



## TEACHER GUIDE

- Assessment Rubric ..... 4
- How Is Our Resource Organized? ..... 5
- Bloom’s Taxonomy for Reading Comprehension ..... 6
- Vocabulary ..... 6



## STUDENT HANDOUTS

- Reading Comprehension

1. Cells – The Building Blocks of Life ..... 7
2. Cell Structures & Functions ..... 7
3. Cells, Tissues, Organs & Systems ..... 7
4. What Are Organs & Organ Systems? ..... 7
5. The Skeletal System – Bones ..... 7
6. The Skeletal System – Joints & Cartilage ..... 7

7. The Muscular System – Muscles..... 11
8. The Muscular System – Movement..... 11

- Hands-on Activities ..... 11
- Crossword ..... 15
- Word Search ..... 16
- Comprehension Quiz ..... 17



## EASY-MARKING™ ANSWER KEY ..... 19

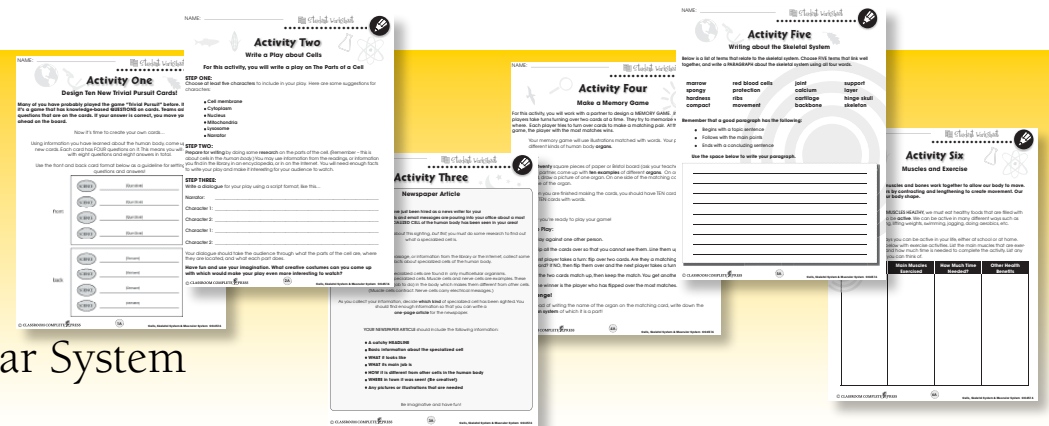
## MINI POSTERS ..... 21

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- Go to our website:  
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- Click on item CC4516 – Cells, Skeletal System & Muscular System
- Enter pass code CC4516D





# The Skeletal System - Joints and Cartilage

1. Circle the word that completes the sentence. You may use your dictionary to help.

- a) The bones of the skeletal system are held together by \_\_\_\_\_.  
joints    skin
- b) The elbow and knee are examples of \_\_\_\_\_ joints because they can swing forward and backwards, just like a door.  
handle    hinge
- c) A ball and \_\_\_\_\_ joint is called this because the ball of one bone fits into the hollow area of the other bone.  
soccer    socket
- d) Our wrists can turn in a complete circle, moving in all directions. This is called \_\_\_\_\_.  
relocation    rotation
- e) The ends of our bones are protected by a rubbery material called \_\_\_\_\_.  
cytoplasm    cartilage
- f) The ends of our bones need protection or they wear down from \_\_\_\_\_.  
banging    grinding

2. In the chart below, list what you already know about the skeletal system and some questions you have.

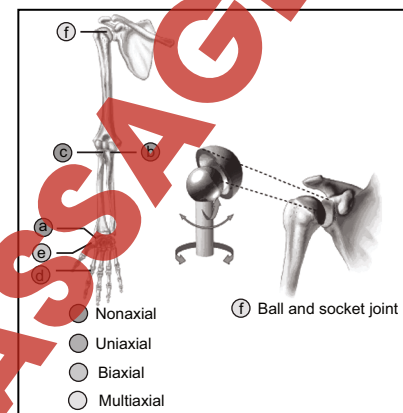
What I Know about the Skeletal System	Questions I Have about the Skeletal System



# The Skeletal System - Joints and Cartilage

## What Are Joints?

Your skeletal system is made up of an amazing 206 different bones. Bones are connected to each other by joints. Without joints, bones would not be able to move because it is at the joint that movement takes place. Three of the most important joints are the ball and socket, hinge and sliding joints.



- 1. **Ball and Socket Joint:** This kind of joint allows movement in *almost any direction*, like a computer joystick. Ball and socket joints are found in the shoulder and the hip.
- 2. **Hinge Joint:** This type of joint allows for *forward and backward* movement, like the hinge of a door. Elbows and knees are hinge joints. A hinge joint does not allow for as much movement as a ball and socket, but it is stronger.
- 3. **Sliding Joint:** This type of joint lets bones *slide* easily across each other. This allows both bending and turning (rotation). Ankles and wrists have sliding joints.

**STOP**

Think of all the places in your body where bones join together to form joints. Besides elbows and knees, what is another joint that might be a HINGE JOINT? (Remember how a hinge joint moves...)

\_\_\_\_\_

## What Is Cartilage?

The ends of many bones are covered with a tough rubbery material called cartilage. One of the main jobs of cartilage is to protect bones at the joint. Without cartilage, bones would grind against each other when we move them. In time the bones would wear away. Besides our joints, did you know that our ears and the tips of our nose are cartilage, too? Here is another interesting fact about cartilage: Did you know that most of the twenty-nine bones in your skull (head) are held together by joints made of cartilage? These joints can move a bit in babies, but by the time we are fully grown they do not move at all.

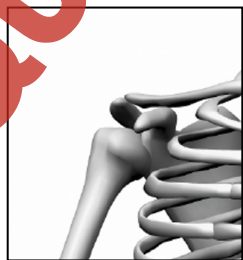
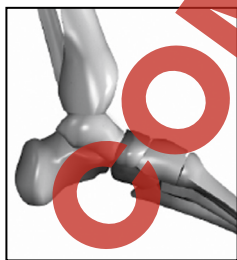


# The Skeletal System - Joints and Cartilage

1. Circle T if the statement is TRUE or F if it is FALSE.

- T F a) The human skeleton is made of 406 bones.
- T F b) The main job of our joints is to help bones to move.
- T F c) The hip is an example of a hinge joint.
- T F d) The wrist is an example of a hinge joint.
- T F e) Cartilage protects bones from grinding against each other when they move.
- T F f) The shoulder is an example of a ball and socket joint.
- T F g) A hinge joint is stronger than a ball and socket joint.
- T F h) There are 29 bones in our skull all joined by cartilage.
- T F i) Elbows and knees are both hinge joints.
- T F j) Sliding joints help wrists and ankles move in all directions.

2. Here are pictures of each kind of joint that we have learned about. Label each picture with the correct name.



- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_



# The Skeletal System - Joints and Cartilage

3. Why are joints important?

\_\_\_\_\_

4. What do you think it would be like to walk if we had no cartilage in our leg bones?

\_\_\_\_\_

5. What joint do you think is the most important and why do you think so?

\_\_\_\_\_

## Research, Extension & Application

- 6. Humans get slightly shorter between adulthood and old age. Do research to find out why this happens.
- 7. If a hip or knee joint becomes diseased it can be replaced with an artificial joint. Do some research to find interesting facts about this surgery. Think about these questions as you collect your facts:
  - How is a joint replacement done?
  - What material is the artificial joint made from? How is it similar to and different from bone?
  - What kind of doctor does this surgery?
- 8. Every time you take a step your knee joints work. Use a pedometer to count the steps you take in a day. Using this number calculate how many steps you take in a week (seven days), in a month (30 days) and in a year (365 days).
- 9. Calcium is a mineral important to having strong bones. Research to find ten foods high in calcium.





# Create a Human Body Organ System Booklet

We have learned that the human body has **EIGHT** major organ systems. Each system is made up of important **ORGANS**, and these organs work together as a **SYSTEM**. All of these organ systems have important jobs to do to keep our body healthy and alive.

Your task is to create a booklet with important facts about each of the organ systems:

- |                    |                     |
|--------------------|---------------------|
| skeletal system    | muscular system     |
| circulatory system | nervous system      |
| respiratory system | digestive system    |
| excretory system   | reproductive system |

### YOUR BOOKLET SHOULD INCLUDE:

- a cover page with the title of your book
- a Table of Contents page
- at least one page for each organ system

### COLLECTING YOUR INFORMATION:

Begin by collecting important **facts** about each system. You may use the reading passages, the Internet, or other resource materials to find your information. For each organ system, try to include the following:

1. **Major organs** that make up the system
2. The **main jobs** of the organ system (what it does)
3. A **picture** that shows what the system looks like (be sure to label all the parts!)
4. Other interesting facts that you find



# Word Search

Find all of the words in the Word Search. Words are written horizontally, vertically, diagonally, and some are even written backwards.

- multicellular
- tissue
- calcium
- specialized
- unicellular
- marrow
- nucleus
- organ
- compact
- cytoplasm
- muscle
- cartilage
- mitochondria
- nerve
- tendon
- lysosomes
- skeletal
- contract
- complex
- cardiac
- socket
- joint
- involuntary
- hinge
- fiber
- striated
- bundled
- rotation

Q	A	Z	X	S	M	C	T	C	A	P	M	O	C	S	W	E	U
P	L	K	S	A	A	D	K	G	O	P	M	K	P	S	N	E	
W	S	D	R	I	E	D	S	U	E	L	C	J	N	E	I	J	B
S	Y	R	D	H	N	M	J	C	O	N	R	A	C	T	K	U	
C	O	R	T	G	B	Y	H	N	M	J	K	E	I	P	L	M	
W	A	C	X	D	S	K	E	J	E	T	A	L	D	A	R	F	X
C	T	L	K	Y	H	N	U	J	M	K	L	E	D	L	T	J	K
B	G	T	C	E	Y	H	N	U	K	U	O	P	H	I	N	G	E
E	D	T	A	I	T	Y	H	N	L	I	U	J	M	Z	I	K	P
W	S	T	R	Y	U	H	N	A	M	N	E	R	V	E	K	G	B
A	Z	D	T	F	G	M	R	H	J	V	T	H	U	D	Y	H	A
U	J	O	I	N	T	Y	L	Y	S	O	S	O	M	E	S	G	I
V	F	R	L	A	G	B	N	M	J	L	K	H	F	I	B	E	R
C	U	J	A	G	J	K	L	M	B	U	N	D	L	E	D	C	D
Y	O	H	G	R	S	T	R	I	A	T	E	D	M	J	K	U	N
T	Q	M	E	O	S	T	R	I	A	T	E	D	U	C	V	B	O
O	T	B	F	Y	E	S	R	O	T	A	T	I	O	N	M	D	H
P	D	C	T	L	T	Y	J	U	K	R	N	K	U	T	G	H	C
L	T	D	C	H	E	I	R	O	T	Y	T	I	O	N	Y	F	O
A	D	S	Z	X	C	X	S	T	G	B	N	N	O	D	N	E	T
S	U	S	D	F	T	H	U	S	D	Y	A	W	E	R	Q	F	I
M	U	L	T	I	C	E	L	L	U	L	A	R	A	Y	G	C	M
D	E	L	D	N	U	B	D	S	X	E	Y	H	N	M	K	U	P



# Comprehension Quiz

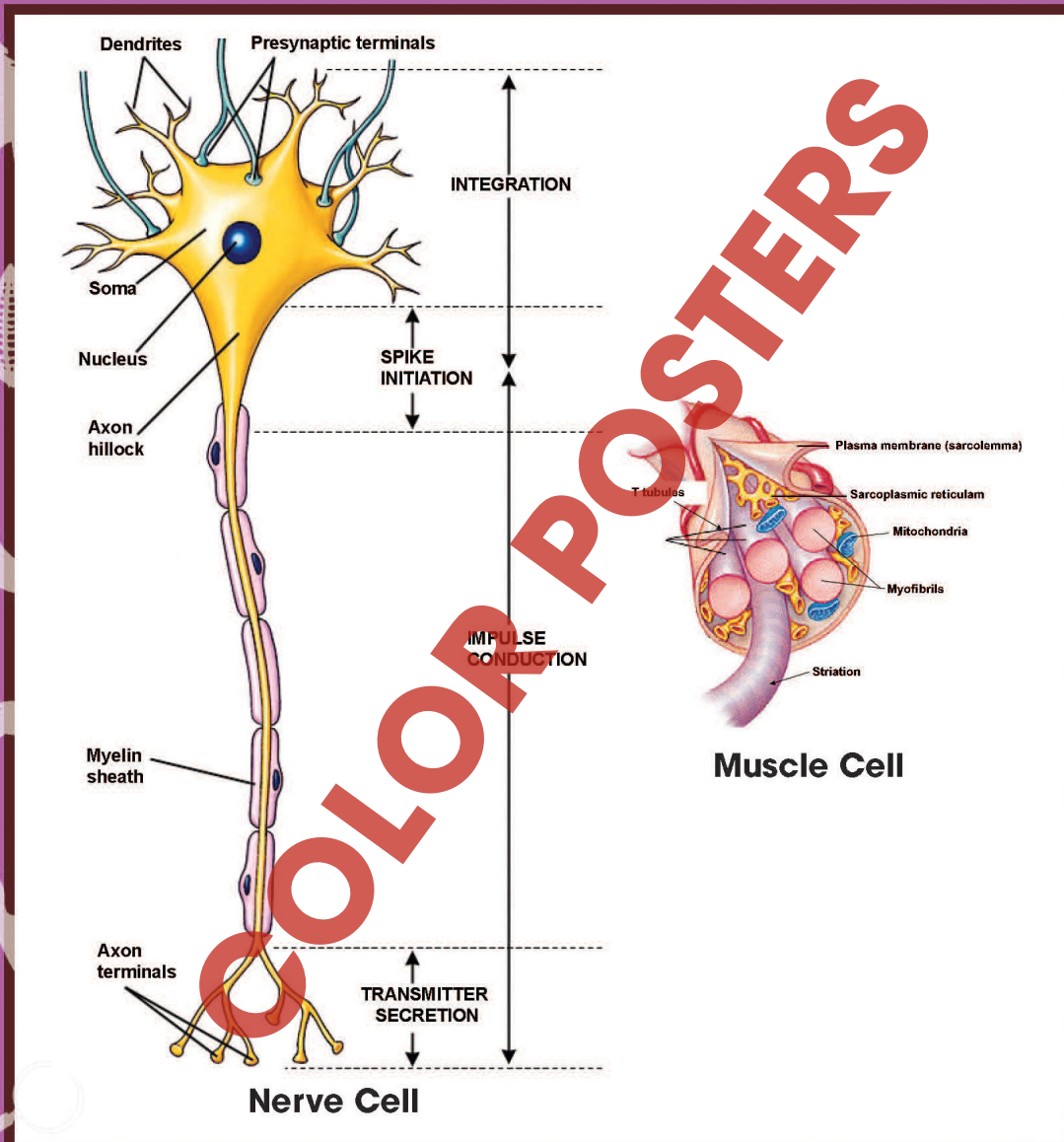
## Part C

Answer each question in complete sentences.

1. What are **specialized cells**? Are they found in unicellular or multicellular organisms? Give an example of an organism that is made of specialized cells. 3
2. Name **two parts of a cell**. Describe the **function** of each part in the cell. 4
3. Name **one kind of tissue** in the human body. Describe **what it does** in the body. Give an example of this type of tissue. 3
4. What is the difference between **voluntary** and **involuntary** movement? Name **one** kind of muscle that moves voluntarily. Name **one** kind of muscle that moves involuntarily. 4
5. Describe how **voluntary movement** happens. Use the words **brain**, **muscle pair** and **bone** in your answer. 4

SUBTOTAL: /18

# Human Body Cells



NAME: \_\_\_\_\_

After You Read 



# The Skeletal System - Joints and Cartilage

3. Why are joints important?

\_\_\_\_\_

\_\_\_\_\_

4. What do you think it would be like to walk if we had no cartilage in our leg bones?

\_\_\_\_\_

\_\_\_\_\_

5. What joint do you think is the most important and why do you think so?

\_\_\_\_\_

\_\_\_\_\_

## Research, Extension & Application

6. Humans get slightly **shorter** between adulthood and old age. Do research to find out why this happens.

7. If a hip or knee joint becomes diseased it can be replaced with an **artificial joint**. Do some research to find interesting facts about this surgery. Think about these questions as you collect your facts:

- How is a joint replacement done?
- What material is the artificial joint made from? How is it similar to and different from bone?
- What kind of doctor does this surgery?

8. Every time you take a step your knee joints work. Use a **pedometer** to count the steps you take in a day. Using this number **calculate** how many steps you take in a week (seven days), in a month (30 days) and in a year (365 days).

9. **Calcium** is a mineral important to having strong bones. Research to find **ten foods** high in calcium.

3. Allow bones to move

Answers will vary

4. Possible answer: difficult, painful

11

5. Answers will vary

Answers will vary

6. Answers will vary

7. Answers will vary

12

8. Answers will vary

9. Answers will vary

### Part 1

a) skull

c) clavicle

b) mandible

d) scapula

f) ribs

e) sternum

g) humerus

i) backbone

h) ulna

j) pelvis

k) radius

m) femur

l) phalanges

n) patella

p) fibula

o) tibia

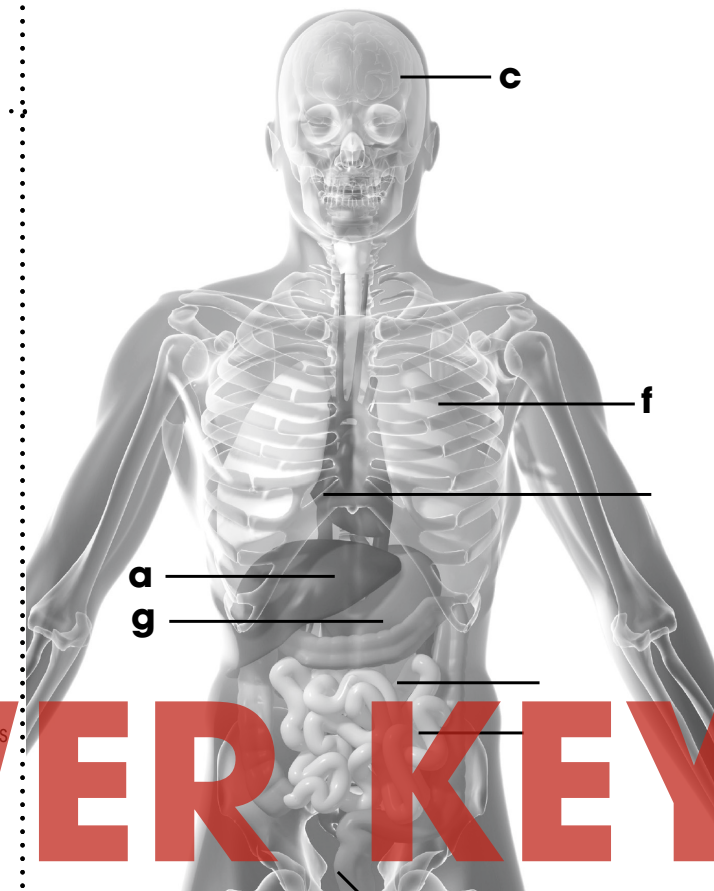
### Part 2

Answers will vary

10

13

14



# EASY MARKING ANSWER KEY