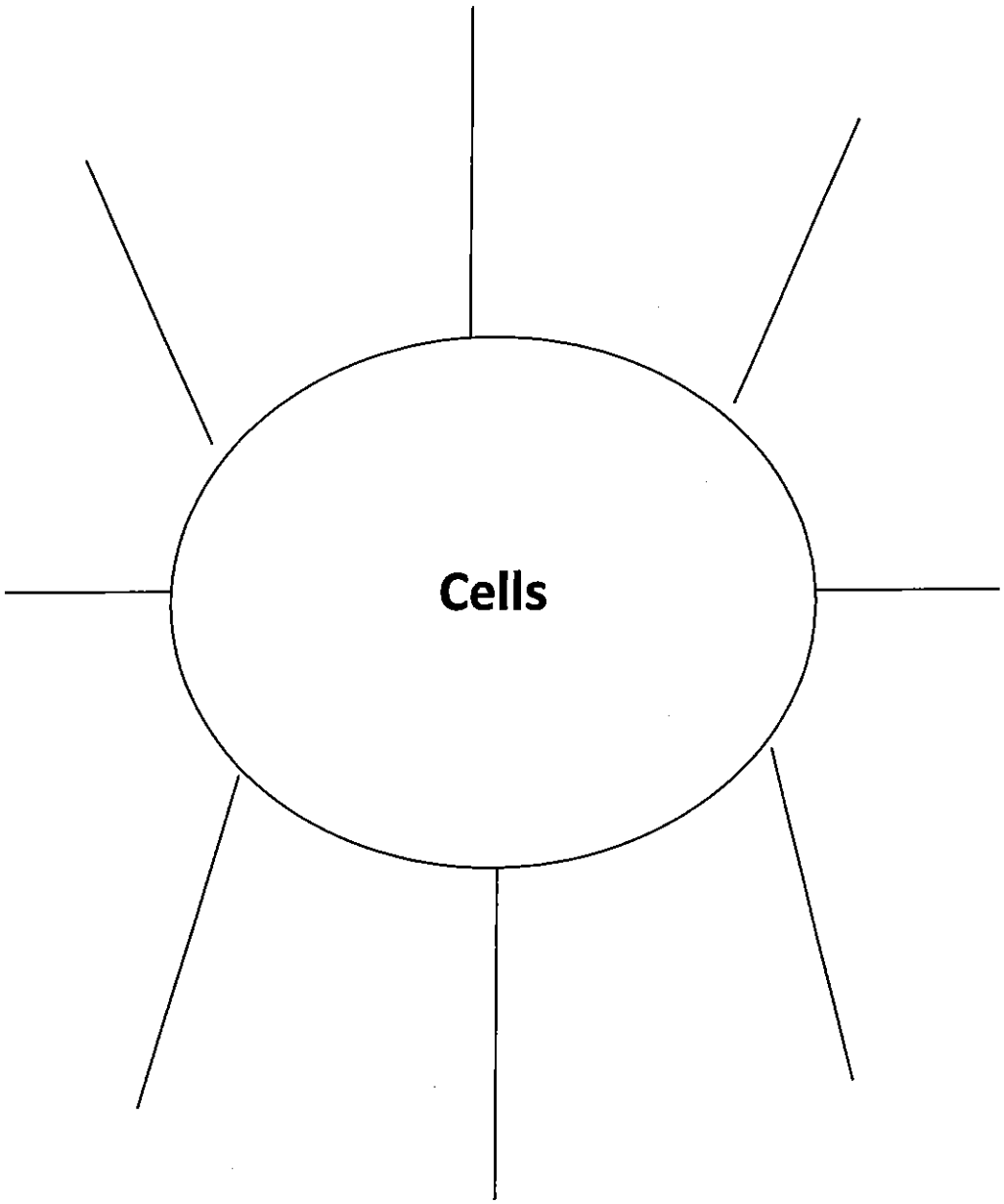

Cells

Cells and Body Systems

Item 1:

Item 2:

How are they similar?

Differences

Function

Appearance

Relationship to other systems

Differences

Function

Appearance

Relationship to other systems

Conclusion:

Draw your cell in the space provided Cell Name-_____	FUNCTION- _____ _____ _____ _____ _____ _____ _____ _____ EXAMPLE-_____ _____ BODY SYSTEM- _____
Draw your cell in the space provided Cell Name-_____	FUNCTION- _____ _____ _____ _____ _____ _____ _____ _____ EXAMPLE-_____ _____ BODY SYSTEM- _____

Cells and Body Systems

Cells are a group of organs that work together to perform a function

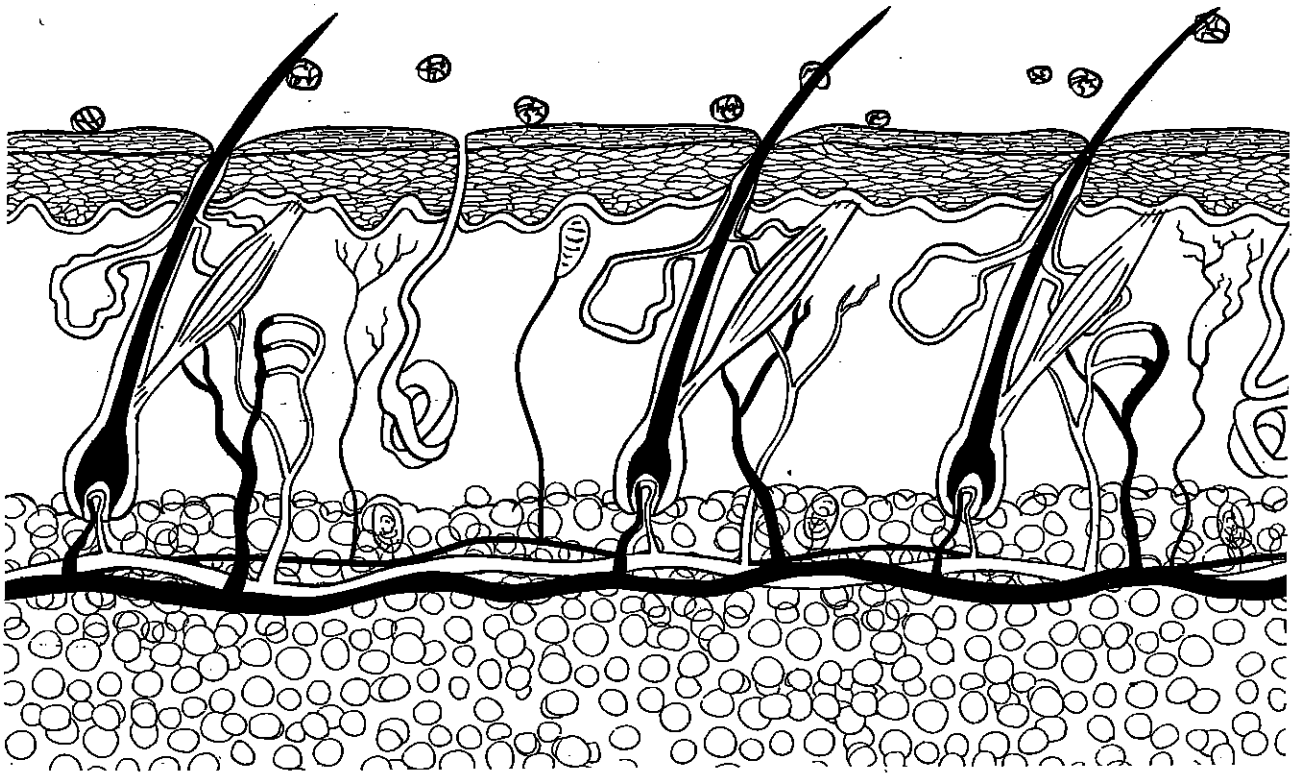
Body System	Function
1 Immune	• White blood cells, protein, organs tissues • Protect body from harmful organisms
2 Circulatory	• Heart, vessels, red blood cells • Circulates blood throughout your body
3 Respiratory	• Lungs, nose, mouth, trachea • Absorbs oxygen and gets rid of carbon dioxide (breathing)
4 Digestive	• Mouth, stomach, intestines • Digest food and absorb nutrients
5 Skeletal	• Bones • Provide structure for your body
6 Muscular	• Muscles • Aids in body movement
7 Nervous	• Nerves, brain, spinal cord • Receives and transmits information to your body
8 Urinary	• Bladder, kidneys • Eliminate waste in liquid form
9 Excretory	• Large intestine, kidneys • Eliminates waste in solid form
10 Endocrine	• Glands • Network of glands that regulate body functions through hormones
11 Integumentary	• Skin, hair, nails, glands, and nerves • Protects body, sweats out waste, regulates temp, provides sensory response

Skin Cells

Name: _____

Date: _____

- Skin cells are layered and packed tightly.
- Your skin is the largest organ of your body.
- The outer layer, called the epidermis, is actually made of dead skin cells.
- Thousands of these dead cells fall off every time you wash your hands, rub your face, shake hands, etc. They are constantly being replaced with new skin cells made deep down under the epidermis. By the time these new skin cells get to the surface, they too will be dead.
- Within the layers of skin cells are sweat glands, oil glands, hair follicles, and tiny muscles (to allow hair to stand up).

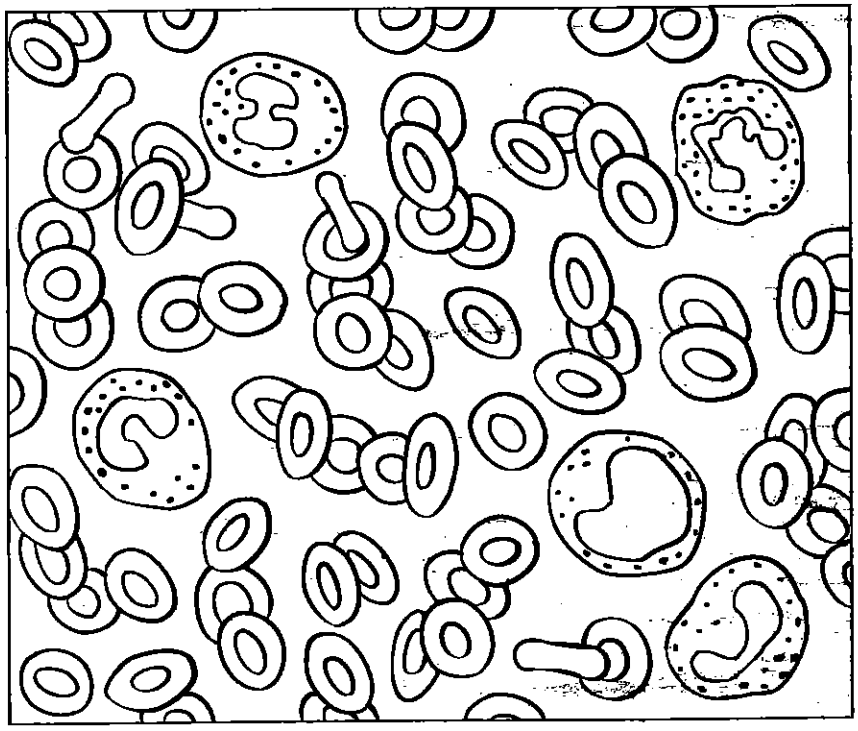


Red And White Blood Cells

Name: _____

Date: _____

- Even though your blood looks red, both red and white blood cells are contained in a yellowish liquid called plasma.
- Blood cells circulate throughout your body, performing their very different jobs.
- Red blood cells carry oxygen and iron to each cell in your body; they remove carbon dioxide (waste gas) that your cells give off. They carry the carbon dioxide to the lungs, and you expel it when you breathe out. In the lungs, the red blood cells also pick up more oxygen.
- Red blood cells are made by the bone marrow. Because they don't reproduce themselves, they don't have a nucleus.
- There are several types of white blood cells. One kind of white blood cell makes antibodies. Another type seeks out and destroys invading bacteria. Some white blood cells eat about five or ten bacteria, then become worn out and die. The body constantly replaces white blood cells. As cells wear out, they break apart and are reabsorbed by the body.

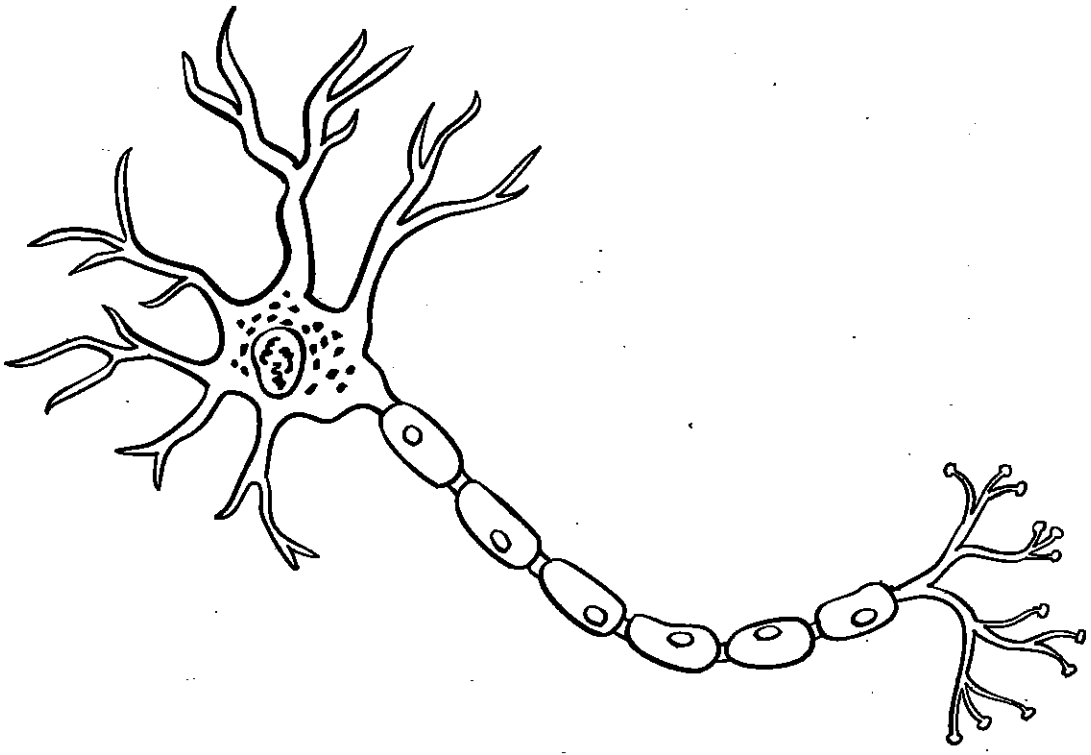


Nerve Cells

Name: _____

Date: _____

- The sensory, motor, and brain cells are all nerve cells. Each nerve cell is called a neuron.
- You are born with approximately 10 billion nerve cells; approximately half of these are in your brain.
- These are all the nerve cells you'll ever have. They will not reproduce and replace themselves if destroyed. Drugs are one thing that can destroy brain cells, so can an accident or disease.
- The short branches coming out of the neuron are dendrites. They pick up messages from the nerve cell next to it and bring it into the neuron body. The long branch is called an axon. It sends the message back out of the neuron and to the next one.
- The trick to remembering which is which: messages exit the neuron through the axon.
- Some nerve cells are several feet long. Others are just a tiny speck

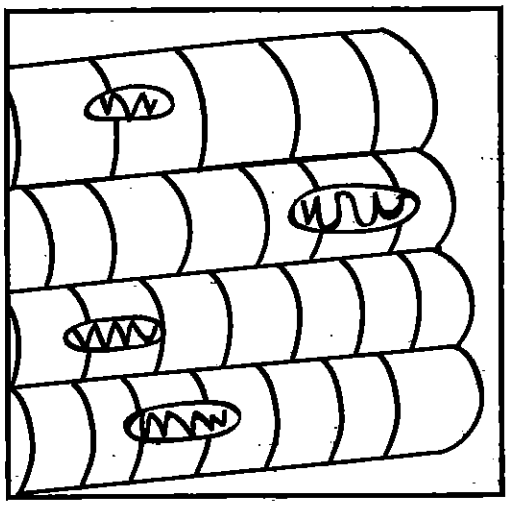


Bone and Muscle Cells

Name: _____

Date: _____

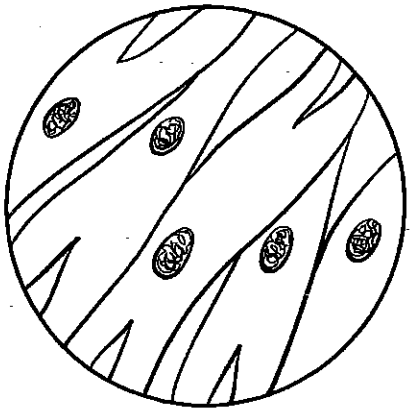
- Throughout your life, bones grow as you grow. They become stronger and thicker when you exercise, so that they can support the stress you put on them. When broken, bones heal themselves.
- The inside of many of your long bones is filled with a spongy material called bone marrow. Red blood cells are produced in your bone marrow.
- Bones—and teeth, too—are made primarily of the mineral calcium. Calcium is found in milk and milk products, as well as in spinach and canned salmon. Without calcium, bones will lose some of their density and will be more prone to breaking when you are middle aged.
- You have three kinds of muscles.
- Voluntary muscles are those attached to your skeleton. (They are also called skeletal muscles.) These are muscles you can choose to move when and how you want. The stripes you notice are actually bands of protein. All three types of muscle cells need protein (a nutrient found in meat, fish, dried beans, and milk products) to grow strong and healthy.
- Involuntary muscles control your organs. These are also called smooth muscles. For example, they make your stomach squeeze in and out, they help your blood vessels pump blood around your body, and they control the irises in your eyes. You cannot decide when and how to move these muscles—they work automatically.
- Heart (or cardiac) cells make up your heart. Your heart is your hardest working muscle and needs a special kind of cell. These cells allow your heart to keep pumping blood throughout your body, day and night, for your whole life.



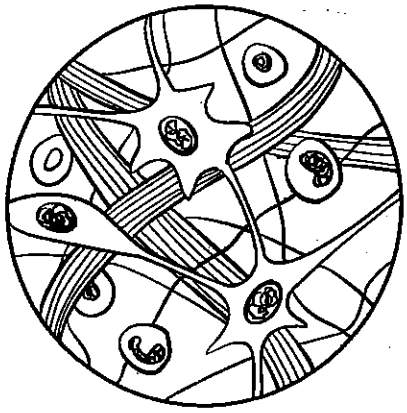
Viewing Cells

Name: _____

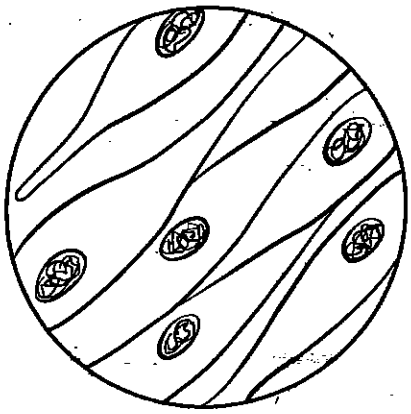
Date: _____



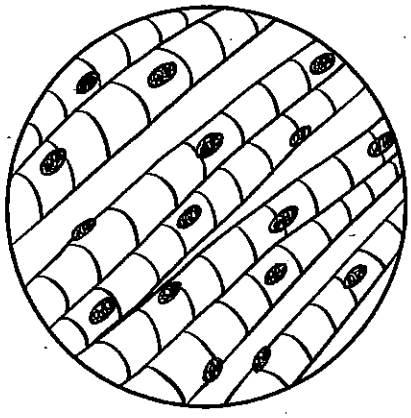
Cardiac cells are special cells that form your heart.



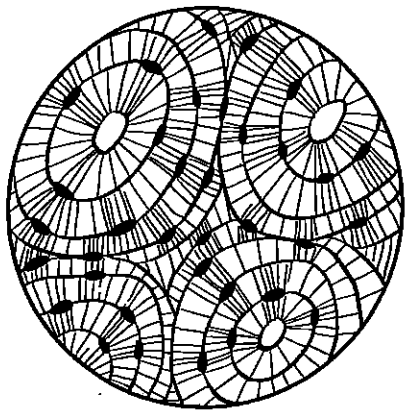
Connective tissue cells hold different organs or body structures together.



Smooth muscle cells make up the muscles that control your organs.

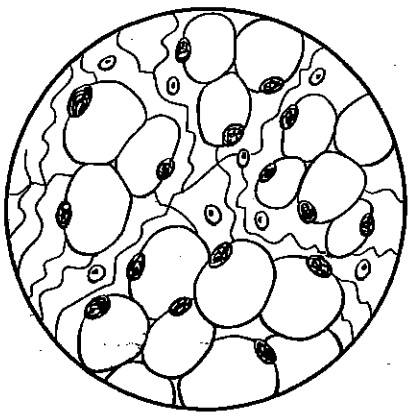


Skeletal muscle cells form the muscles attached to your bones. These are also called voluntary muscles.

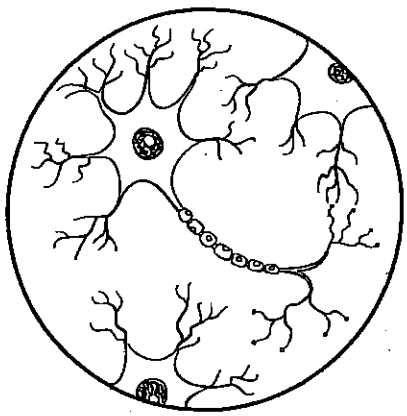


Bone cells join together to form bone tissue.

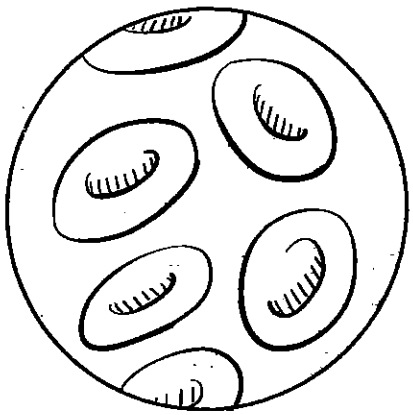
Brain cells are a kind of nerve cell. This type is found in the cerebrum.



Adipose, or fat cells, store energy, help the body to regulate temperature, and cushion organs.



Nerve cells, or neurons, send messages from the brain to the rest of the body.



Red blood cells carry oxygen and nutrients to other cells.

Bone and Muscle Cell Review

Name: _____

Date: _____

1. Where are the red blood cells produced? _____

2. Which mineral in particular do bones need? In which foods can you find this mineral?

_____

_____

_____

3. Which muscle pumps the blood around your body? _____

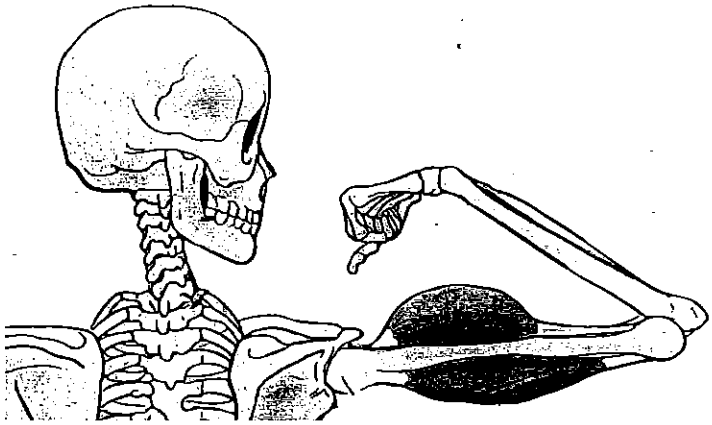
4. What is the difference between voluntary and involuntary muscles? Give one example of each of these muscles. _____

_____

5. What type of nutrient is particularly important for building strong muscles? In which foods can you find this nutrient? _____

_____

_____



Crossword Puzzle

Name: _____

Date: _____

Across

2. These cells have no nucleus.

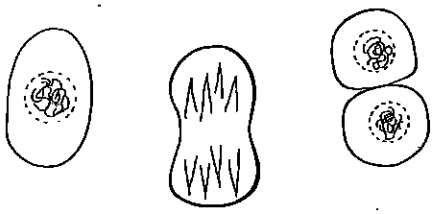
4. Complete this chain: DNA < genes < _____.

6. I'm the "brains" inside each little cell.

8. What's missing from this chain? Cells < tissues < _____ < systems.

10. These cells are dead, but they still keep you covered up.

11. There are three types of us, and we all need lots of protein.



Down

1. These cells are able to pass messages back and forth.

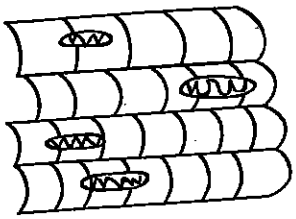
3. I'm a wall, but certain things can travel right through me.

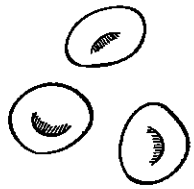
4. A mineral needed by bone cells.

5. _____ is what happens when cells divide and multiply.

7. These blood cells gobble up germs.

9. Carbon dioxide is a waste _____ given off by cells.





Hemophilia: A Genetic Disease

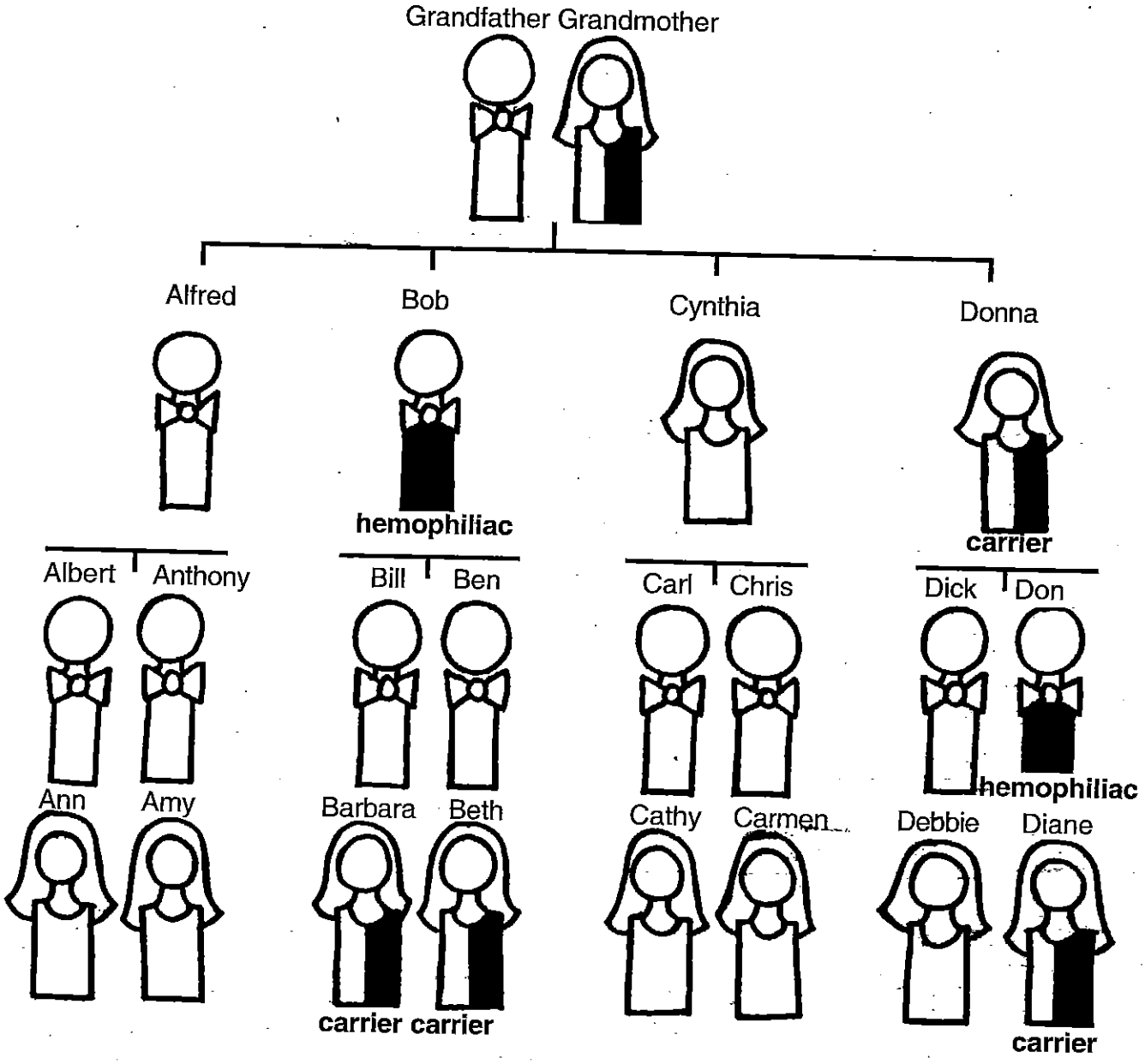
Name: _____

Date: _____

People with **hemophilia** are called "hemophiliacs." They are missing an ingredient in their blood that makes it stop flowing when they get a cut.

Only boys are born with hemophilia. Girls don't get the disease, but they can inherit the gene for it. That means that they can pass the gene for hemophilia on to their children.

Look at the diagram, below. See how the gene for hemophilia has been passed down through this family.



Cells Review Sheet

1) Cells

a. Definition
b. How do they compare to other cells?
c. Do they reproduce and divide?

2) Red blood cells

a. Definition

3) Order the following from smallest to biggest

a. System-DNA- Cell-Organ

_____>_____>_____>_____

4) Mitosis

a. Definition-

5) Cytoplasm

a. Definition

6) DNA

a. What is its function/job?

7) Endoplasmic reticulum

a. Definition

9) How can refusal skills help us prevent illness?

10) Describe 2 diseases that affect the cells of our body, how each is discovered, and the effect each disease has on the cells in our body.

11) Draw a family tree and explain how genes are passed to members of the family. (Use hemophilia as the example, just like we did in class)

12) Provide a brief description for each cell.

Skin Cells	
Red Blood Cells	
White Blood Cells	
Nerve Cells	
Bone Cells	
Voluntary Muscles	
Involuntary Muscles	
Heart Cells	