



[KidsHealth.org/classroom](http://KidsHealth.org/classroom)

## Teacher's Guide

This guide includes:

- Standards
- Related Links
- Discussion Questions
- Activities for Students
- Reproducible Materials

## Standards

This guide correlates with the following National Health Education Standards:

Students will:

- Comprehend concepts related to health promotion and disease prevention to enhance health.
- Analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.
- Demonstrate the ability to access valid information and products and services to enhance health.
- Demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
- Demonstrate the ability to use decision-making skills to enhance health.
- Demonstrate the ability to use goal-setting skills to enhance health.
- Demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.
- Demonstrate the ability to advocate for personal, family, and community health.

National Health Education Standards:  
[www.cdc.gov/healthyschools/sher/standards/index.htm](http://www.cdc.gov/healthyschools/sher/standards/index.htm)

The following activities will help your students learn about the valuable work the bones, muscles, and joints do each day; how they work together to function properly; and what happens when something goes wrong.

## Related KidsHealth Links

### Articles for Teens:

#### **Bones, Muscles, and Joints**

[TeensHealth.org/en/teens/bones-muscles-joints.html](http://TeensHealth.org/en/teens/bones-muscles-joints.html)

#### **Broken Bones**

[TeensHealth.org/en/teens/broken-bones.html](http://TeensHealth.org/en/teens/broken-bones.html)

#### **Dealing With Broken Bones**

[TeensHealth.org/en/teens/broken-bones-sheet.html](http://TeensHealth.org/en/teens/broken-bones-sheet.html)

#### **Strains and Sprains**

[TeensHealth.org/en/teens/strains-sprains.html](http://TeensHealth.org/en/teens/strains-sprains.html)

#### **Strength Training**

[TeensHealth.org/en/teens/strength-training.html](http://TeensHealth.org/en/teens/strength-training.html)

#### **Calcium**

[TeensHealth.org/en/teens/calcium.html](http://TeensHealth.org/en/teens/calcium.html)

#### **Vitamin D**

[TeensHealth.org/en/teens/vitamins.html](http://TeensHealth.org/en/teens/vitamins.html)

## Discussion Questions

*Note: The following questions are written in language appropriate for sharing with your students.*

1. Chewing gum, texting a friend, swinging a bat – these are all tasks that the bones, muscles, and joints help you do. How do they work together to help you move? What other functions do the bones perform?
2. What are bones made of? What can we eat to help ensure that they'll grow healthy and strong? Name other ways we can care for our bones, muscles, and joints.
3. There are three types of muscles in the body. What are they and what do they do?
4. Despite the fact that bones, muscles, and joints are strong, they can be damaged. Brainstorm a list of injuries and diseases that may occur in the bones, muscles, and joints.



## Activities for Students

*Note: The following activities are written in language appropriate for sharing with your students.*

### Working Together

#### Objectives:

Students will:

- Learn what the bones, muscles, and joints do
- Discover how they work together to function properly
- Identify how bones, muscles, and joints move

#### Materials:

- Computer with Internet access
- “Working Together” handout

#### Class Time:

45 minutes

#### Activity:

When you decide to move, it’s usually as simple as just doing it – whether it’s wiggling your fingers, riding your bike, or diving into a pool. Most of us don’t think much about the movements we make each day, but there’s actually a lot going on when we decide to tap a keyboard to write.

Read the articles at [TeensHealth.org](http://TeensHealth.org) to learn about what the bones, muscles, and joints do and how they work together. Next, use the handout to create a chain diagram that describes the process of moving some part of the body, starting with the decision to move and ending with the actual coordination of movement. While creating this sequence of events, include what happens in the bones, muscles, and joints as well as what happens in the brain and nervous system (check out [TeensHealth.org/en/teens/brain-nervous-system.html](http://TeensHealth.org/en/teens/brain-nervous-system.html)).

#### Extensions:

1. Create three columns, one for each type of muscle, and describe what these muscles do in the body.
2. Generate a list of foods that you can eat to help your bones remain strong – those that are rich in calcium, vitamin D, and other vitamins and minerals. How do these nutrients strengthen the bones? What foods contain these important nutrients, and how often do you consume them? List ways you can add these foods to your diet each day – whether as part of a meal or as a healthy snack.



## Make It Personal

### Objectives:

Students will:

- Learn about the various diseases in the bones, muscles, and joints
- Identify ways to prevent and/or treat these diseases

### Materials:

- Computer with Internet access
- Pen and paper

### Class Time:

2 hours

### Activity:

Teen TV is hosting a talk show that highlights the various diseases that occur in the bones, muscles, and joints and how they affect teens. With a partner, select a disease and create a segment of the talk show discussing the disease: what it is; how it affects the bones, muscles, or joints; who's at risk; and how it may be prevented and/or treated. Once you've read about the disease on TeensHealth.org, imagine that one of you has this condition and be ready to tell your story. Your partner will be the host and ask you questions about living with this condition.

## Reproducible Materials

### Handout: Working Together

[KidsHealth.org/classroom/9to12/body/parts/bones\\_handout1.pdf](http://KidsHealth.org/classroom/9to12/body/parts/bones_handout1.pdf)

### Quiz

[KidsHealth.org/classroom/9to12/body/parts/bones\\_quiz.pdf](http://KidsHealth.org/classroom/9to12/body/parts/bones_quiz.pdf)

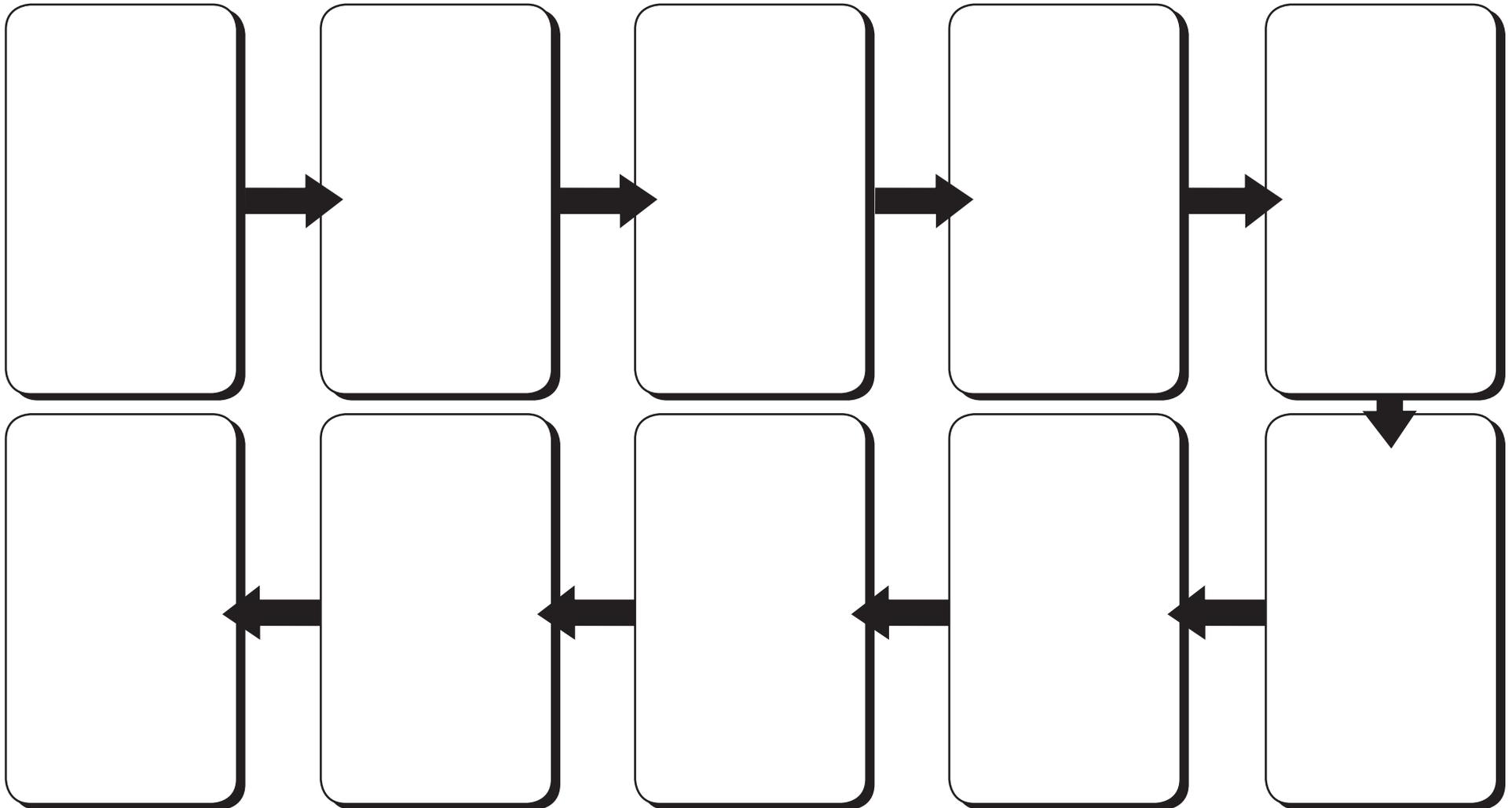
### Quiz: Answer Key

[KidsHealth.org/classroom/9to12/body/parts/bones\\_quiz\\_answers.pdf](http://KidsHealth.org/classroom/9to12/body/parts/bones_quiz_answers.pdf)



## Working Together

Instructions: Create a chain diagram that describes the process of moving some part of the body, starting with the decision to move and ending with the actual coordination of movement. While creating this sequence of events, include what happens in the bones, muscles, and joints as well as what happens in the brain and nervous system.





Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Quiz

Instructions: Answer each question.

1. Bones store \_\_\_\_\_ and release it into the bloodstream when other parts of the body need it.
2. \_\_\_\_\_ are fibrous strands that connect bones.
3. Name the three types of muscles found in the body, and give a one-sentence description of what they do:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. The \_\_\_\_\_ muscle helps to bend a limb at the joint.
5. One example of the cartilaginous joints, which only move a little, is the:  
a. jawbone  
b. ribs  
c. skull  
d. shoulder
6. Name the three types of freely moveable (or synovial) joints, how they move, and where they can be found in the body:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. \_\_\_\_\_ is a soft, rubbery matter in the joints that acts as a cushion between the bones.
8. True or False: Osteomyelitis is an inflammation of the joints that causes difficulty in moving. T F
9. True or False: Arthritis occurs only in older people, so children and teens don't have to worry about it. T F
10. Name two ways that bones protect us:  
\_\_\_\_\_  
\_\_\_\_\_



## Quiz Answer Key

- Bones store calcium and release it into the bloodstream when other parts of the body need it.
- Ligaments are fibrous strands that connect bones.
- Name the three types of muscles found in the body, and give a one-sentence description of what they do:  
**Skeletal:** These muscles hold bones together, give the body its shape, and help move bones.  
**Smooth:** These muscles aid in the digestive process by moving food through the digestive system, and they help regulate blood pressure.  
**Cardiac:** These muscles help the heart beat and push blood through the heart.
- The flexor muscle helps to bend a limb at the joint.
- One example of the cartilaginous joints, which only move a little, is the:
  - jawbone
  - ribs
  - skull
  - shoulder
- Name the three types of freely moveable (or synovial) joints, how they move, and where they can be found in the body:  
**Hinge:** move in one direction and are found in the knees, elbows, fingers, and toes  
**Pivot:** allow for twisting and rotating and are found in the head  
**Ball-and-socket:** allow for movement in almost any direction and can be found in the hip and shoulder
- Cartilage is a soft, rubbery matter in the joints that acts as a cushion between the bones.
- True or False: Osteomyelitis is an inflammation of the joints that causes difficulty in moving. T  F
- True or False: Arthritis occurs only in older people, so children and teens don't have to worry about it. T  F
- Name two ways that bones protect us:  
The skull protects the brain, and the ribs protect the heart, lungs, liver, and other internal organs.