



Plants

Expectation Sheet

NAME _____
 March 31, 2020
 Test Date

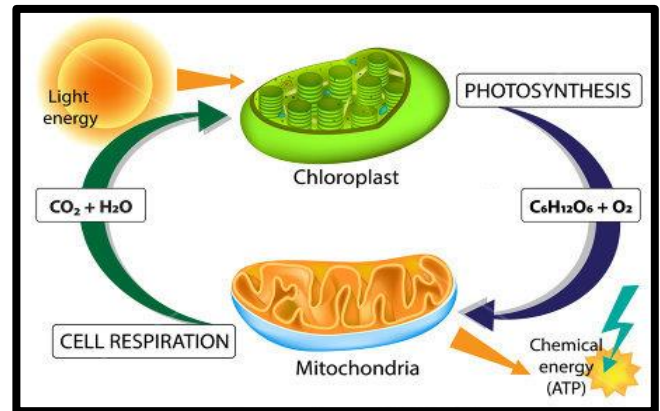
VOCABULARY

- *Autotrophic
- *Photosynthesis
- *Cellular Respiration
- *Mitochondria
- *Chloroplast
- *Chlorophyll
- *Aerobic Respiration
- *Anaerobic Respiration
- *Water
- *Carbon Dioxide
- *Oxygen
- *Glucose
- *ATP
- *Reactants
- *Products
- *Chemical Reaction
- Stomata
- Guard Cells
- Transpiration
- Tropisms
 - Geotropism
 - Phototropism
 - Thigmotropism
 - Hydrotropism
- Auxin Hormone
- Vascular Tissue
 - Xylem
 - Phloem
- Pollinators
- Pollen
- Pistil/Carpel
 - Stigma
 - Style
 - Ovary
 - Ovule
- Stamen
 - Filament
 - Anther
- Roots
- Stem
- Leaves
- Flower

* Terms you should already know!

Review: Cellular Energy Processes

- Reactants are the ingredients for the chemical reaction. **Products** are the substances being produced from a chemical reaction.
- Reactants always make products.
- The products of one process become the reactants of the other process.







Photosynthesis: CO_2 (Carbon Dioxide) + H_2O (Water) + Sunlight \rightarrow $\text{C}_6\text{H}_{12}\text{O}_6$ (Glucose) + O_2 (Oxygen)

Respirations: $\text{C}_6\text{H}_{12}\text{O}_6$ (Glucose) + O_2 (Oxygen) \rightarrow CO_2 (Carbon Dioxide) + H_2O (Water) + ATP

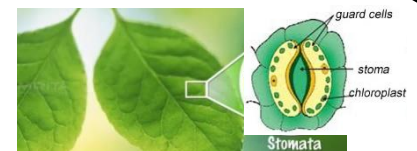
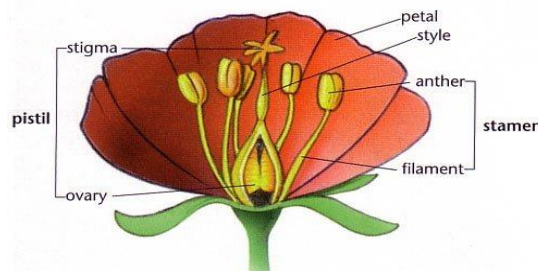
Plant Survival

Tropisms

Tropisms occur when plants respond to external stimuli. Tropisms are movements caused by a change in a plant's growth pattern. Tropisms can be negative or positive. If the plant moves toward the stimulus, the tropism is defined as positive. If the plant moves away from the stimulus, the tropism is considered negative.

Geotropism	Hydrotropism	Thigmotropism	Phototropism
Gravity causes a response in a plants growth.	The way a plant grows or bends in response to water.	Plants bend or grow because of touch. An example would be when vines wrap around an arbor frame.	The way a plant grows or bends in response to light.
			
Also known as gravitropism			

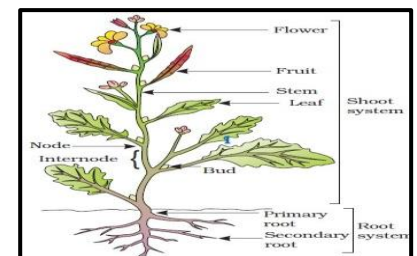
Plant Parts



Transpiration = "PLANT SWEAT"

Site of gas exchange and the release of water through the stomata opening

Plant Reproduction: Pollen is made by meiosis in the anther and is transferred to the stigma. A pollen tube forms and grows through the style. The pollen tube reaches an ovule/egg (made by meiosis) within the ovary, where the sperm fertilizes the egg.





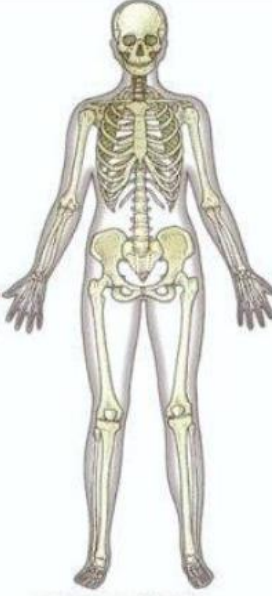
Body Systems & Viruses Expectation Sheet

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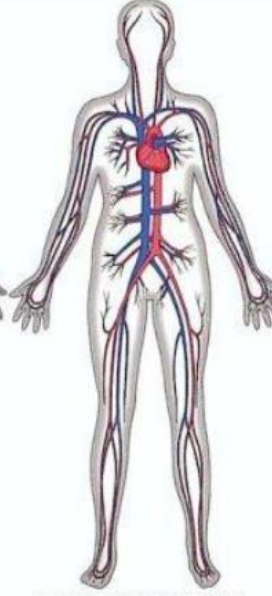
▲ MUSCULAR SYSTEM

Consists of layers of muscles that cover the bones, line internal organs and make up the heart, contract and relax for movement



▲ SKELETAL SYSTEM

Strong, flexible framework of bones and connective tissue, provides support and protection, makes blood cells



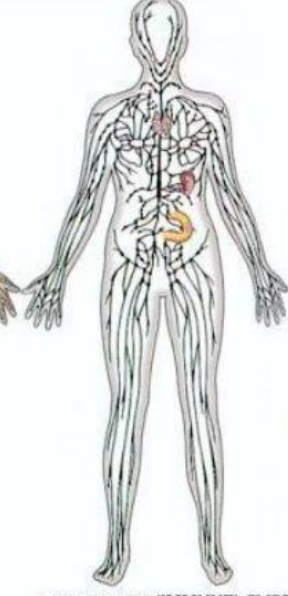
▲ CIRCULATORY SYSTEM

Heart, arteries (away from heart), capillaries, veins (toward heart) that transport blood to supply oxygen, hormones and nutrients to body and remove waste



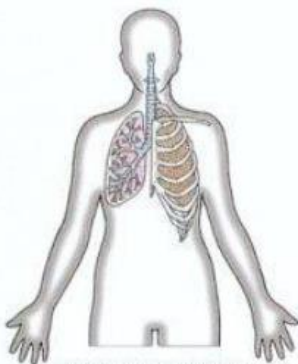
▲ NERVOUS SYSTEM

Main control system - brain, spinal cord and peripheral nerves, plays major role in feedback mechanisms and control of other systems



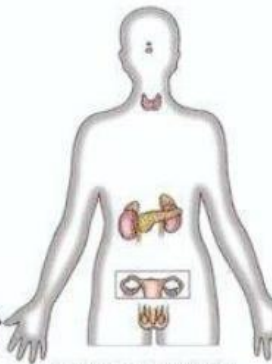
▲ LYMPHATIC (IMMUNE) SYSTEM

Lymph glands and nodes that fight disease and pathogens by producing different white blood cells to defend the body and protect against infection



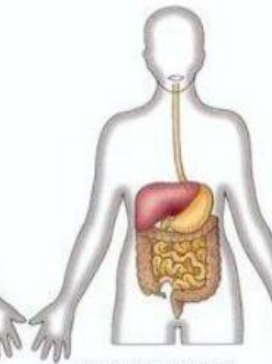
▲ RESPIRATORY SYSTEM

Main organ is lung, provides oxygen to body and remove carbon dioxide, diaphragm controls breathing, alveoli are air sacs in lungs for diffusion into blood



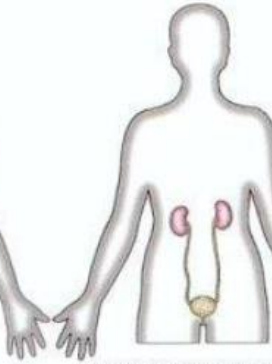
▲ ENDOCRINE SYSTEM

Produces hormones that direct body processes in glands throughout the body, pituitary, thyroid, pancreas, adrenal, ovary, testes, hypothalamus & more



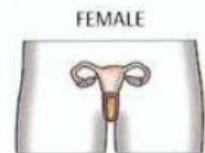
▲ DIGESTIVE SYSTEM

Breaks down nutrients needed for body processes, delivers nutrients to blood to be delivered to cells, mechanical and chemical digestion with enzymes



▲ EXCRETORY SYSTEM

(Urinary system) kidney filters waste from blood and makes urine to excrete waste from body, solids are released from colon and rectum, sweat glands release waste



FEMALE



MALE

▲ REPRODUCTIVE SYSTEM

Produce gametes (egg and sperm), embryo develops in uterus of female after fertilization in the fallopian tubes (uterine tubes)

Interactions of body systems:

Examples –

Nutrient absorption – muscular uses peristalsis to move food, digestive breaks down, circulatory transports

Giving birth – reproductive system in use, endocrine releases hormones, muscular contracts muscles

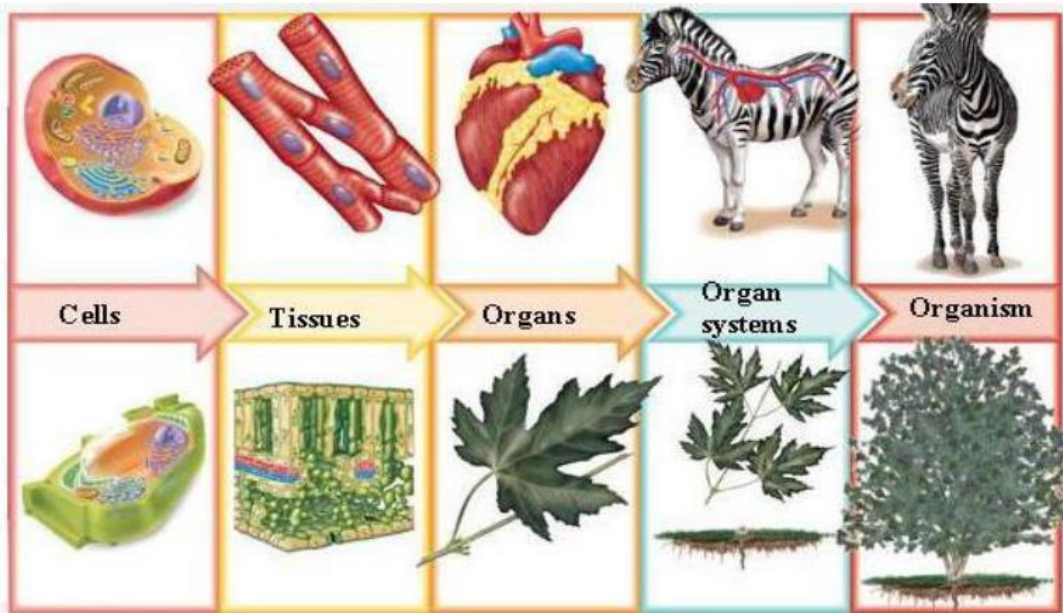
Cellular respiration – respiratory brings in O₂ releases CO₂, circulatory transports both to and from cells

Fighting illness/disease – integumentary is first barrier, immune system produces immune cells and antibodies, circulatory system transports them

Reflexes – nervous system sends signals, muscle system causes response

Response to fear – nervous system sends signal to respiratory system to speed breathing and increase oxygen intake, circulatory increases blood pressure to provide more oxygen to cells, muscular system has more energy to respond

Levels of Organization:



Circulatory System

Major Structures

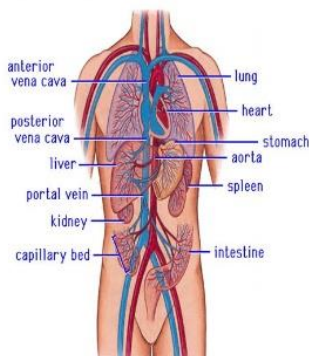
- heart, blood vessels, blood, lymph nodes and vessels, lymph, blood cells

Functions

- transports nutrients, wastes, hormones, and gases

Interactions with other systems

- Nervous system:
 - The brain regulates heart rate and blood pressure.
- Excretory
 - Cleans the blood
- Respiratory system
 - Gas exchange in the lungs
 - Carbon dioxide and Oxygen



Muscular System

Major Structures

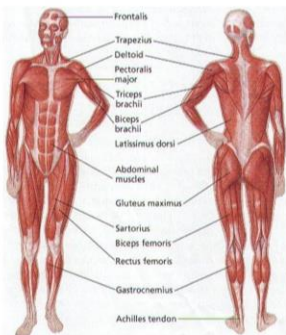
- skeletal, smooth, and cardiac muscle tissues

Functions

- moves limbs and trunk; moves substances through body; provides structure and support

Interactions with other systems

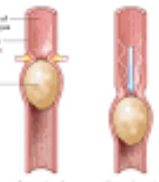
- Skeletal system - provide skeletal movement
- Digestive system- controls entrances and exits of digestive tract
- Endocrine system- shiver to produce heat
- Nervous system – helps sense of balance, pressure
- Respiratory system- makes diaphragm contract & relax
- Cardiovascular system – heart pumps to provide circulation



Systems Work Together...

Digestive and Muscular System

- At the mouth, the muscles of the jaws and tongue break food into pieces.
- Muscles of the throat move food down the esophagus.
- In the stomach, churning motions produced by muscles break food into smaller bits and mix it with stomach acid.
- Finally, muscular contractions of the intestine move food through the remainder of the digestive tract.



Integumentary System

Major Structures

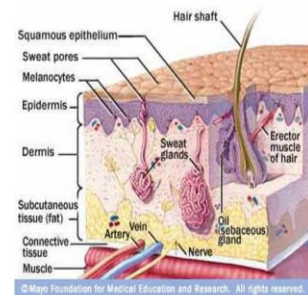
- skin, nails, hair, fat, nerves and blood vessels

Functions

- protects against injury, infection, production of Vitamin D, and fluid loss; helps regulate body temperature

Interactions with other systems

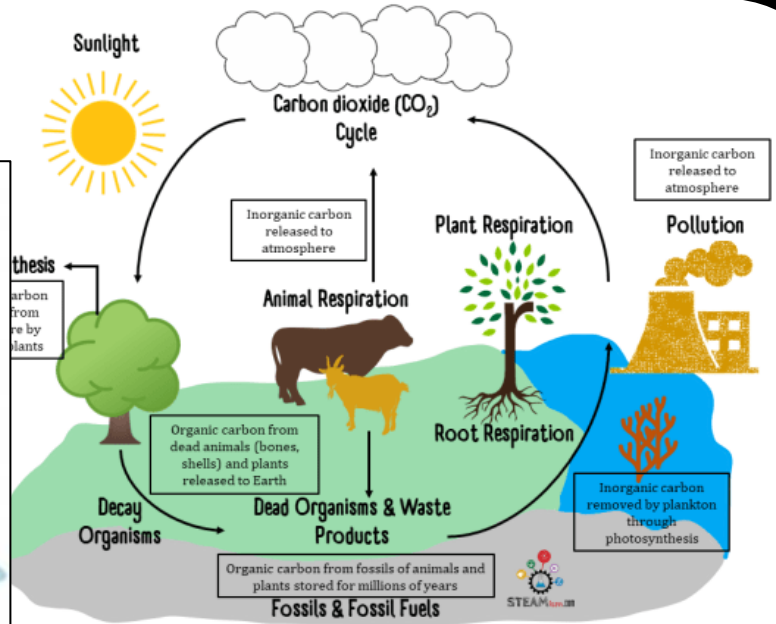
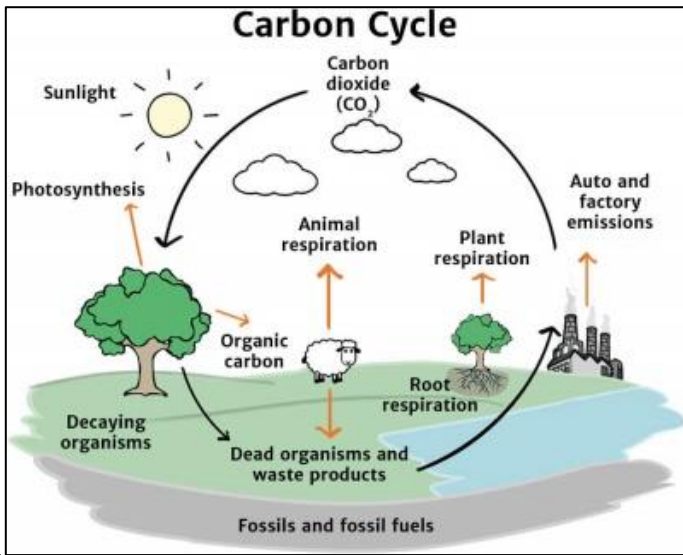
- Immune system
 - First line of defense against infection
- Nervous system
 - Complex network of nerves in skin send and receive impulses to and from brain, creating sense of touch.
 - Sense heat, cold, pain, pressure & touch



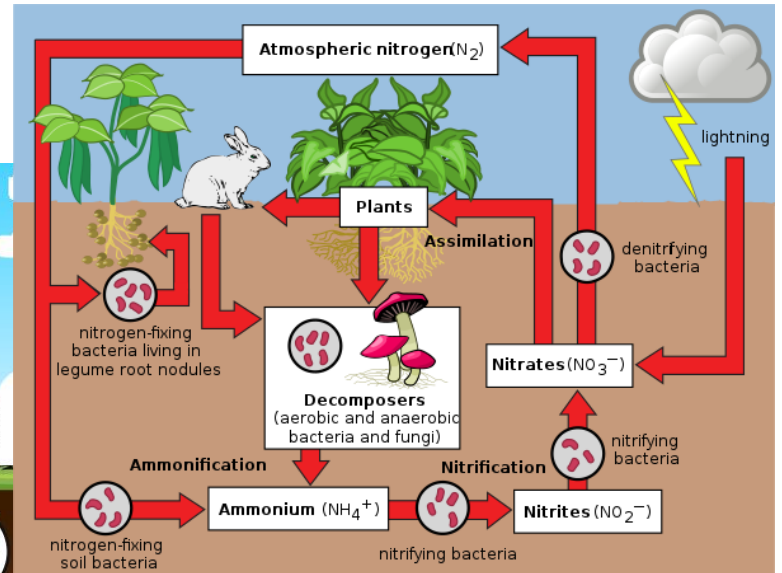
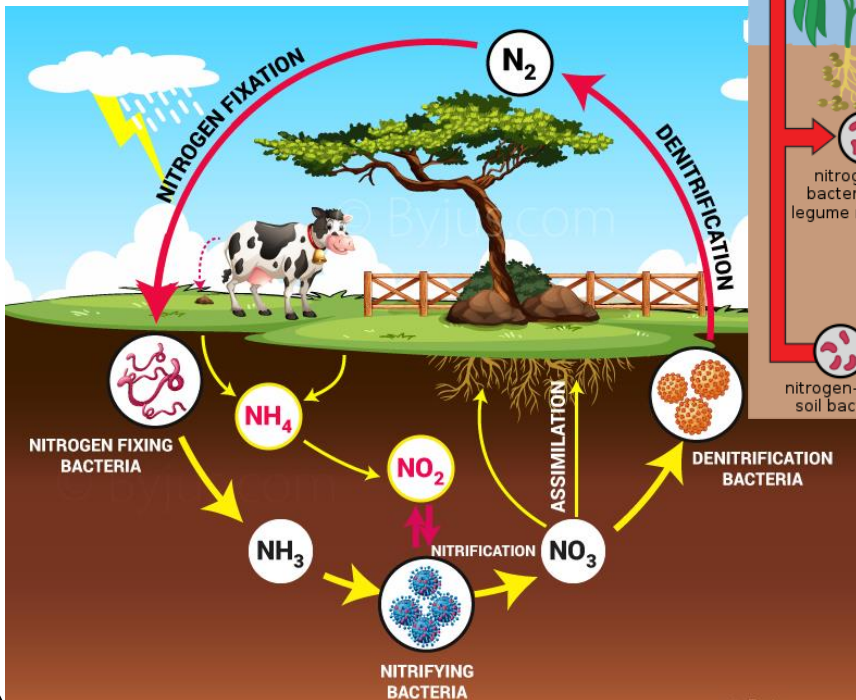
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Carbon and Nitrogen Cycles

Carbon Cycle – Study the images



Nitrogen Cycle – Study the images



Name: _____

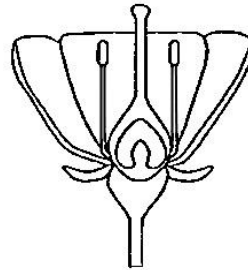
Date: _____



Plants and Body Systems "I can . . ." statements and success criteria.

Plant Growth, Reproduction, and Response

1. Identify the stamen, pistil and petals on the flower to the right.

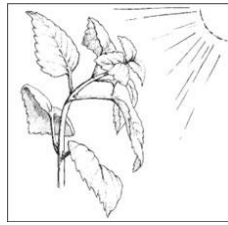


2. Label the parts of the stamen and pistil.

3. What two places does meiosis occur in the flower?

4. How does the sperm get to the ovules in the ovary (trace the path)?

5. Identify the images below as gravitropism (geotropism), Thigmotropism, or phototropism.



6. What is produced by a plant to allow tropisms to occur?

7. How are hormones transported through a plant?

8. What process relies on a plant's response to light when the shoot bends during phototropism?

9. Xylem is used to primarily transport what substances in a plant? What direction are the materials transported in?

10. Phloem is used to primarily transport what substances in a plant? What direction are the materials transported in?

11. What can xylem and phloem be compared to in animal systems?

12. What is the cuticle and what is its function?

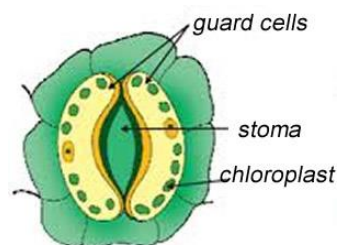
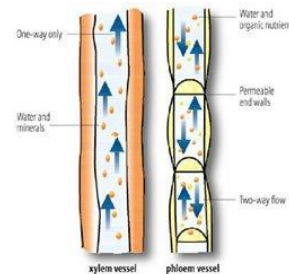
13. What is the function of the guard cell and stomata?

14. How does the leaf get carbon dioxide for photosynthesis – where does it enter the plant?

15. Why do stoma typically close?

16. What cells open and close the stoma?

17. How can a plant slow dehydration?



18. What process relies on a plant's ability to absorb water?
19. Trace the path of water from the soil through a plant and back to the atmosphere.
20. Why are root hairs a benefit to plants?
21. How does cellular respiration affect the glucose level in plants?

Body System Interactions

22. List the levels of organization from cells to organism in order from least complex to most complex.
23. Identify the level (from cell to organism) of the following:
 - a. Muscle cell: _____
 - b. Kidney: _____
 - c. Skin: _____
 - d. Digestive: _____
 - e. Urinary bladder: _____
 - f. Elephant: _____
 - g. Heart tissue: _____
 - h. Immune: _____
 - i. blood cell: _____
24. List the body systems involved in the following body functions:
 - a. Transporting oxygen and carbon dioxide throughout the body
 - b. Transporting nutrients throughout the body
 - c. Responding to danger
 - d. Respond to an injury
 - e. Pregnancy and childbirth
 - f. Run

Carbon and Nitrogen Cycles

25. List 3 ways carbon is released into the atmosphere. List 2 ways carbon is removed from the atmosphere.
26. How do trees affect the carbon cycle?
27. How do animals get nitrogen?
28. What role does bacteria play in the nitrogen cycle?
29. How do decomposers like fungi and protists benefit plants?