



1.0 Characteristics of Living Things

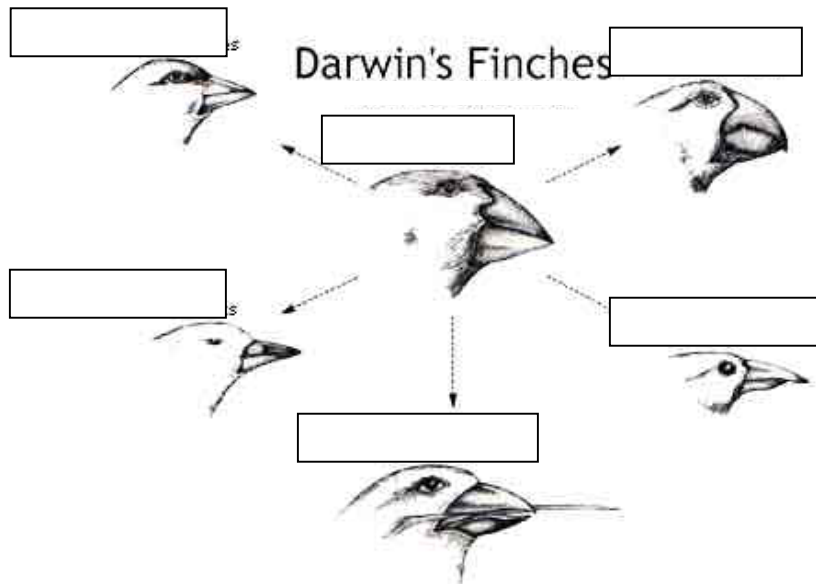
- Key Concepts:**
- Living things are made of cells, require energy, grow and develop, respond to their surroundings, reproduce and have adaptations to survive
 - All organisms have structures which perform specific life functions
 - Animals have **organs** and different organs that work together to perform a common function are organized into **organ systems**

What are the six primary characteristics that identify living things?

Identify specific structures in organisms to perform life functions

<i>Life function</i>	<i>Human Structure</i>	<i>Similar Structures on other organisms</i>
Exchange gases	Lungs, skin	
Gather food	Hands, mouth, teeth	
Move	Legs	
Maintain fluid levels		

Identify what type of food each bill type would be best suited for.





Organs with similar functions are organized into organ systems. Complete the summary chart (pgs. 93-96)

Organ System	Organs	Functions of the Body System
Circulatory system		
Respiratory System		
Digestive System		
Nervous System		
Excretory System		
Skeletal System		
Muscular System		
Integumentary System		



2.0 Cells play a vital role

- Key Concepts:**
- A **Microscope** is a scientific tool used to see very small structures
 - The **cell** is the basic unit of life - all organisms have at least one cell
 - Structures in cells are called **organelles** which carry out specific life functions
 - Organisms can be single celled or multi-celled
 - Substances move in and out of cells by **diffusion** and **osmosis**
 - All cells have a **selectively permeable membrane**
 - **Cells** form **tissue** (four types – **connective, epithelial, nervous and muscular**), tissue forms **organs and organs** work together to make **organ systems**

Label the parts of the microscope and identify their function (see pgs. 100-101)

Microscope

Parts

Function



1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

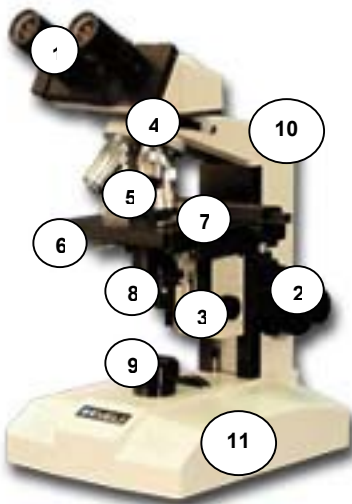
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8 _____

9 _____

10 _____

11 _____



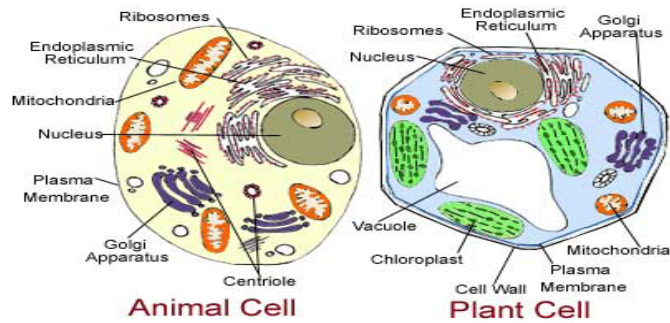


How are cells, tissues, organs and organ systems related?

Label the parts of the cell and explain what function each part has for both the animal cell and the plant cell

Animal and Plant Cells have most structures in common.

In addition, Plant cells have **chloroplasts** and a **cell wall**.



Cell Structure	Function
Cell (Plasma) Membrane	<hr/>
Cytoplasm	<hr/>
Nucleus	<hr/>
Vacuoles	<hr/>
Mitochondria	<hr/>
Endoplasmic Reticulum	<hr/>
Ribosomes	<hr/>
Golgi Apparatus	<hr/>
Cell Wall	<hr/>
Chloroplasts	<hr/>

What are some of the features of each structure in the cell that help you identify it?

Cell structure	How you can identify it easily
Cell membrane	
Cell wall	
cytoplasm	
nucleus	
vacuoles	



Describe the steps you follow to prepare a **wet mount**.

- 1 _____
- 2 _____
- 3 _____
- 4 _____

Describe how to calculate the **field of view**.

Identify the Advantages and Disadvantages of Single-Cellular and Multi-cellular organisms.

Type of Organism	Advantages	Disadvantages
Single-Cellular (Unicellular)		
Multi-Cellular		

Illustrate and Label these **unicellular organisms** (p. 114)

Amoeba

Paramecium



Describe and illustrate how nutrients get in and out of cells.

*The Process of **Diffusion***

*The Process of **Osmosis***

Illustrate how cells are affected by **Osmosis**

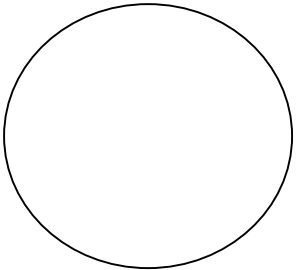
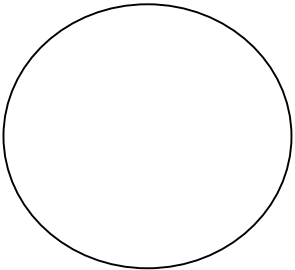
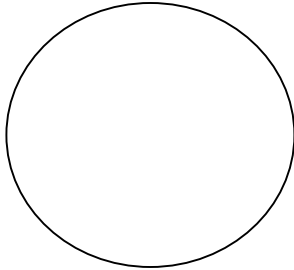
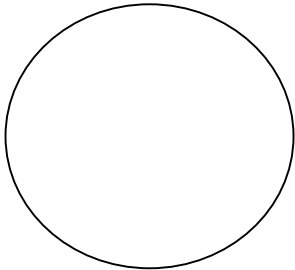
The Effect of Osmosis on Cells



What is **Reverse Osmosis**?

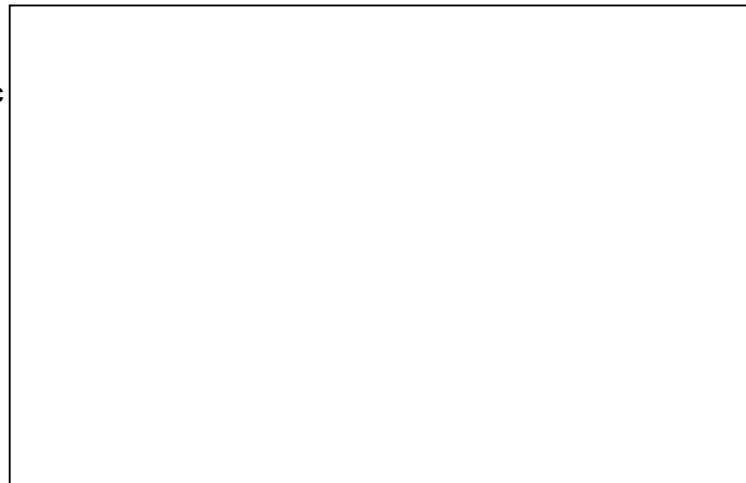
Illustrate how cells reproduce.

Illustrate the differences between different kinds of cells, and how they form tissue.

			
Connective Tissue	Epithelial Tissue	Nervous Tissue	Muscle Tissue

Illustrate three types of Plant Tissue (Leaves, roots and stems all have them) - explain how they function. (p. 123 - 124)

Photosynthetic tissue



Protective tissue

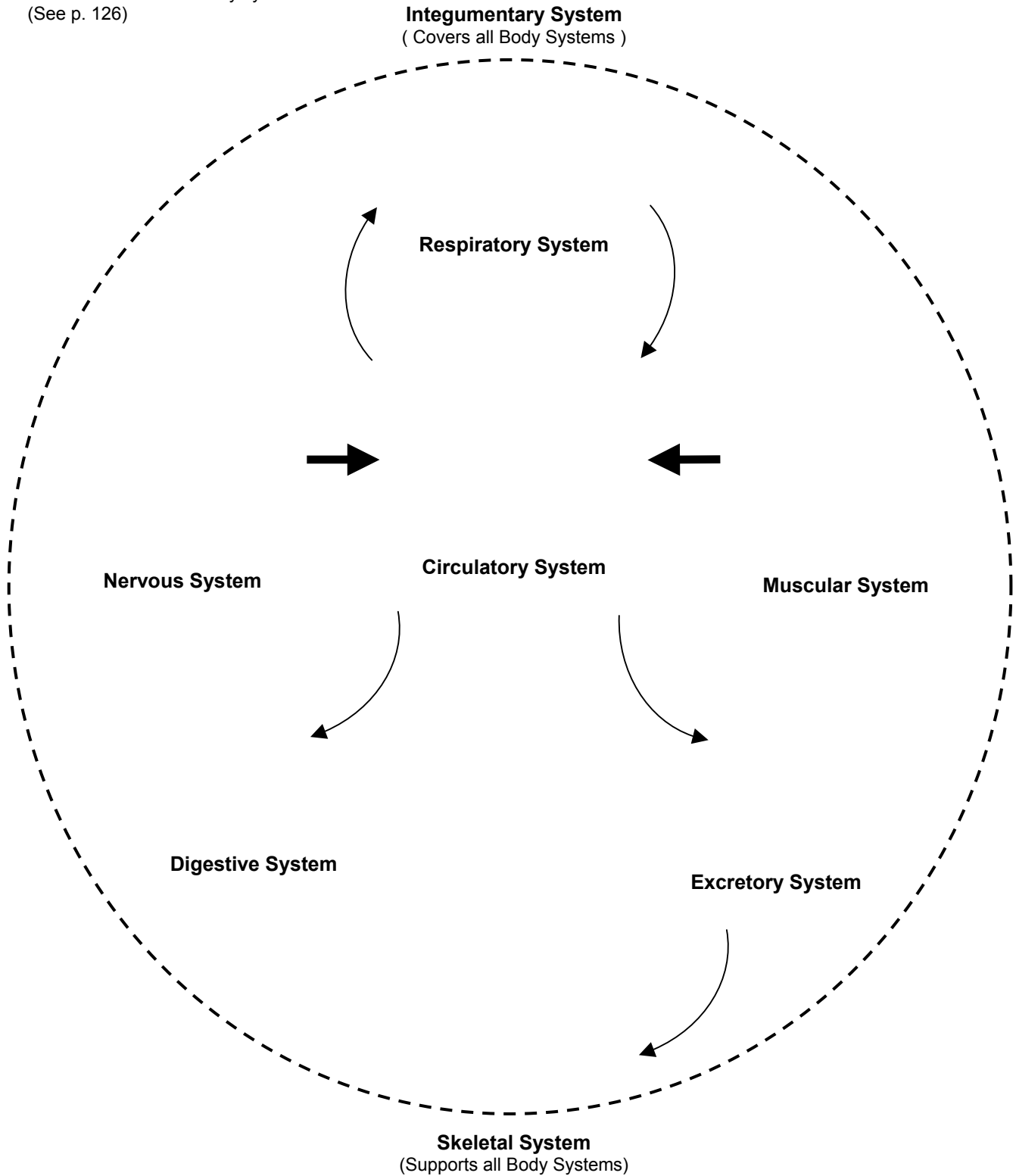
Transport tissue



3.0 Healthy Human Body Systems

- Key Concepts:**
- Digestive System, Circulatory System, Respiratory System, Excretory System, Nervous System
 - Interactions between systems as a result of internal and external stimuli

Illustrate how different body systems interact
(See p. 126)





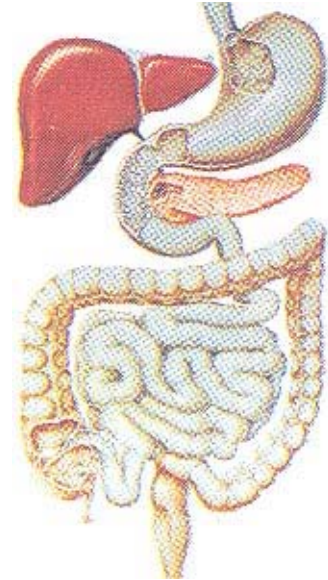
Digestive System

Describe the two different forms of digestion.

Mechanical digestion _____

Chemical digestion _____

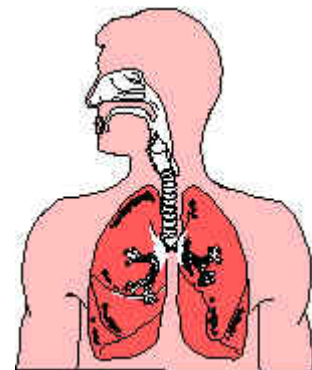
Describe what **peristalsis** is _____



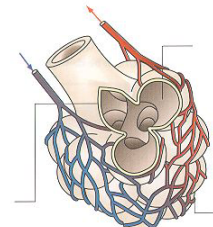
Describe the **digestive process** beginning with the food entering the mouth and ending with the waste leaving the rectum.

Respiratory System

Describe the movement of the ribs and the diaphragm during **breathing**.



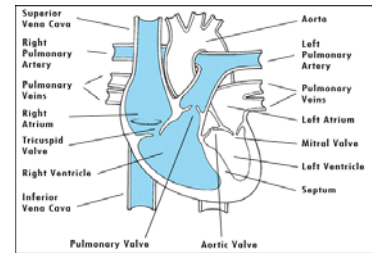
Describe the process of **gas exchange** in the lungs.



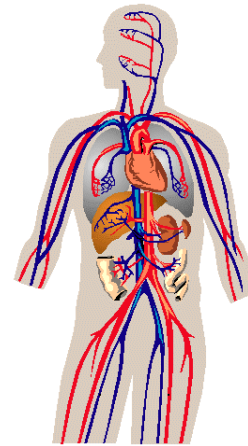


Circulatory System

Describe how the **heart** works – include in your description the process of carrying oxygen rich blood to the cells of the body and returning with waste products to be eliminated by the liver and lungs.



Describe the differences between **arteries**, **veins** and **capillaries**.



Illustrate and then describe the functions of each of the different types of **blood cells**

Red blood cell	White blood cell	Platelets
<i>Function of each type of blood cell</i>		
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Describe differences in **heartbeats** within the animal kingdom (Provide at least 3 more examples)

Human heart beats about **70 times /minute** (1.17/sec)



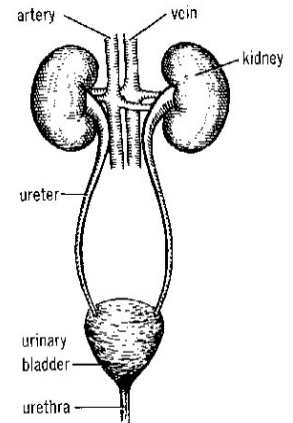
Unit 2 - Cells and Body Systems

Review Booklet

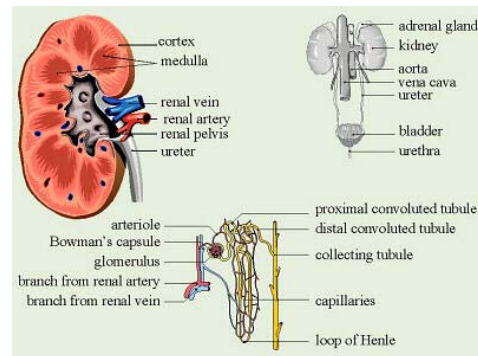
Excretory System

Identify the purpose of each of the organ in the Excretory system

Organ	Function ...
Liver	_____
Kidneys	_____
Ureters	_____
Bladder	_____
Urethra	_____
Skin	_____



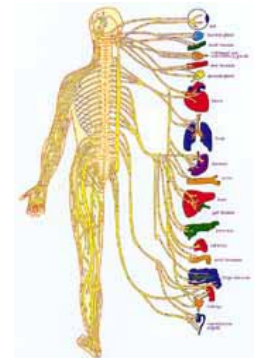
Explain the process of **urine formation** by the excretory system and what it can be used to show?



What is **dialysis**?

Nervous System

Illustrate and label a **neuron**.



What are the two distinct **parts of the nervous system** and what does each part control?



4.0 Scientific investigation and Medical Applications

- Key Concepts:**
- Research to improve understanding of what causes diseases (smallpox)
 - Health is affected by a number of factors which can lead to poor health of cells, organs and organ systems

What is a **vaccine**?

Describe how the **first vaccine** was developed, who developed it and what disease it was mean to control.

Briefly explain the contributions of the following scientists.

Scientist	
Louis Pasteur	
Joseph Lister	
Nutritional Research	
James Lind	
Canada's Food Guide	



Briefly describe the **4 factors** that affect human health.

Factors affecting the Respiratory System

Disorders/Diseases of the Respiratory System

Cigarettes ...

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Factors affecting the Circulatory System

Disorders/Diseases of the Circulatory System

Cholesterol ...

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Factors affecting the Digestive System

Disorders/Diseases of the Digestive System

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