

Name: \_\_\_\_\_

## **PHYSICAL ANTHROPOLOGY LAB # 11**

### **FOSSIL HOMINIDS**

**OBJECTIVES:** The main objective of this lab is to become familiar with some of the fossil record for human evolution and to learn some of the salient cranial, dental, and pelvic morphological features that distinguish living and extinct human taxa. Where possible, casts of actual human fossils will be used.

**READING:** Chapters 11 and 12 of the lab manual and the appropriate chapters in Jurmain et al.

#### **EXERCISES:**

1. Record the observations indicated in the attached tables.
2. Answer additional questions on page 7 of this lab.

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**LAB # 11: FOSSIL HOMINIDS AND EXTANT PRIMATES**  
**Comparison 1A: Skulls**

TRAITS	Ape	<i>A. afarensis</i>	<i>A. africanus</i>	<i>A. boisei/ A. robustus</i>
Brow ridge development				
Facial prognathism				
Robustness of face and mandible				
Cranial capacity				
Face:vault ratio				
Sagittal crest				
Post-orbital constriction				
Appearance of occipital				
Widest part of skull when viewed posteriorly				

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**LAB 11: FOSSIL HOMINIDS AND EXTANT PRIMATES (Cont'd.)**

**Comparison 1B: Skulls**

TRAITS	<i>H. habilis</i>	<i>H. erectus</i>	<i>H. sapiens neandertalensis</i>	<i>H. sapiens sapiens</i>
Brow ridge development				
Facial prognathism				
Robustness of face and mandible				
Cranial capacity				
Face:vault ratio				
Sagittal crest				
Post-orbital constriction				
Appearance of occipital				
Widest part of skull when viewed posteriorly				

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**LAB 11: FOSSIL HOMINIDS AND EXTANT PRIMATES (Cont'd.)**

**Comparison 2A: Teeth**

TRAITS	Ape	<i>A. afarensis</i>	<i>A. africanus</i>	<i>A. boisei</i> / <i>A. robustus</i>
Overall size of dentition				
(P+M):(I+C) ratio				
Location of any diastema				
Size & shape of the first lower (P3) premolar				
Size and shape of the canines				
Size and shape of the incisors				
Appearance of the molars & molar cusp pattern				
Wear patterns				

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**LAB 11: FOSSIL HOMINIDS AND EXTANT PRIMATES (Cont'd.)**

**Comparison 2B: Teeth**

TRAITS	<i>H. habilis</i>	<i>H. erectus</i>	<i>H. sapiens neandertalensis</i>	<i>H. sapiens sapiens</i>
Overall size of dentition				
(P+M):(I+C) ratio				
Location of any diastema				
Shape of the first lower (P3) premolar				
Size and shape of the canines				
Size and shape of the incisors				
Appearance of the molars & molar cusp pattern				
Wear patterns				

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**LAB 11: FOSSIL HOMINIDS AND EXTANT PRIMATES (Cont'd.)**

**Comparison 3: *Os Coxae***

TRAITS	Ape (Chimpanzee)	<i>A. africanus</i>	<i>A. robustus</i>	<i>H. erectus</i>	<i>H. sapiens sapiens</i>
Describe the greater sciatic notch (depth, etc.)					
Shape of the ilium					
Relative size & shape of the acetabulum					
Placement of the acetabulum relative to the sacro-iliac joint					

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Additional Questions for Lab #11: (Use additional sheets as needed). Use typewriter or word processor.

1. What cranio-dental features of *A. afarensis* are ape-like? What cranio-dental features does *A. afarensis* share with other fossil hominids?
2. What are the most significant similarities and differences between *A. africanus* and *A. robustus/boisei*? What factors led to these differences between the species?
3. Compare the australopithecines to *Homo habilis*. What are the similarities and differences between the species?
4. Discuss the similarities between *Homo erectus* and *Homo sapiens*. Can you differentiate between primitive and derived physical characteristics of each?
5. Compare Neanderthal crania with the crania of modern *H. sapiens*. Make a list of the differences you observe. What characteristics might lead you to believe Neanderthals are perhaps not in the line of evolution leading to modern *Homo sapiens*?