

Name: _____ *BSCS Vocabulary Chapter 5*

Endocrine system: p. 178

Nervous system: p. 178

Respiratory system: p. 181

Neutral solution: p.183

Acid: p. 183

Base: p.183

Buffer: p. 188

Oxygen: p 236

Carbon dioxide: p.236

Gas exchange system: p.236

Trachea: p.237

Cilia: p.237

Alveoli: p.237

Hemoglobin: p.238

nervous system ____

A) collection of glands, cells and special neurons that secrete hormones into the bloodstream

cilia ____

B) a substance every cell of the body needs to maintain normal conditions

base ____

C) a solution with a pH below 7

carbon dioxide ____

D) collect heat from outside the body (fish, reptiles)

acid ____

E) tiny air sacs, which line the lungs, allowing the exchange of CO₂ and oxygen with the blood

ectothermic mechanism ____

F) controls and coordinates the body's responses and integrates the activities of other organ systems

neutral solution ____

G) solution with a pH of 7

trachea ____

H) substance produced in cells as a by-product (waste) of energy metabolism

hemoglobin ____

I) a solution with a pH above 7

endothermic mechanism ____

J) tiny hairlike structures that move in a wavelike manner to sweep debris out of passages

alveoli ____

K) the windpipe

oxygen ____

L) regulates the body's interaction with the atmosphere

gas exchange system ____

M) a protein in red blood that oxygen binds to

Name: _____ *BSCS Essay "The Breath of Life" page 236*

Why does your body need oxygen? _____

What are the central organs of the gas exchange system? _____

What do the tissues of the lungs separate? _____

What happens to air inside the nose? _____

Trace the path of air from the nose/mouth: _____

What are the surfaces of the breathing tubes lined with? _____ and _____

Define cilia: _____

What is the job of cilia? _____

What are the tiny air sacs of the lungs called? _____

How does oxygen get into the body's internal environment? _____

What does a large surface area in the alveoli do? _____

What two systems does the movement of oxygen across alveolar membranes involve?

_____ and _____

What surrounds the alveoli? _____

Diffusion occurs depending on the concentration of oxygen in the air sacs and the blood inside the capillaries.

What does oxygen bind to in the blood? The protein _____

Concentration of carbon dioxide is usually higher in the _____, so carbon dioxide usually diffuses out of _____ and into the _____.

When you _____, you release carbon dioxide.

Rapid Exercise:

During rapid exercise the production of _____ increases. _____ causes the blood to become more _____.

_____ in the aorta, brain and arteries leading to the head detect the increased _____. They send a signal to the _____ in the brain.

The respiratory centers respond by stimulating the _____ and the _____ to contract more rapidly.

This concentration increases the _____.

A faster breathing rate increases the rate at which _____ is brought into the body. It also increases the rate at which _____ is released from the body.

When you stop exercising, and the rate of carbon dioxide production declines, the blood becomes less _____ and the signal is reversed so that rib muscles and diaphragm contract more slowly.

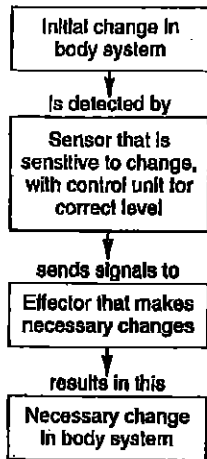
Why can't you hold your breath indefinitely? _____

Name: _____

Homeostasis Questions

Study the following graph to answer question 3

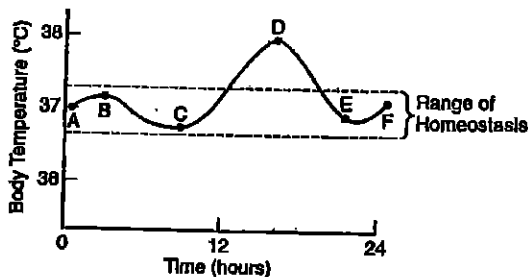
Use the following terms to replace the definitions given within the boxes in the following chart: *Higher CO₂ levels; Lower CO₂ levels; Muscles in the chest; Structures in the brain (with preset information).*



1. The best title for this concept map probably would be:

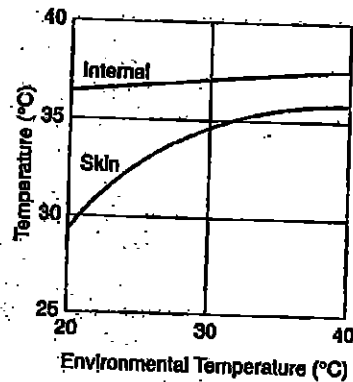
- 1 The Respiratory System and CO₂ Levels
- 2 The Circulatory System and CO₂ Levels
- 3 Feedback Mechanisms and CO₂ Levels
- 4 The Bloodstream and Its CO₂ Levels

Base your answer to question 2 on the data in the graph below.



2. The graph shows evidence of disease in the human body. A disruption in the dynamic equilibrium is indicated by the temperature change that occurs between points

- 1 A and B
- 2 B and C
- 3 C and D
- 4 E and F



3. The graph shows the effect of external (environmental) temperatures on a student's skin and internal temperatures. Which statement best describes what happens as the environmental temperature increases?

- 1 The skin temperature increases, then decreases to 20°C.
- 2 The internal temperature increases abruptly to about 30°C.
- 3 The skin temperature decreases, due to sweating, to 30°C.
- 4 The skin temperature increases, then levels off at about 36°C.

4. Describe how plants maintain their water balance. Your answer should include the following:

- ◆ one reason why water balance is important to plants
- ◆ the structure that plants have to perform this function
- ◆ how this structure works to maintain water balance

Chapter 5

Evaluate: Homeostasis in Your Critter

Throughout Chapters 4 and 5, you have been exploring the concept of homeostasis. At this point, you should have a good understanding of the complex systems and processes that are involved. They help living things maintain an internal condition of balance even while external conditions change dramatically.

In this activity, you will return to the description of the critter you “discovered” in another activity *First Encounter with the Critter*. In doing so you will evaluate what you have learned in this chapter. You will apply what you have learned about homeostasis to your critter. This will show your teacher what you have learned about how organisms maintain their internal environment when the external environment changes.

Procedures

1. Answer the following questions about homeostasis:

a. Based on what you have learned, how would you describe homeostasis? _____

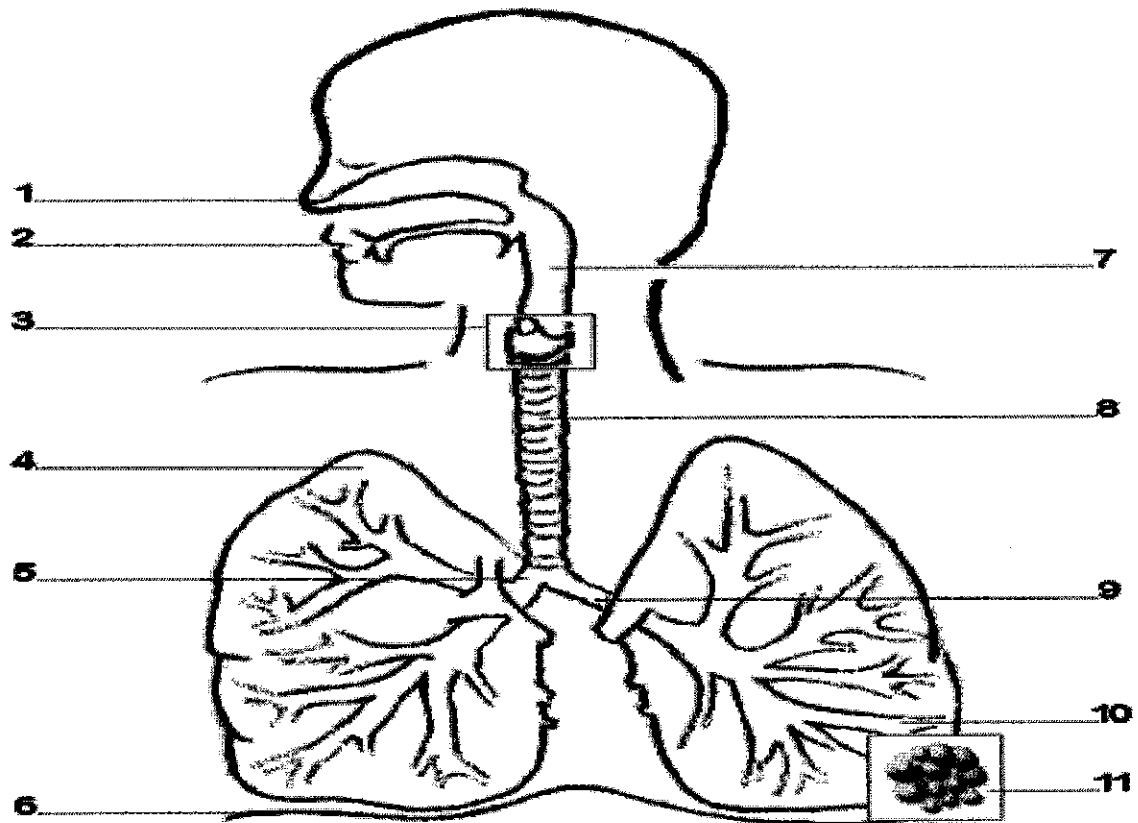
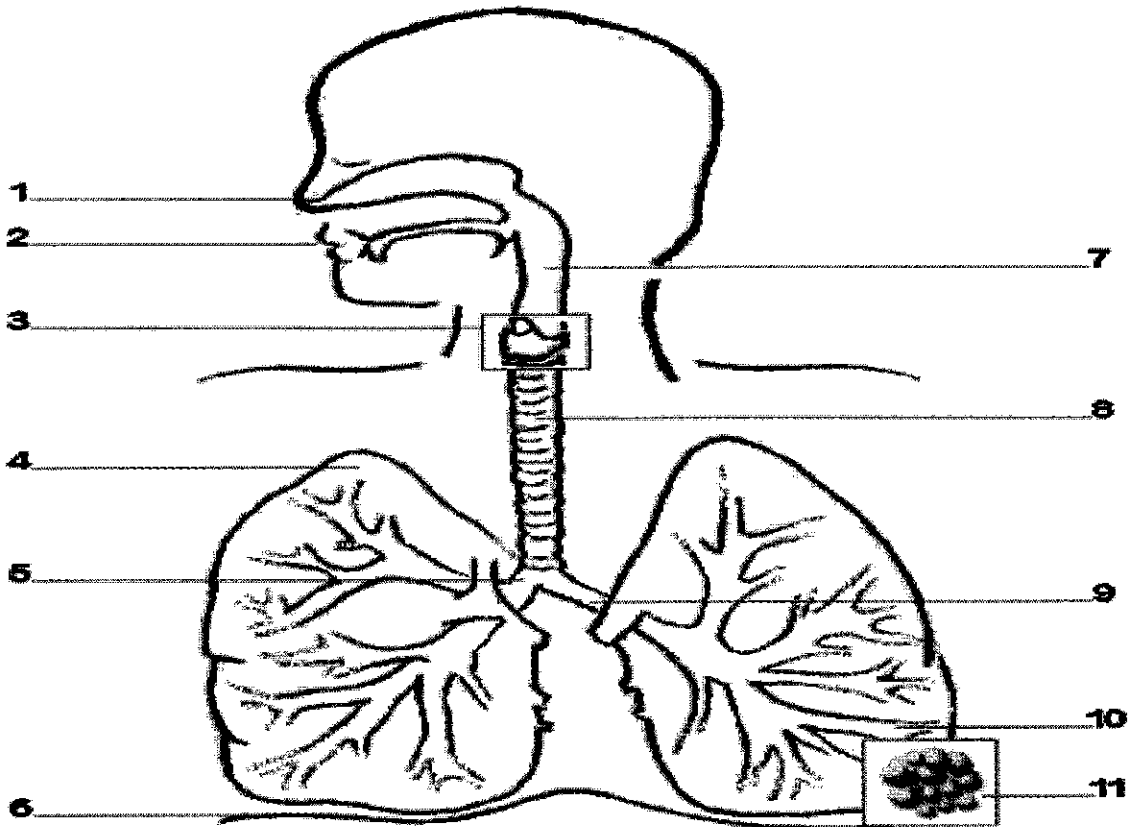
b. List and describe two ways that humans maintain homeostasis. _____

c. Why is it important for organisms to maintain homeostasis? _____

2. Answer the following questions about your critter:

a. What are the scientific and common names of your critter? _____

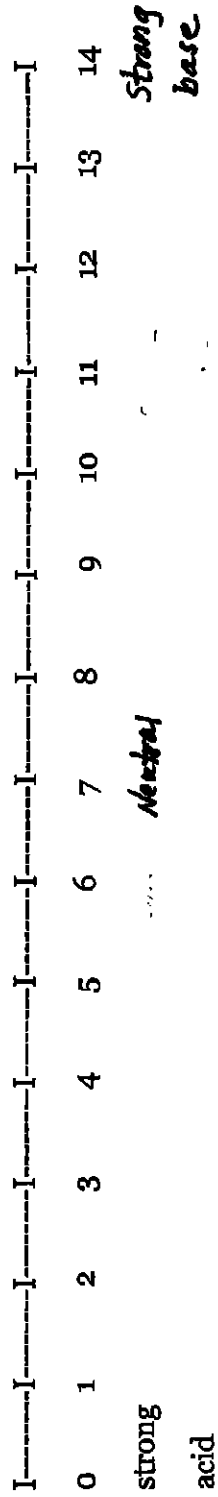
b. Where does your critter live? _____



NEED TO KNOW

Background Information

We use pH to measure how acidic or basic a solution is. A pH of 7 represents a neutral solution that is neither acidic or basic. The pH scale ranges from 0 (very acidic) to 14 (very basic)



Name _____ Period _____ Date _____

Directions: Compare the nervous system and the endocrine system by filling in the following table as thoroughly as possible.

	Nervous System	Endocrine System
Components		
Function		
How are messages sent?		
What types of responses are controlled by each?		
Examples of specific response in body		