



What is a Skeleton?

SKELETONS: Museum of Osteology
Lesson Curriculum
K – 5th Grade
55 Minute Program

Kindergarten:

Florida Next Generation Sunshine State Science Standards

SC.K.N.1.2 – Make observations of the natural world and know that they are descriptors collected using the five senses.

SC.K.N.1.4 – Observe and create a visual representation of an object which includes its major features.

SC.K.L.14.2 – Recognize that some books and other media portray animals and plants with characteristics and behaviors they do not have in real life.

1st Grade:

Florida Next Generation Sunshine State Science Standards

SC.1.L.14.1 – Make observations of living things and their environment using the five senses.

SC.1.N.1.1 – Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.

SC.1.N.1.2 – Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others.

SC.1.N.1.3 – Keep records as appropriate - such as pictorial and written records - of investigations conducted.

2nd Grade:

Florida Next Generation Sunshine State Science Standards

SC.K2.CS-CS.1.3 – Describe how models represent a real-life system (e.g., globe or map).

SC.2.L.14.1 – Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.

SC.2.N.1.1 – Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.



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SC.2.N.1.3 – Ask "how do you know?" in appropriate situations and attempt reasonable answers when asked the same question by others.

3rd Grade:

Florida Next Generation Sunshine State Science Standards

SC.3.N.1.1 – Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

SC.3.N.1.3 – Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted.

SC.3.N.1.5 – Recognize that scientists question, discuss, and check each other's evidence and explanations.

SC.3.N.3.2 – Recognize that scientists use models to help understand and explain how things work.

SC.3.N.3.3 – Recognize that all models are approximations of natural phenomena; as such, they do not perfectly account for all observations.

4th Grade:

Florida Next Generation Sunshine State Science Standards

SC.4.N.1.1 – Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

5th Grade:

Florida Next Generation Sunshine State Science Standards

SC.5.L.14.1 – Identify the organs in the human body and describe their functions, including the skin, brain, heart, lungs, stomach, liver, intestines, pancreas, muscles and skeleton, reproductive organs, kidneys, bladder, and sensory organs.

SC.5.L.14.2 – Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for



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support -- some with internal skeletons others with exoskeletons -- while some plants have stems for support.

Program Overview:

What is a Skeleton? will introduce students to the basics of the skeletal system, both animal and human. Students will begin by discussing an overview of the skeleton and its features and roles. Participants will complete a craft in order to build a basic skeleton out of Q-tips in order to create a model of the system they have discussed.

Learning Objectives:

1. Participants will successfully define the skeletal system and its role in an animal's body.
2. Participants will successfully build a model of the skeletal system and recognize how a model can help with learning.
3. Participants will successfully communicate their observations to their team.

Materials and Supplies:

Completed demo craft
Cotton swabs (pre-cut and whole)
Scissors
Glue
Construction paper
White board
Skeleton magnets

Background:

All humans and other animals called vertebrates have skeletons. The human skeleton is made up of 206 different bones which contribute to the support and movement of the body. The skeleton also contributes to blood production, and protection of various organs.

Each different bone acts in different ways and fulfills different functions. For instance, the spine provides support for standing and protects the spinal cord, whereas the ribcage protects the heart and lungs.

During this craft, the students will create a model of the skeletal system. Models are a very important aspect of science which allow scientists and students to more easily visualize and understand more complex concepts.

Vocabulary:

- Skeleton—an internal or external framework of bone, cartilage, or other rigid material supporting the body of an animal
- Vertebrate—an animal of a large group distinguished by the possession of a backbone or spinal column, including mammals, birds, reptiles, amphibians, and fishes
- Invertebrate—an animal lacking a backbone, such as an arthropod, mollusk, annelid, coelenterate, etc.
- Muscle—a band or bundle of fibrous tissue in a human or animal body that has the ability to contract, producing movement in or maintaining the position of parts of the body
- Bone marrow—a soft fatty substance in the cavities of bones, in which blood cells are produced
- Spine—a series of vertebrae extending from the skull to the small of the back, enclosing the spinal cord and providing support for the thorax and abdomen; the backbone
- Cartilage—firm, whitish, flexible connective tissue found in various forms in the larynx and respiratory tract, in structures such as the external ear, and in the articulating surfaces of joints. It is more widespread in the infant skeleton, being replaced by bone during growth.
- Suture—a seamlike immovable junction between two bones, such as those of the skull
- Rib—each of a series of slender curved bones articulated in pairs to the spine (twelve pairs in humans), protecting the thoracic cavity and its organs
- Femur—the bone of the thigh or upper hind limb, articulating at the hip and the knee
- Tibia & fibula—the two bones found between the knee and ankle in the leg; the lower hind limb
- Humerus—the bone of the upper arm or forelimb, forming joints at the shoulder and the elbow
- Radius & ulna—the two bones found between the ankle and wrist in the arm; the lower fore limb
- Scientific model—an approximation or simulation of a real system that omits all but the most essential variables of the system

Reference: visit the SKELETONS: Museum of Osteology Education web page at:

<http://skeletonmuseum.com/education-orlando.php>

Recommended Reading:

Dowshen, Steven.

2015 “Your Bones.” *KidsHealth*, The Nemours Foundation, kidshealth.org/en/kids/bones.html.

Winston, Robert

2016 *The Skeleton Book: Get to Know Your Bones, Inside Out*. DK Publishing, New York, NY.

While at SKELETONS:

- Have students observe skeletal features and match the features of different skeletons to the features of their models
- Visit the Comparative Anatomy exhibit in order to view how different animals have similar and different skeletons
- View the human skeleton doing a yoga pose in order to observe how the skeletal system contributes to movement and support of the body