8th Grade Science

Directed Reading Packet

The Human Body

Name: _____

Teacher: _____ Period: _____

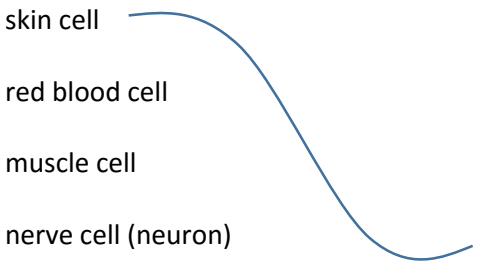
Chapter 1, Section 1: Introduction to the Human Body

Organization of the Human Body

Human Cells

1. Explain how cells are the basic building blocks of life.

2. The human body has many specialized cells. Specialized cells perform specific functions for the body. Match the type of cell with its function to help the body maintain homeostasis.



skin cell	carries electrical messages form the brain to body
red blood cell	fights bacteria in body
muscle cell	carries oxygen from lungs to rest of body
nerve cell (neuron)	covers and protects the body from the outside
white blood cell	contracts and allows for movement

Human Tissues

3. What is a tissue?

4. Fill in the chart below describing the four types of tissue found in the body:

Type of Tissue	Description	Examples
Epithelial	Made of layers of tightly packed cells that line the surfaces of the body.	skin, lining of mouth and nose, lining of the digestive system

Human Organs

5. What is an organ?

6. Describe the role of each type of tissue in the organ of the heart. (Figure 1.3)
    - nervous tissue – sends messages to control the beating of the heart
    - epithelial tissue –
    - connective tissue –
    - muscle tissue –

Human Organ Systems

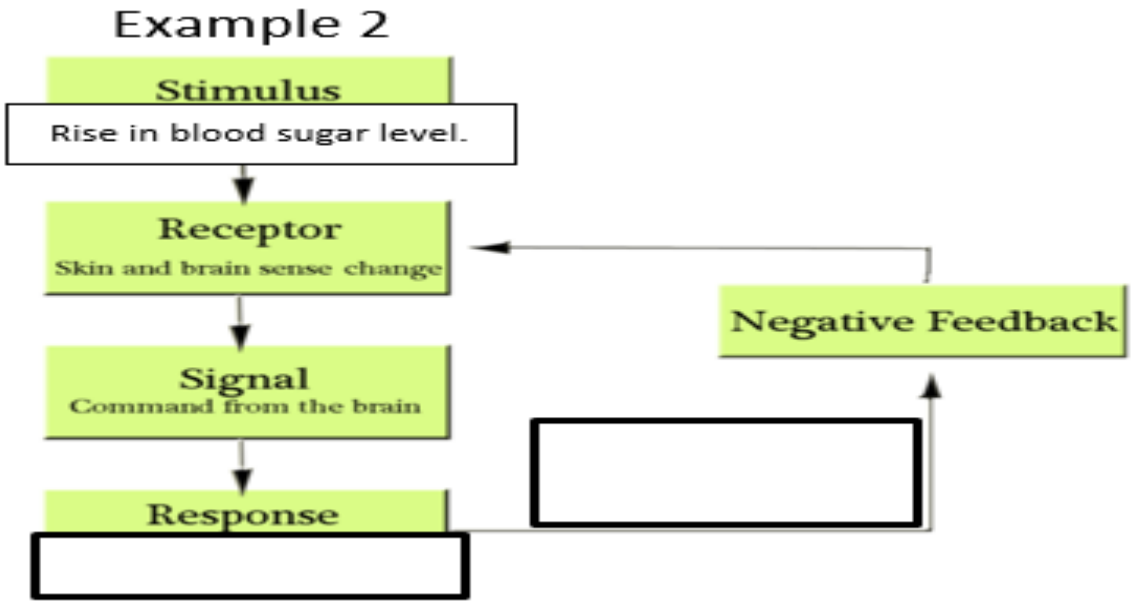
7. What is an organ system?

8. List 4 examples of organ systems?

How Human Organ Systems Work Together

9. What is homeostasis?

10. Homeostasis is controlled with feedback loops like in the picture below. Fill in the missing parts of the feedback loop below. The book explains this example and can help to fill in the blanks.



Lesson Summary

- The basic building blocks of the human body are _____. Human cells are organized into _____, tissues are organized into _____, and organs are organized into _____ _____.
- The organ systems of the body work together to carry out life _____ and maintain _____.

Chapter 1, Section 2: The Integumentary System

Introduction

1. What are the three major parts of the Integumentary System?

Structure of the Skin

2. What are the two major layers of the skin?

Epidermis

3. Describe the structure of the epidermis.

4. Explain how new cells are created on the epidermis?

5. What is melanin?

Dermis

6. What structures are located in the dermis?

7. Oil glands make sebum. What does sebum do for the body?

8. Sweat glands make sweat. What does sweat do for the body?

Skin Functions

9. Describe how your skin performs the following functions for your body:
    - My skin provides a barrier by
    - My skin helps control body temperature by
    - My skin helps me gather information from my environment by
    - My skin acts as a sun block by

Keeping Skin Healthy

10. List two ways to prevent sun from damaging your skin?

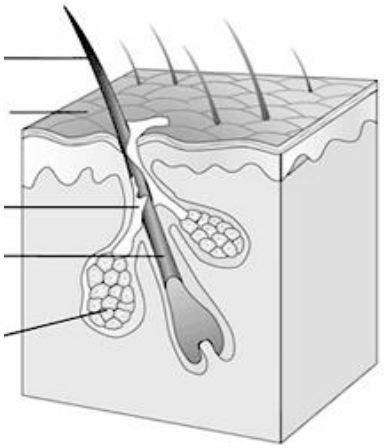
11. Too much sebum in the sebaceous glands create _____.

Hair and Nails

12. Hair and nails are made of a protein called _____.
13. List three functions of hair.

14. List two functions of nails.

15. Fill in the diagram.



Lesson Summary

- The integumentary system consists of the _____, _____ and _____. All three organs provide a _____ covering for the body to help maintain _____.
- The skin consists of _____ distinct layers, an outer layer called the _____, and an inner layer called the _____. The epidermis is constantly being renewed as _____ cells on the surface are shed. This layer contains melanin-producing _____. The dermis contains _____ vessels, _____ endings, _____ follicles, and _____ and _____ glands.
- The skin prevents the loss of _____ from the body and keeps out _____. _____ in the epidermis protects the dermis from damaging _____ light. By dilating or contracting blood vessels and releasing _____, skin helps maintain a constant body _____.
- The most important way to keep your skin healthy is to protect it from _____ light. Over-exposure to ultraviolet light can cause skin _____. Keeping the skin clean can help prevent _____.
- Head hair protects the _____ from ultraviolet light exposure and loss of body _____. Hair in eyelashes, eyebrows, and nostrils traps water, dust, and other _____. Nails protect the ends of fingers and toes and enhance the sense of _____.

Chapter 1, Section 3: The Skeletal System

Components of the Skeletal System

1. The main organs of the skeletal system are the _____. How many are in the human body? _____

2. What is cartilage?

3. What are ligaments?

Functions of the Skeletal System

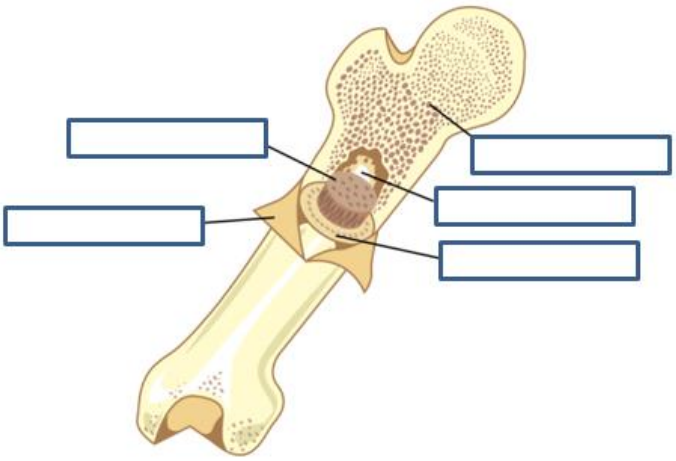
4. List the four functions of the skeletal system:
   a.
   b.
   c.
   d.

Bones

5. Describe the two main types of bone found in the body.

6. Describe the two types of marrow found in the body.

7. Label and color the picture of the femur.



8. Describe how bones of a human fetus and baby are different from adults.

9. Bones change from babies to adults. What is this process called? _____

Joints

10. Complete the table

Joint Type	How they work.	Examples in Human Body
Immovable Joints	Do not allow movement in bones at all, they are fused.	Between bones in skull
Partly Movable Joints		
Movable Joints (Ball and Socket, pivot, hinge, gliding)		

Skeletal System Problems and How to Prevent Them

11. As a teen it is important to get plenty of _____ and _____ for strong bones.

12. Fill in the chart below with characteristics of each skeletal system problem

Osteoporosis	Fractures	Sprains

Lesson Summary

- _____ are the main organs of the skeletal system. The skeletal system also includes _____ and _____.
- Functions of the skeletal system include _____ and shaping the body, allowing _____, producing _____ cells, and _____ calcium.
- Bones consist of four different types of tissue: _____, _____ bone, _____ bone, and bone _____. _____ gradually changes the cartilage skeleton of the fetus to the bony skeleton of the adult.
- Joints may be _____, partly _____, or _____. Types of movable joints include _____ and _____, _____, and _____ joints.
- Skeletal system problems include _____, and related bone _____. Following safe practices may also reduce the risk of _____ as well as sprains.

Chapter 1, Section 4: The Muscular System

What are Muscles?

1. Long, thin cells that are able to contract are called muscle _____.

How a Muscle Contracts

2. What are the two muscle filaments involved in muscle contractions?

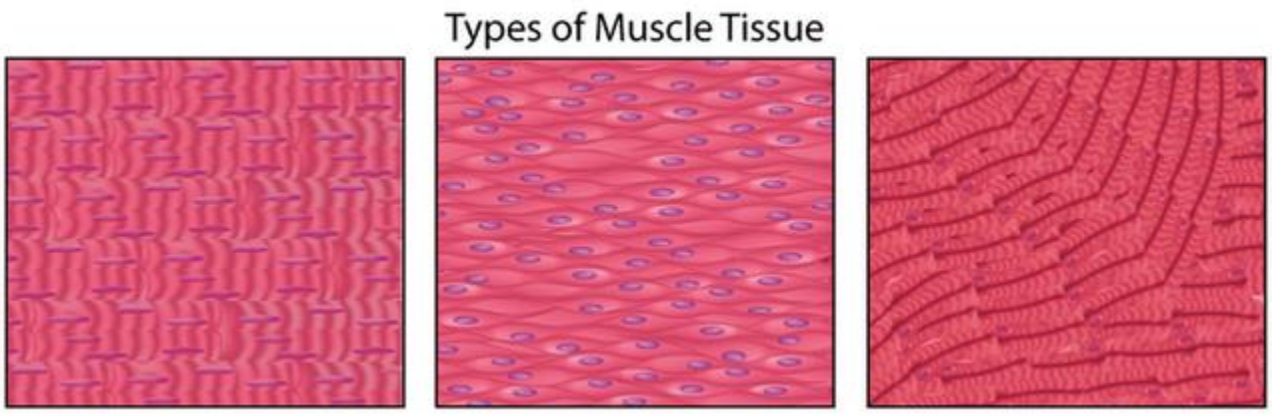
3. What is the three letter abbreviation for the energy required to make muscles move? _____

Types of Muscle Tissue

4. Fill in the chart below to describe the three types of muscles.

Type of Muscle	Voluntary/Involuntary	Location in Body	Job
skeletal			
	involuntary		move food through the digestive system
		heart	pump blood through body

5. Below are pictures of muscle cells. Write the type of cells below each picture:



_____ _____ _____

Structure and Function of Skeletal Muscles

6. What is a tendon?

Skeletal Muscles Work in Pairs

7. Explain how skeletal muscles work in pairs.

8. List two examples in the body where muscles work in pairs (list 2 muscles for each example)

Keeping Muscles Strong and Preventing Muscle Injuries

9. Fill in the chart below to describe three types of exercise

Type of Exercise	Purpose	Examples
aerobic		
	increase muscle strength	
		stretching

Lesson Summary

- _____ are the main organ of the muscle system. They consist primarily of long, thin cells called _____ fibers.
- A muscle fiber contracts when _____ filaments pull on _____ filaments in _____ throughout the fiber.
- There are three types of muscle tissues: _____, _____, and _____ muscle tissues.
- Most muscles are _____ muscles, which are attached to bones by _____. Skeletal muscles work in _____ to move bones back and forth at _____.
- Regular resistance exercise and _____ exercise, preceded by warming up and stretching, can help keep the muscular system _____ and _____.

Chapter 2, Section 1: The Digestive System

Overview of the Digestive System

1. What is the function of the digestive system?

2. What is the gastrointestinal tract (GI tract)?

3. List the major organs of the GI tract.

4. The process of pushing food through the GI tract is called _____.

5. Define the two types of digestion.
    a. Mechanical

    b. Chemical

6. The process of absorption takes broken down nutrients and absorbs them into the _____.
7. Substances that cannot be digested are removed in a process called _____

Digestive Enzymes and Other Secretions

8. How do enzymes help with digestion?

9. Draw lines to match the enzyme with its function.

amylase	produced in the pancreas, used to break down fats
pepsin	produced in the liver, secreted into intestines, breaks down fat
trypsin	produced in they salivary glands, helps break down starches
lipase	produced in the pancreas, breaks down proteins
bile	produced in the stomach, breaks down protein

The Start of Digestion: Mouth to Stomach, Digestion and Absorption: The Small Intestine, Elimination and Other Functions of the Large Intestine

10. Describe how each part listed below contributes to the process of digestion.

    mouth –

    esophagus –

    stomach –

    small intestine –

    villus or villi –

large intestine –

liver –

11. List the ways bacteria in the large intestine is helpful:
    -
    -
    -
    -

Digestive System Health

12. List 4 healthy practices that may decrease your risk of foodborne illness or food allergies
    -
    -
    -
    -

Lesson Summary

- The digestive system is the body system that digests food _____ and _____ and absorbs nutrients. The digestive system also eliminates _____ waste. The major organs of the digestive system include the _____, _____, _____, and _____ and _____ intestines. These organs make up a long tube called the _____ tract, which goes from mouth to _____.
- Chemical digestion depends on the work of _____ enzymes and other substances. These are secreted into the GI tract by organs of the digestive system or by the _____, _____, or _____ _____.
- Digestion starts in the _____. When food is swallowed, it travels through the esophagus to the _____. In the _____ digestion continues and a small amount of _____ or nutrients takes place.
- Most chemical digestion and nearly all absorption of nutrients takes place in the _____ _____. This organ consists of three parts: duodenum, jejunum, and ileum.
- Excess _____ is absorbed from food waste in the large intestine before it passes out of the body through the anus as feces. Trillions of helpful bacteria also live in the large intestine. They carry out important roles, such as making _____.
- Common digestive system problems include foodborne illness and food _____. Following healthy food handling practices may _____ your risk of foodborne illness. Food allergy symptoms can be prevented by avoiding the offending foods.

Chapter 3, Section 1: Overview of the Cardiovascular System

Introduction

1. What is the function of the cardiovascular system?

Parts of the Cardiovascular System

2. What are the three major parts of the cardiovascular system?

3. How does the heart act like a pump?

Functions of the Cardiovascular System

4. What is the primary and secondary function of the cardiovascular system?

Two Circulations

5. List the two loops of circulation in the body? _____ and _____

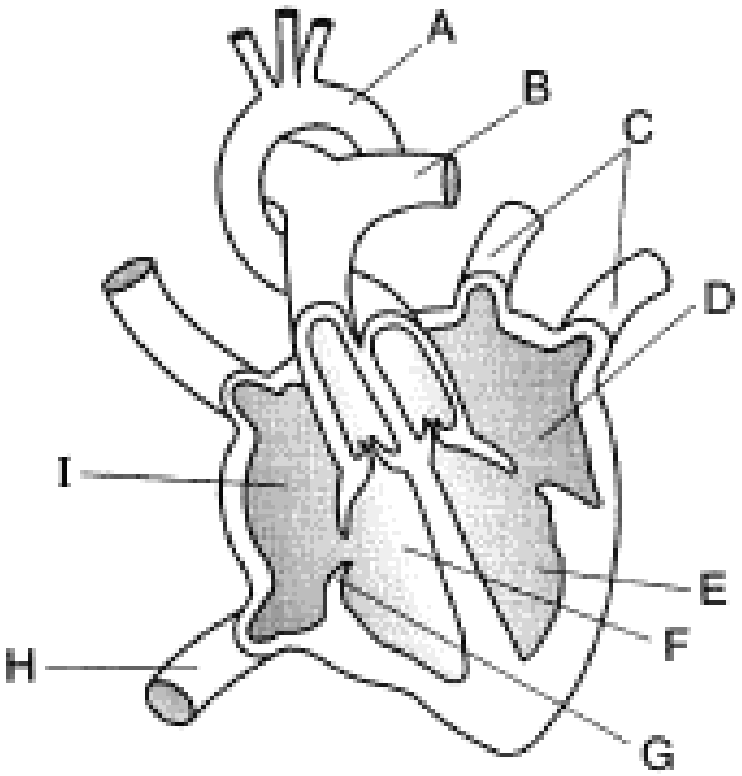
6. List three characteristics of each type of circulation.

_____ circulation

_____ circulation

The Heart

7. Here is a picture of the heart. Please use the internet to label the heart.



A: _____

B: _____

C: _____

D: _____

E: _____

F: _____

G: _____

H: _____

I: _____

Lesson Summary

- The cardiovascular system consists of the _____, a network of blood _____, and _____. Blood is a liquid tissue. The heart is a _____ that keeps blood flowing through the vessels of the system.
- The main function of the cardiovascular system is _____. It carries substances such as hormones, _____, nutrients, and cellular wastes around the body. The cardiovascular system also helps regulate body _____ by controlling blood flow.
- The cardiovascular system circulates blood through two different _____. Pulmonary circulation is a loop that carries blood between the _____ and _____. Systemic circulation is a loop that carries blood between the _____ and the rest of the _____.

Chapter 4, Section 1: The Respiratory System

What is Respiration?

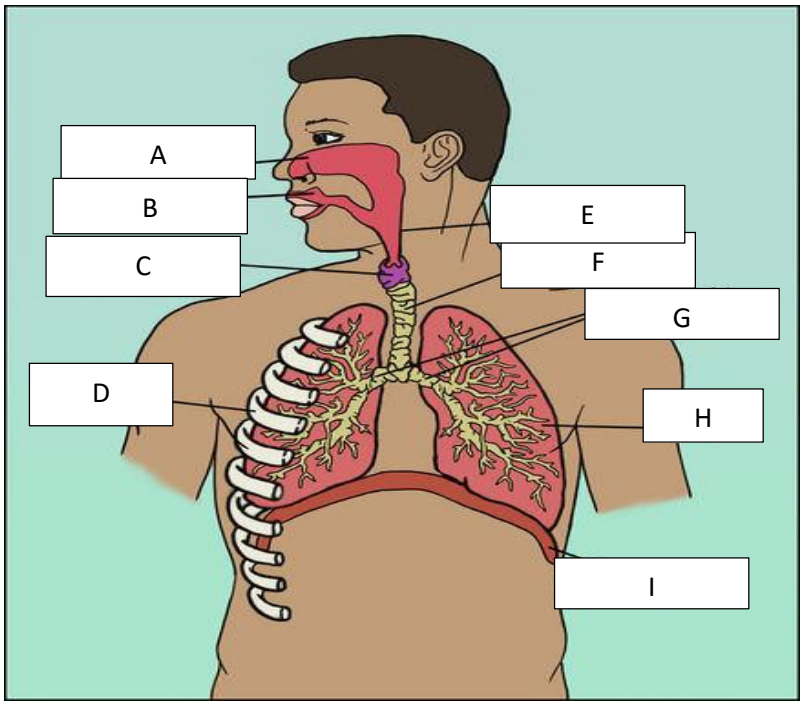
1. The word respiration means:

2. What is the main function of red blood cells?

3. How is pulmonary respiration (using the lungs) different than cellular respiration?

Structures of the Respiratory System

4. Label the structures of the respiratory system.



A: _____

B: _____

C: _____

D: _____

E: _____

F: _____

G: _____

H: _____

I: _____

Steps in Respiration

5. List the 4 steps in respiration
   a.
   b.
   c.
   d.

Breathing

6. What is breathing? Include differences between inhaling and exhaling and the importance of the diaphragm.

7. What is the need for mucus and cilia?

Gas Exchange Between the Air and Blood

8. What are alveoli?

9. How are O_2 and CO_2 exchanged?

10. Define diffusion.

Gas Transport in Blood

11. What part does the heart play in respiration?

Gas Exchange Between the Blood and Cells

12. In what type of vessel does the exchange of O_2 and CO_2 occur? _____

Respiratory System Health

13. List three commons diseases of the respiratory system?

14. The main culprit that causes most respiratory problems is _____.

Lesson Summary

- The respiratory system is the body system that exchanges _____ with the outside air. It brings air containing _____ into the body for the cells. It also releases _____ _____ from the cells into the air. This exchange of gases is called _____.
- _____ is the process of moving air into and out of the lungs. It depends on the muscle called the _____.
- The _____ are the main organ of the respiratory system. This is where gases are exchanged between the _____ and the _____. Gases are also transported by the _____ and the cells of the body.
- Common diseases of the respiratory system include _____, _____ and _____. All of them are diseases of the lungs. The main way to keep your respiratory system healthy is to avoid _____ or breathing in the smoke of others.

Chapter 5, Section 1: The Excretory System

Introduction:

1. How does the body maintain homeostasis on a hot day?

Excretion

2. Define excretion.

3. The kidney is mainly responsible for excretion but other organs are involved. Match the following.

Large Intestine	The main organs for excretion
Liver	Eliminate food waste after digestion
Sweat Glands	Exhale CO_2 and water as vapor
Lungs	Removes excess amino acids and toxins
Kidney	Uses droplets of water on skin to take out excess water and salts.

The Urinary System

4. List the parts of the urinary system?

5. How are the kidneys like a Britta water filter?

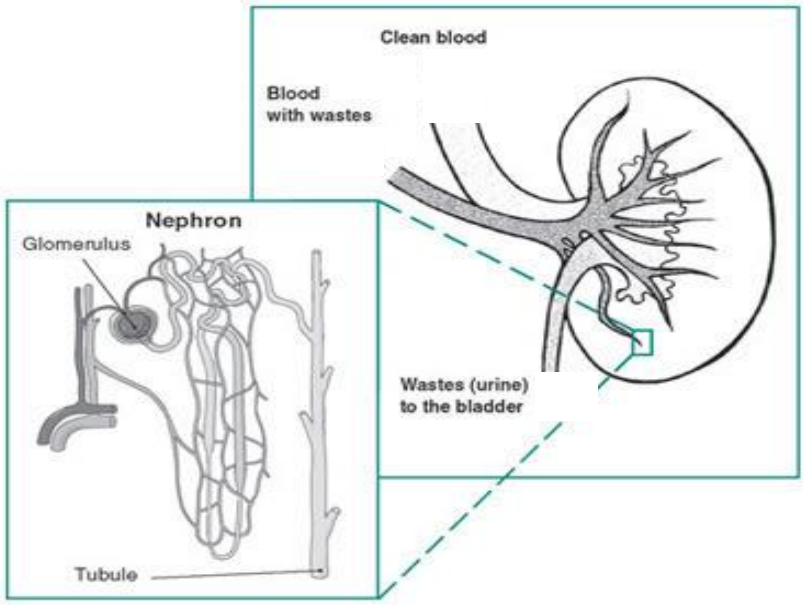
6. A _____ is the part of the kidney that filters blood and there are more than a _____

7. What is the structure in the kidney where the blood is actually filtered? _____

8. Excess water and wastes are filtered out of the blood and pass through the kidney tubule to become _____

9. Describe the path of urine as it leaves the kidney.

10. On the diagram of the kidney and nephron draw arrows showing the movement of blood and filtered fluid.



How the Kidneys Maintain Homeostasis?

11. List three ways the kidneys are used to maintain homeostasis
    a.
    b.
    c.

Kidney Health and Disease

12. How many kidneys do you need to survive and filter blood? _____
13. What can hurt the kidney and prevent it from filtering?
    a.
    b.
    c.

Lesson Summary

- Excretion is any process in which excess _____ or _____ are removed from the body. Excretion is the job of the excretory system. Organs of excretion include the large _____, _____, _____, _____, and _____.
- The urinary system _____ wastes and excess _____ from the blood, forms _____, and excretes urine form the body. It includes two _____, two _____, the urinary _____, and the _____. Nephrons are the tiny structures in the kidneys that _____ blood and form _____.
- Disease of the urinary system include kidney _____ and urinary tract infections. Untreated diabetes may cause _____ failure and the need for hemodialysis or a kidney transplant.

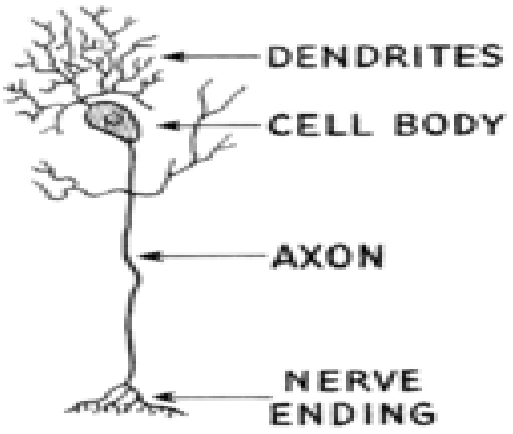
Chapter 6, Section 1: The Nervous System

Functions of the Nervous System

1. The main job of the nervous system is to carry _____ messages.
2. Explain how the nervous system helped Hakeem, from the chapter introduction, from falling.

Neurons and Nerve Impulses

3. Neurons are _____
4. Below is a picture of the neuron (nerve cells that conduct electrical signals). Define the function of each part.

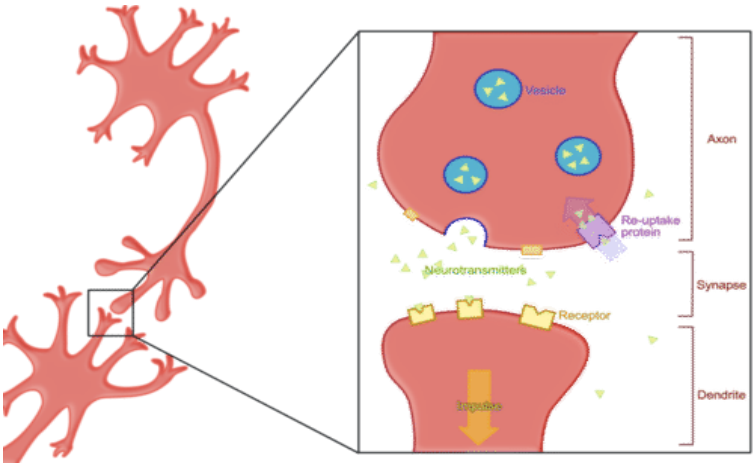


5. Match the neuron with its function

Sensory	Carry impulses between sensory and motor neurons
Motor	Transmit impulses from sense organs to the brain
Interneuron	Transmit impulses from the brain to muscles and organs to respond

6. What are neurotransmitters?

7. Explain what is happening in the picture at the synapse.



Central Nervous System

8. What are the two main parts of the central nervous system? _____ and _____
9. Match the parts of the brain to their function.

Cerebrum	Controls involuntary body function
Cerebellum	Controls conscious functions
Brain Stem (medulla)	Controls body position, coordination, and balance

10. A large bundle of _____ connect the right and left hemispheres of the brain.

11. Each hemisphere controls the _____ side.

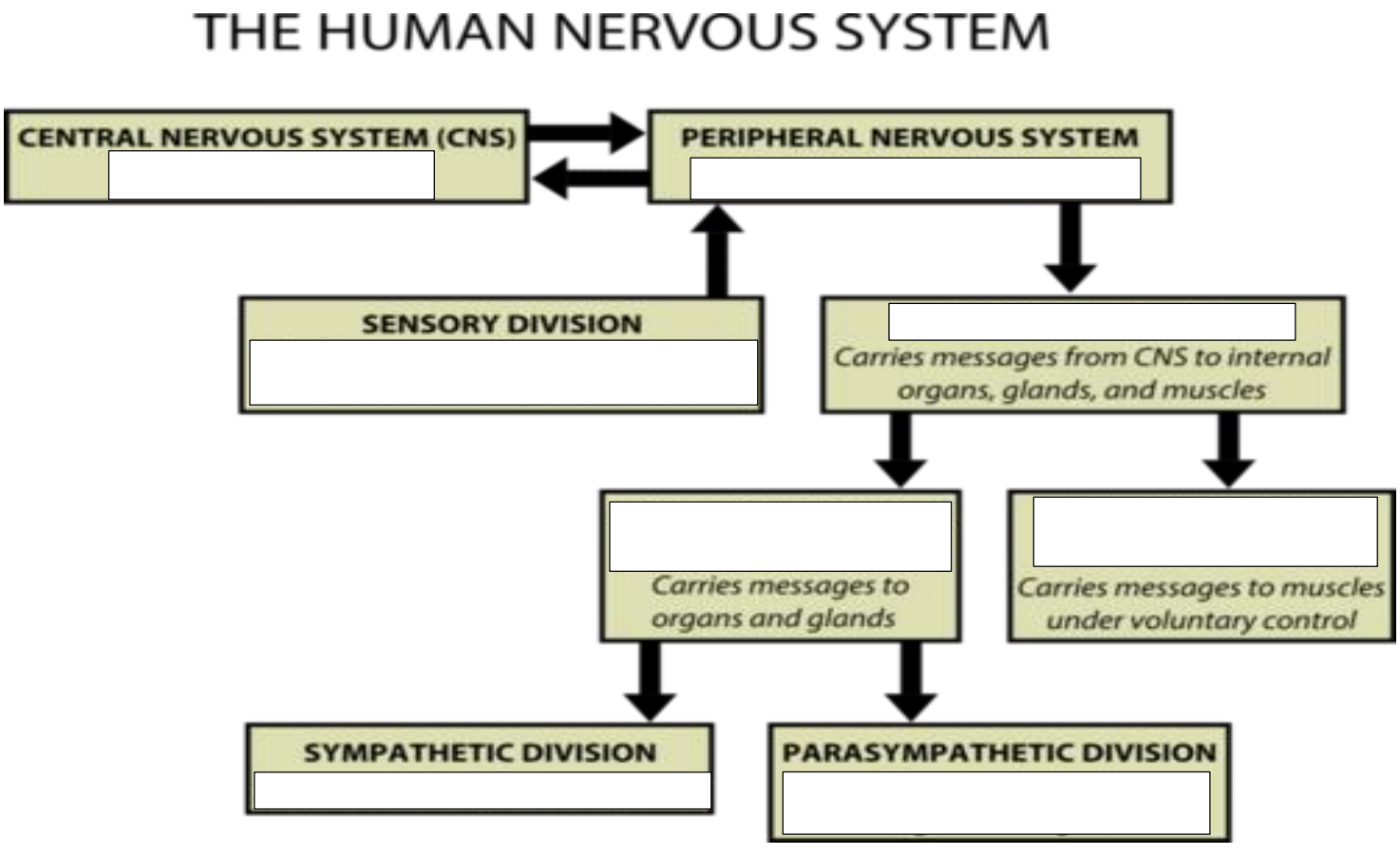
12. List the four lobes of each hemisphere.

13. How is the spinal cord like a two-way road?

Peripheral Nervous System

14. What is the peripheral nervous system made up of?

15. Fill out the chart below



Nervous System Diseases and Injuries

16. Match the description with the disease

Encephalitis	Older adults lose normal brain functions mainly memory loss
Meningitis	Blood clot blocks blood flow to brain
Epilepsy	Bruise on the surface of the brain
Stroke	Bacterial infection of brain
Alzheimer's Disease	Bacterial infection of membranes covering brain and spinal cord
Concussion	Abnormal electrical activity in brain causing seizures

Drugs and the Nervous System

17. What is a psychoactive drug and list 5 examples?

Lesson Summary

- The nervous system is a complex network of nervous tissue that carries _____ messages throughout the body. Its functions include controlling _____, maintaining _____, sensing internal and external _____, controlling body systems to maintain _____, preparing the body for _____, and allowing higher mental functions such as thinking.
- The nervous system is made of bundles of nerves cells called _____. Messages carried by neurons are called nerve _____. A nerve impulse can travel very quickly because it is an _____ signal. _____ carry nerve impulses between neurons at _____.
- The central nervous system includes the _____ and _____ cord. The brain serves as the _____ center of the nervous system and the body as a whole. It consists of three major parts: the _____, _____, and brain _____. The spinal cord carries _____ impulses back and forth between the body and _____.
- All other nervous tissue in the body makes up the _____ nervous system, which has two major divisions. The _____ division carries messages from the _____ organs and _____ organs to the central nervous system. The _____ division carries messages from the _____ nervous system to _____, internal _____, and _____ throughout the body. The motor division is further divided into parts that control _____ or _____ responses.
- Diseases of the nervous system include _____, epilepsy, _____, and _____ disease. Injuries include _____ and spinal cord damage that may cause _____. Most nervous system diseases can't be _____, but many nervous system _____ can be prevented by following safe practices.
- Psychoactive drugs affect the brain and influence how a person _____, _____, or acts. They include medicines and other legal drugs as well as illegal drugs. They may _____ or _____ the central nervous system. Abuse of such drugs may lead to drug addiction, overdose, and death.

Chapter 6, Section 2: The Senses

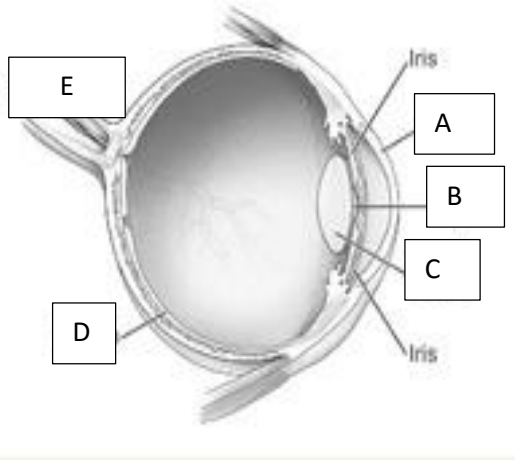
Human Vision

1. How do humans and other primates see in 3-D?

2. What is the function of the eye?

3. Some objects we see directly because they give off _____, others we see because they reflect _____.

4. Each letter is covering up one part. Identify the part and explain the path of light through each.



A.

B.

C.

D.

E.

5. List the characteristics of each type of vision problem

Myopia	Hyperopia

Other Human Senses

6. Briefly describe each of the following senses with an example for each.
    a. Hearing

    b. Balance

    c. Touch

    d. Taste

    e. Smell

Lesson Summary

- _____ is the ability to see. Humans and other _____ have 3-D and color vision. The eyes focus _____, form _____, and send nerve _____ to the brain. The brain _____ the images and tells us what we are seeing. Vision problems include _____ and _____. Both can be corrected with _____.
- Other human senses include hearing, _____, touch, _____, and _____. The ears sense _____ and allow us to hear. They also sense body _____ to help maintain balance. Touch _____, mainly in the _____, sense _____, pressure, and _____. Taste neurons on the tongue sense _____ in food. Odor neurons in the _____ sense chemicals in the _____.

Chapter 6, Section 3: The Endocrine System

What is the Endocrine System?

1. What is a hormone?

2. How do hormones move to the correct location in the body?

Glands of the Endocrine System

3. How are endocrine glands different from a sweat gland?

4. List four endocrine glands in the human body.

5. Why is the hypothalamus a special gland?

6. Why is the pituitary gland called the master gland?

7. List 5 target glands the pituitary can control.

8. Match the function of the endocrine glands below

Thyroid Gland	The master gland that controls most other endocrine glands
Pancreas	Secrete sex hormones to allow for puberty to occur.
Adrenal Glands	Secretes insulin to help absorb glucose
Gonads	Part of the brain that sends hormones to pituitary gland
Hypothalamus	In the neck and helps increase metabolism in cells
Pituitary	Secretes the hormone adrenaline to prepare for emergencies.

How Endocrine Hormones Work

9. Are hormones general or specific? Explain.

10. Describe an example of a negative feedback loop.

11. How is a thermostat in your house like a negative feedback look in your body?

Endocrine System Diseases

12. Why does an endocrine gland start producing too much or too little of a hormone?

13. Explain how the endocrine disease of type I diabetes works.

Lesson Summary

- The endocrine system is a system of _____ that release _____ messenger molecules called _____ into the _____ stream. Endocrine hormones travel _____ slowly than nerve impulses, but can reach _____ anywhere in the body.
- The _____ is part of the brain and also secretes _____, this controlling the nervous and _____ systems. The _____ gland is the master gland of the _____ system and controls other endocrine glands. Endocrine glands also include the _____ gland, _____ glands, _____ and _____.
- Each endocrine hormone affects only certain cells, called _____ cells. A target cell has _____ on its surface to which a given hormone can _____. Most endocrine hormones are controlled by _____ feedback loops. Negative feedback occurs when _____ levels of a hormone feed back to _____ its secretion – and vice versa.
- Endocrine system diseases are fairly _____. An endocrine disease usually involves the secretion of too _____ or not _____ hormone by an endocrine gland. Examples of endocrine disease are _____ and type I _____.

Chapter 7, Section 1: Infectious Diseases

What Causes Infectious Diseases?

1. Define pathogen.

2. Fill in the blanks in the table

Type of Pathogen	Description	Human Disease from Pathogen
Bacteria		
	Thread like particles that reproduce by taking over living things	
		Ringworm, athlete's foot, histoplasmosis, mushroom poisoning.
	Single celled organism with a nucleus.	

3. List five ways that pathogens can spread from place to place or human to human.

   a.

   b.

   c.

   d.

   e.

Preventing the Spread of Infectious Diseases

4. What body system is responsible for fighting off infectious diseases? _____

5. What are vaccines?

6. List a few ways to prevent the spread of infectious diseases.

Lesson Summary

- Infectious diseases are diseases that are caused by _____. Human pathogens include _____, _____, _____, and _____. Different pathogens spread in different ways. Pathogens may spread through _____ food or water, _____ contact, droplets in the air from _____ or _____, contaminated objects or _____, or vectors.
- To avoid infectious diseases, eat well and get plenty of _____ to keep your immune system _____. Get recommended _____, and follow good _____ practices such as frequent hand washing. Also, avoid contact with _____ such as ticks and mosquitoes.

Chapter 7, Section 2: Noninfectious Diseases

Introduction

1. What is the difference between an infectious disease and a noninfectious disease?

Cancer

2. Define cancer.

3. How does cancer spread to other parts of the body?

4. _____ causes cancer and can mostly come from _____ factors, with only a few cancers being inherited.

5. List five things in the environment to avoid that may cause cancer at some point in life.
    a.
    b.
    c.
    d.
    e.
6. For males _____ is the most common type of cancer, and for females _____ is the most common type of cancer.
7. For both genders the second most common cancer is _____.
8. What are three ways to treat cancer in the body?

Diabetes

9. What is insulin and how does it work?

10. List a few characteristics of each type of diabetes

Type 1 Diabetes	Type 2 Diabetes

Immune System Diseases

11. What is an autoimmune disease?

12. List and explain two types of autoimmune diseases.

13. List five of the most commons types of allergens.

14. How would you prevent allergies?

Lesson Summary

- Noninfectious diseases are not _____ because they are not caused by _____. Instead, they are caused by such factors as _____ choices, _____ toxins, or _____.
- Most cancers are caused by _____. Anything that causes mutations leading to cancer is called a _____. Examples include _____ in tobacco smoke and _____ radiation.
- Diabetes is a disease in which _____ fails to keep blood _____ levels within a healthy range. In type _____ diabetes, the _____ doesn't produce insulin. In type _____ diabetes, body cells do not respond normally to _____.
- Autoimmune diseases occur when the immune system attacks the body's _____ cells. Type 1 diabetes is an example. _____ occur when the immune system attacks a harmless substance such as _____ as though it was a _____.

Chapter 7, Section 3: First Two Lines of Defense

First Line of Defense

1. What are the three barriers to stop disease from getting in our body?

2. Identify the barriers below as physical, chemical, or biological.

    a. The skin: _____
    b. Enzymes in tears: _____
    c. Hair (Cilia): _____
    d. Bacteria on your skin: _____
    e. Mucus membranes: _____
    f. Lysozymes: _____
    g. Stomach Acid: _____
    h. Bacteria in your intestine: _____

Second Line of Defense

3. How does inflammation attack any pathogen that may have entered the body?

4. What type of cells in the immune system are responsible for destroying and "eating" pathogens?

5. When the pathogens are engulfed and then destroyed it is called: _____

6. Why is a fever helpful to slow infection?

Lesson Summary

- The body's first line of defense against _____ includes physical, chemical, and biological _____. These _____ keep most _____ out of the body.
- If pathogens do manage to enter the body, the body's second line of defense _____ them. The second line of defense includes _____, _____ and _____.

Chapter 7, Section 4: Immune System Defenses

What is the Immune System?

1. Why is the immune system the final line of defense?

2. Which of the following would you consider to describe the immune system?

   General Defense Specific Defense

3. Why did you choose your answer above?

4. Match the organ with the job in the immune system.

Bone Marrow	trap pathogens that enter the body
Thymus Gland	produces white blood cells called lymphocytes
Spleen	Stores lymphocytes while they mature
Tonsils	Filters pathogens out of the blood.

5. What is lymph?

6. How are lymph vessels similar and different from the blood in the circulatory system?

   Similar:

   Different:

7. What is the main function of lymph nodes?

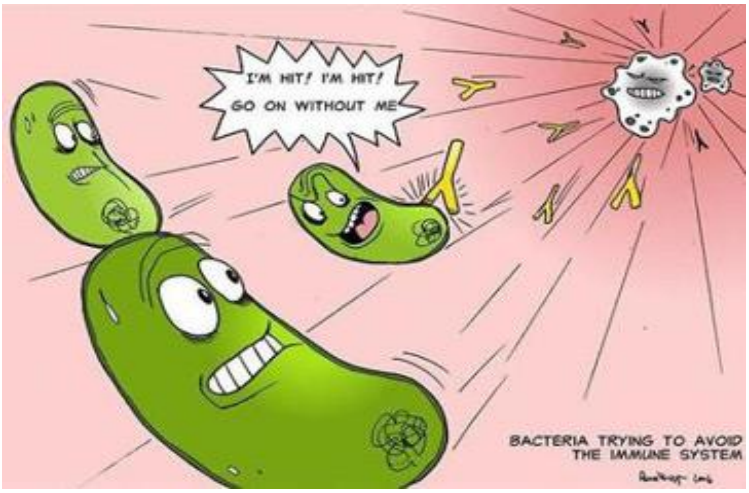
8. A _____ is a white blood cell involved in an immune response.

9. Where are B and T cells made?

10. Why don't B and T cells target and destroy our own cells, like blood cells?

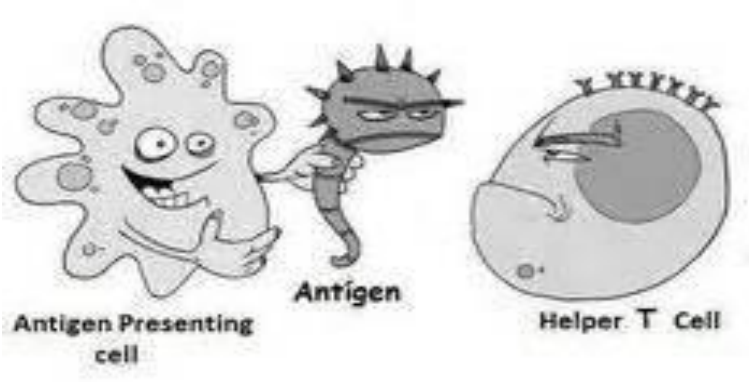
Immune Reponses

11. Explain this B cell response below in the picture?



Explanation:

12. Explain what this helper T cells will do next?



Explanation:

13. Fill in the missing parts of the chart:

Type of Lymphocyte Cell	Order of Attack in Immune Response	Function
		Sends out antibodies to attach to specific antigens on pathogens.
Killer T-Cell	2	
		Release chemical to control B cells and Killer T-cells
Memory Cell	4	

Immunity and Vaccination

14. What are memory cells?

15. How does a vaccination use the memory cells of an immune system? Explain the whole process of creating memory cells?

Lesson Summary

- The immune system is the body system that _____ to _____ the body from specific _____. The immune system's specific reaction to a pathogen is called _____ response. The immune system includes several _____ and a system of _____ that carry _____.
- White blood cells called _____ are the key cells involved in an immune response. There are two main types of lymphocytes, called _____ and _____. B cells respond to pathogens in the blood and lymph by making _____ against them. Killer T cells kill _____, _____, or _____ cells. Helper T cells release chemicals that control other _____.
- Immunity is the ability of the immune system to launch a rapid attack against a particular _____ because it _____ it. Immunity prevents the pathogen from making you _____. It can come about by having a prior _____ with the pathogen or by receiving a _____ for it.