SKELETONS: Museum of Osteology

Forensic Osteology: Human Skulls

Teacher Resource

Grade Levels: University

Program Overview:

Forensic Osteology: Human Skulls is a crime lab based program focusing on the forensic investigation of trauma to the human skull. After a basic introduction to skull osteology and lab procedures, students will breakup into teams using a variety of tools from their forensic science kit to evaluate and document key evidence to support their results. They will then defend their findings to the class. Museum quality replicas of human skulls—from actual crime scenes—are used in this program.

Learning Objectives:

- Participants will successfully identify various trauma signatures to the skull and associated dentition.
- Participants will successfully utilize forensic measuring instruments to perform their evaluation.
- Participants will successfully work as teams in a lab environment—documenting and communicating their findings to the class.

Background:

In this program, forensic osteology is the process of analyzing defects to the human skull and associated dentition that are the result of trauma. Detailed cranial/dental measurements; knowledge of ballistic/blunt/sharp force wound patterns; and comprehensive documentation are essential to forensic osteology. The ultimate goal is to provide expert testimony in regards to the cause of death.

For a career in forensic osteology, an individual should have a bachelor's degree in anatomy, biology, chemistry, physiology or anthropology as well as a graduate degree in human biology or anthropology. Though a degree at the Master's level may qualify you to begin your investigative career, most forensic osteologists have a Ph.D. degree.

Vocabulary:

• Forensic Science	Frontal Bone	Parietal Bone
• Occipital Bone	Temporal Bone	Squamous
• Nasal Bone	Maxillary Bone	Palatine
• Sagittal Suture	Coronal Suture	Squamosal Suture
• Lambdoidal Suture	Bregma	Lamda
• Orbit	Occipital Condyle	Foramen Magnum
• Zygomatic Arch	Supra-orbital Ridge	Mandible
• Incisor	Canine	Premolar
• Molar	Mastoid Process	Occipital Protuberance
• Sphenoid Bone	Vomer	Infraorbital/Supraorbital Foramen
• Mental Foramen	Styloid Process	Pterygoid process (medial/lateral)
• Wormian Suture	Wormian Bone	External Auditory Meatus
• Concha	Enamel Hypoplasia	Dental Caries

Reference: visit the SKELETONS: Museum of Osteology Education web page at: http://skeletonmuseum.com/education

Recommended Reading:

Baker, Brenda J. Dupras, T., and Tocheri, M. W.
2005 *The Osteology of Infants and Children.* Texas A&M University Press

Gilbert, B. Miles
1990 *Mammalian Osteology.* Missouri Archaeological Society, Columbia, MO.

Guy, J. F.
2009 *Learning Human Anatomy: A Laboratory Text and Workbook*. Prentice Hal

White, Tim
1999 *Human Osteology*. Academic Press

While at SKELETONS:

- Visit the Pathology Exhibit and have students point out various types of pathology.
- At the Pathology Exhibit, discuss the various bone cells and the role they play in the bone remodeling process.
- Discuss sexual dimorphism in humans while visiting the Pathology Exhibit and Primate Exhibit.
- Have your students discuss the scientific approach they would use to evaluate the human skull for various types of trauma.