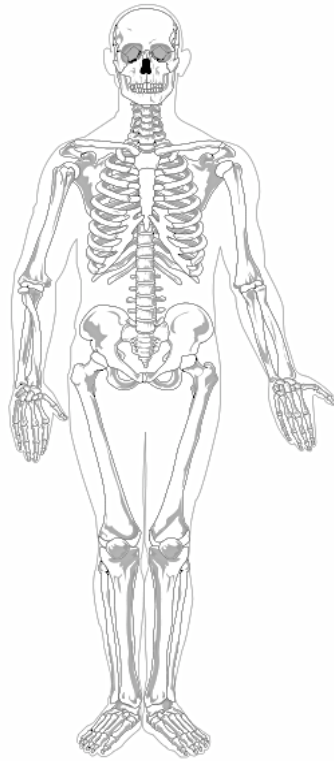
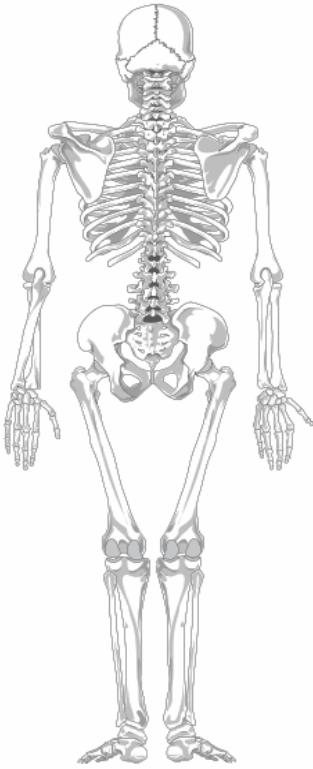


Human Body Systems: Unit 1 Study Guide



1. Label the following bones on the diagram

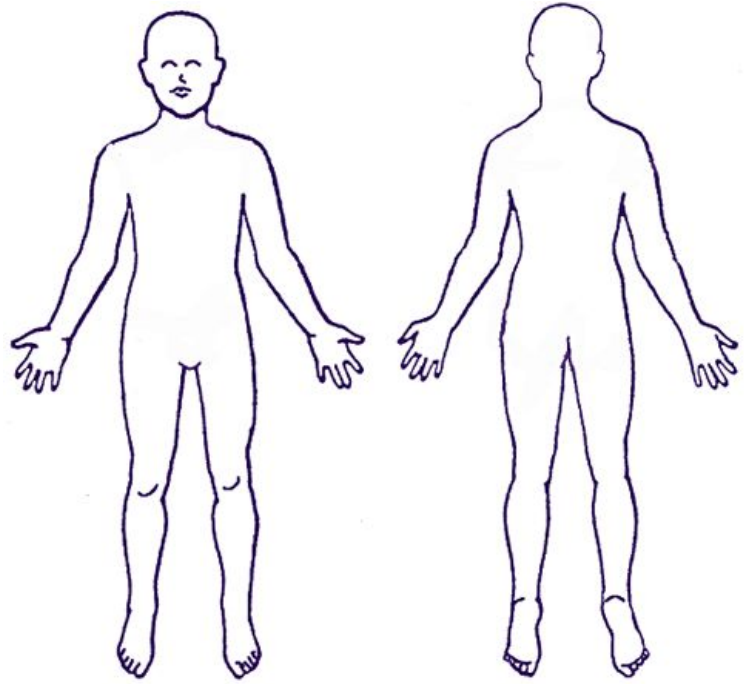
- a. Mandible
- b. Clavicle
- c. Sternum
- d. Humerus
- e. Rib Cage
- f. Radius
- g. Ulna
- h. Carpals
- i. Metacarpals
- j. Vertebrae
 - i. Cervical
 - ii. Thoracic
 - iii. Lumbar
 - iv. Sacral
 - v. Coccyx
- k. Femur
- l. Patella
- m. Tibia
- n. Tarsals
- o. Metatarsals

2. Draw and Define the following directional terms using the image of Homer.

Directional Term	Definition	Drawing/Illustration
Superior		
Inferior		
Medial		
Lateral		
Dorsal		
Ventral		
Superficial		
Deep		
Proximal		
Distal		

3. Label the diagram with the following Regional Terms.

- Cephalic
- Orbital
- Buccal
- Cervical
- Brachial
- Axillary
- Antecubital
- Olecranal
- Carpal
- Thoracic
- Abdominal
- Femoral
- Patellar
- Popliteal
- Tarsal
- Calcaneal



4. Provide the 4 main types of tissue, description of their function, & examples of where you could find this on a human body.

Types of Tissues	Function	Where it can be found in the body
1.		
2.		
3.		
4.		

5. Describe 3 molecular biological techniques that are needed for a DNA fingerprint on a potential suspect.

Molecular Procedure

What is it/ why do we do this?

Polymerase Chain Reaction (PCR)	
DNA GEL ELECTROPHORESIS	
RESTRICTION ENZYME DIGEST	

6. Calculate the Minimum and Maximum height in feet and inches for an asian female, which was found in NE Portland. The Maximum Length of the Femur (MLF) was measured to be 30 cm.

	Male		Female	
	Regression Formula	Height Range (cm)	Regression Formula	Height Range (cm)
White	2.32 (MLF) + 65.53 ± 3.94		2.47 (MLF) + 54.10 ± 3.72	
Asian	2.15 (MLF) + 72.57 ± 3.80		2.03 (MLF) + 65.42 ± 3.54	
Black	2.10 (MLF) + 72.22 ± 3.91		2.28 (MLF) + 59.76 ± 3.41	

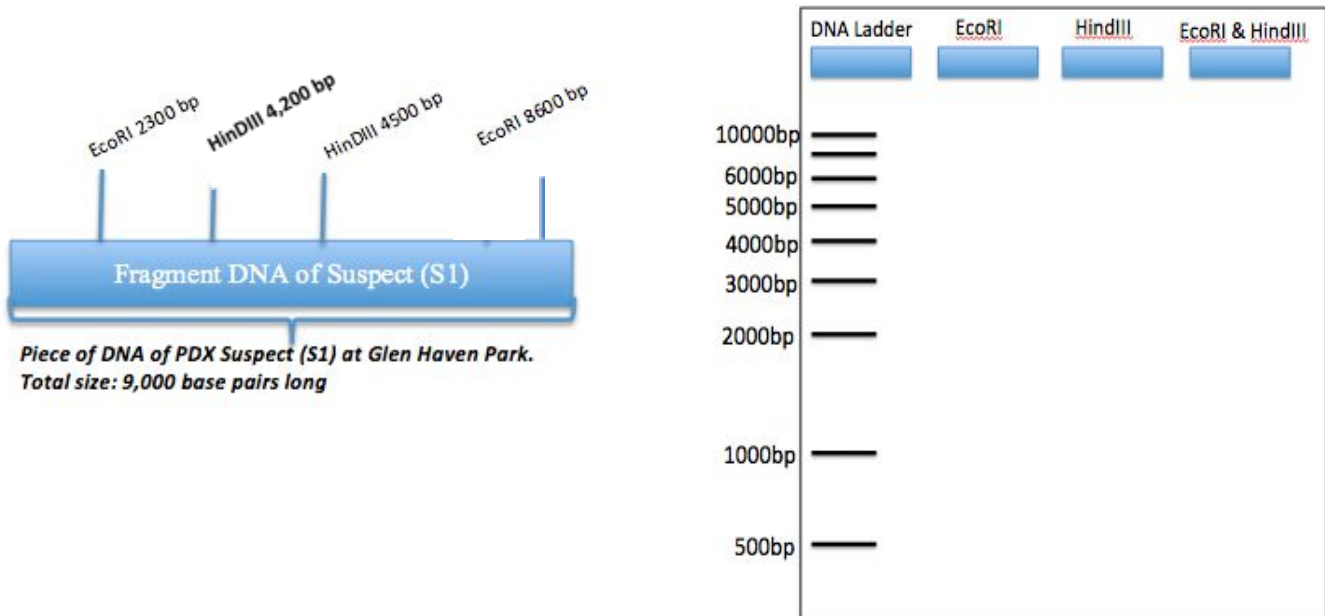
FINAL HEIGHT DETERMINATION

Minimum value = _____ cm ÷ 2.54 = _____ inches

Maximum value = _____ cm ÷ 2.54 = _____ inches

7. Provide an accurate drawing/description in how DNA travels through a DNA gel and why small, medium, and large fragments move faster than others.

8. Digest the fragment DNA of a suspect with the following restriction enzymes: **EcoRI**, **HindIII**, and **EcoRI & HindIII**. Draw the DNA bands that would appear on the gel based on the sizes of the DNA fragments resulting from the restriction digest(s).



9. How do forensic anthropologist determine if a skeleton is a male or female? Please include details that are used in observing the pelvis, long bones (arm and leg) and skull.

10. The restriction enzyme EcoRI cuts DNA at the restriction site as seen on the right. Using EcoRI, digest the following two codes of DNA and chart them on the diagram below.



Person 1:

GGAATTAAGCTTATTGCATTCTTATAGAATTCGGGGCCCAAGCTTATGAATTCAATT
CCTTAATTCGAATAACTGAAGAATATCTTAAGCCCCGGGTTTGAATACTTAAGTTAA

Person 2:

CTTATGAATTCTAAGTCTTAGGGTTCCGGTATAGAATTCTTGTTAGAATTCTTCGG
GAATACTTAAGATTCAGAATCCCAAGGCCATATCTTAAGAACAATCTTAAGAAGCC

