



TEACHER GUIDE

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STUDENT HANDOUTS

- Reading Comprehension

1. Cells – The Building Blocks of Life
2. Cell Structures & Functions
3. Cells, Tissues, Organs & Systems
4. What Are Organs & Organ Systems?
5. The Skeletal System – Bones
6. The Skeletal System – Joints & Cartilage
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EASY-MARKING™ ANSWER KEY 20

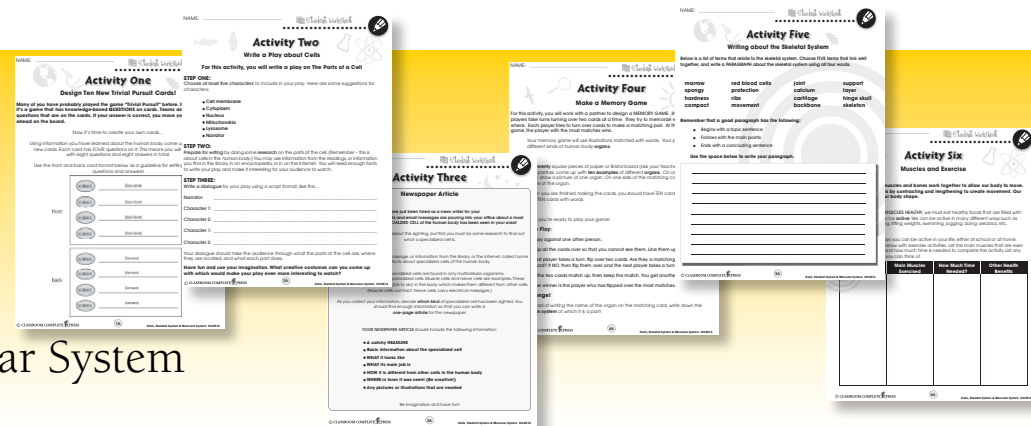
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6 Bonus Activities!

3 EASY STEPS to receive your 6 Bonus Activities!

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





The Muscular System - Movement

1. Use your dictionary to look up the meaning of the words below. Write the definition in the space beside each word.

voluntary	
tendon	
involuntary	
strain	
esophagus	

2. The body can do each of the things listed below. Decide if each is **voluntary** or **involuntary**. Here's a hint if you get stuck - ask yourself if you can choose to do this thing or if your body does it without you deciding. Write your answers in the chart.

biting an apple kicking a ball your heart beating
 blood moving in your veins getting goose bumps at a scary movie digesting an apple
 walking to the bus

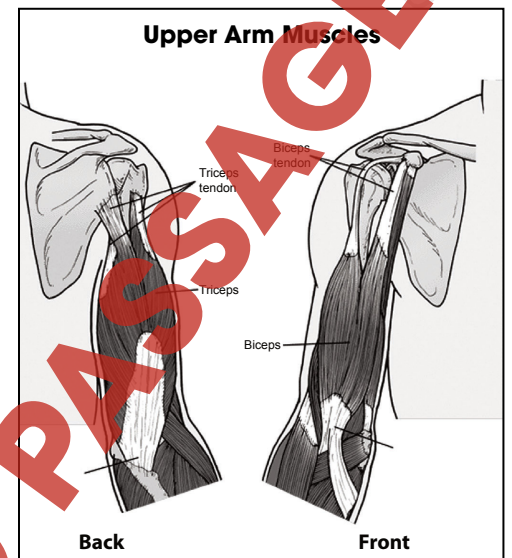
Voluntary	Involuntary



The Muscular System - Movement

We have read that both muscles and bones are both needed for movement. To work together to create movement, muscles and bones have to be connected. Most muscles are attached to bone by strong cords called **tendons**. Tendons look like rubber bands. Besides connecting bone and muscle, one other important job of tendons is to protect muscle from strain during movement.

Can you find any tendons in your body? Try this: Touch the top of your hand as you wiggle your fingers. The hard ridges you feel that run from your fingers to your wrist are tendons.



Involuntary Muscle Movement

There are two ways that muscles can move.

One kind is **involuntary movement**. **Smooth** muscles and **cardiac** muscles both move involuntarily. This means they move on their own; we cannot decide to *make* them move. Our brain sends messages to these muscles "telling" them when they need to move. This happens without us even knowing our muscles are working. An example of involuntary movement is in our digestive system. When we swallow food, the food is pushed down into our stomach by rings of smooth muscles in our **esophagus**. Our stomach is lined with smooth muscle, too. This muscle moves around food we have eaten, breaking it up into small bits so we can get the nutrients from it.

What are TWO kinds of muscle that move INVOLUNTARILY?





The Muscular System - Movement

1. Fill in each blank with a word from the list. There will be four words left over.

muscle arm voluntary involuntary smooth move
 heart digestive brain can cannot

Cardiac and _____ muscles are both types of _____ muscles. We _____ control their movement. Our _____ sends signals to these muscles to make them _____, and we don't even know it is happening. The muscles of our _____ system are involuntary muscles. To make _____ muscles move we have to decide to move them, this is an example of voluntary muscles.

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

- T F a) Most muscles are attached to bone by a strong cord called ligament.
- T F b) Three important things come together in voluntary movement.
- T F c) These three important things are the brain, muscles and internal organs.
- T F d) When a muscle shortens we call this contracting.
- T F e) Involuntary muscles work in pairs to move.
- T F f) An example of tendons are the hard ridges that run from our fingers to wrist.
- T F g) Smooth muscles and cardiac muscles are both involuntary.
- T F h) Tendons help protect muscles from strain.



The Muscular System - Movement

3. Why do you think it is important that the heart is an involuntary muscle?

4. Why do you think it is important that the muscles in our legs are voluntary muscles?

5. How do the muscles in your arm work together to create movement?

Extension & Application

6. Using the Internet, research **ten** different **world records** of human movement. Some examples include:

fastest 100 meters fastest marathon highest pole vault
 highest high jump fastest 100 meter speed skate
 fastest 500 meter breast stroke (swimming)

For each world record, write down whether it is a record for men or women, and list the country that the winner is from.









Record your findings in a chart like the one below.

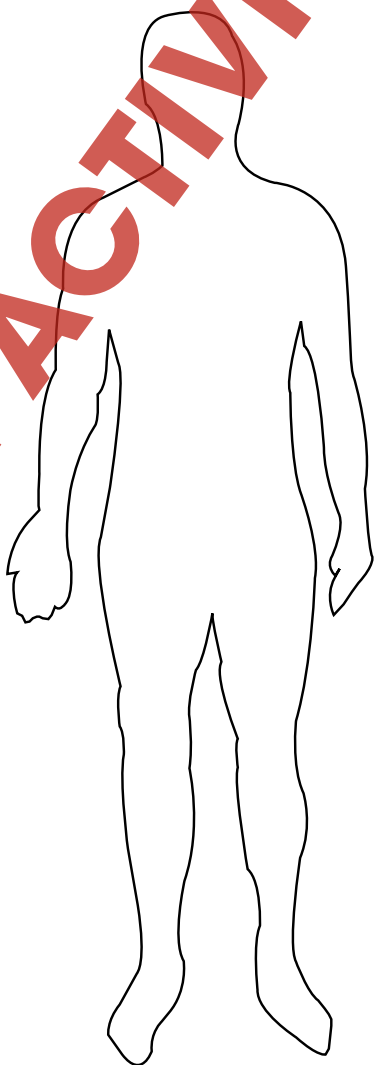
World Record	Name of Winner	Male or Female?	Country

Most of these world records will be for voluntary muscle movement. Can you find any that are for **involuntary movement**?

Pin the Organ on the Body

Below is an outline of the human body. At the left side of the page are pictures of important **ORGANS** in the body. Your task is to **CUT OUT** each organ and **PASTE** it on the body where it belongs. You may use information from the reading passages, the Internet, or other resource materials to find the answers.

- a) liver 
- b) intestines 
- c) brain 
- d) bladder 
- e) heart 
- f) lungs 
- g) stomach 
- h) kidneys 



Crossword Puzzle!

Across

1. Muscle tissue changes size by _____ and lengthening
3. The human body is made of _____ cells
4. Muscle _____ are like elastic string
6. Humans are _____ organisms
8. The knee is an example of a _____ joint
10. _____ muscles allow our bones to move
11. Cells group together to form _____
13. The cell contains special information called _____
14. There are _____ major organ systems in the human body



Down

1. The liquid inside a cell is called _____
2. The skeletal system is made of bones, joints and _____
4. The heart is made of _____ muscle
5. Nerve tissue carries messages from the brain in the form of electrical _____
7. The digestive system is made of mostly _____ muscles
9. Muscles work in _____; one shortens and the other lengthens
12. Mitochondria turn food into _____

Word List

specialized	cytoplasm
contracting	energy
DNA	cardiac
cells	involuntary
tissues	pairs
hinge	cartilage
multicellular	signals
eight	skeletal

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

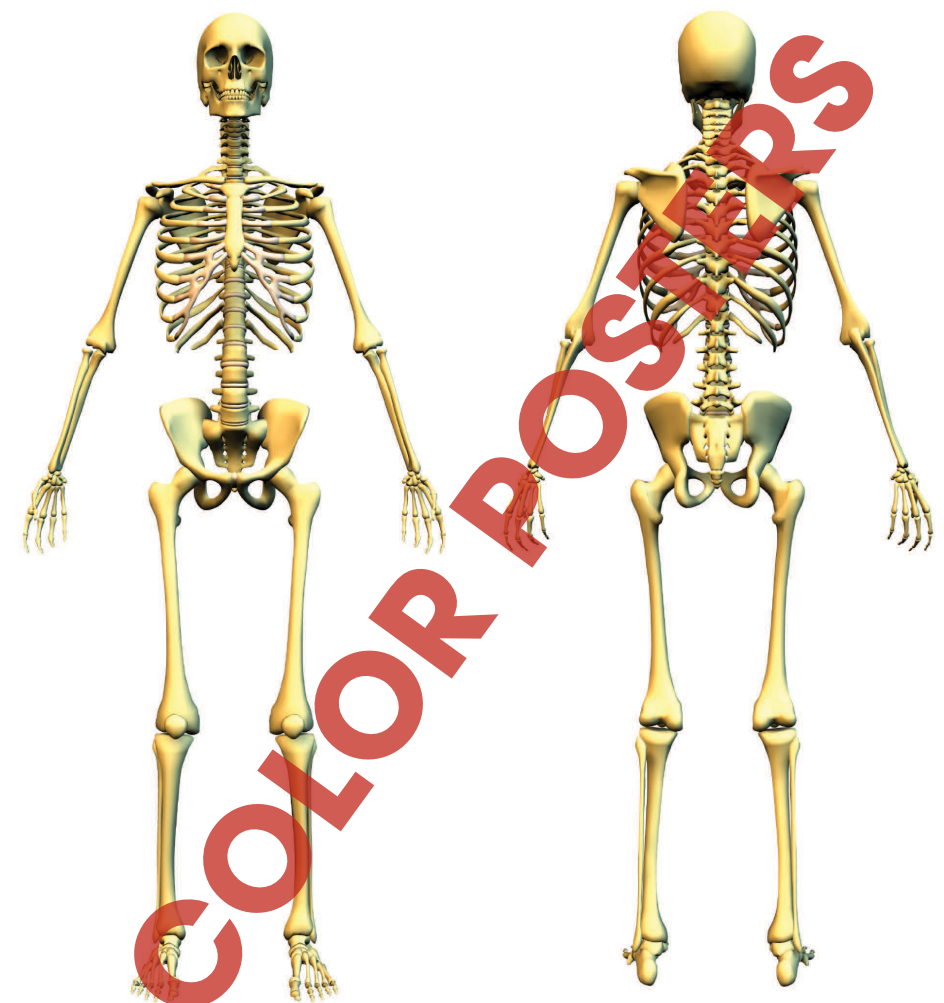
3. Name **one kind of tissue** in the human body. Describe **what it does** in the body. Give an example of this type of tissue. 3

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

Skeletal System



NAME: _____

After You Read 



The Muscular System - Movement

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Record your findings in a chart like the one below.

World Record	Name of Winner	Male or Female?	Country

Most of these world records will be for voluntary muscle movement. Can you find any that are for **involuntary movement**?



3. Possible answer: Impossible to remember to make our heart beat all the time

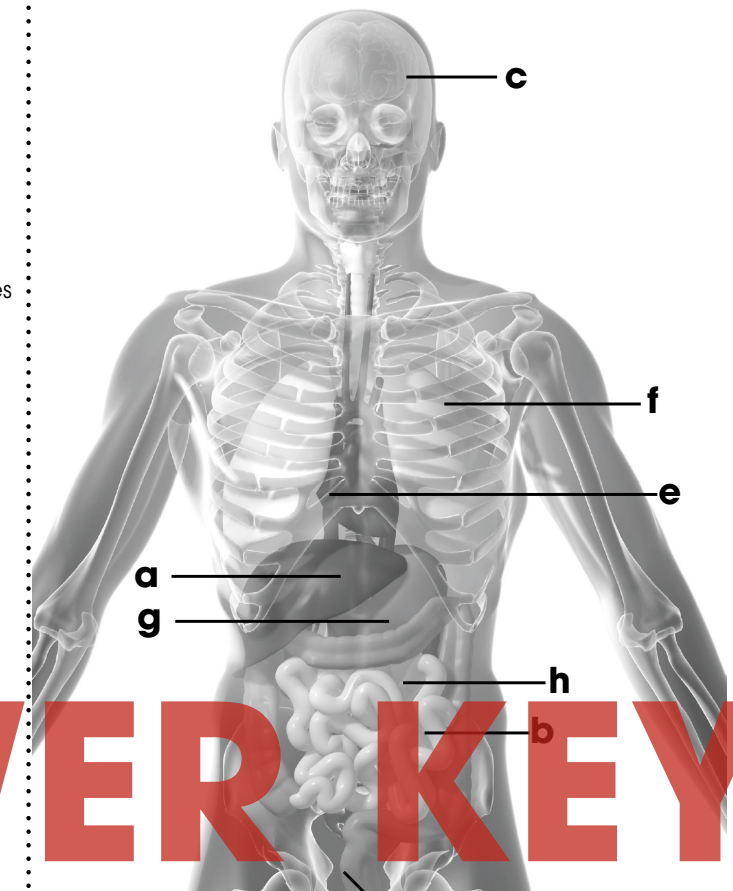
4. Answers will vary

5. Work in pairs, one muscle contracts while the other shortens

6. Accept any verifiable answers

Part 1

- a) skull
- b) mandible
- c) clavicle
- d) scapula
- e) sternum
- f) ribs
- g) humerus
- h) ulna
- i) backbone
- j) pelvis
- k) radius
- l) phalanges
- m) femur
- n) patella
- o) tibia
- p) fibula



EASY MARKING ANSWER KEY

Answers will vary

12

Answers will vary

13

14

15

