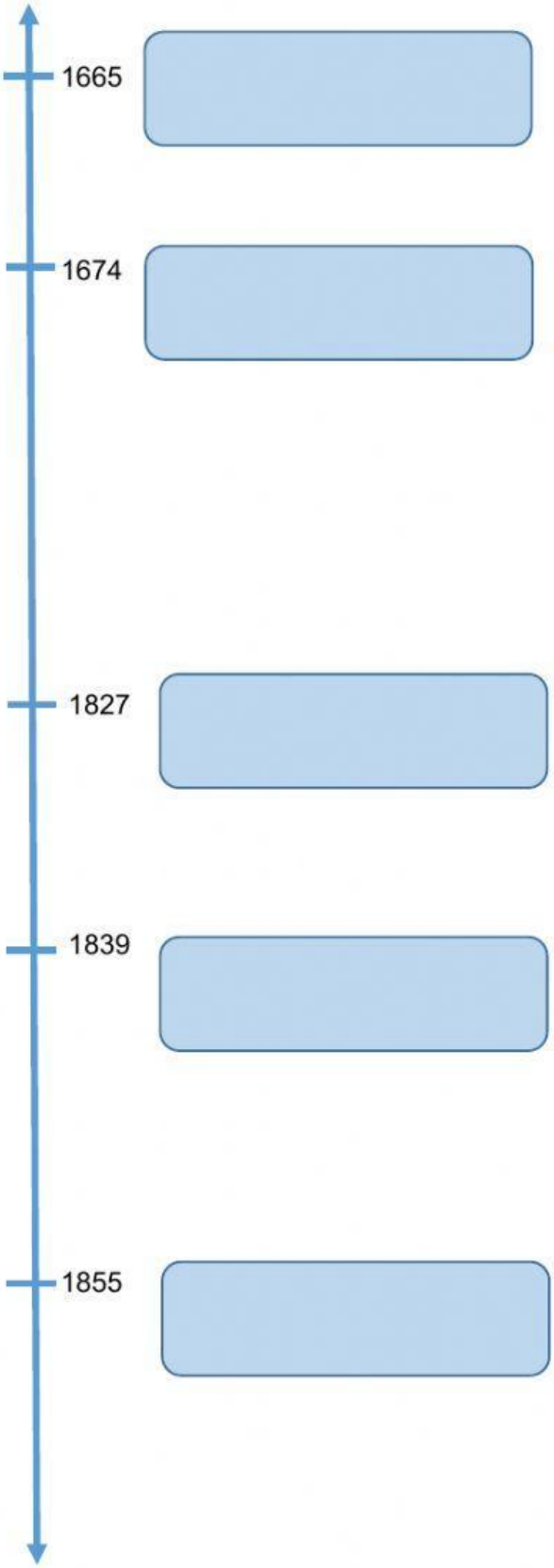
	Shipping/Receiving Department	A. Cytoplasm
	Chief Executive Officer (CEO)	B. Lysosomes
	Factory floor	C. Golgi Apparatus
	Assembly line (where workers do their work)	D. Nucleus
	Workers in the assembly line	E. Ribosomes
	Finishing/packaging department	F. Cytoskeleton
	Maintenance crew	G. Cell membrane
	Support beams (walls, ceilings, floors)	H. Mitochondria
	Power plant	I. Endoplasmic reticulum

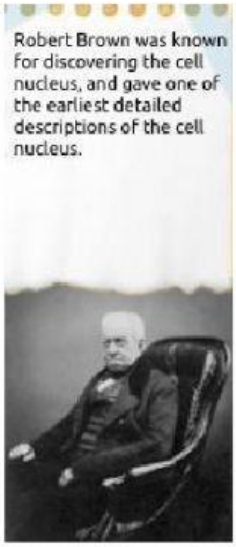
CELL THEORY

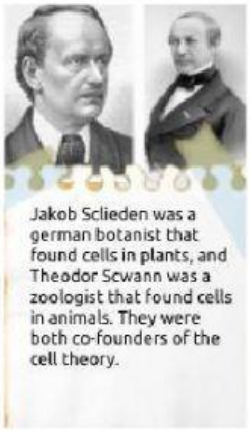
9. Over the next two centuries after the discoveries of Hooke and Leeuwenhoek, biologists found cells everywhere. Biologists in the early part of the 19th century suggested that all living things were made of **cells**, but the role of cells as the primary building block of life was not discovered until 1839 when two German scientists, Theodor Schwann, a zoologist, and Matthias Jakob Schleiden, a botanist, suggested that cells were the basic unit of structure and function of all living things. Later, in 1858, the German doctor Rudolf Virchow observed that cells divide to produce more cells. He proposed that all cells arise only from other cells. Identify the scientist who proposed each principle of the cell theory:

The cell is the basic unit of life in all living things: _____
All cells come from other cells: _____
All organisms are composed of one or more cells: _____

10. Watch the video (https://www.youtube.com/watch?v=4OpBylwH9DU), then organize (drag and drop) the facts in the timeline:







SOURCES OF INFORMATION

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