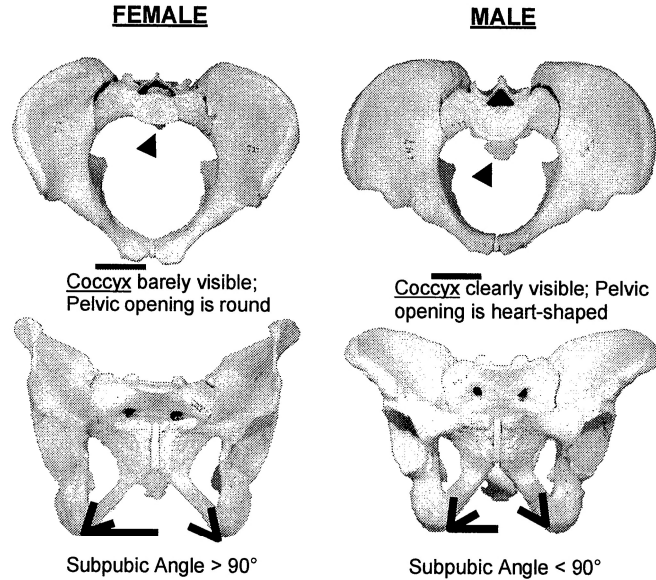


Names _____ Tag Color _____

Sherlock Bones: Identification of Skeletal Remains Lab Activity

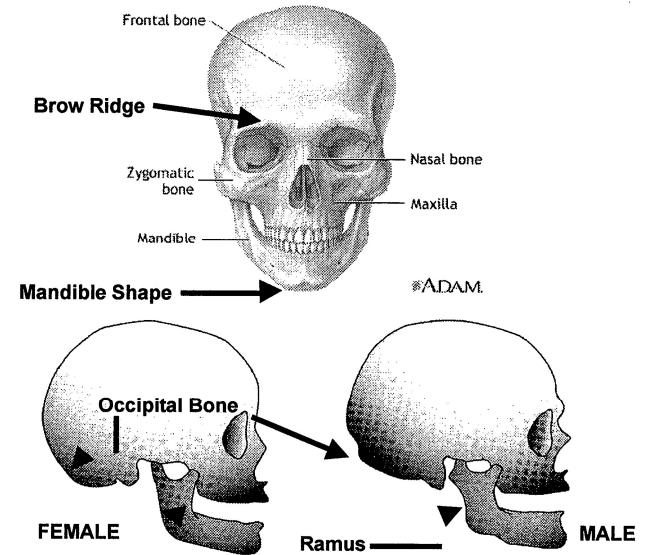
DETERMINATION OF SEX

The pelvis and the skull are useful in determining sex. The male pelvis is designed only for support and movement, while the female pelvis is adapted for childbirth. The female pelvis is wider and has a wider pelvic outlet, which allows passage of the infant during childbirth. Also, note the differences between the angle of the sub-public arch in the diagrams below. Record your observations in the table below.



Pelvis	Female	Male	Result
Pelvic Cavity Shape	Circular and wide, showing only coccyx	Heart-shaped, showing sacrum and coccyx	
Sub-Pubic Angle	>90°	<90°	

The skull also offers useful clues to the sex of an individual. The frontal profile of a male will have a more pronounced brow than a female. The mandible of a male will be more square with a cleft and a female's will be V-shaped without a cleft in the chin. The posterior ramus of the mandible in males is slightly curved, but in females it tends to be straight. In addition, the occipital profile the male will come out with a sharper point than a female profile.



Skull	Female	Male	Result
Brow	Slender brow	Pronounced brow	
Mandible (jaw) front view	V-shaped	Square	
Ramus (side view of jaw)	Straight	Slightly curved	
Shape of Eyes	Round	Square	
Occipital Bone Profile	Rounded no sharp bump	Sharper point	

Based on your observations of the pelvis and skull, determine the sex of the skeleton.

Sex of the skeleton: _____

DETERMINATION OF HEIGHT

A person's height can be determined by measuring the long bones of the skeleton.

Femur

Use the large calipers to measure the length of the femur.

Length of Femur _____ cm

Determine how tall the skeleton was using the formula in the following chart.

Sex	Regression Formula	Height (cm)
Male	$(2.32 \times \text{Length of Femur}) + 65.53$	
Female	$(2.47 \times \text{Length of Femur}) + 54.10$	

Height = _____ cm + 2.54 = _____ inches = ____ feet ____ inches

Height of Skeleton (using femur): _____ feet _____ inches

Humerus

Use the large calipers to measure the length of the humerus.

Sex	Regression Formula	Height (cm)
Male	$(2.89 \times \text{Length of Humerus}) + 78.10$	
Female	$(3.36 \times \text{Length of Humerus}) + 57.97$	

Height = _____ cm + 2.54 = _____ inches = ____ feet ____ inches

Height of Skeleton (using humerus): _____ feet _____ inches

Tibia: Only the Yellow Tag has it

Use the large calipers to measure the length of the tibia.

Length of Tibia _____ cm

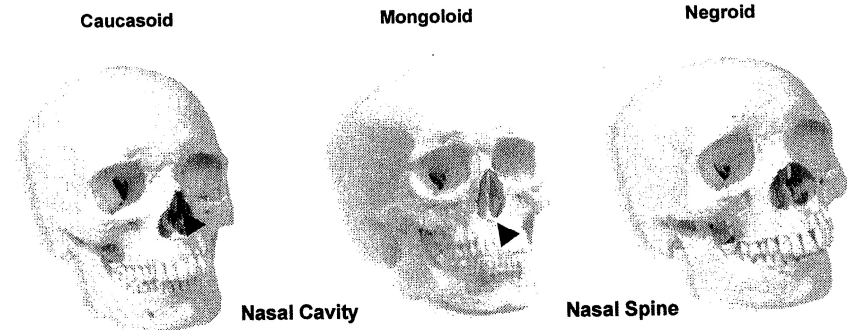
Sex	Regression Formula	Height (cm)
Male	$(2.33 \times \text{Length of Tibia}) + 82.91$	
Female	$(2.68 \times \text{Length of Tibia}) + 67.05$	

Height = _____ cm + 2.54 = _____ inches = ____ feet ____ inches

Height of Skeleton (using tibia): _____ feet _____ inches

DETERMINATION OF RACE

The three racial groups to which a given skeleton can be assigned are Caucasoid (European), Mongoloid (Asian), or Negroid (African). The skull can provide information about the racial background of the skeleton.



Using the small calipers, measure the nasal opening at the widest portion of the nasal cavity and the height of the cavity. The height goes from bottom of the nose all the way up to where the nose attaches to the skull between the eyes. Calculate the nasal index.

Nasal Width: _____ mm Nasal Height: _____ mm

Nasal Index = (nasal width) ÷ (nasal height) = _____

Skull	Caucasoid	Mongoloid	Negroid	Result
Nasal Index	<.48	.48-.53	>.53	
Nasal Spine	Prominent spine	Somewhat prominent spine	Very small spine	
Prognathism	Straight from upper teeth to chin	Slightly protruding upper teeth	Prominent and protruding upper teeth	

Based on your observations of the skull, determine the race of the skeleton.

Race of the skeleton: _____

CONCLUSIONS

1. Based on your investigation of the skeletal remains, fill in the following chart:

Sex	
Race	
Height Range	