



**ANTHROPOLOGISTS LOOK AT HUMAN DEATH:
BIOARCHAEOLOGY, FORENSIC ANTHROPOLOGY,
AND PALEOPATHOLOGY**

BIO-ARCHAEOLOGY

Study of Human remains found at archaeological sites through osteology, bone biology and Paleopathology [disease]

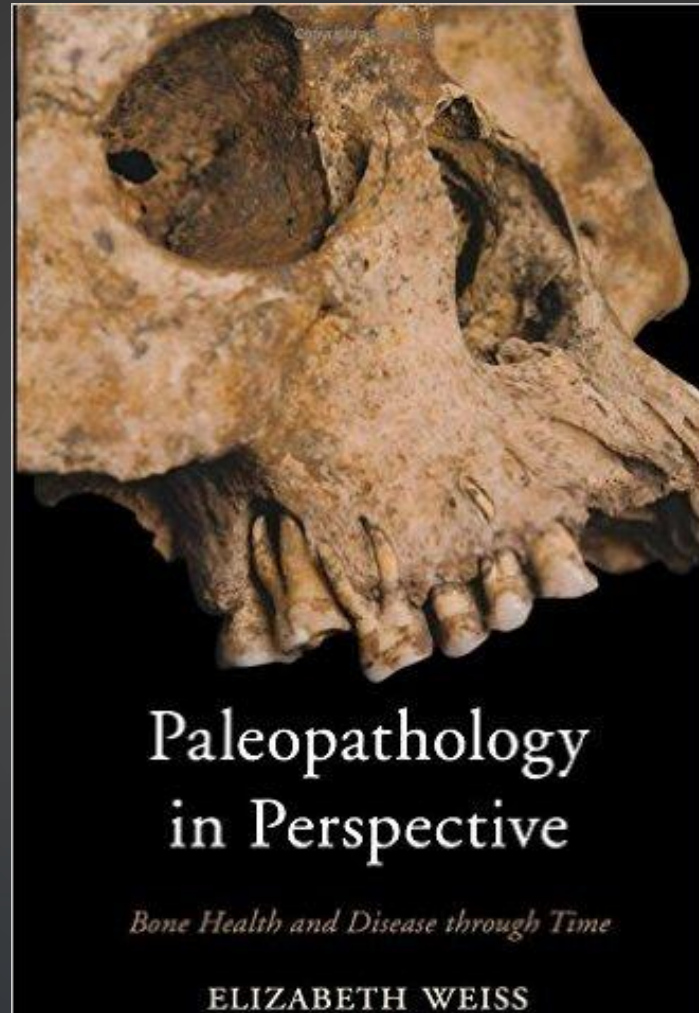




analysis of skeletal, badly decomposed, or otherwise unidentified human remains; legal and humanitarian cases of man-caused death [from murder to genocide]

CAUSES OF HUMAN DEATH [FORENSIC ANTHROPOLOGY]





PALEOPATHOLOGY:

The Study of The
Effects of Human
Diet and Disease
on the Human Body



Information from evidence:
sex, age, health level/disease, environment
of Growth
Cause Of Death; time of death; Location of
Expiration Event
Antemortem and Postmortem
trauma/stressors



LAB WORK, FIELDWORK:

Research on infectious agents, Human Blood, Analysis of Environment Near Forensic Case



STEPS TO FIELDWORK

STEP 1: DETERMINE SPECIES

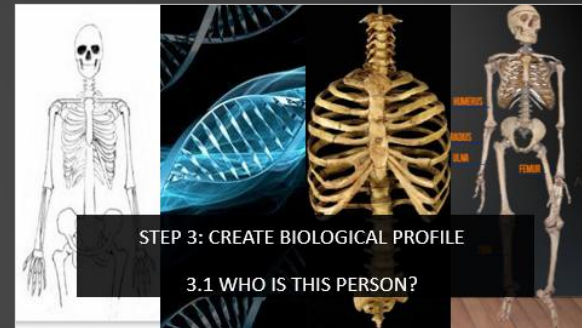
FIELDWORK STEP 1:
IS IT A HUMAN BEING OR AN ANIMAL?

STEP 2: DETERMINE FORENSIC CONTEXT



STEP 3: CREATE BIOLOGICAL PROFILE

3.1 WHO IS THIS PERSON?



STEP 3: CREATE BIOLOGICAL PROFILE

3.2:
CIRCUMSTANCES OF DEATH

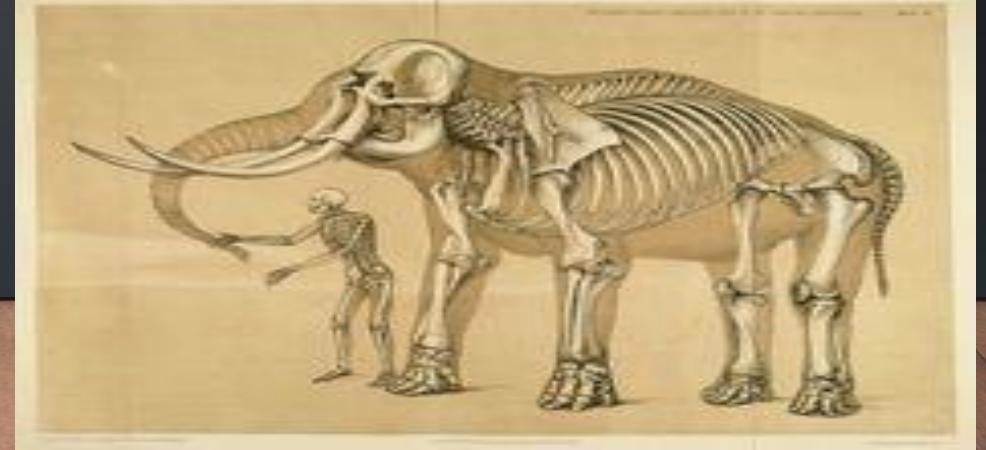
STEP 4: CHECK YOUR DATA

COMPARE ALL INFORMATION
FOUND WITH VARIATION RECORDS

STEP 1: DETERMINE SPECIES

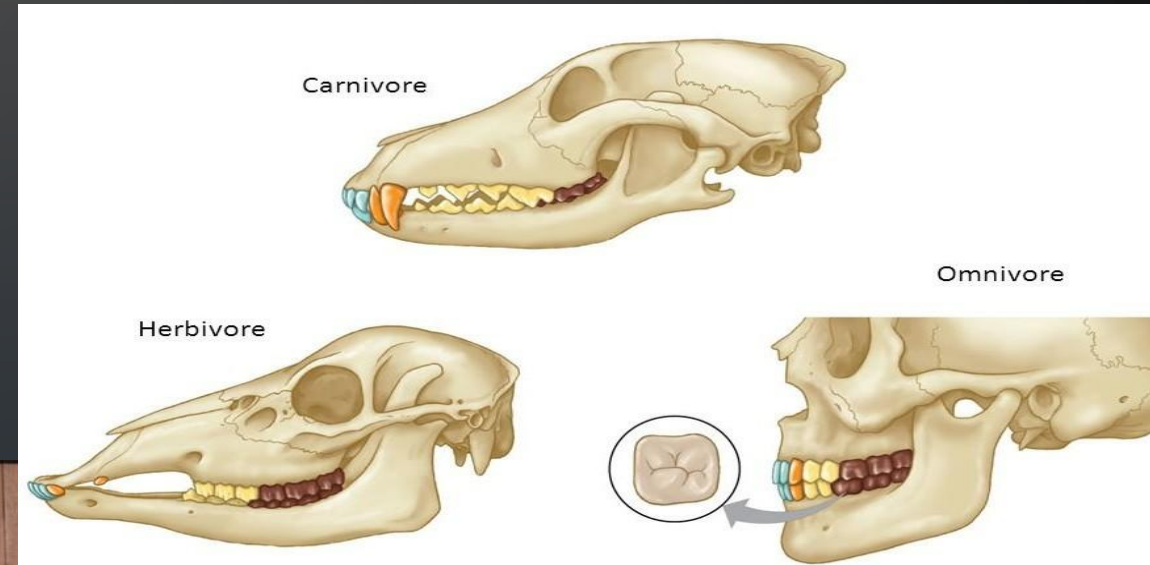
FIELDWORK STEP 1:
IS IT A HUMAN BEING OR AN ANIMAL?

FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?



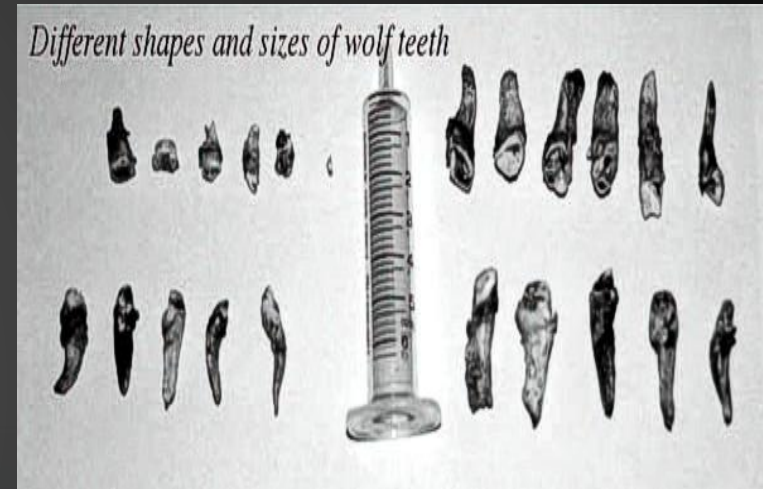
Omnivore, carnivore, or herbivore?

FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?



Omnivore, carnivore, or herbivore?

FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?



Omnivore, carnivore, or herbivore?

FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?



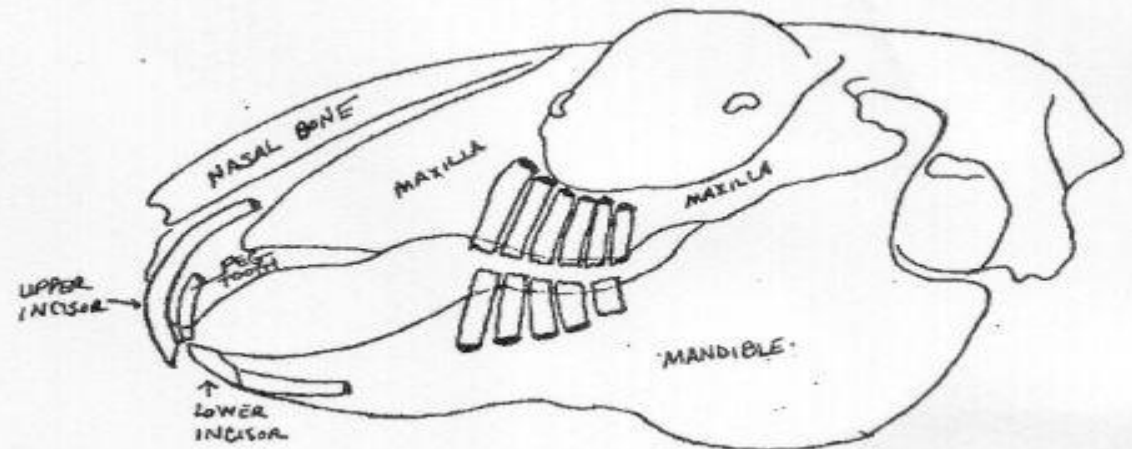
omnivore, carnivore, or herbivore?

FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?



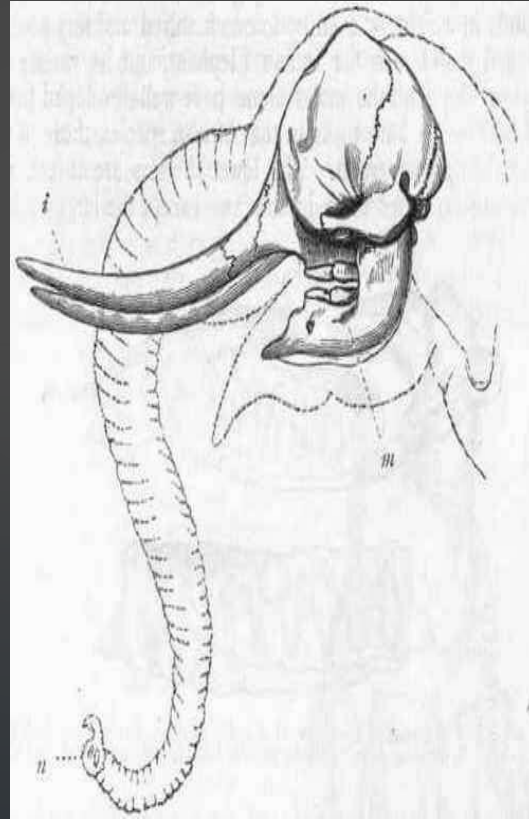
omnivore, carnivore, or herbivore?

FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?



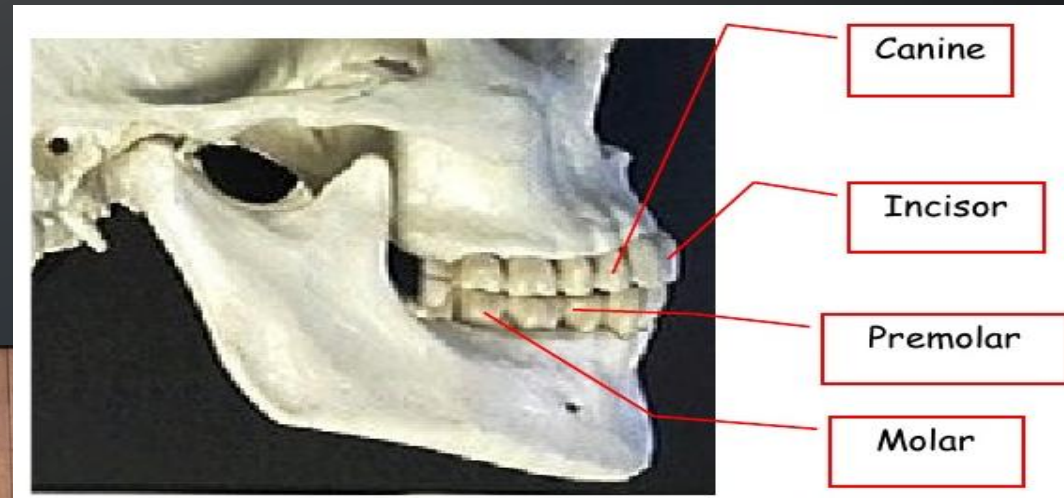
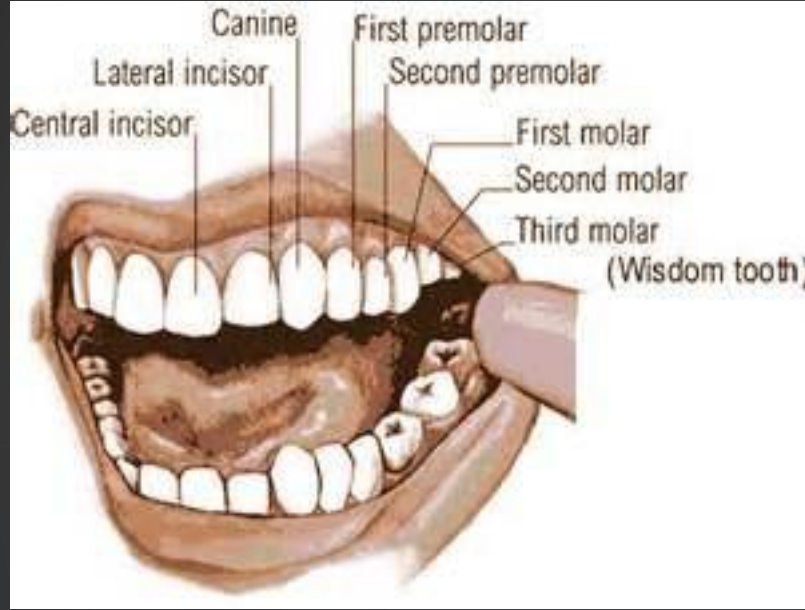
FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?

Omnivore, carnivore, or herbivore?



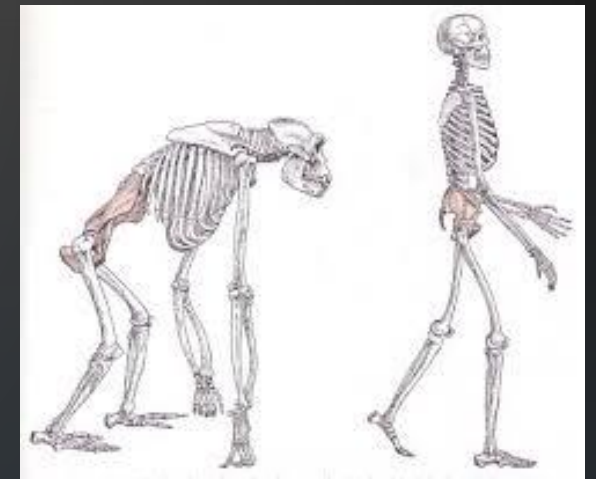
omnivore, carnivore, or herbivore?

FIELDWORK STEP 1: IS IT A HUMAN BEING OR AN ANIMAL?





FIELDWORK
STEP 1:
IS IT A
HUMAN
BEING OR AN
ANIMAL?



STEP 2: DETERMINE FORENSIC CONTEXT

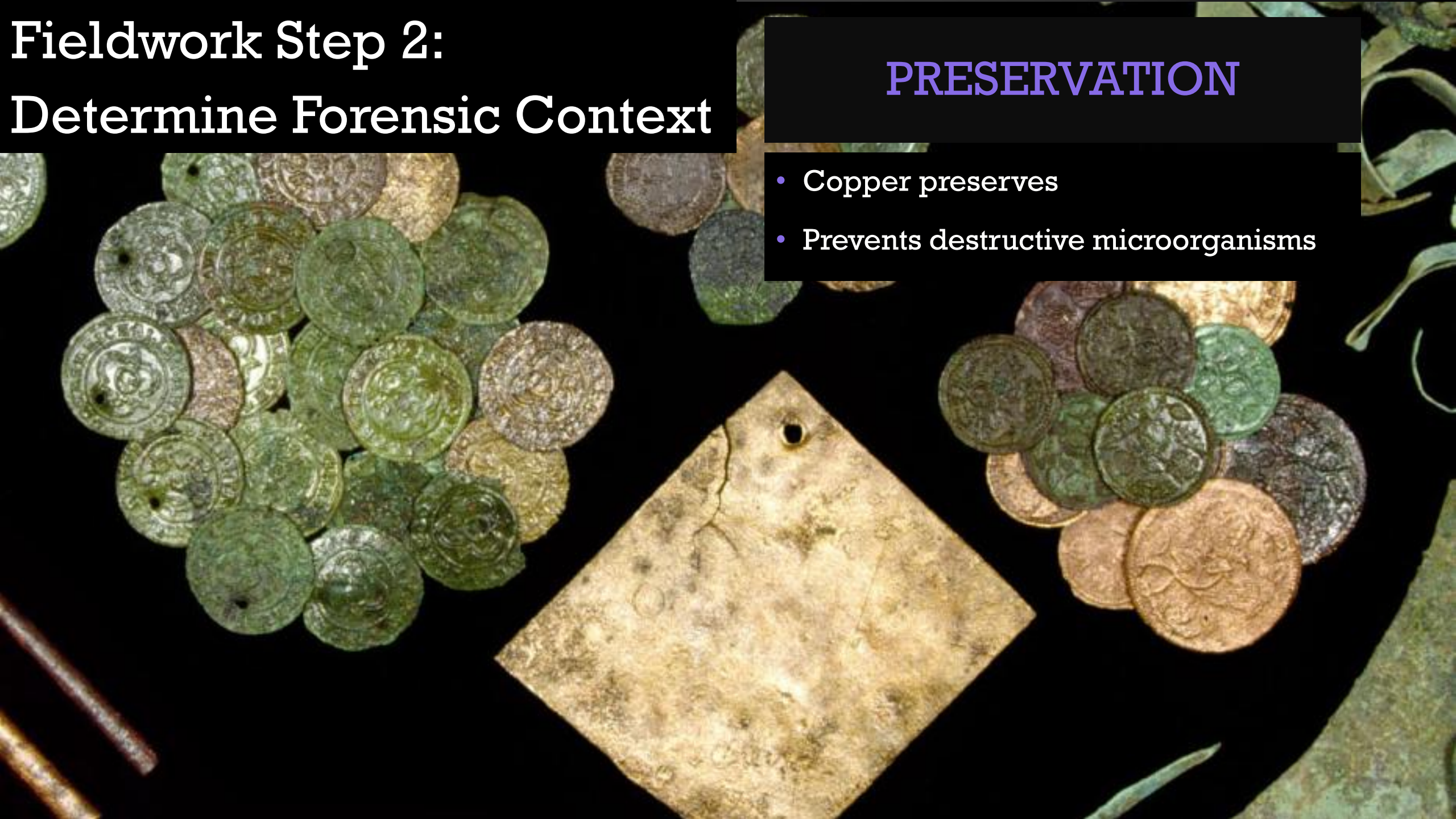


- Preservation Factors [Materials, Conditions]
- Destruction Factors [Natural/Cultural Formation Processes]

Fieldwork Step 2: Determine Forensic Context

PRESERVATION

- Copper preserves
- Prevents destructive microorganisms



Fieldwork Step 2: Determine Forensic Context

PRESERVATION

- Preservation of organic material determined by:
- The matrix
- Climate
- Disaster events

Chalk preserves human bones well



- Caves: protection
- limestone: excellent preservation
- Salt mines: will preserve sites
- Natural disasters: will preserve sites (Volcanic Ash; Sand/Mudslide)



PRESERVATION

- Wetland [peat bogs, fens, marshes, swamps, lakes] : favors preservation [anaerobic]
- Bog bodies: iron age
- Water : Preserves wooden structures
- Dry environments: great aridity prevents decay
- Rapid drying out: desiccation: mummification preservation
- Cold Environments: can halt decay for thousands of years



The background of the slide is a collage of three images. The top-left image shows a forest floor covered in thick green moss with bare tree branches. The top-right image shows a dense tropical jungle with sunlight filtering through the canopy. The bottom-left image shows a preserved animal skin, possibly a deer or similar, laid out on a light-colored surface.

DESTRUCTION

- Acidic peat bogs: destroy bone, iron, pottery
- Tropical Climates :most destructive :heavy rains, acid soils, warm temps, high humidity, erosion, wealth of vegetation, insect life; torrential downpours;
- Temperate climates: not beneficial to organic :warm, but fluctuation can accelerate decay



FIELDWORK STEP 2: DETERMINE FORENSIC CONTEXT

- Natural Formation Processes [Natural events, such as volcanoes, mudslides, hurricanes/storms, ocean tides, continental drift]
- Cultural Formation Processes [i.e. : Man-made situations: such as large-scale accidents, violent events, construction]



FIELDWORK STEP 2: DETERMINE FORENSIC CONTEXT

Natural Formation Processes

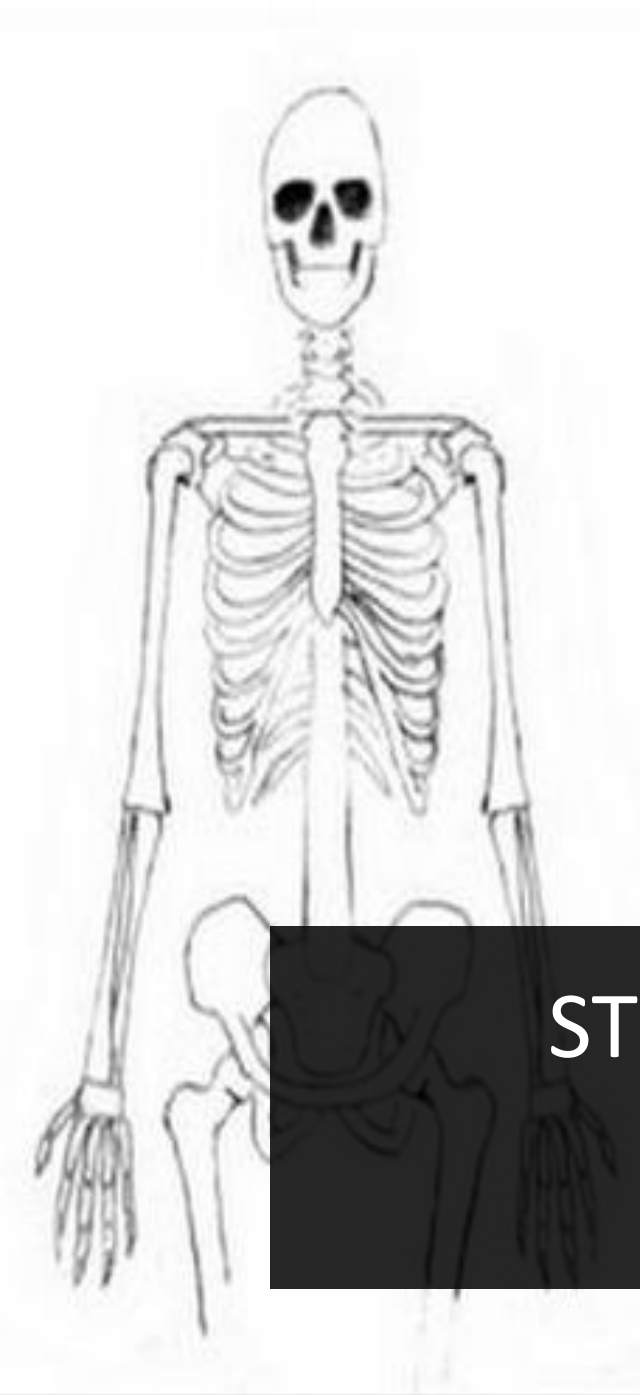
- Volcanoes
- Mudslides
- Hurricanes/storms
- Ocean tides
- Continental drift



FIELDWORK STEP 2: DETERMINE FORENSIC CONTEXT

Cultural Formation Processes [Man-made situations]

- large-scale accidents
- violent events
- construction



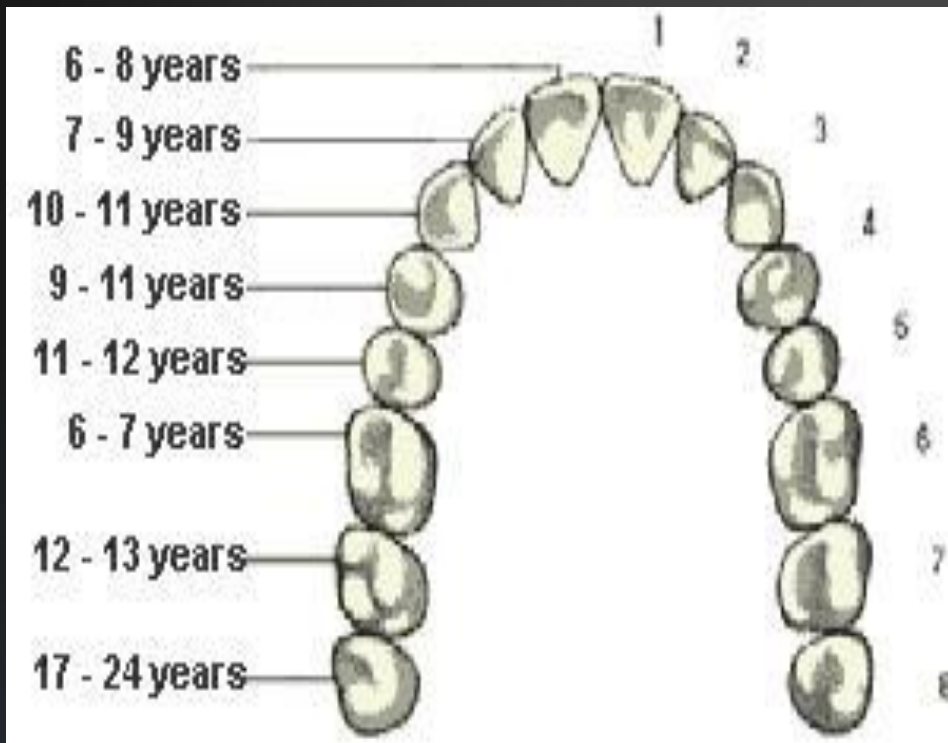
STEP 3: CREATE BIOLOGICAL PROFILE

3.1 WHO IS THIS PERSON?

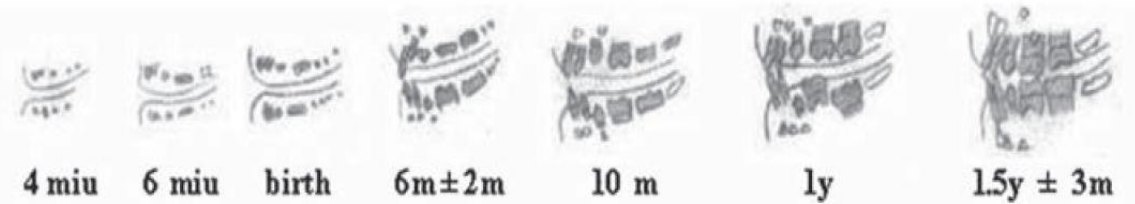
STEP 3: CREATE BIOLOGICAL PROFILE

- Age :Estimate Age [at time of death]: Dentals [most common]
- Sex : identification most accurate after the individual reaches maturity; differences most noticeable on pelvis and skull
- Ancestry: or 'population': different than 'race' [outdated]
- Stature [height, weight]
- Identity
- Circumstances surrounding death [coroner states official determinant of death]

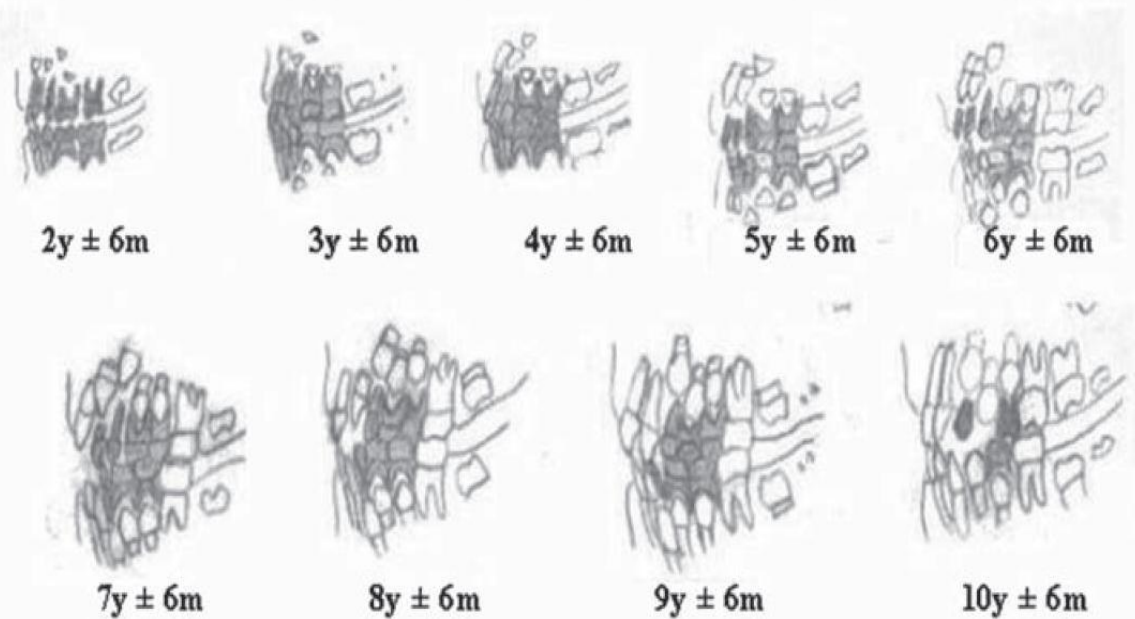
CREATE BIOLOGICAL PROFILE: AGE



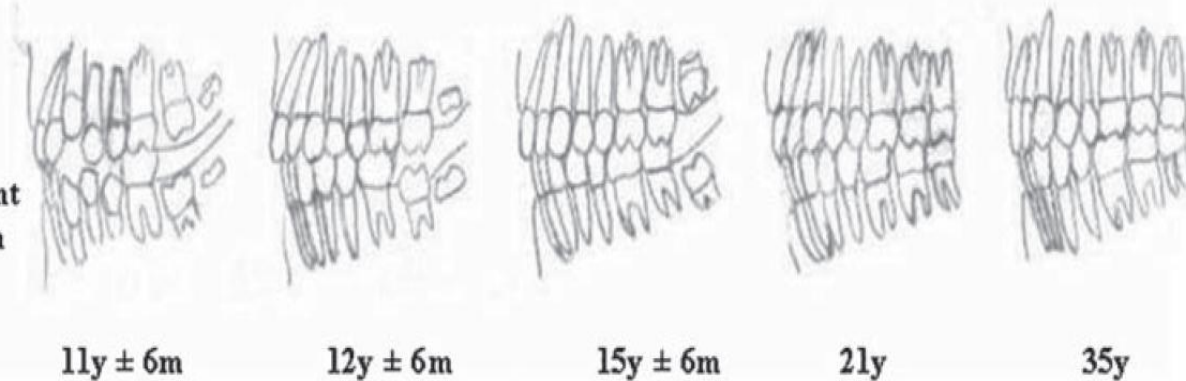
Deciduous
dentition



Mixed
dentition



Permanent
dentition





A



B



C

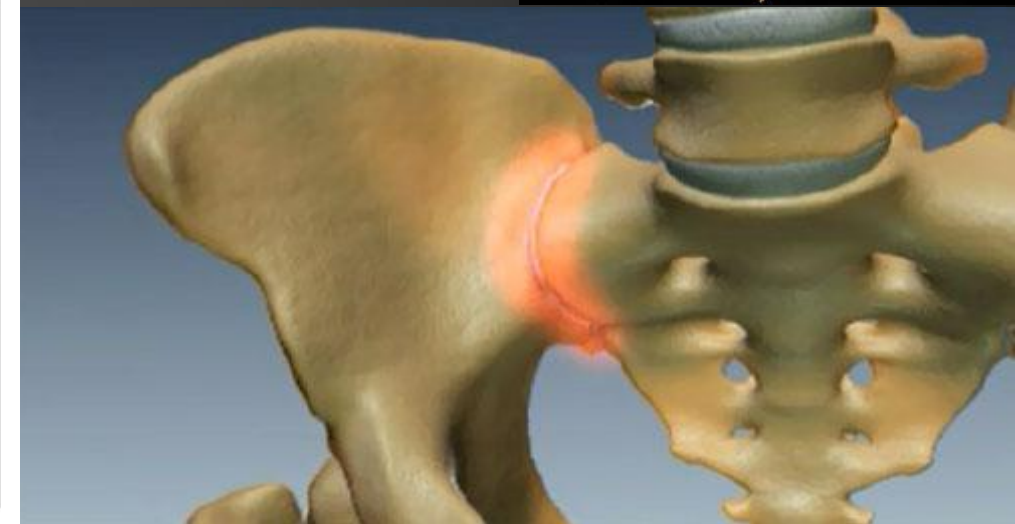


D

<Fused skull

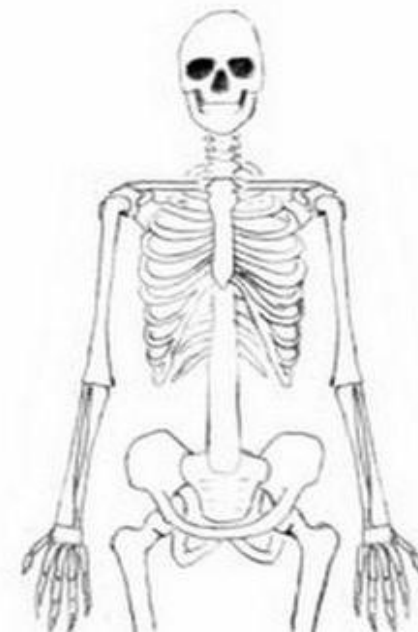
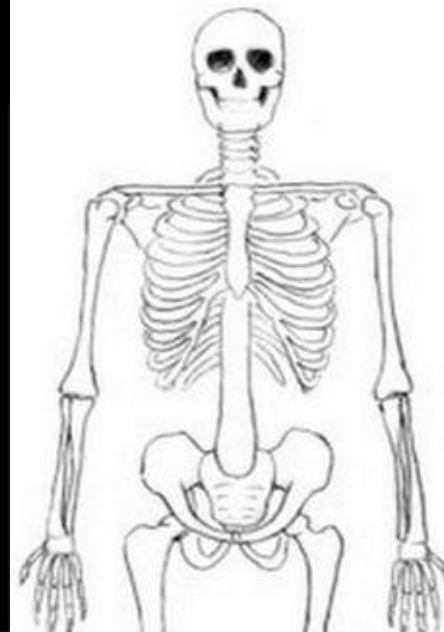
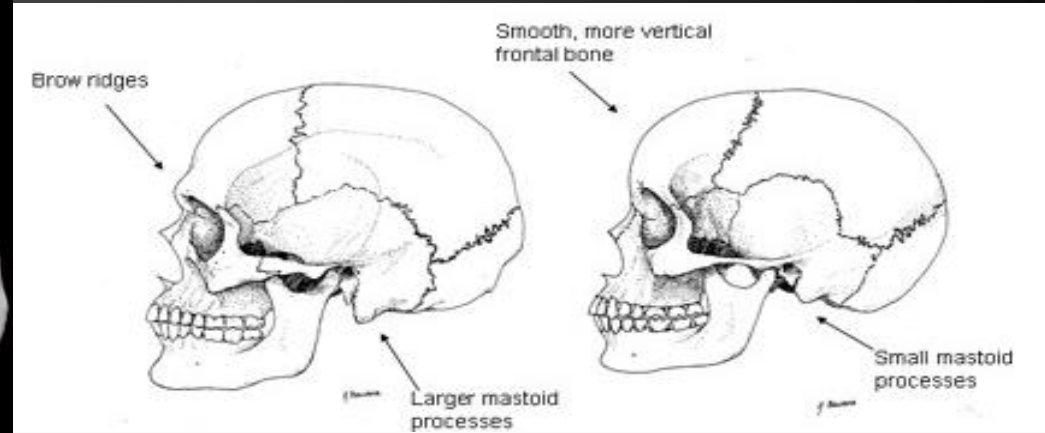
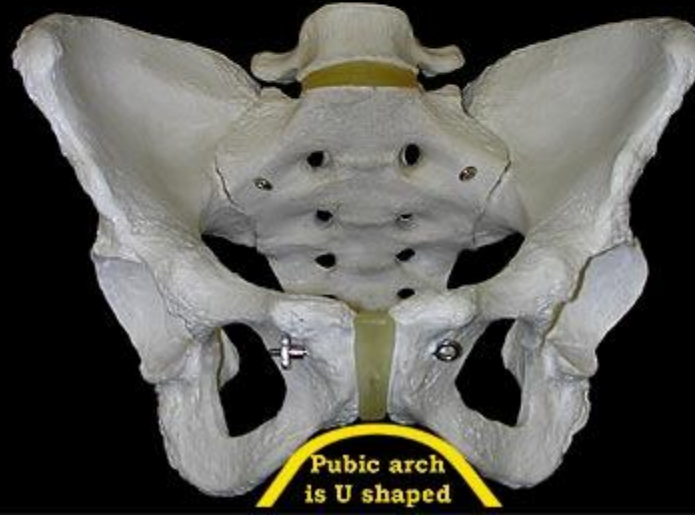
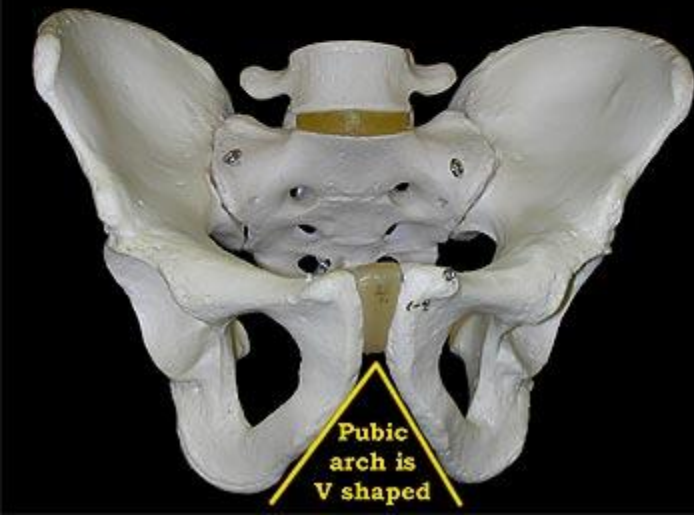
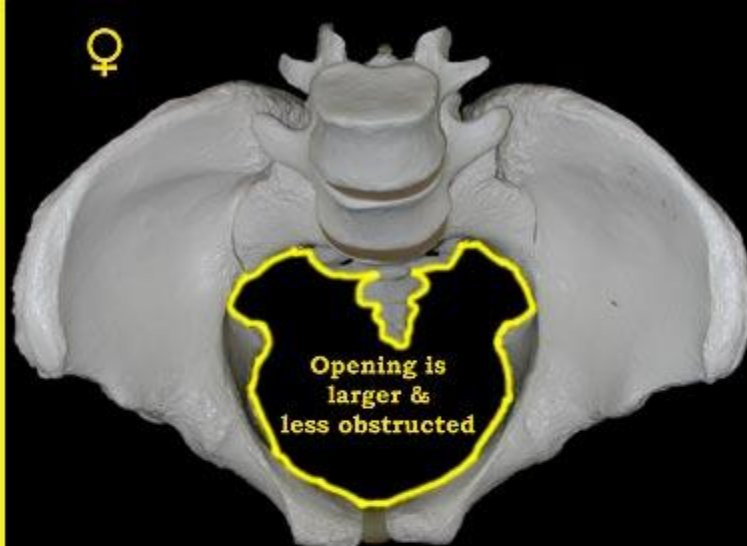
Aged Ribs:
bone spicules>

Sacroiliac Joint



CREATE BIOLOGICAL PROFILE: AGE

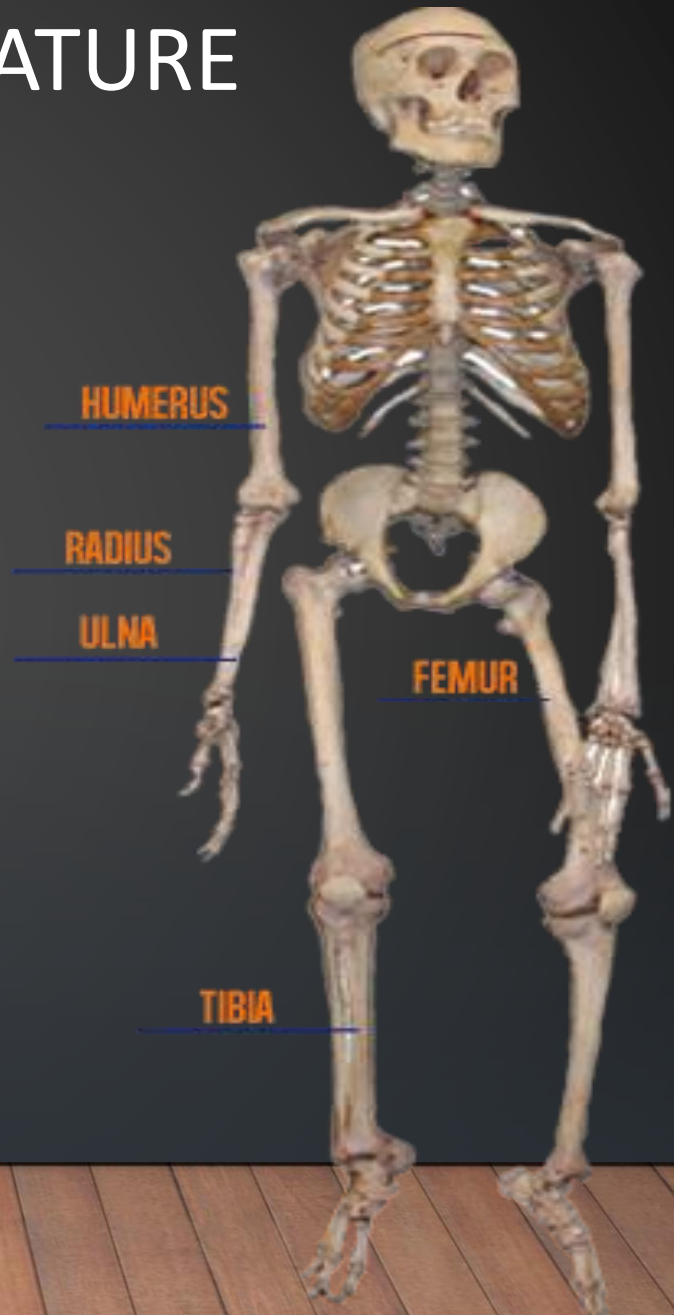
CREATE BIOLOGICAL PROFILE: SEX



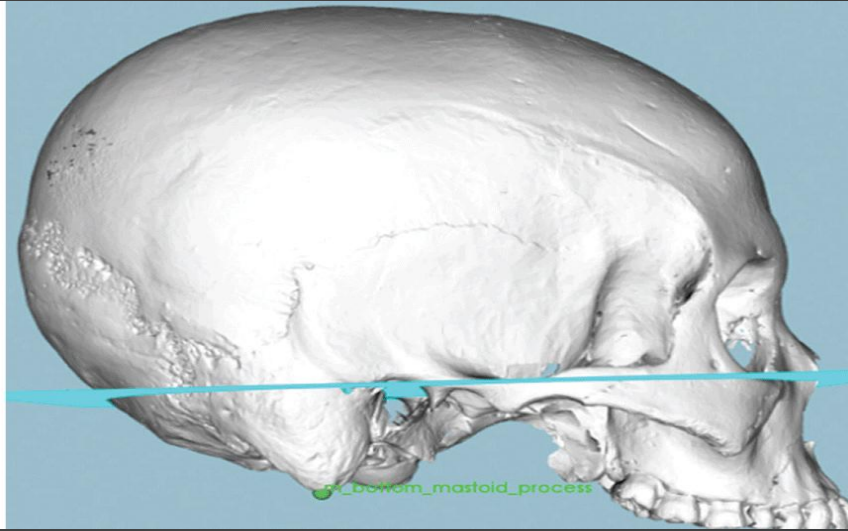
CREATE BIOLOGICAL PROFILE: MEASURE STATURE



TIB-III AT-848 TIB-XII TIB-XI TIB-VI TIB-I TIB-IV

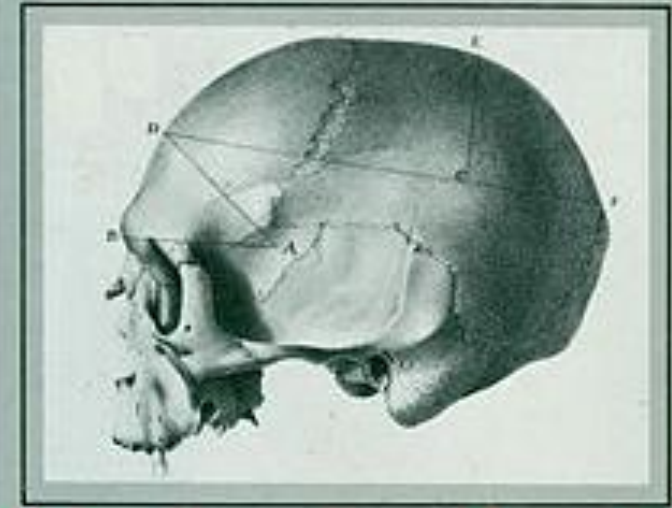


BIOLOGICAL PROFILE: ANCESTRY



https://www.youtube.com/watch?v=T9V_6HKHZTM

The Mismeasure of Man



Stephen Jay Gould

author of *Ever Since Darwin* and *The Panda's Thumb*

[Note: Controversy!]



Crime Scene

CC

Suspect 1

' 311 111 1

Suspect 2

1 1111

Suspect 3

CC

Suspect 4

1 1

BIOLOGICAL PROFILE: IDENTITY

STEP 3:
CREATE BIOLOGICAL PROFILE

3.2:
CIRCUMSTANCES OF DEATH

BIOLOGICAL PROFILE: CIRCUMSTANCES SURROUNDING DEATH

- Natural
- Homicide
- Suicide
- Accident
- Undetermined

<https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>



BIOLOGICAL PROFILE: CIRCUMSTANCES SURROUNDING DEATH: NATURAL



Leprosy

BIOLOGICAL PROFILE:

CIRCUMSTANCES SURROUNDING DEATH: HOMICIDE / SUICIDE



Blunt-force Trauma

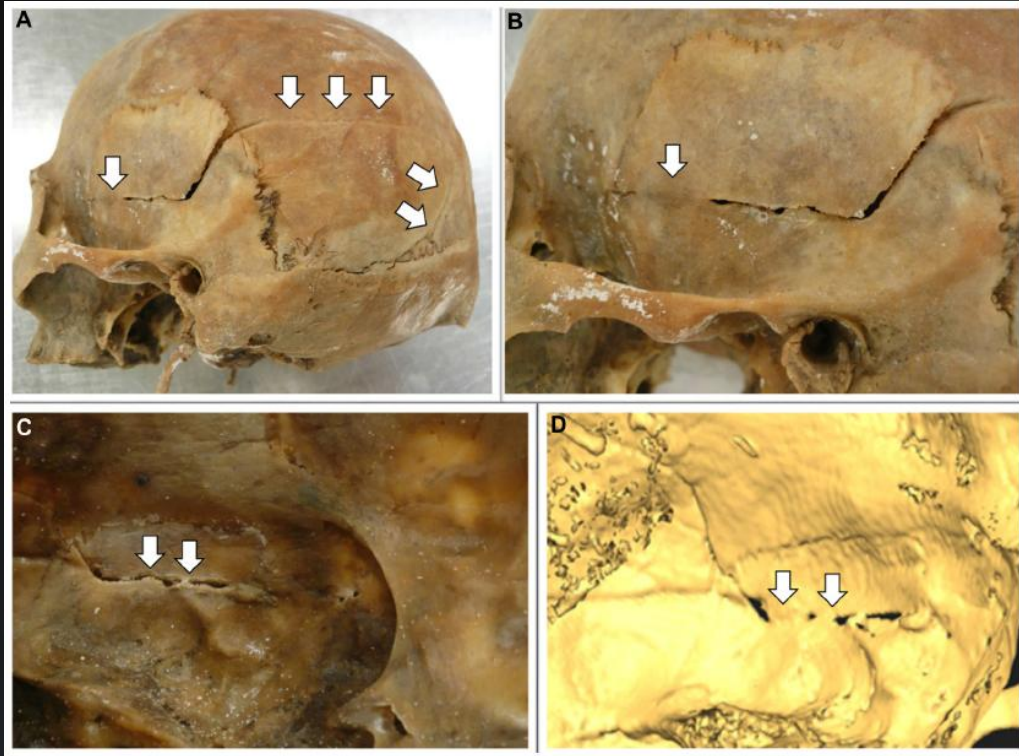


Gunshot Wound



Cuts on Femur

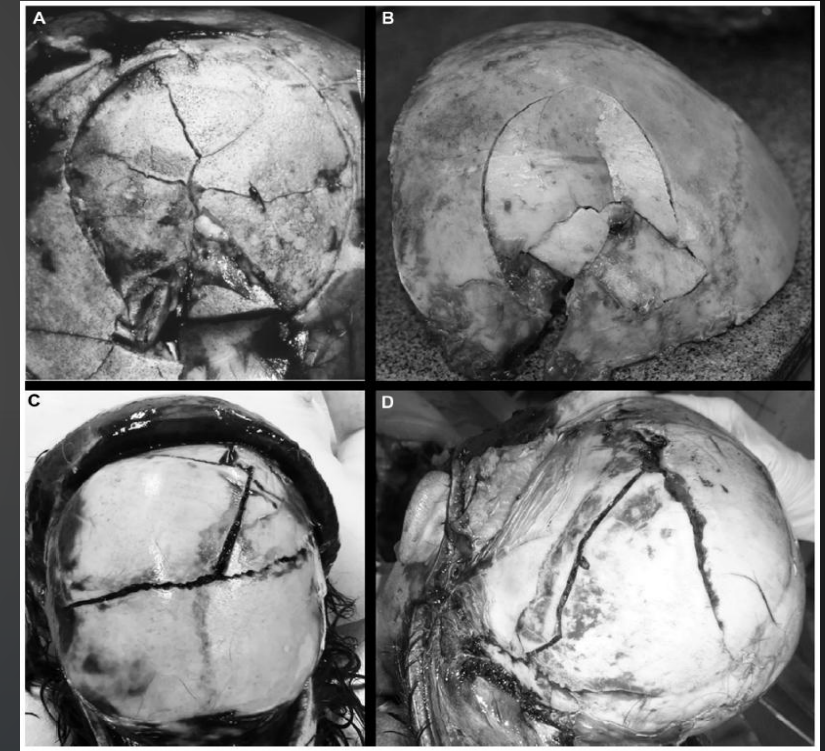
BIOLOGICAL PROFILE: CIRCUMSTANCES SURROUNDING DEATH: ACCIDENT



Blunt-force Trauma:
Following Car Crash



Hip Dislocation

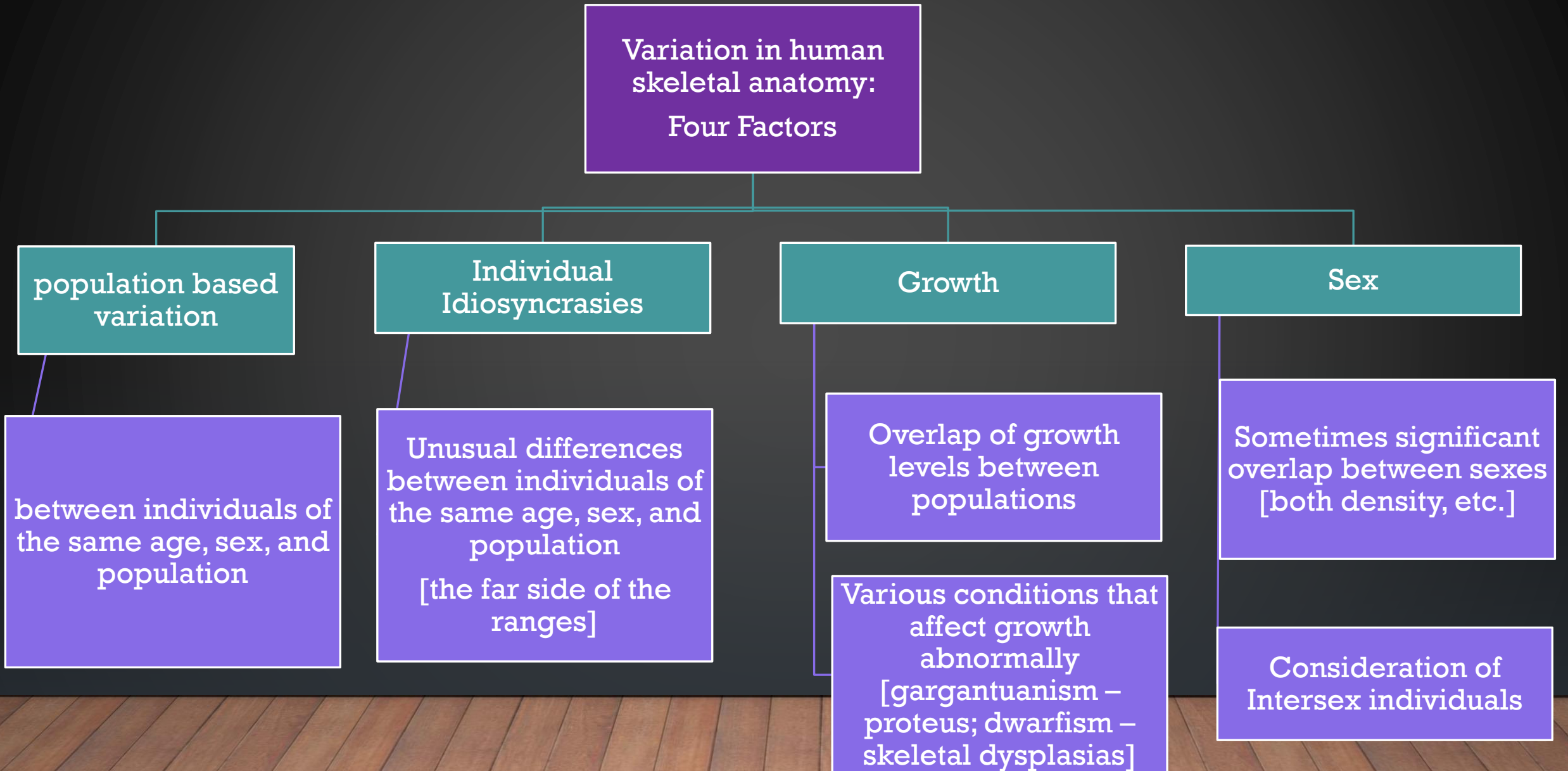


Blunt-force Trauma –
Fall From Great Height

STEP 4: CHECK YOUR DATA

COMPARE ALL INFORMATION
FOUND WITH VARIATION RECORDS

FIELDWORK STEP 4: CHECK YOURSELF





Anthropologists can use the microscope

<https://www.youtube.com/watch?v=kGriERmU8Dc>

FORENSIC ANTHROPOLOGY

- http://www.smithsonianmag.com/videos/category/3play_processed_94/smithsonians-own-crime-scene-investigator/ - video
- <https://www.youtube.com/watch?v=Peegl5RSCKs> – facial reconstruction
- http://anthropology.si.edu/video_interviews.html - staff interviews -smithsonian
- <http://historicjamestowne.org/july-2017/> <https://zoom.us/j/273993217>

FORENSIC ANTHROPOLOGY

- <https://www.youtube.com/watch?v=3zqZPujAPuc> –[8min –ted talk –cases]
- <https://www.youtube.com/watch?v=7cogeHybySI> –talk about career1
- <https://www.youtube.com/watch?v=8eOPdoniwkY> –talk about career2:shorter
- <https://www.youtube.com/watch?v=A:00l08UJhA>: forensic examination video [2 min]
- <https://www.youtube.com/watch?v=J8gjby0T5x0>
- <https://www.youtube.com/watch?v=mljeA:SAh34>
- <https://www.youtube.com/watch?v=c8lHPq9VgWI>

