

Objective: You will be able to discuss the significance of biting and explain how it appears on skin.

Forensic Dentistry

- Using teeth as weapons occur in various situations because natural part of our arsenal
 - Life and death struggle
 - May be only available defensive method for a victim
 - Sexual attacks like rape and in abuse cases
 - Assailants bite their victims as an expression of dominance, rage and animalistic behavior

Identification

- Currently attempting to prove their uniqueness
- Look at the:
 - Size of teeth
 - Shapes and pattern of the biting edges
 - Caused by the sequence of eruption of anterior and posterior teeth
 - Canines force their way into the dental arch which often results in bodily movement, rotation and displacement of other teeth

- The amount and degree of detail recorded in the bitten surface varies from case to case
 - Even if teeth are individualistic, it is not known if individuality is recorded in the bite mark evidence
 - If significant detail it is probable that it can be matched to assailant
 - Its most important value may be that it exonerates innocents

Human Bite Marks

- Often found on the skin
- Females are most often bit on the breasts and legs during sexual attacks
- Males are commonly bitten on arms and shoulders
- In defensive situation, when arms held up to ward off attacker, the arms and hands are often bitten

Typical Bite

- Described as an elliptical or circular injury with indentations
- Can be doughnut shaped with characteristics around perimeter
- Can be U-shaped arches that are separated at their bases by an open space
- The diameter is typically 25-40mm
- Usually there is a central area of bruising within the marks of the teeth
- The extravascular bleeding is due to pressure from teeth as they compress the tissue inward from the perimeter of the mark



Once Bitten Forensic Files

Objective: You will be able to utilize tooth identification as a method to formulate age estimations.

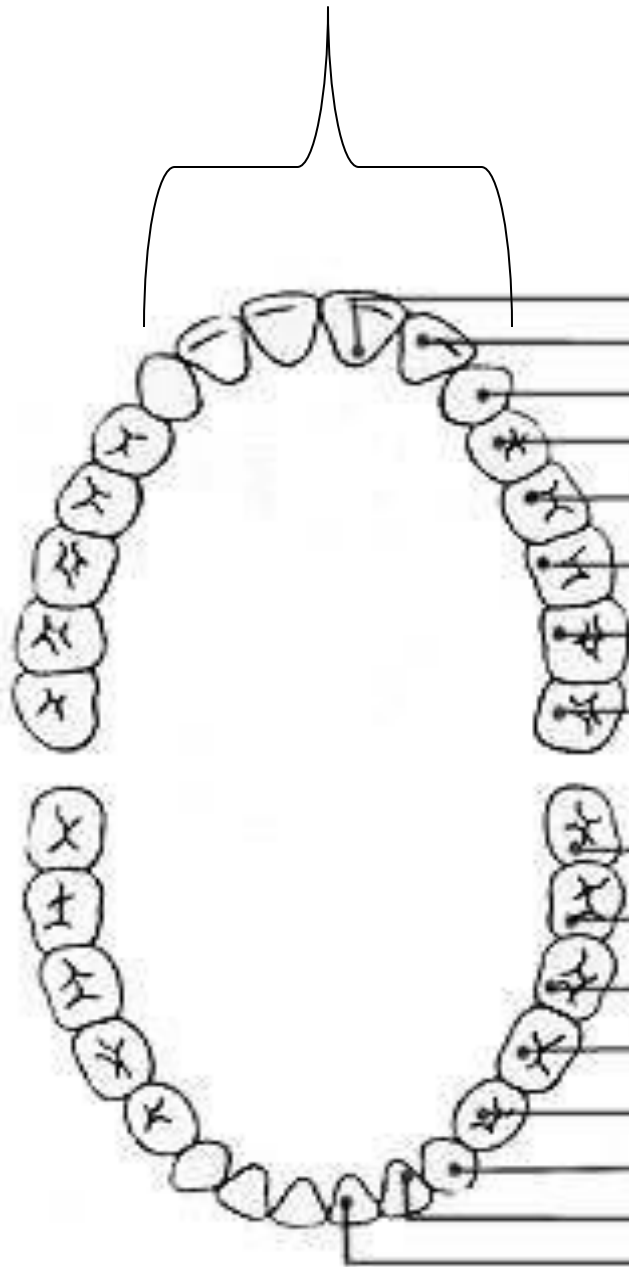
Teeth Identification

- Identification of teeth by their class characteristics
 - Incisors produce rectangular injuries
 - Canines produce triangular injuries

Teeth Comparisons

- The shape of the mouth arch
- The evidence of a tooth out of alignment
- Missing teeth
- The curves of biting edges
- Wear patterns, such as chips or grinding

The distance from cuspid to cuspid



Teeth width and thickness and the spacing between teeth

Before



After



Unique dentistry

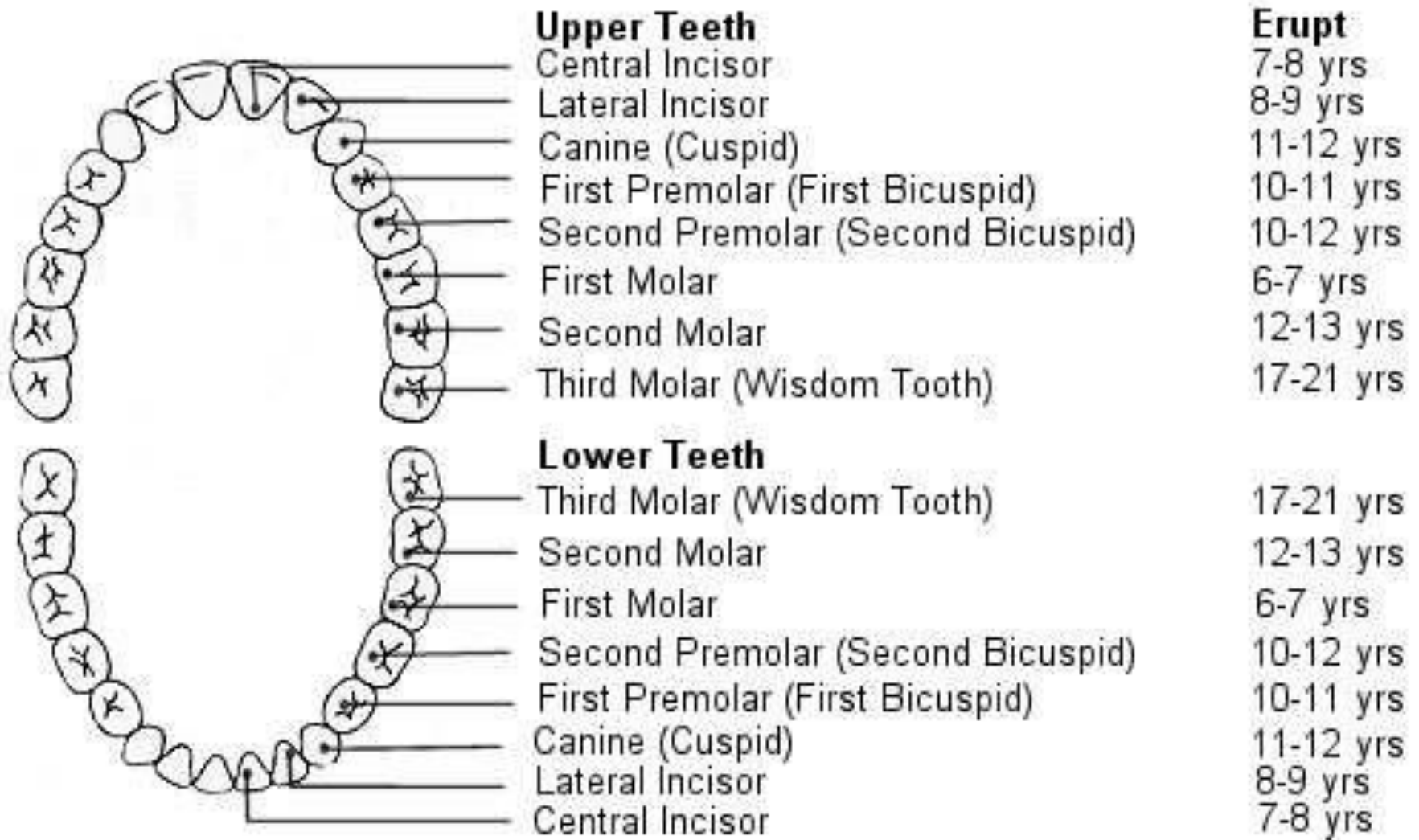


- Previous dental work can help in identification

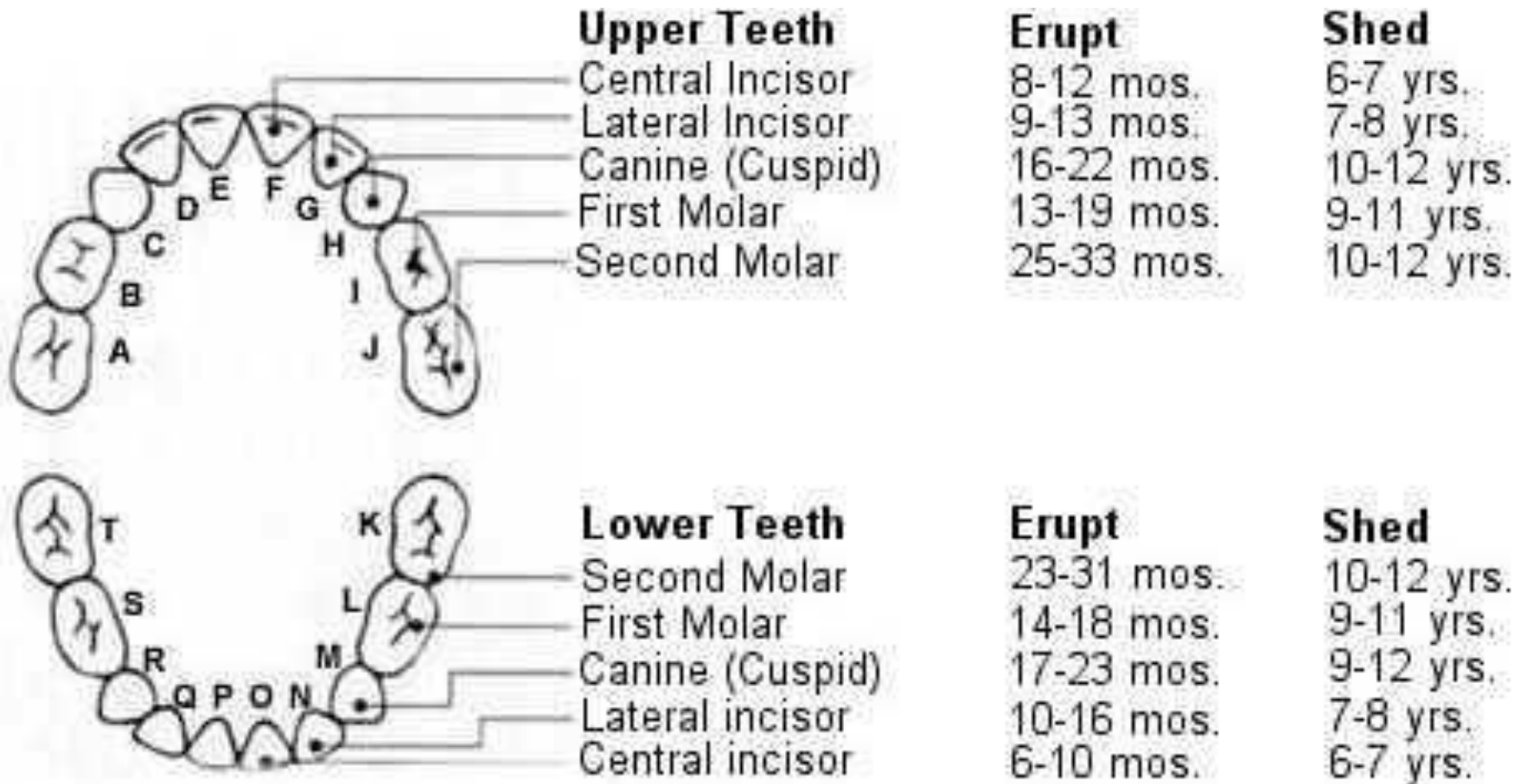


Teeth and age

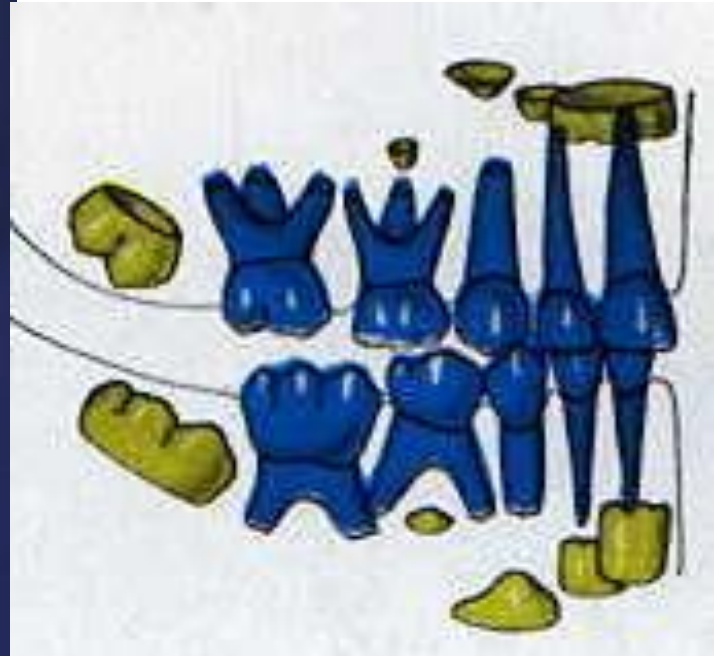
Permanent Teeth



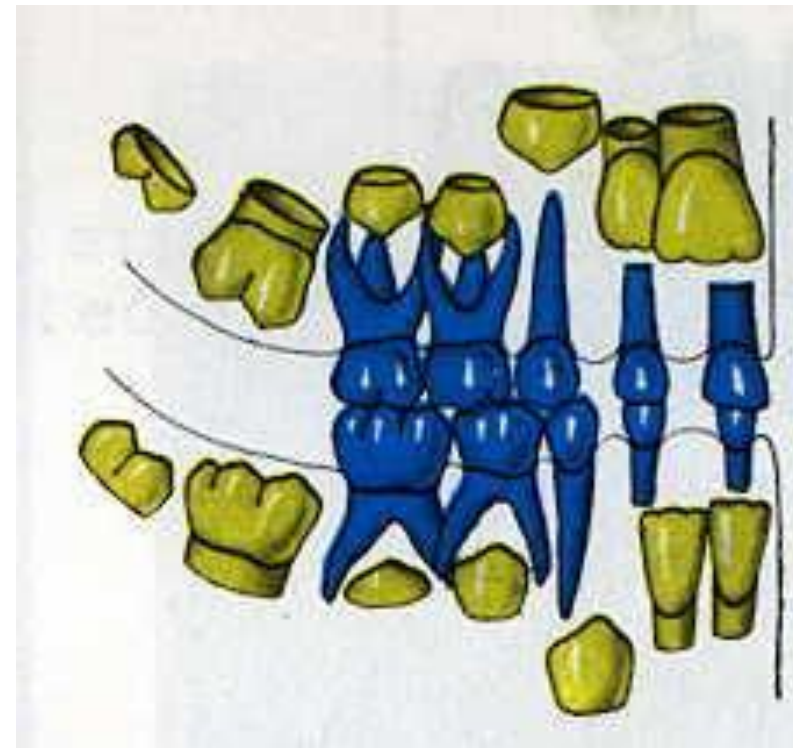
Eruption chart – Deciduous teeth



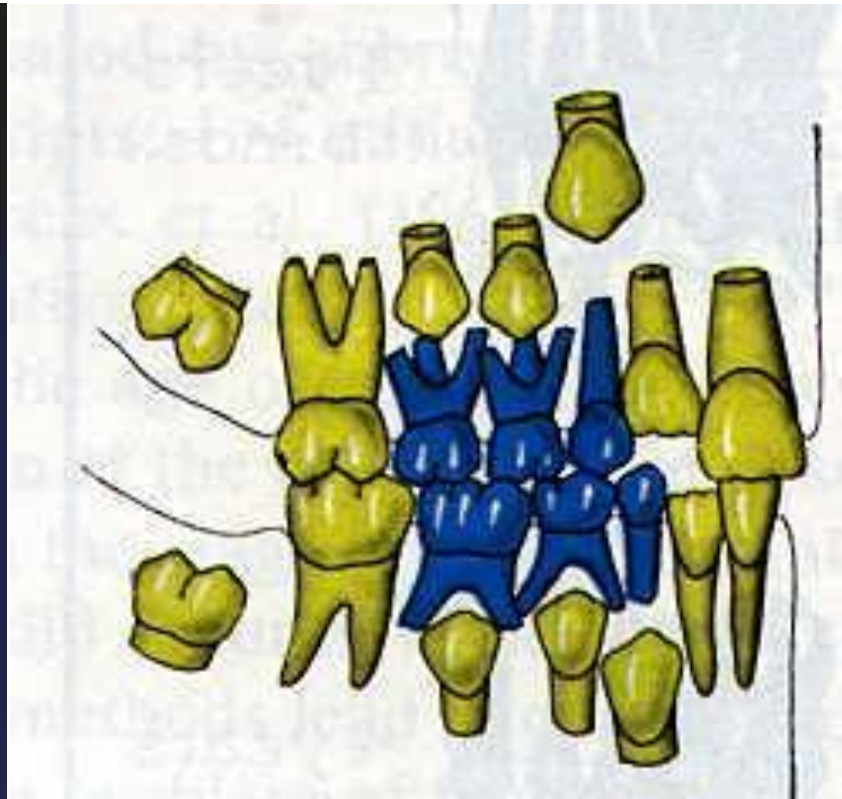
2 year old skull



5 Year old skull



8 year old skull



Forensic Dentistry

- Using teeth as weapons occur in various situations because natural part of our arsenal
 - Life and death struggle
 - May be only available defensive method for a victim
 - Sexual attacks like rape and in abuse cases
 - Assailants bite their victims as an expression of dominance, rage and animalistic behavior

Identification

- Currently attempting to prove their uniqueness
- Look at the:
 - Size of teeth
 - Shapes and pattern of the biting edges
 - Caused by the sequence of eruption of anterior and posterior teeth
 - Canines force their way into the dental arch which often results in bodily movement, rotation and displacement of other teeth

- The amount and degree of detail recorded in the bitten surface varies from case to case
 - Even if teeth are individualistic, it is not known if individuality is recorded in the bite mark evidence
 - If significant detail it is probable that it can be matched to assailant
 - Its most important value may be that it exonerates innocents

Human Bite Marks

- Often found on the skin
- Females are most often bit on the breasts and legs during sexual attacks
- Males are commonly bitten on arms and shoulders
- In defensive situation, when arms held up to ward off attacker, the arms and hands are often bitten



Typical Bite

- Described as an elliptical or circular injury with indentations
- Can be doughnut shaped with characteristics around perimeter
- Can be U-shaped arches that are separated at their bases by an open space
- The diameter is typically 25-40mm
- Usually there is a central area of bruising within the marks of the teeth
- The extravascular bleeding is due to pressure from teeth as they compress the tissue inward from the perimeter of the mark

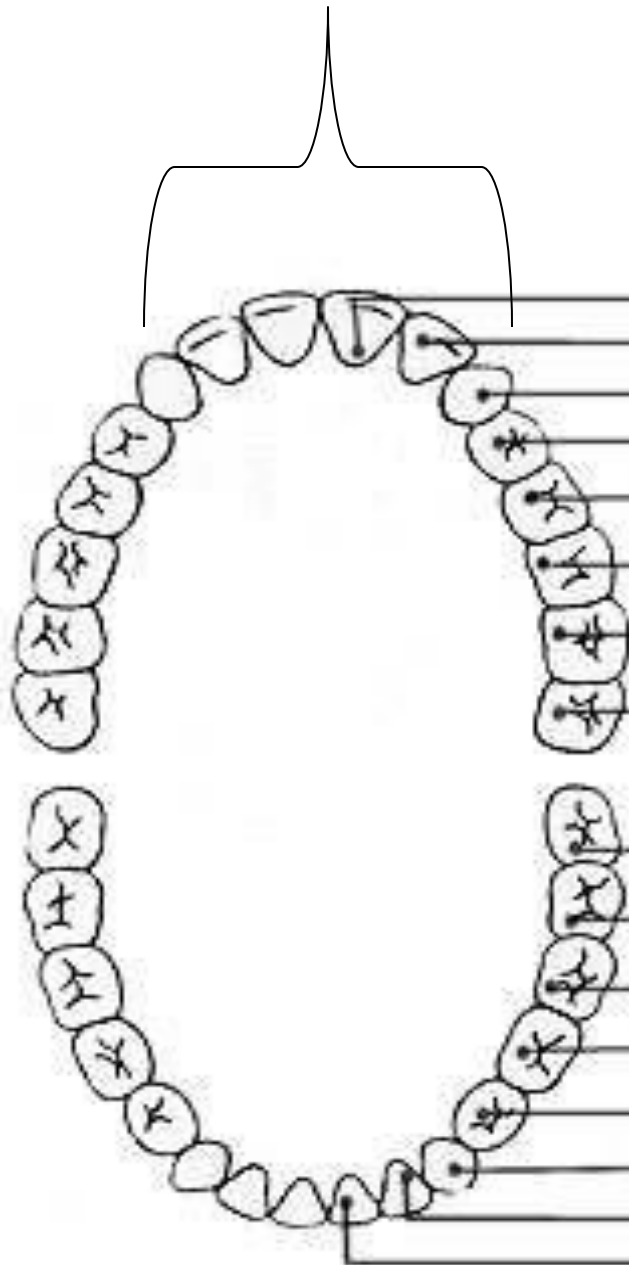
Teeth Identification

- Identification of teeth by their class characteristics
 - Incisors produce rectangular injuries
 - Canines produce triangular injuries

Teeth Comparisons

- The shape of the mouth arch
- The evidence of a tooth out of alignment
- Missing teeth
- The curves of biting edges
- Wear patterns, such as chips or grinding

The distance from cuspid to cuspid



Teeth width and thickness and the spacing between teeth

Before



After



Unique dentistry



Reminder

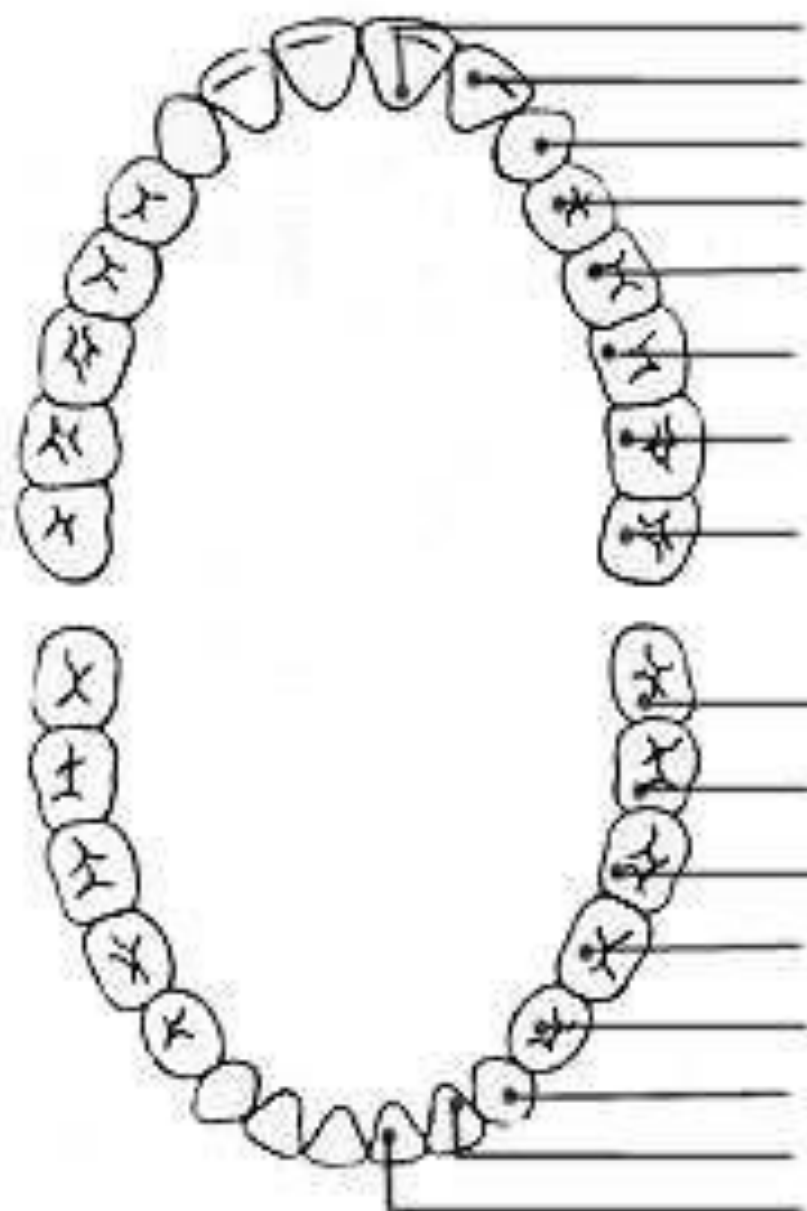
- **Objective:** You will be able to utilize tooth identification as a method to formulate age estimations.
- **Steps:**
 1. View Permanent Tooth Eruption Chart to practice identifying tooth type
 2. Compare and contrast Permanent teeth with primary (deciduous) teeth
 - » **Call me over when you are done with this part**
 3. Label EACH tooth on the sheet I hand to you
 - » Use a key instead of writing full name
 - » Skip birth and 6 months diagrams
 4. Compare the sheet to the eruption charts to verify age
 5. View #'d figures and charts to formulate age estimations

Upper Teeth

- Central Incisor
- Lateral Incisor
- Canine (Cuspid)
- First Premolar (First Bicuspid)
- Second Premolar (Second Bicuspid)
- First Molar
- Second Molar
- Third Molar (Wisdom Tooth)

Lower Teeth

- Third Molar (Wisdom Tooth)
- Second Molar
- First Molar
- Second Premolar (Second Bicuspid)
- First Premolar (First Bicuspid)
- Canine (Cuspid)
- Lateral Incisor
- Central Incisor



Collection of Bite Mark Evidence - Victim

- Documentation should indicate injuries appearance, color, size and orientation of the injury
 - Include location on body
 - Can the difference between marks from the upper and lower teeth be determined
- Photographs
 - A reference scale such as a ruler should be used to enable subsequent measurements
 - The camera lens needs to be perpendicular to the bitten skin to reduce perspective distortion

Collection of Bite Mark Evidence - Victim

- Saliva swabs
 - Saliva can be deposited on the skin during biting too look for salivary DNA
 - A DNA sample must be collected from victim to compare with swab sample

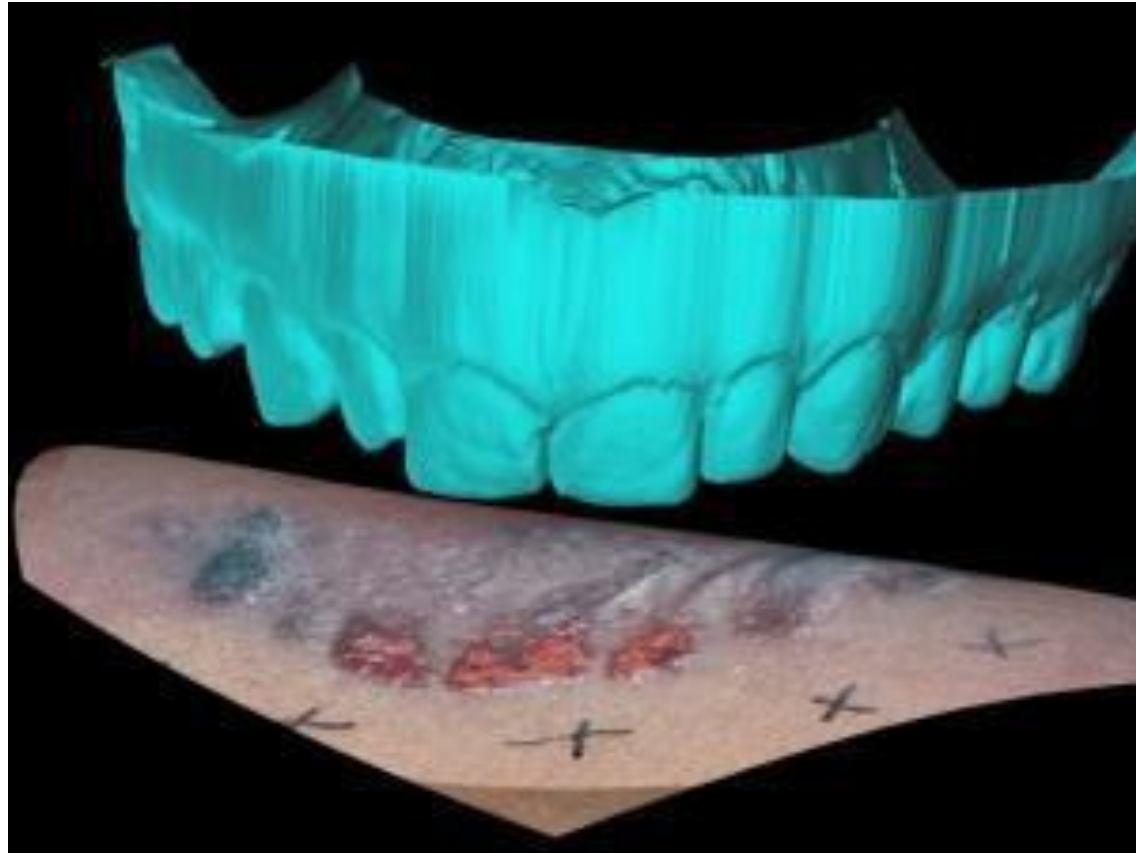
Collection of Bite Mark Evidence - Suspect

- Collection of dental evidence from biter must be done with consent or a court order
- Impressions
 - It is recommended that two sets of study casts be produced
- Bite sample
 - A sample of the suspect's bite is recorded in wax
 - This should be photographed immediately after it is recorded.
 - Provides opportunity for future comparison

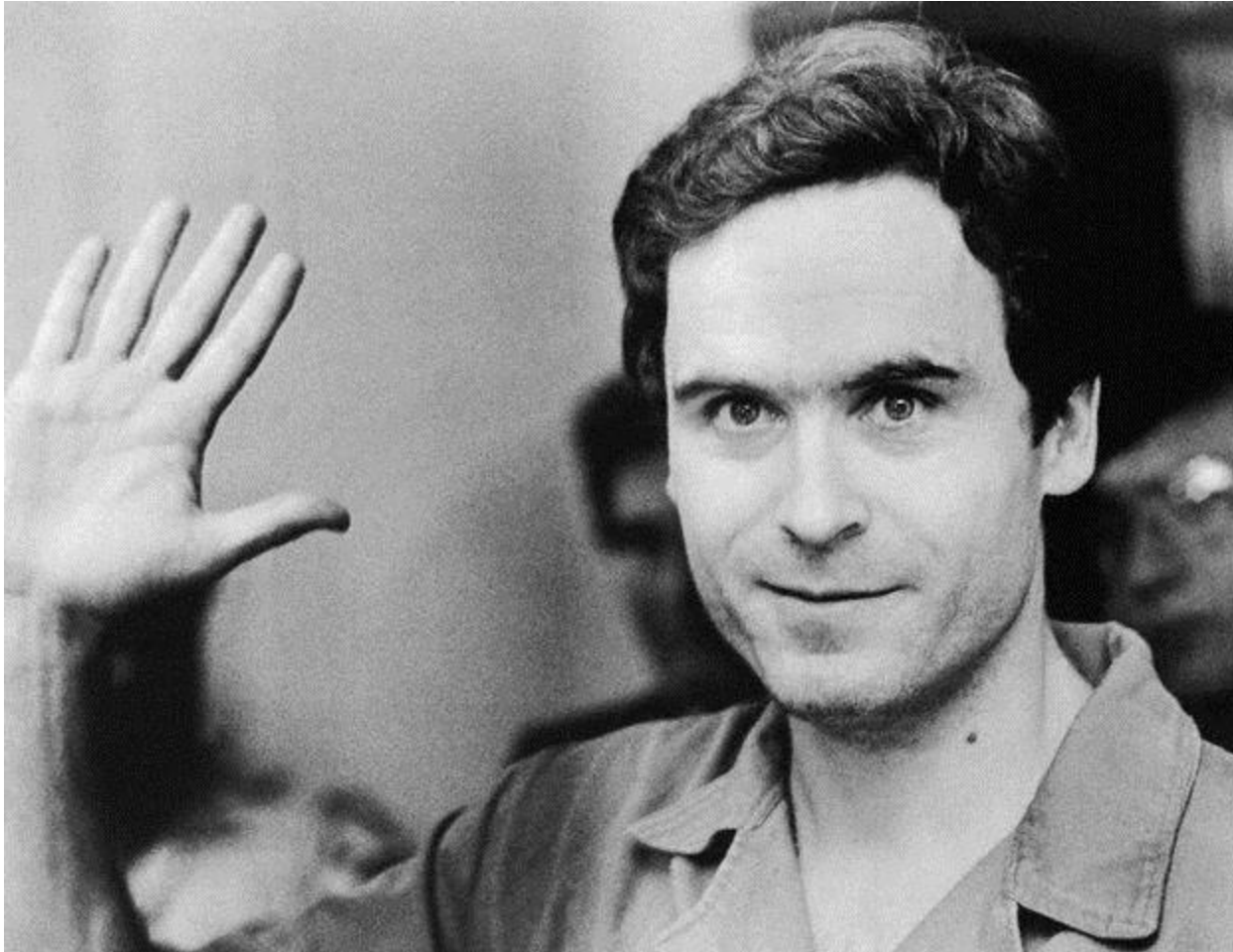
Bite Mark Impressions



Bite Mark Molds



The Bundy Case



- Killed at least 26 and as many as 100 women and girls

- He was convicted and executed largely because of a single bite mark he left on one of his victims.
- A gifted law student, Bundy defended himself during his trial and subsequent appeals.
 - He successfully hid mountains of forensic evidence by using rental cars and living in apartments while carrying out his crimes, and wiping all crime scenes clear of fingerprints.

- Bundy sexually assaulted and killed several young women in Washington, Oregon, Colorado, Utah and Florida between 1974 and 1978.
- He was sentenced to death in 1979 for the murder of two Florida college students and later for the rape and murder of the 12-year-old girl in Columbia County.

