

Name _____

Day
1

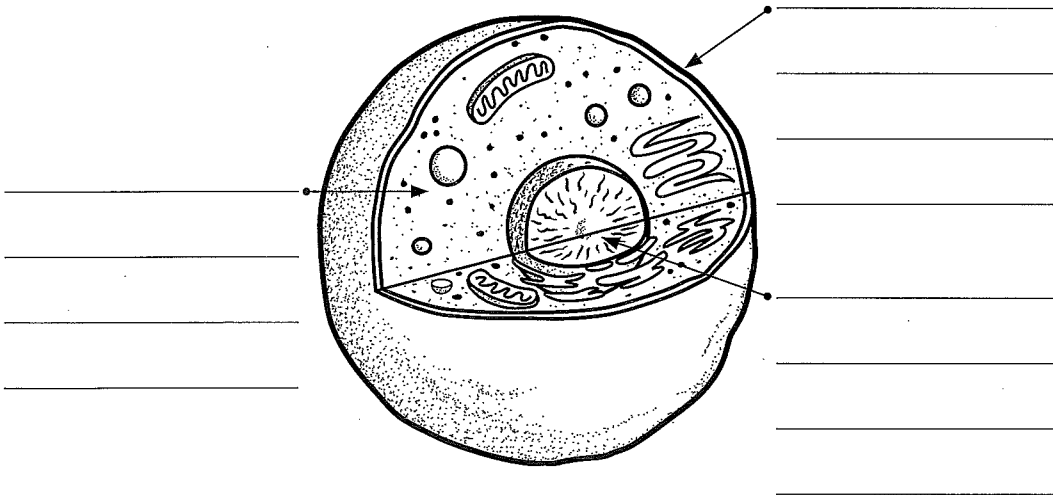
Weekly Question

Why are bones hard and muscles soft?

All organisms are made up of **cells**. A cell is the smallest unit of living matter. Cells grow, reproduce, use energy, and produce waste. Nearly all the cells in your body have the same three parts. The first is the **cell membrane**, which surrounds the cell and acts as a barrier between the cell and the outside world. Inside the cell, a central **nucleus** controls the cell's activities. Between the membrane and the nucleus is the **cytoplasm**, a jelly-like substance that contains the materials and structures necessary for cells to do their job.

Although the cells in your body have similar parts, many of the cells do specific jobs. In order to do these jobs well, the cells look and act different from each other. The cells that make up your muscles are shaped differently and behave differently from those that make up your bones.

- A. Use the vocabulary words to label the parts of the cell.
Briefly describe what each part does.



- B. What do you think the function of muscle cells is? What do you think the function of bone cells is?
- _____

Daily Science

Big
Idea 1

WEEK 1

Vocabulary

cell

sel

the basic unit of structure and function in living organisms

cytoplasm

SY-toh-PLAZ-um
the jelly-like substance inside a cell

cell membrane

MEM-brain
the thin sack that surrounds a cell

nucleus

NEW-klee-us
the part of the cell that directs all of its activities

Name _____

Daily Science

Big Idea 1



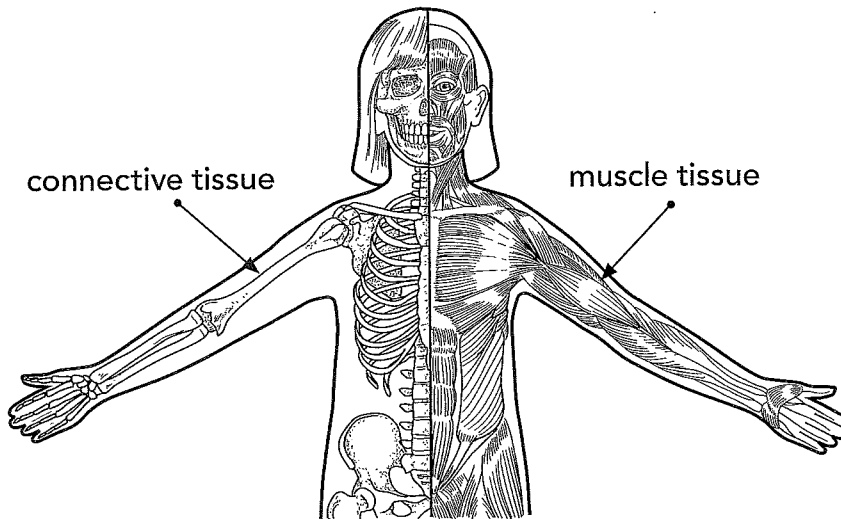
WEEK 1

Day 2

Weekly Question

Why are bones hard and muscles soft?

Human beings are multicellular (MUL-tee-SEL-yoo-ler) organisms made of trillions of cells. Specialized cells in multicellular organisms, such as bone or muscle cells, group together to carry out particular functions, such as breathing, digesting, and moving. When similar cells work together, they form a **tissue**. The human body contains four types of tissue. Muscle cells form **muscle tissue**, which is responsible for movement. Bone cells make up part of the body's **connective tissue**, which also includes cartilage, tendons, and ligaments that help connect muscles and bones.



Vocabulary

tissue

TIH-shoo

a group of cells that work together to perform a specific function

connective tissue

kuh-NEK-tiv TIH-shoo

groups of cells that provide structure and support

muscle tissue

MUSS-ul TIH-shoo

groups of cells that can contract and expand to produce movement

What kind of tissue do you think each body part is mostly made of?

1. your kneecaps _____
2. the cartilage in your nose _____
3. your heart _____
4. your shinbone _____
5. your tongue _____
6. the biceps in your arms _____

Name _____

Daily Science

**Big
Idea 1**

WEEK 1

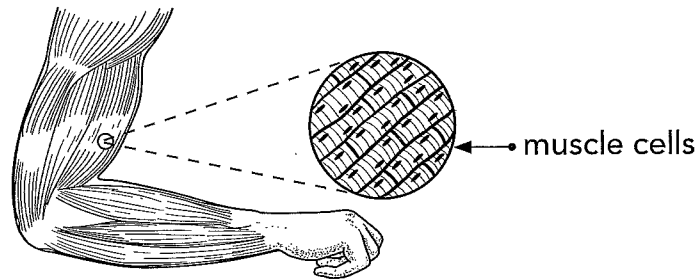
**Day
3**

Weekly Question

Why are bones hard and muscles soft?

There are three types of muscle tissue that make up the muscles in your body. One type forms the muscles in your organs. Another type forms your heart muscle. The third type forms the muscles that attach to your skeleton. This skeletal muscle tissue is made up of long, thin cells that look like threads. Unlike most other cells, skeletal muscle cells have more than one nucleus. Muscle cells bundle together to form long, rope-like cords of tissue.

Every time you move, muscle tissue contracts and relaxes. When you "make a muscle" in your arm by flexing, you are actually contracting the muscle tissue, making it shorter and thicker. When you stop flexing, the muscle tissue releases, becoming longer and thinner.



A. Rewrite each sentence, changing a word or phrase to make the statement true.

1. The muscle tissue in your heart is made up of long, thin cells.

2. Skeletal muscle cells have a nucleus and many cell membranes.

3. When you flex your arm, the muscle tissue becomes longer and thinner.

B. Our bodies have some muscles that we can move voluntarily and some that move involuntarily (without us thinking about it). Name an example of each.

Voluntary: _____

Involuntary: _____

Name _____

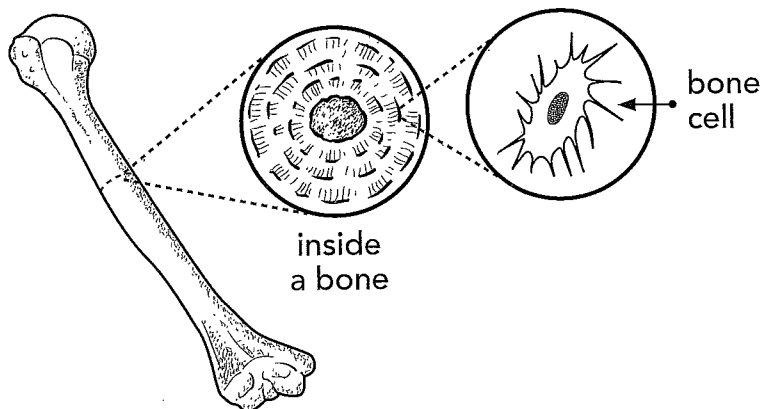
**Day
4**

Weekly Question

**Why are bones hard
and muscles soft?**

Under a microscope, bone cells look very different from muscle cells. Bone cells are star-shaped and contain a nucleus and a thin ring of cytoplasm. Bone tissue is made up of layers of bone cells surrounded by calcium and other minerals. These minerals are what make our bones hard. Bones give our bodies shape and allow us to stand upright.

Hard bones and soft muscles work together to give us strength, form, and movement. Bones cannot move by themselves. They need muscles that contract and release to pull them into motion. But muscles can't contract and release without being attached to something hard and rigid, like bones. In order for our bodies to function, we need both bones and muscles.



- A.** Describe two ways that bone cells and muscle cells are alike and two ways they are different.

Alike: _____

Different: _____

- B.** Why do you think nutrition experts recommend that young people eat foods high in calcium?

Daily Science

**Big
Idea 1**

WEEK 1

Name _____

**Day
5**

Weekly Question

**Why are bones hard
and muscles soft?**

Daily Science

**Big
Idea 1**

WEEK 1

A. Use the words in the box to complete the paragraph.

membrane nucleus muscle tissue cell
cytoplasm tissue connective tissue

The smallest unit of life is a _____. It contains
a _____ that directs all of the cell's activities. It also
has a _____ that acts as a barrier between the cell
and the outside world. Inside the cell, there is a jelly-like substance called
_____. Cells that group together to carry out a specific
function are called _____. _____
supports the body. _____ helps us move.

B. Label the *nucleus* (or *nuclei*), *cytoplasm*, and *cell membrane* of the
muscle cells and bone cells.

