

BAG O'BONES LESSON PLAN

LEARNING OBJECTIVES

The student will be able to:

- Identify major bones in the body
- Compare and contrast human and animal anatomy

TIME

1-3 hours

GRADE LEVEL

6-9th grade

TOPICS COVERED

- Human Anatomy
- Human Skeleton
- Bones



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SEPA

SCIENCE EDUCATION
PARTNERSHIP AWARD



OVERVIEW

The **Bag O'Bones activity** allows students to use their creative skills to create a scene that depicts a human skeleton performing an everyday action along with an animal counterpart. Each skeleton will be labeled with selected bones to reinforce the anatomy of the human body.

STANDARDS

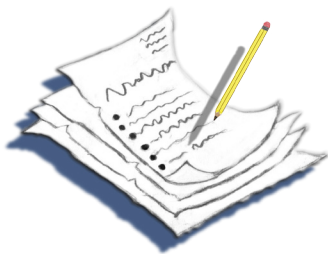
NATIONAL

- **TEACHING STANDARD A: Teachers of science plan an inquiry-based science program for their students.**

STATE

- **3.3.4.A. Know the similarities and differences of living things.**
- **3.3.4.B. Know that living things are made up of parts that have specific functions.**
 - » Determine how different parts of a living thing work together to make the organism function.

MATERIALS, RESOURCES, PREPARATION



PROVIDED MATERIALS

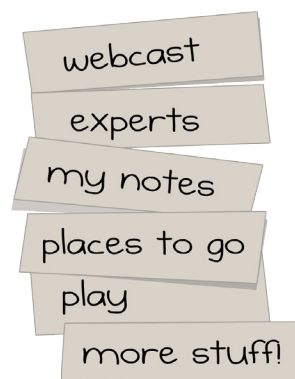
- List of Bones
- List of Potential Actions
- List of Animals

ADDITIONAL MATERIALS

- Scientastic: “Sticks and Stones” DVD Paper Lunch Bags (1 per group)
- Note cards (7 for each group)
- Large Roll of White Paper (Butcher paper)
- Markers/Crayons/Colored Pencils/Paint
- Tape/Sticky Tac
- Anatomy Textbook (optional)

EXTRA RESOURCES

Visit the web site www.scientasticshow.com to find more information and activities about the bone. Click the tab “the show” to find it! The web site includes background information on the bone, including common injuries and regenerative medicine research, a series of videos of experts discussing the same topics, and many suggestions for field trips, games and other sites to visit.



SET-UP

1. Before class begins, you need to prepare 1 Bag O'Bones for each group. Each bag needs to contain:
 - 5 “Bone Cards” – a note card with one bone name listed on it
 - 1 “Action Card” – a note card with an action listed on it
 - 1 “Animal Card” – a note card with an animal listed on it
2. Show the Scientastic episode “Sticks and Stones” prior to starting the lesson.



Length 25 min

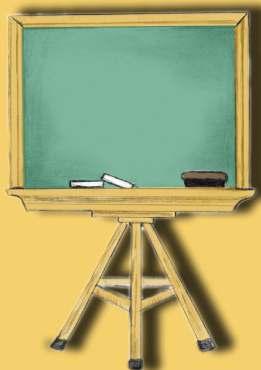
PROCEDURE

For this activity, students should be divided into groups of 3-4. These groups can be pre-assigned or student selected depending on the needs of your class.

1. Once groups have been selected, provide each group with 1 Bag O'Bones and a large piece of white paper (Approxiamately 5ft x 4ft).
2. Next, you may provide the following instructions either written or orally:

“Each group has received a Bag O'Bones. Inside of each bag you will find 5 Bone Cards, 1 Action Card, and 1 Animal Card. On your piece of paper, please illustrate a human skeleton performing the action listed on your action card. Also, be sure to indicate and label each of the bones listed on your Bone Cards in your drawing. Finally, please illustrate the skeleton of the animal listed on your animal card. Choose 3 of the bones from your Bag O'Bones to indicate and label on your animal skeleton. Make sure that your human and animal skeletons are included in a scene where your action could be taking place – this means a background and supporting objects!”

3. After you have provided the students with the needed materials and instructions, allow the students to select locations around the class room to create their skeleton illustrations. If available, provide the students with anatomy atlases, textbooks, dissection manuals, or diagrams to help them in identifying the locations of the assigned bones.
4. Allow the students ample time to construct and label their skeletons. As the students are working, remember to circulate around the room and check that the students are following the directions and staying on task. Answer any questions the students may have.
5. When the students have finished, allow them to hang their illustrations around the classroom or hallway. Allow the students to “tour” other groups’ illustrations to note the locations of other bones.



EXTENSIONS/ASSESSMENTS

As an assessment activity, have the students journal a response to the following vignette:

“Imagine that one of the bones from your Bag O’Bones was broken. State which bone you chose. How would that affect the action that your skeleton was performing? Would it greatly impact your ability to complete the action? Why or why not?”

Be sure to check the students’ answers for understanding of bone location, function, and impact on physical action.

ADAPTATIONS

FOR LOWER LEVEL STUDENTS

- Give the students pre-cut out bone shapes to assemble on their butcher paper and/or label the bones in advance.
- Provide a specific human anatomy atlas for students to follow.
- Provide each group with only 3-4 bones to label.
- Eliminate the activity or animal part of the activity.

FOR HIGHER LEVEL STUDENTS

- Have the students label 7-10 bones.
- Have the students illustrate the animal in an appropriate action pose.
- Have the students label 5-8 bones on the animal.

LIST OF BONES

Frontal Bone

Parietal Bone

Temporal Bone

Occipital Bone

Sphenoid Bone

Ethmoid Bone

Mandible

Maxilla

Palatine Bone

Zygomatic Bone

Nasal Bone

Lacrimal Bone

Vomer

Inferior Nasal Conchae

Malleus

Incus

Stapes

Hyoid Bone

Scapula

Clavicle

Sternum

Ribs

Cervical Vertebrae

Thoracic Vertebrae

Lumbar Vertebrae

Humerus

Radius

Ulna

Carpals

Metacarpals

Proximal Phalanges

Distal Phalanges

Intermediate Phalanges

Sacrum

Coccyx

Hip Bone

Femur

Patella

Tibia

Fibula

Tarsals

Calcaneus Bone

Metatarsals

LIST OF ACTIONS

Brushing Teeth

Tying Shoes

Sitting in a Chair

Screwing in a Lightbulb

Catching a Football

Eating a Sandwich

Rollerskating

Opening a Door

Swinging a Baseball Bat

Petting an Animal

Playing the Drums

Swinging on a Trapeze

Doing a Spin on Ice Skates

Chopping Wood

Painting a Picture

Swing Dancing

Rock Climbing

Watering Plants

Riding a Bike

Mowing the Grass

Skydiving

LIST OF ANIMALS

Horse

Cow

Sheep

Pig

Cat

Dog

Whale

Parrot

Penguin

Crocodile

Snake

Squirrel

Elephant

Gorilla

Giraffe

Reindeer

Rabbit

Raccoon

Sea Lion

Otter

Shark

Ostrich

T-Rex