**Forensic Anthropology Investigation**

**Section 1 - Research and Background**

Visit the following sites to gain an understanding of forensic anthropology and what bones (or remains) can tell you about the deceased.

[Investigative Techniques of Forensic Anthropology](http://www.pbs.org/opb/historydetectives/techniques/forensic_feature.html) (http://www.pbs.org/opb/historydetectives/techniques/forensic\_feature.html)  
1. What can the teeth tell you about the deceased?

2. How can the skull be used to determine age?

3. How is the pelvis of a female different from the pelvis of a male?

4. The hand bones can help you determine what about the deceased?

[Explore Forensics](http://www.exploreforensics.co.uk/) ( http://www.exploreforensics.co.uk/ ) - most can be found at the link: Analyzing the body

1. What is the first thing a forensic scientist looks at to identify a deceased?

2. Where is the most accurate place to take the body temperature? Suppose a body is found and its temperature is recorded at 34 degrees celcius, how long has the body been dead?

3. Why might a corpse be exhumed?

4. What insect is used to determine time of death? What type of scientist studies these insects?

5. What is rigormortis and how long does it last?

6. What is lividity?

7. What are the four categories of death?

Written in Bone - Exhibit at the Smithsonian (<http://anthropology.si.edu/writteninbone/index.html> )

**Skeleton Keys --> Bone Basics**

1. What is the last bone to complete its growth?

2. How are teeth used to estimate age?

3. What is bone "remodeling" and how can it be used to determine age?

4. What is the sciatic notch? How can it be used to determine gender?

**Forensic Anthropology 🡪 Facial Reconstruction**

How are facial reconstructions made using a skull? What are the limitations of these reconstructions?

**Summary:**

How can bones help you determine information about or identify a skeleton? Create a chart:

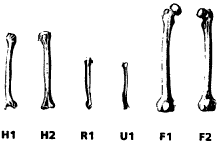
|  |  |
| --- | --- |
| **Bone** | **What it can tell you and HOW it tells you that** |
| **Cranium** |  |
| **Hand bones** |  |
| **Teeth** |  |
| **Femur** |  |
| **Pelvis** (you should have a lot of info for this one) |  |

What are some things that you can NOT determine using a skeleton that would be necessary to identify a body?

|  |  |
| --- | --- |
| **What you can’t tell** | **Ideas for how to figure it out?** |
|  |  |

**Section 2 – Reconstruction and identification of skeletal remains**

You are a scientist specializing in investigating skeletal remains at the Earth Museum of Natural History. In today's mail you receive a package of bones from some archeologists who have been hunting for the last known location of a famous outlaws Butch Cassidy and the Sundance Kid. Included in the package are six well-preserved arm and leg bones, each of which is labeled. There is one radius (R1) and one ulna (U1); these are the two bones that connect the wrist and elbow. There are two humerus bones (H1 and H2). The humerus connects the shoulder and the elbow. There are two femurs (F1 and F2). The femur is the large bone in the thigh which connects the hip to the knee.

The data chart, prepared by your assistant, indicates the length of each of these bones. These measurements can be used to estimate how tall the deceased individuals might have been. Based on ratios between bone lengths and body height, your assistant has calculated possible heights for the people whose bones you received. There is no evidence, however, to show whether the bones belonged to a man or a woman. Butch Cassidy was approximately six feet, two inches tall. His associate was approximately five feet, five inches tall.

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Measurement** | **Male Height Range** | **Female Height Range** |
| H1 | 39.1cm | 186.2-194.2cm | 183.2-191.2cm |
| H2 | 32.27cm | 164.5-172.57cm | 161.2-169.2cm |
| R1 | 19.5cm | 146.49-154.49cm | 141.5-149.45cm |
| U1 | 22.5cm | 150.9-158.97cm | 147.8-155.8cm |
| F1 | 49cm | 188.5-196.57cm | 169.5-177.5cm |
| F2 | 45.42cm | 180.47-188.47cm | 161.02-169.02cm |

1. From the data on the chart, what evidence supports the theory that these bones might indeed be the remains of the lost outlaws?

2.Which bones could possibly belong to which individual? How do you know?

3.Which bone is most difficult to assign to a certain individual? Why?

4. Can you conclude with certainty to whom these bones belong? Why or why not?