



Human Body Systems

Virtual Learning

9-12th PLTW[®] HBS

PLTW[®] 4.2.1 Muscle Rules

April 8, 2020



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9-12th PLTW HBS
Lesson: April 8, 2020

Objective/Learning Target:

Students will be able to determine how muscles assist with movement of the body and of substances around the body. (*Reference: PLTW[®] 4.2.1 Muscle Rules*)



Human Body Systems

Let's Get Started / Warm Up Activities:

Watch Videos:

- [6 Fun Facts About Muscles & Bones](#)
- [Easiest Ways to Remember Movement Terms](#)

Lesson/Activity:

Watch Video:

Types of Muscle Tissue: Skeletal, Cardiac & Smooth

Activity #1: On a piece of paper or in your notebook, take notes over the video above about the three different type of muscle tissue.

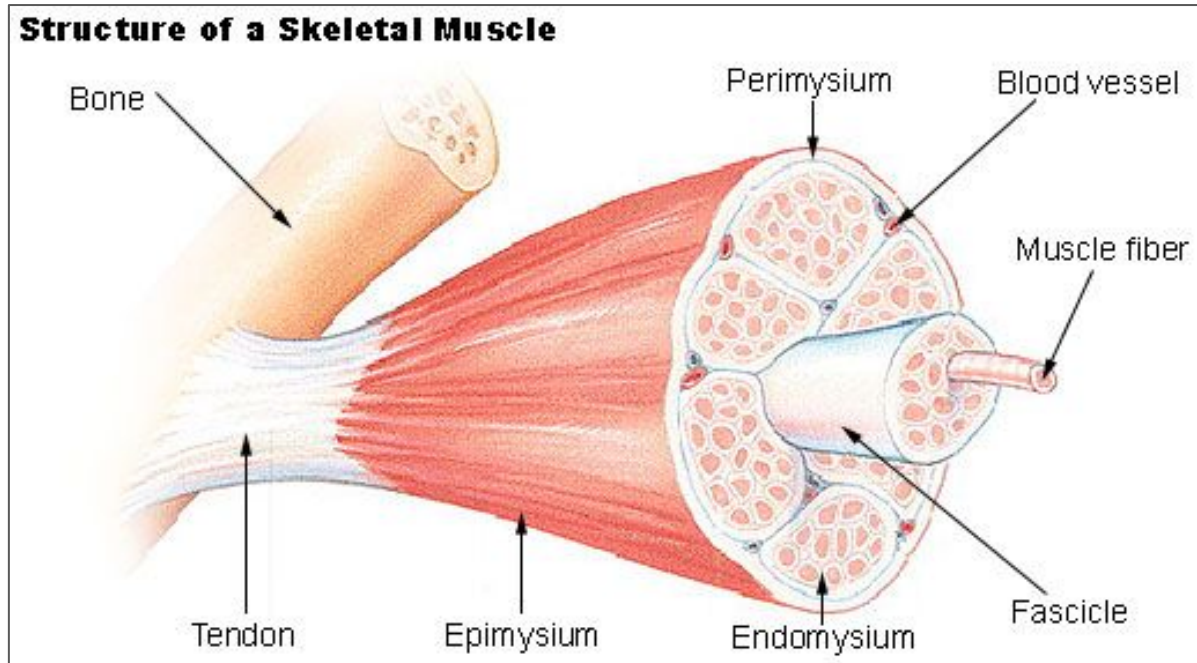
Activity #2: Create a visual or diagram that helps you remember the three different types of of muscle tissue:

- Skeletal
- Cardiac
- Smooth

Lesson/Activity:

Click here: [Structure of Skeletal Muscle](#)

Activity #3: Draw and label the following diagram. Using the website above, write the function by each term in your diagram.



Practice:

Practice Activity #1:

Click [HERE](#) to view what the three types of muscle tissue look like under the microscope. On your piece of paper or in your notebook, answer the following:

- Sometimes you can understand the cells' job function just by looking at its appearance under a microscope.
- Your biomed teacher can just look at the skeletal tissue under the microscope and know that it can help move your bones, that the cardiac muscle allows for different movements of the heart, and that the smooth muscle makes up organs. Does your biomed teacher have magical powers?
- Come up with an explanation for how your biomed teacher can tell function of the different types of muscle tissue just by looking at the microscopic tissue. Be specific and explain for all three types of tissues. (And yes, your biomed teachers are magical!)

Practice Activity #2:

- Click [HERE](#) and test your knowledge on muscles.

Practice Answers:

Practice Activity #1 Answers:

- Skeletal tissue under the microscope looks like long spaghetti strands. Skeletal muscle is long so that it can follow the length of your bones, and it is very striated which allows for different types of movement.
- Cardiac tissue under the microscope is also striated, but unlike skeletal, it branches throughout the tissue. This branching allows for more of a spherical stretch so that the heart can contract and relax.
- Smooth tissue under the microscope is just that: it has a smooth appearance which allows organs to maintain a muscle tone so that when the organ empties and shrinks, it prevents “flabbiness” in the empty organ.

Practice Activity #2 Answers:

- Click [HERE](#) to view answers.

Additional Practice and/or Resources:

Go to these websites:

[Fun Facts About the Muscular System You Didn't Know](#)

Read the article above, and write down at least five (5) facts on your paper or in your notebook.

[What are Muscular System Diseases?](#)

Read the article above. Choose three diseases of the muscular system. For each disease, answer the following:

- What are the symptoms?
- What is happening in the body?
- What treatments are available?