

## LESSON PLAN – Muscular System

**Subject/Topic/Unit:** Science/Muscular System/Healthy Living

**Grade Level:** Third Grade

### I. Main Ideas/Conceptual Understanding/Goals

To understand the functions of the muscular system as well as a variety of healthy foods

### II. Specific Objectives

After a lesson on the muscular system, the student will design a poster illustrating at least five functions of the muscular system and at least five healthy foods for their bodies.

Life Science Curriculum Framework

3. Describe the characteristics, structures, life cycles, and environments of organisms.
- b. Identify and describe the purpose of the digestive, nervous, skeletal, and muscular systems of the body. (DOK 1)

### III. Procedures

#### A. Introduction/Motivation

Tell students that today we will learn about the functions of the muscular system and healthy foods for our bodies. Ask students to participate and complete a KWL chart regarding functions of the muscular system (Muscular 4 – Attachment 1).

Tell students that by the end of the lesson today they will make a poster that illustrates the five functions of the muscular system as well as five healthy foods for our bodies.

#### B. Study/Learning

Tell students that without muscles, humans could not live. The primary job of the muscular system is to move the bones of the skeleton, but muscle also makes the heart beat and constitutes the walls of other important hollow organs.

Remind students that the muscular system is composed of skeletal muscle, cardiac muscle and smooth muscle. Skeletal muscle attaches primarily to your skeleton and moves voluntarily or by reflex. Cardiac muscle is the muscle of your heart and contracts involuntarily. Smooth muscle is found in your blood vessels, eyes, hair follicles and the walls of hollow organs like your stomach and intestines.

Refer students to the chart (Muscular 4 – Attachment 2) that shows the 5 functions of the muscular system (to create movement, protect organs, pump blood, aid in digestion, and to ensure blood flow). Share the following facts about each function with students and have them DEMONSTRATE as many of the examples as possible with each function.

Skeletal Muscles Create Movement

- The primary function of skeletal muscle is to produce voluntary gross and fine movements. Large movements include walking, standing, turning in a chair, running, playing sports, lifting weights, etc. Fine motor skills or smaller movements include chewing, closing your eyes, blinking, typing, writing, talking, etc. Your skeletal muscles will also contract as a reflex to stimuli, like moving your hand from a very hot coffee cup or blinking your eyes when an eyelash lands on the surface of the eye.

#### Skeletal Muscles Protect Organs

- The abdominal muscles and the muscles of your lower back help to protect your vital organs. Your abdominal cavity is not protected by bones in the way that your rib cage protects your heart and lungs. Your organs are protected by muscles.

#### Cardiac Muscle Pumps Blood

- The contraction of heart muscle is involuntary and primarily controlled by your heart's own electrical system. Your heart is responsible for receiving blood from your muscles and other organs, pumping it into your lungs to pick up oxygen, receiving the blood back from the lungs and then pumping it out through your arteries to supply your entire body. If your heart's muscle does not receive enough blood supply due to blocked coronary arteries or lack of sufficient oxygen, you are at risk of having a heart attack.

#### Smooth Muscle Aids Digestion

- The smooth muscles in your stomach and intestines work to help process the food you eat. The involuntary contractions in your stomach and intestines aid in digestion and in moving the food along your digestive tract, ultimately directing indigestible substances to be eliminated as waste.

#### Smooth Muscle Ensures Blood Flow

- There are also smooth muscles in the walls of your blood vessels. When your heart contracts, your arteries expand to accept the blood expelled. The smooth muscles in your arteries relax and contract to help circulate the blood throughout the circulatory system, and regulate your blood pressure.

**Tell students that proper nutrition and exercise is important to keeping all muscles healthy, whether they are cardiac, smooth, or skeletal.** Ask students to brainstorm and then demonstrate types of exercises that will keep muscles healthy. Then have students to brainstorm a list of healthy foods and discuss these.

#### **Guided Practice**

Show students the youtube video "Muscular System – Our Muscles – Muscular System Functions for Kids" (<https://www.youtube.com/watch?v=axDPOPCj-t0>)

After the video, have students get in groups and make up a skit to demonstrate the five functions of the muscular system. Then have the groups perform the skits for the class.

#### **Independent Practice**

Have six sticky poster sheets displayed around the room with the one of the five functions of the muscular system on each poster and the category of healthy foods. Divide students into six groups. Have groups

do a "gallery walk" where each group writes everything they know about their function on their poster. Then after 2 minutes, each group rotates to the next poster and adds to what the first group has written. This rotation will occur six times so that each group visits each poster. Then have students share what's on the original poster where they started their gallery walk.

**C. Culmination**

Review the day's lesson with students. Take out the KWL chart began earlier in the lesson and have students contribute to the "L" column to stem the discussion of what was learned today. Make sure that each student contributes something to the chart.

**D. Follow-up**

Give students poster boards and access to art supplies and have them to each make a poster that will illustrate the five specific functions of the muscular system as well a minimum of five healthy foods for their bodies.