

Bone & Brawn

1. **DESCRIPTION:** Teams will demonstrate knowledge of the human skeletal and muscular systems.
2. **ESSENTIAL STANDARDS ALIGNMENT:** 3.L.1, 5.L.1
3. **TEAM OF UP TO:** 2
4. **MAXIMUM TIME:** 60 min.
5. **TEAMS:** Must bring a writing instrument. No other resources are allowed.
6. **EVENT LEADERS:** Will provide a hands-on event with all necessary items, objects, materials, questions, and response sheets for participants to complete stations. Examples include but are not limited to: models, pictures, or diagrams.
7. **SAFETY REQUIREMENTS:** None
8. **IMPOUND:** No
9. **THE COMPETITION:** This event will be run in a station format. Teams will rotate through stations that assess any or all of the following topics with any combination of questions, models, pictures, or diagrams:
 - a. Structure and function of the skeletal system (see Official List)
 - b. Structure and function of the muscular system (see Official Bone and Muscle List)
 - c. Problems and disorders associated with these systems (bunions, fractures, osteoporosis, rheumatoid arthritis, rickets, sprains, cramps)
 - d. Sample activities:
 - i. Identify the bones in the human leg from a picture, model, or x-ray
 - ii. Match each joint type to its description
 - iii. Label if listed actions are caused by a muscle or a tendon
 - iv. Skeletal, Cardiac, or Smooth, which muscle type is shown?
10. **SCORING:** Points will be awarded for the accuracy of responses. Ties will be broken by the accuracy or quality of responses to pre-selected questions chosen by the event leader.
11. **EVENT RESOURCES:**
<http://www.sciencenc.com/event-help/BoneBrawn.php>

Bone & Brawn – 2017 Official Bone and Muscle List

Bones and Joints:

Ankle
Arm (humerus, radius, ulna)
Clavicle (collar bone)
Cranium (frontal, parietal, mandible, teeth)
Foot (calcaneous, tarsals, metatarsals, phalanges)
Hand (carpals, metacarpals, phalanges)
Hip
Leg (femur, fibula, tibia, patella)
Pelvis (ilium)
Rib cage (true ribs, sternum)
Scapula
Spine (cervical, thoracic, and lumbar vertebrae, coccyx)

Wrist

Muscles and Tendons:

Abdominals
Calves (triceps surae)
Gluteus maximus
Quadriceps (quads)
Back muscles (latissimus dorsi, trapezius)
Chest muscle (pectoralis major)
Hamstrings (biceps femoris)
Arm (deltoid, biceps brachii, triceps brachii)
Diaphragm
Heart (cardiac muscle)
Achilles tendon