**Organization and Systems** **Name: Key**

1. Define organization.

Organization is a structure that allows for easy management of related items.

2. Describe how our country is organized to maintain order.

Our country is governed by the constitution and is broken down into several regions, states, counties, cities, and town to uphold the law of the land.

3. What are cells?

Cells are the basic building blocks of the body.

4. What are tissues?

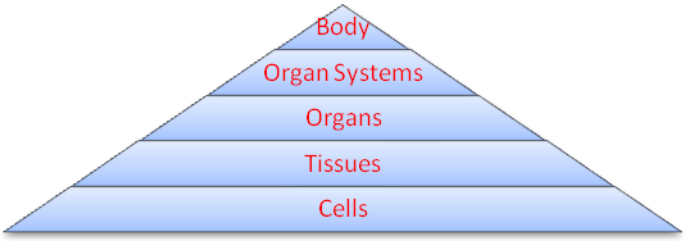
Tissues are groups of similar cells working together.

5. A group of similar tissues working together to perform a task creates an organ.

6. A group of organs working together to perform a task creates an organ system.

7. The body is formed by a group of organ systems working together to maintain life.

8. Label: *Organs, Tissues, Body, Cells, Organ Systems*



9. Fill in the table to describe the four types of tissues.

| Tissue Type | Function | Example |
|---|---|---|
| Epithelial | Covers all body surfaces | Skin and lining of intestines |
| Muscular | Causes body parts to move due to contractions | Muscles in the heart, arms, and stomach |
| Nervous | Carries electrical messages through body to sense changes in the environment | Brain , spinal cord, and nerves |
| Connective | Binds structures together, provides support and protection | Bones, fats, and blood |

10. Write out Genesis 2:7.

"And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living being."

11. Write out Psalm 139:13-14.

"For You did form my inward parts; You did weave me in my mother's womb. I will praise you, for I am fearfully and wonderfully made; Wonderful are Your works."

12. List the eleven systems of the human body.

a) Circulatory

b) Respiratory

c) Skeletal

d) Muscular

e) Digestive

f) Excretory

g) Integumentary

h) Endocrine

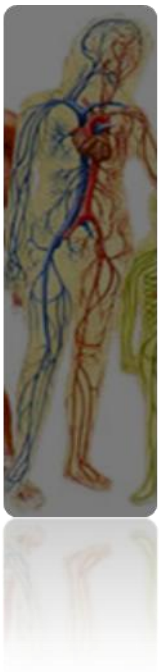
i) Nervous

j) Immune

k) Reproductive

13. The circulatory system is responsible to transport

blood throughout the body



14. The function of the circulatory system is to

- transport fuel to the body
- transport waste to the liver and kidneys
- transport cells to fight disease
- transport hormones throughout the body

15. The organs of the circulatory system include the

- Heart, which pumps blood to the body
- Arteries, which carries blood away from the heart
- Veins, which carries blood to the heart
- Capillaries, which carries blood from arteries, to cells, to veins

and is where nutrients, gasses, and wastes are exchanged between blood and tissues

16. The group of passages that allow the exchange of gasses forms the respiratory system.

17. The function of the respiratory system is to

- carry oxygen to the blood
- carry carbon dioxide out of the body

18. List the organs of the respiratory system.

Lungs, nose, mouth, pharynx, Trachea, bronchi, alveoli, and diaphragm

19. The skeletal system is formed by a combination of joints and connective tissues.

20. The function of the skeletal system is to

- provide support and protection
- allow for movement

21. List the organs and tissues that form the skeletal system.

Bones, ligaments, joints, and cartilage

22. The groups of tissues that make your body parts move forms the muscular system.

23. The function of the muscular system is to

- provide support and protection
- allow for movement

24. The organs of the muscular system include

- Smooth muscles, which are found in the stomach wall.
- Skeletal muscles, such as those found in the arms and legs.
- Cardiac muscles, such as those that form the heart.

25. The digestive system is formed by the group of organs that take in food and break it down into chemical forms that can be used by the body.

26. What is digestion?

The process in which food is broken down

27. List the organs that are a part of the digestive system.

Mouth (teeth and tongue), esophagus, stomach, small intestine, and large intestine

28. The excretory system is formed by those organs that excrete (get rid of) waste from the body.

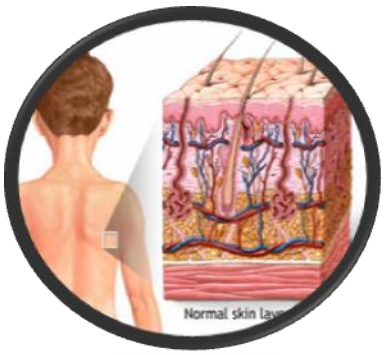
29. The organs and function of the excretory system include the

- The large intestines, which excretes undigested food.
- The urinary tract, which excretes waste from the blood.
- The Lungs, which expels carbon dioxide.

30. The integumentary system includes those organs that cover and protects your body.

31. The function of the integumentary system is to

- provide protection
- maintain body temperature
- allow us to sense our environment



32. List the organs of the integumentary system.

Skin, hair, nails, sweat and oil glands

33. The immune system includes those organs and tissues that

fight off sickness and disease.

34. The function of the immune system is to fight off intruders and infections.

35. List the organs and tissues that are a part of the immune system.

Skin, white blood cells, lymph, and bone marrow

36. The nervous system includes those organs and tissues that are

sensitive to changes in the environment.

37. The nervous system allows us to sense and

adjust and react to changes in the environment.

38. List the organs and tissues that are a part of the nervous system.

Brain, spinal cord, and nerves

39. The endocrine system includes those organs and tissues that produce

hormones which control body functions.

40. The endocrine system maintains homeostasis by

secreting hormones to send messages to cells via the blood.

41. Define homeostasis.

An internal balance

42. List the organs and tissues that are a part of the endocrine system.

Pituitary gland, thyroid gland, adrenal gland, and the pancreas

43. The function of the reproductive system is to bring new life into the world.

**Organization and Systems Vocabulary** **Name: Key**

| Tissues | Organ Systems | Organization | Cell | Organs |
|---|---|---|---|---|

***Use the words above to fill in the blanks below.***

Clutter and a messy environment can lead to mismanagement and failure in a business. The human body is no different. For this reason, God created our bodies to have a system of organization. In His wisdom, God knew that the body would need to have a structure that allows effective management of all life processes. Even the most basic building blocks of our body, the cell, requires organization. In the human body, cells group together to form tissues that work together to complete a task. It is interesting to know that the many organs formed by the different types of tissues are as diverse in shape and sizes as they are in function. They work together creating several different organ systems that form the body as a whole.

| Digestive | Muscular | Excretory | Respiratory | Skeletal |
|---|---|---|---|---|

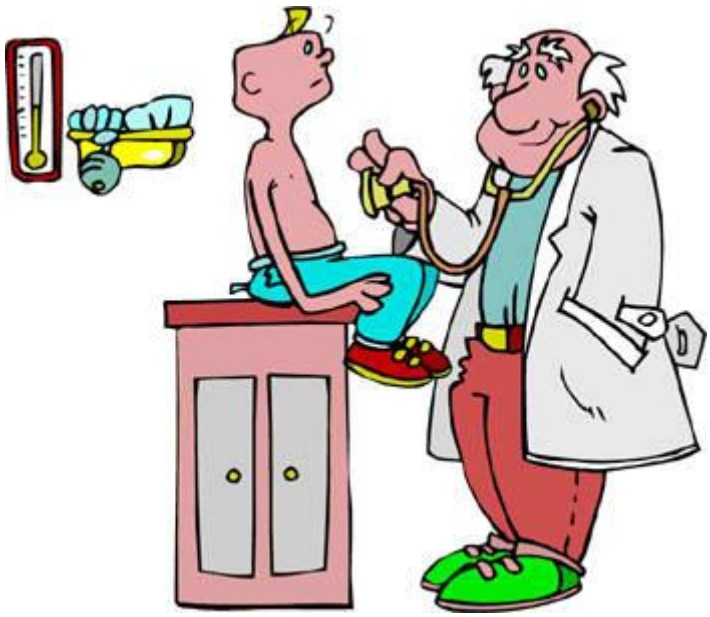
***Use the words above to fill in the blanks below.***

The human body is miraculous in its design. Several systems work together to accomplish all of life's processes. We have the muscular/skeletal and muscular/skeletal systems that allow us to move while providing protection and support. There is also the respiratory system that supplies our body with fresh air while providing an escape for the poisonous carbon dioxide produced by our cells. The digestive system breaks down our meals into energy our cells can use, while the excretory system expels the waste produced after digestion.

| Immune | Endocrine | Integumentary | Nervous |
|---|---|---|---|

***Use the words above to fill in the blanks below.***

Our skin, hair, and nails are all a part of the integumentary system, which covers and protects our body. Our skin helps to keep bacteria and other harmful invaders that can make us sick outside of the body. For this reason, the skin is also a part of the immune system, which has white blood cells to fight the invaders that do make it inside our body. Underneath our skin are nerves that can sense changes in our environment. These nerves send messages to the brain and are a part of the nervous system. When the brain receives messages from our nerves, it can send messages to the glands in our body and have them produce hormones to maintain homeostasis. These glands, which are a part of the endocrine system, send messages to our cells by secreting the hormones into our blood stream. All our systems work together to help maintain life.



**Structures of the Body** **Name: Key**

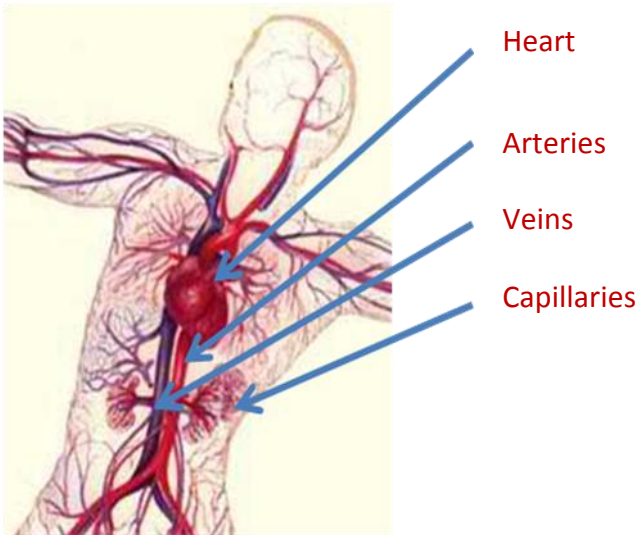
***Explain This*** (write your response here):
Los Angeles, like most large cities, has a combination of freeways/interstates and local roads. Why?

Student response

1. What is the responsibility of the circulatory system?

It transports materials throughout the body.

2. Label the diagram of the circulatory system:




3. Fill in the table below:

| Organ | Function |
|---|---|
| Heart | Pumps blood through blood vessels |
| Arteries | Carries blood away from heart |
| Veins | Carries blood to the heart |

4. Describe the fight-or-flight response.

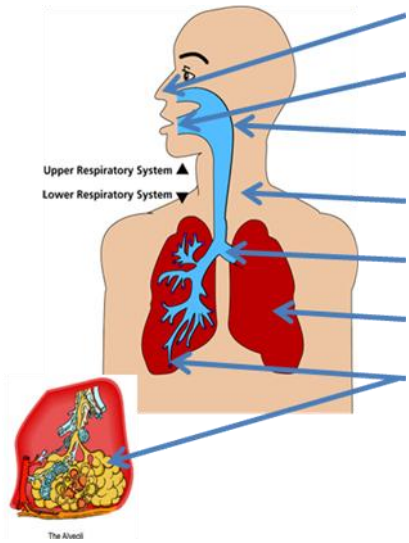
The heart beats faster, muscles receive more blood, and body has more strength to react quickly.

***Explain This*** (write your response here):

What comes to mind when you see this picture? Explain.

Student response

5. Label the diagram of the respiratory system:




Nose

Mouth

Pharynx

Trachea

Bronchi

Lung

Alveoli

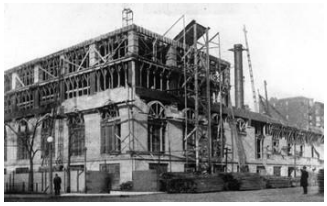
6. What exchange occurs in the alveoli?

Oxygen is exchanged with carbon dioxide from the blood.

7. Our body is designed to filter the air we breathe in. Describe two ways the air is filtered in our body.

The hair collects dust and other large particles, while mucus traps microorganisms and small particles.

***Picture This*** (write your response here):



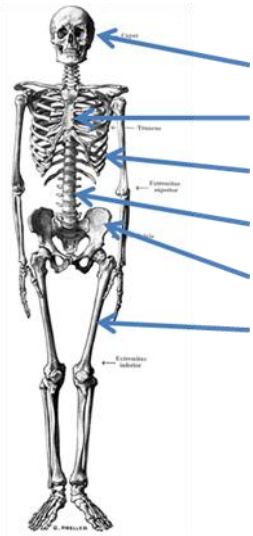
Write a paragraph describing what comes to mind when you see this picture.

Student response

8. How many bones are in the human body?

Over 200 bones

9. Label the bones of the skeletal system:



Cranium
Sternum
Ribs
Vertebrae
Pelvis
Femur

10. Fill in the table below:

| Bone(s) | AKA | Location | Function |
|---|---|---|---|
| Cranium | Skull | Head and Face | Protects brain |
| Vertebrae | Spinal column or backbone | Top of neck to pelvis | Provides vertical support and protects spinal cord |
| Ribs | | Attached to vertebrae | Protects heart and lungs |
| Sternum | Breast bone | Attached to ribs | Protects heart and lungs |
| Pelvis | | Hip | Attachment point for Leg bones |
| Femur | Thighbone | Legs | Manufactures red blood cells and allows for movement |

11. What is the difference between a male pelvis and a female pelvis?

Females have a wider pelvis with a larger opening than males.

12. What are the largest and smallest bones in the human body?

The largest bone is the femur and the smallest is the stapes.

13. The location where bones meet is called a joint.

14. Ligaments are the tissues that hold bones together at the joint.

15. Tissues called cartilage cushion bones and limit the friction between them.

***Explain This*** (write your response here):

What is the difference between these two cars?

Student response

16. How do muscles allow for movement?

Usually by pushing or pulling against bone

17. Other than movement, what is the function of muscles?

It provides protection to internal organs and allows for movement of substances within the body.

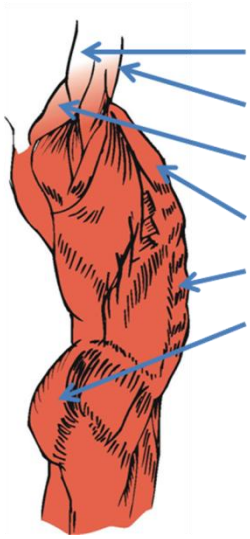
18. What is the difference between voluntary and involuntary muscles?

Voluntary muscles are those you can control, while involuntary muscles are controlled by the brain.

19. Fill in the table below:

| Cardiac Muscles | Smooth Muscles | Skeletal Muscles |
|---|---|---|
| The heart<br><br>Involuntary | Muscles found inside digestive organs.<br>Involuntary | Muscles attached to bones<br><br>Voluntary |

20. Label the skeletal muscles:

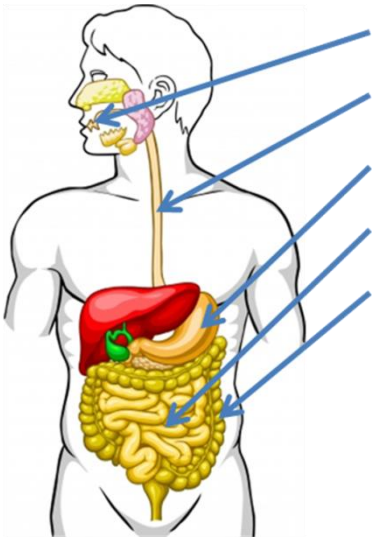



***Picture This*** (write your response here):
Write a short story based on this series of pictures.

Student response

21. The digestive system is designed to break food down into usable energy.

22. Label the organs of the digestive tract:



Mouth

Esophagus

Stomach

Small Intestine

Large Intestine

23. Fill in the table below:

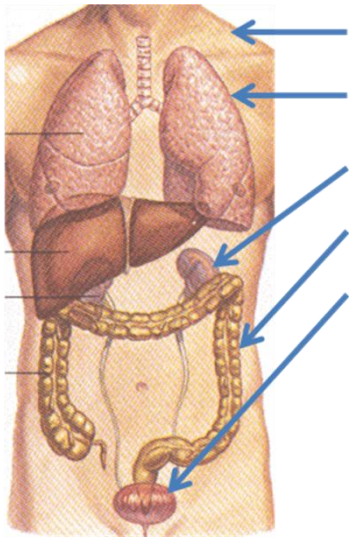
| Organ | Function |
|---|---|
| Mouth | -Teeth grind food into smaller pieces<br>-Saliva turns starches into sugars |
| Esophagus | -Connects mouth to stomach<br>-Peristalsis (muscle contractions) move food down the tube |
| Stomach | Muscle contractions churn food with gastric juices (acids and enzymes) into smaller pieces, forming a souplike mixture. |
| Small Intestine | -Intestinal juice, pancreatic juice, and bile break food into molecules<br>- Villi (small fingerlike projections) cover intestinal wall and absorbs nutrients |
| Large Intestine | -Absorbs water and minerals<br>-Stores feces (solid waste from undigested food) until expelled |

24. Depending on how much fiber was in your meal, digestion takes between 24 and 96 hours.

***Discuss This*** (write your response here):
Imagine a world that did not have a waste management system. What would that world look like?

Student response

25. Label the excretory organs:



Skin

Lungs

Kidneys

Large Intestine

Bladder

26. Fill in the table below:

| Organ | Function |
|---|---|
| Skin | Expels salt, water, and other wastes when you sweat |
| Lungs | Expels carbon dioxide and water when your breath out |
| Kidney | Filters excess salt, water, and urea (liquid wastes) from the blood and stores in bladder |
| Large Intestine | Removes solid wastes (feces) from the body |
| Bladder | Stores urine (filtered wastes from kidneys) until expelled through urination |

27. What would happen if one kidney failed in a person's body?

The surviving kidney would enlarge and work twice as hard to filter all the body's blood

***Discuss This*** (write your response here):
How is the human body similar to a machine?

Student response

28. List the organs associated with the following systems:

a) Integumentary

Skin, nails, hair, sweat glands, and oil glands

b) Immune

Skin and white blood cells

c) Nervous

Brain, spinal cord, and nerves

d) Endocrine

Pituitary gland, thyroid gland, thymus gland, adrenal glands, and pancreas

29. Is it possible for an organ to belong to more than one system? Explain.

Yes, because organs commonly have several different functions.

**Structures of the Body Vocabulary** **Name: Key**

| Heart | Arteries | Veins | Alveoli | Trachea |
|---|---|---|---|---|

***Match the words above with the description below.***

Veins 1.The blood vessels that carry blood towards the heart

Alveoli 2. The site where oxygen enters the blood and carbon dioxide is released

Heart 3. The organ that pumps blood through blood vessels

Trachea 4. The tube air travels down that connects the pharynx to the bronchi

Arteries 5. The blood vessels that carry blood away from the heart

| Cranium | Vertebrae | Sternum | Pelvis | Femur |
|---|---|---|---|---|

***Match the words above with the description below.***

Pelvis 6. Bones that form the hip and the attachment point for the leg bones

Femur 7. The thighbone that manufactures red blood cells

Vertebrae 8. The spinal column that that provides vertical support and protects the spine

Cranium 9. The bones of the skull that protects the brain

Sternum 10. The bones connected to the ribs that protect the heart and lungs

| Ligaments | Cartilage | Joints | Voluntary Muscles | Involuntary Muscles |
|---|---|---|---|---|

***Match the words above with the description below.***

Ligaments — 11. Tissues that hold bones together

Voluntary Muscles — 12. Muscles that you are able to control

Joints — 13. The site where a bone meets another bone

Involuntary Muscles — 14. Muscles that are automatically controlled by the brain

Cartilage — 15. Tissues that provide cushion to the end of bones and limit friction


| Mouth | Esophagus | Stomach | Small Intestine | Large Intestine |
|---|---|---|---|---|

***Match the words above with the description below.***

Large Intestine — 16. Absorbs water and minerals while holding feces

Esophagus — 17. The tube that connects the mouth to the stomach

Small Intestine — 18. Breaks food down into molecules that are absorbed by villi

Mouth — 19. Saliva turns starches into sugars as the teeth grind food

Stomach — 20. Churns food into small pieces forming a soupy mixture