Activity: Can You Identify Ancestry?

The bones of a human skull express inherited features from one generation to the next. Many of these features have developed in response to evolutionary processes, including adaptation to the environment. Since certain anatomical features are found with greater frequency in certain populations, their presence or absence are clues to ancestry.

Forensic anthropologists determine the ancestry of a skeleton by examining the morphology, or shape, of the skull and by taking measurements of the skull vault (cavity) and face. By comparing these results with data from populations worldwide, scientists can evaluate that individual's relationship to a world group.

Because only three main ancestral groups were represented around the Chesapeake Bay in the 17th century - American Indians, Europeans, and Africans from the sub-Saharan region - the features from these three groups can be used to compare with the skeletal remains in the cellar. Figure 1 depicts European, American Indian, and sub-Saharan African skulls.

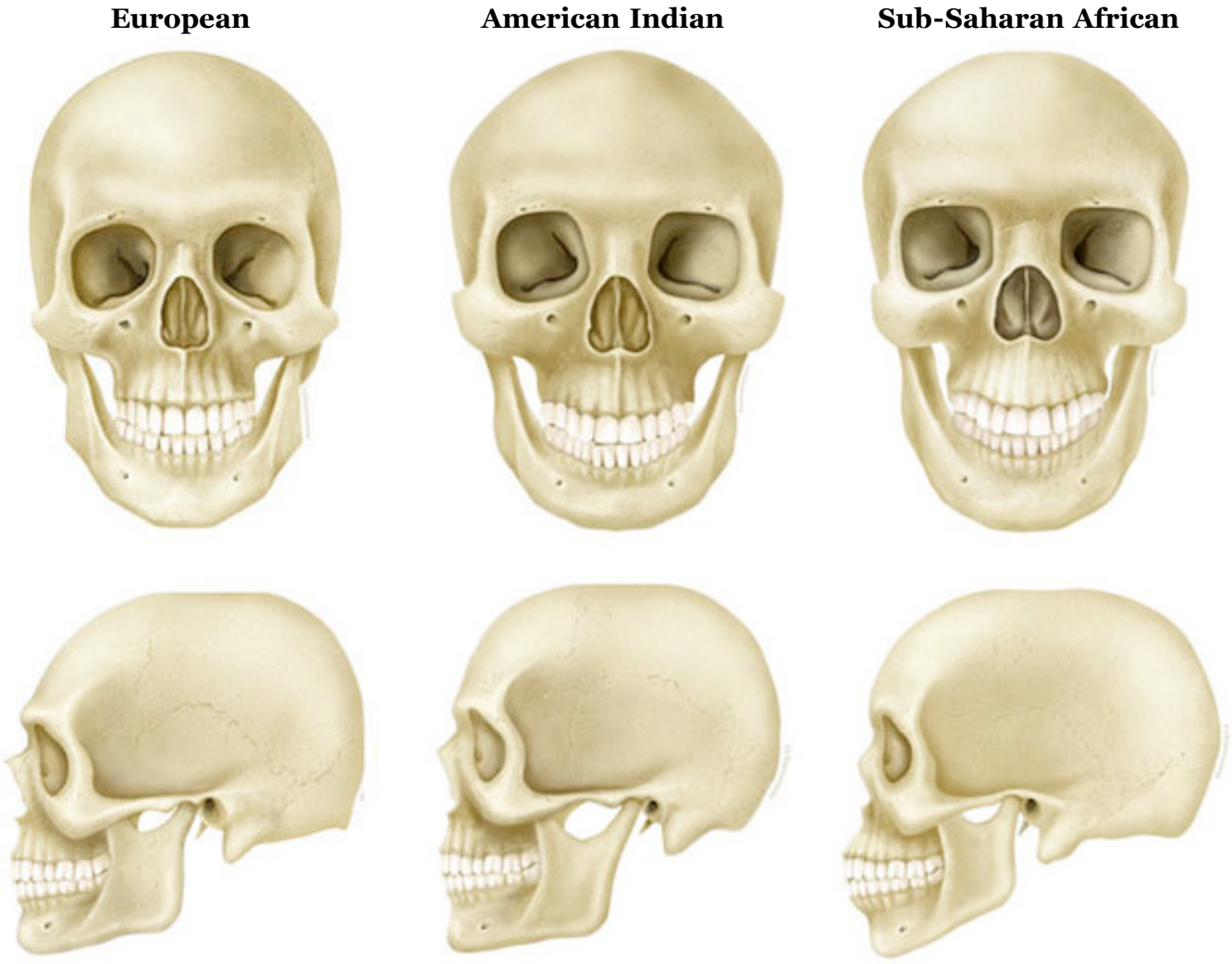

Figure 1. Skulls from different ethnic groups. (Source: Smithsonian Institution)

European

Figure 2 depicts the characteristics of a European skull. Individuals with European ancestry tend to have straight facial profiles and narrower faces with projecting, sharply angled nasal bones, and these features:

- Long and narrow face
- Sloping eye obits
- Larger nasal spine
- Narrow, high nasal opening
- Sharp inferior nasal border

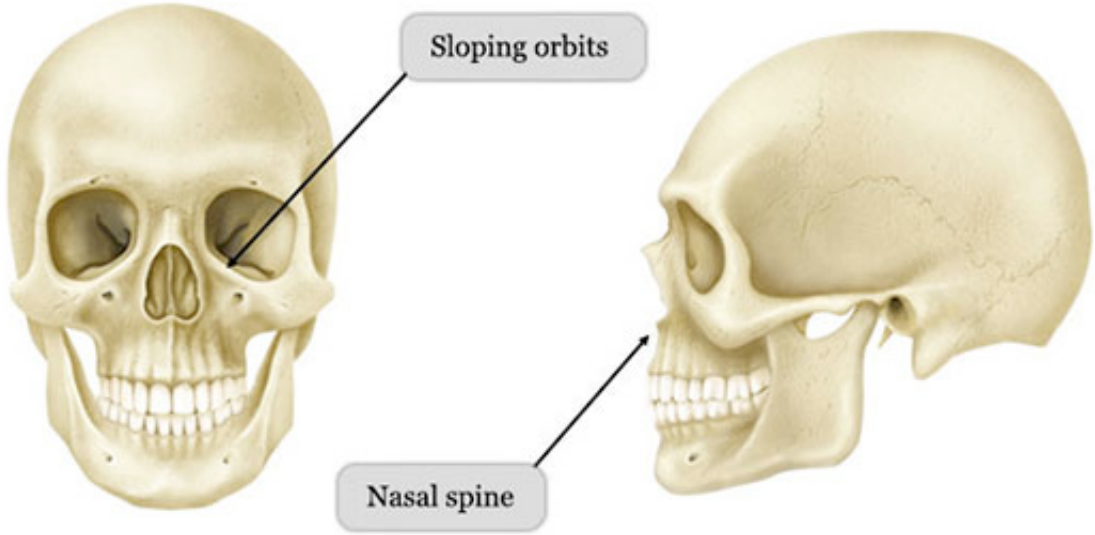

Figure 2. European skull characteristics. (Source: Smithsonian Institution)

American Indian

Figure 3 depicts the characteristics of an American Indian skull. Individuals with American Indian ancestry have a high occurrence of the following features:

- Wide face and short, broad cranial vault
- Large prominent cheek bones
- Nasal opening flared at the base (heart-shaped)
- Rounded eye orbits
- Large teeth with shovel shaped incisors

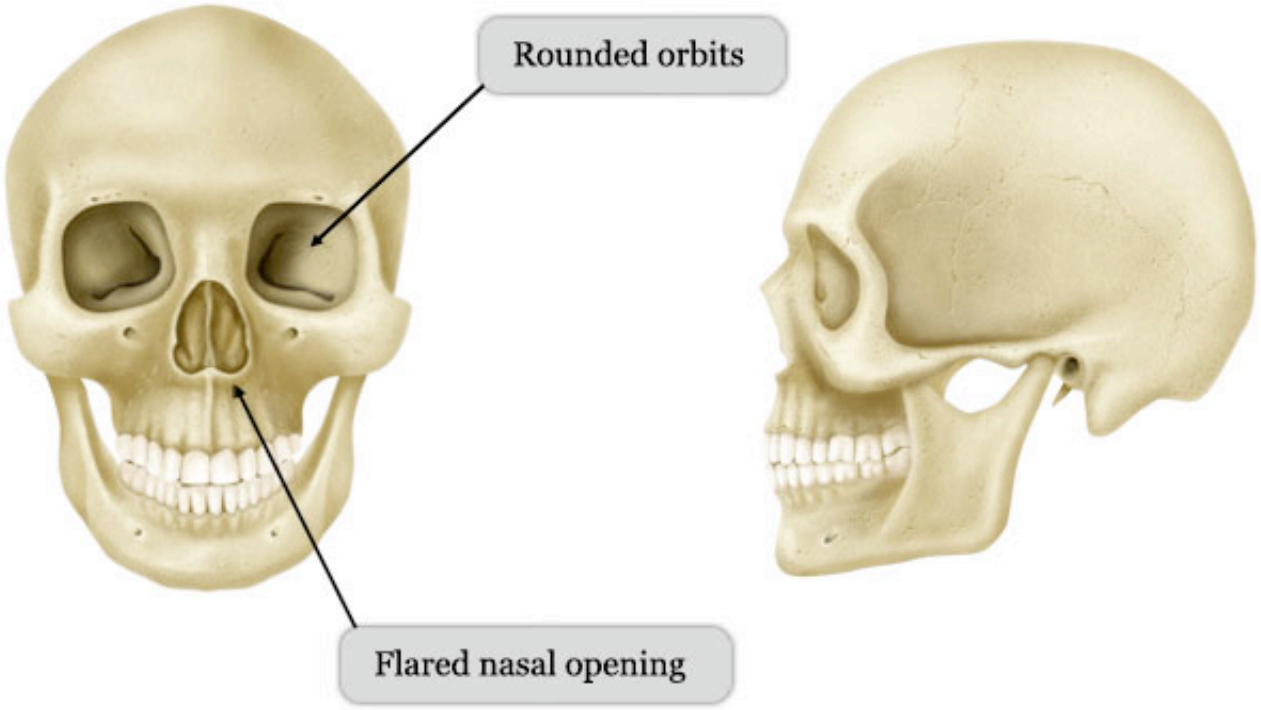

Figure 3. American Indian skull characteristics. (Source: Smithsonian Institution)

Sub-Saharan African

Figure 4 depicts the characteristics of a person from sub-Sahara Africa. Individuals with sub-Saharan African ancestry tend to show greater facial projection in the area of the mouth, wider distance between the eyes, a wider nasal cavity, and these features:

- Facial prognathism (facial forwardness)
- Smooth and depressed inferior nasal border
- Wide nasal chamber
- Smaller nasal spine
- Rectangular eye orbits
- Large teeth, wrinkling of molars

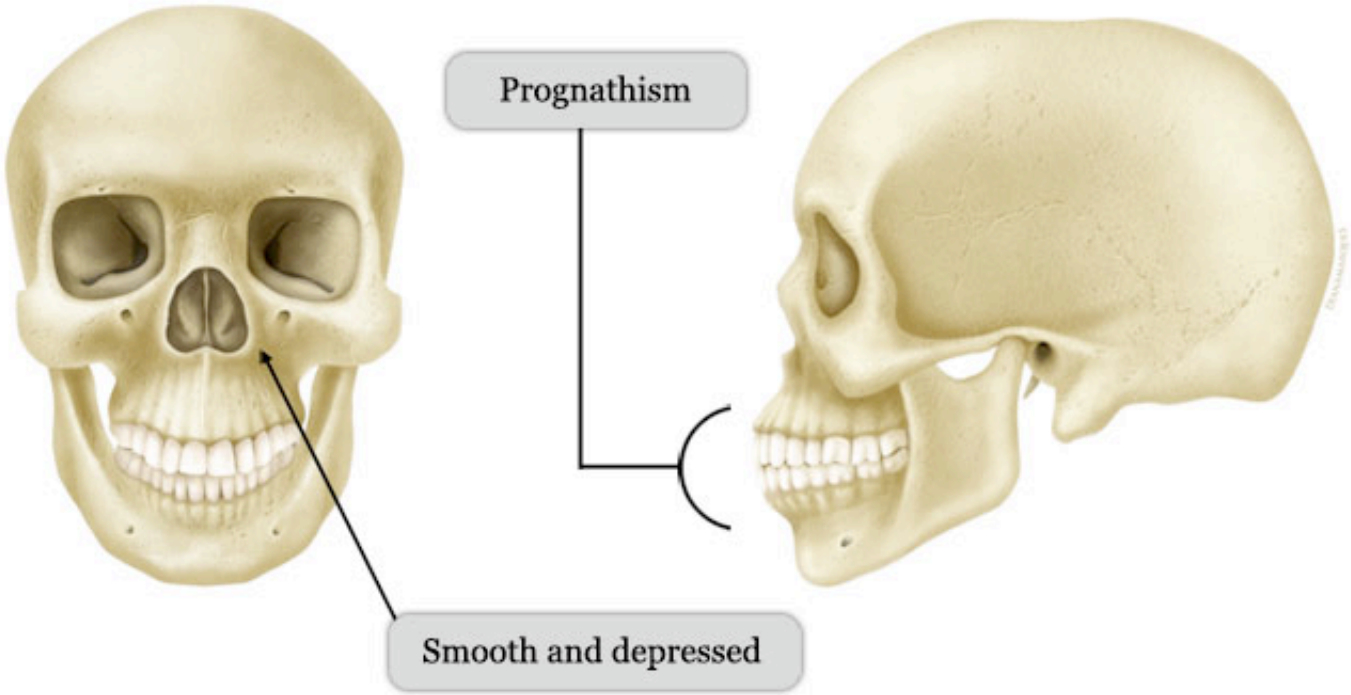

Figure 4. Sub-Saharan African skull characteristics. (Source: Smithsonian Institution)

Evidence of Ancestry in the Skeleton Being Examined

Examine the skull of the skeleton in the cellar in Figure 5 and select an ancestry group that you think depicts each feature of the skull - American Indian, European, or sub-Saharan African.

Figure 5. Skull of the skeleton in the cellar. (Source: Smithsonian Institution)

Feature	European	American Indian	Sub-Saharan African
Shape of cranial vault and face *The long and narrow face is a **European** feature.*	☐ ✓	☐ ✗	☐ ✗
Facial Prognathism *This feature is absent, a **European** feature.*	☐ ✓	☐ ✗	☐ ✗
Cheek bones *The prominent cheek bone feature is absent, so this is likely a skull of **European** or **sub-Saharan African** ancestry.*	☐ ✓	☐ ✗	☐ ✓
Eye orbit shape *The eye orbit shape is slanted, a **European** feature.*	☐ ✓	☐ ✗	☐ ✗
Nasal opening shape *The nasal opening is narrow and high, **European** features.*	☐ ✓	☐ ✗	☐ ✗

What was this person's ancestry? *This person was most likely of European ancestry.*	○ ✓	○ ✗	○ ✗

Smithsonian
National Museum of Natural History