

Critical Thinking Skills

Cells, Skeletal System & Muscular System

Skills For Critical Thinking		Reading Comprehension								Hands-on Activities	
		Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8		
LEVEL 1 Knowledge	<ul style="list-style-type: none"> List Details/Facts Recall Information Match Vocabulary to Definitions Define Vocabulary Label Diagrams Recognize Validity (T/F) 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 2 Comprehension	<ul style="list-style-type: none"> Demonstrate Understanding Explain Scientific Causation Describe Classify into Scientific Groups 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 3 Application	<ul style="list-style-type: none"> Application to Own Life Organize and Classify Facts 	✓		✓	✓		✓	✓			✓
LEVEL 4 Analysis	<ul style="list-style-type: none"> Make Inferences Draw Conclusions Based on Facts Provided Classify Based on Facts Researched 	✓	✓	✓	✓		✓	✓		✓	✓
LEVEL 5 Synthesis	<ul style="list-style-type: none"> Compile Research Information Design and Application Create and Construct Ask Questions 	✓	✓	✓	✓	✓	✓				✓
LEVEL 6 Evaluation	<ul style="list-style-type: none"> State and Defend an Opinion Defend Selections and Reasoning 				✓		✓	✓			

Based on Bloom's Taxonomy



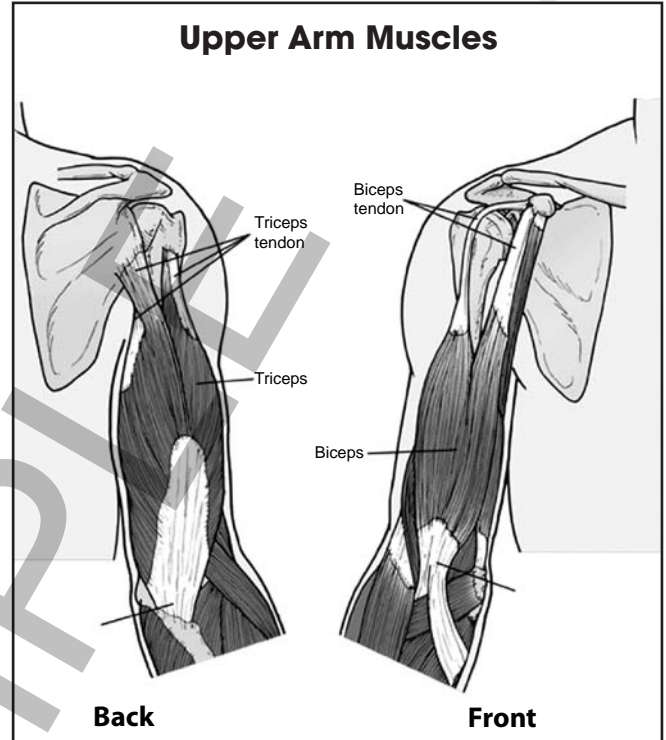
The Muscular System - Movement

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.

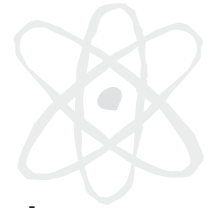
Can you find any tendons in your body? Try this: Touch the top of your hand as you wiggle your fingers. The hard ridges you feel that run from your fingers to your wrist are tendons.

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?



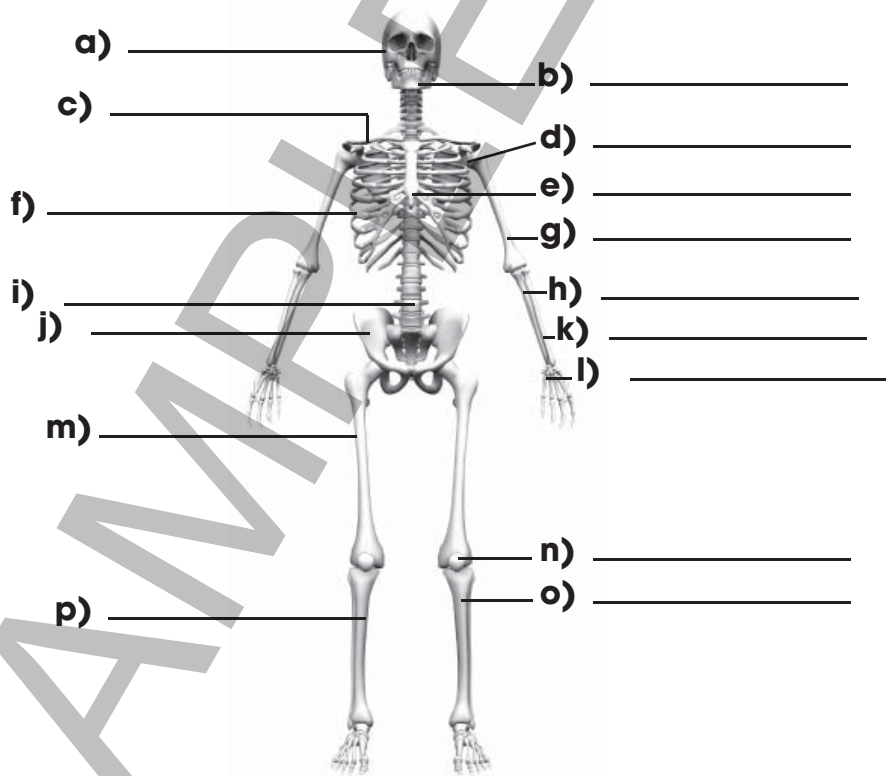
Invent an Alien Skeleton!

This activity has two parts. For the first part, you will label the bones in the human skeleton. For the second part, you will use what you have learned to invent your own extra-terrestrial skeleton.

Part 1

Use the words in the list to **label** the bones on the skeleton. You may need to do some research to complete this part.

- ribs
- patella
- backbone
- pelvis
- femur
- tibia
- scapula
- sternum
- humerus
- fibula
- clavicle
- radius
- phalanges
- ulna
- mandible



Part 2

Now, it is time to **draw** your own **alien skeleton!** You must use **at least ten** different skeleton parts from the diagram above. You may use the parts more than once if you like. Be as imaginative as you can! Draw your skeleton on a separate sheet of paper. Above your drawing, copy and complete the following:

Hello! I am an extra-terrestrial from the planet _____.

My name is _____ and my favorite food is _____.

I have _____ skulls, _____ femurs, _____ tibias, and _____ ribs.



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



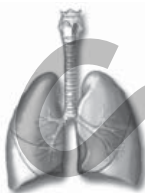
d) bladder



e) heart



f) lungs



g) stomach



h) kidneys

