DEVELOPMENT OF THE *HUMAN DENTITION*

Maxine Anne A. Remulla, DDM
College of Dentistry
University of the Philippines Manila

DIPHYODONT

having *two* sets of teeth

HETERODONT

having *more than one tooth* morphology

THECODONT

teeth are held in position in a *bony socket*

CALCIFICATION: 14 weeks IU/4th month of fetal life

6 month IU: all deciduous teeth have begun to develop

NO TEETH PRESENT AT BIRTH

- Natal tooth- at birth
- Neonatal tooth- within first month of life

(mandibular central incisor)

PERIODS OF THE DENTITION

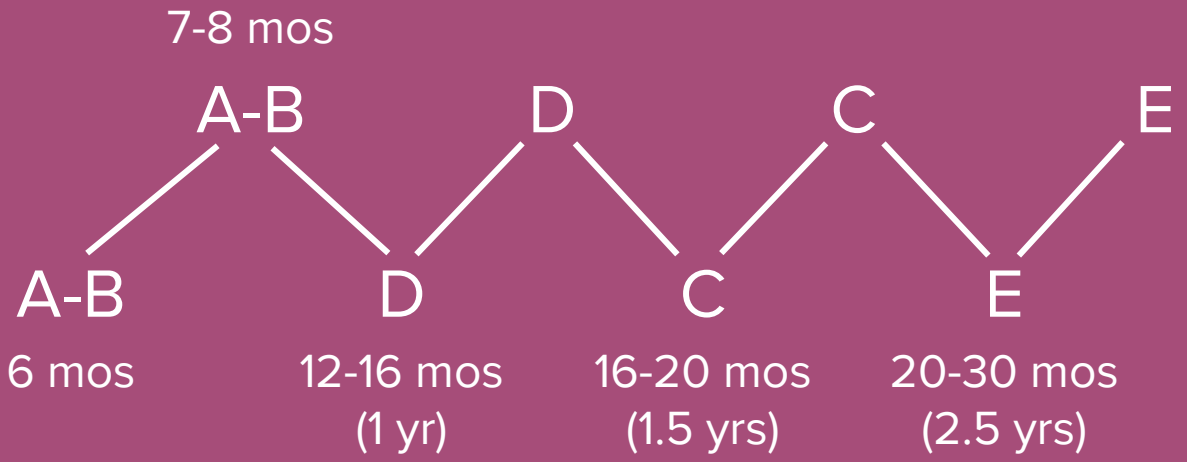
DECIDUOUS DENTITION

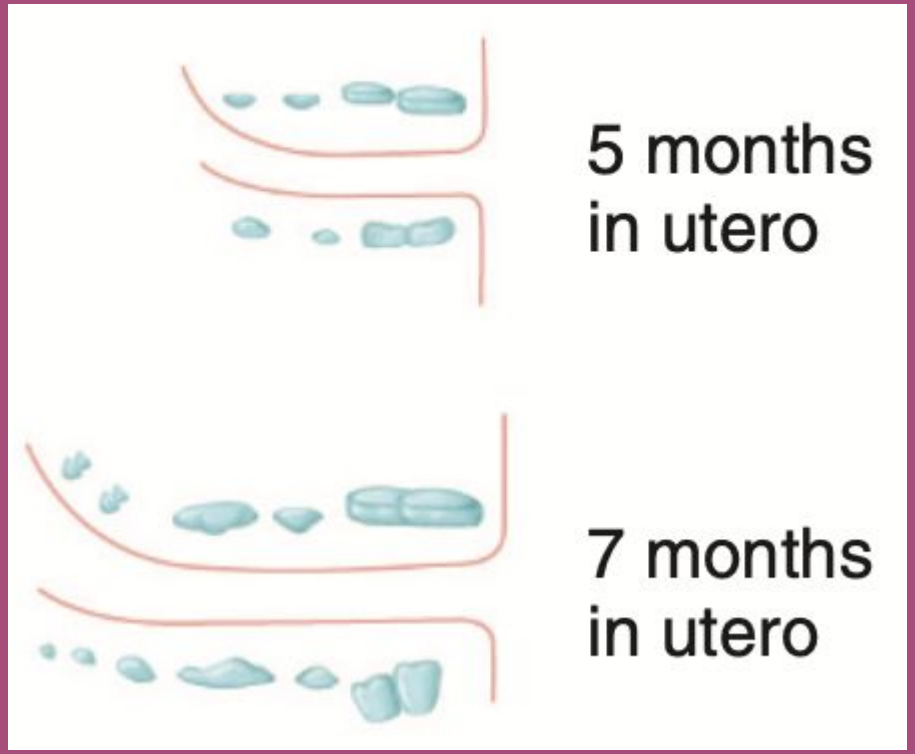
- First set of teeth of a human
- 6 months to 6 years old
- Complete at around 2 ½ to 3 years old

Benson, Janette. (2008). *Encyclopedia of infant and early childhood development.*

DECIDUOUS DENTITION

Sequence of Eruption





PRE-NATAL

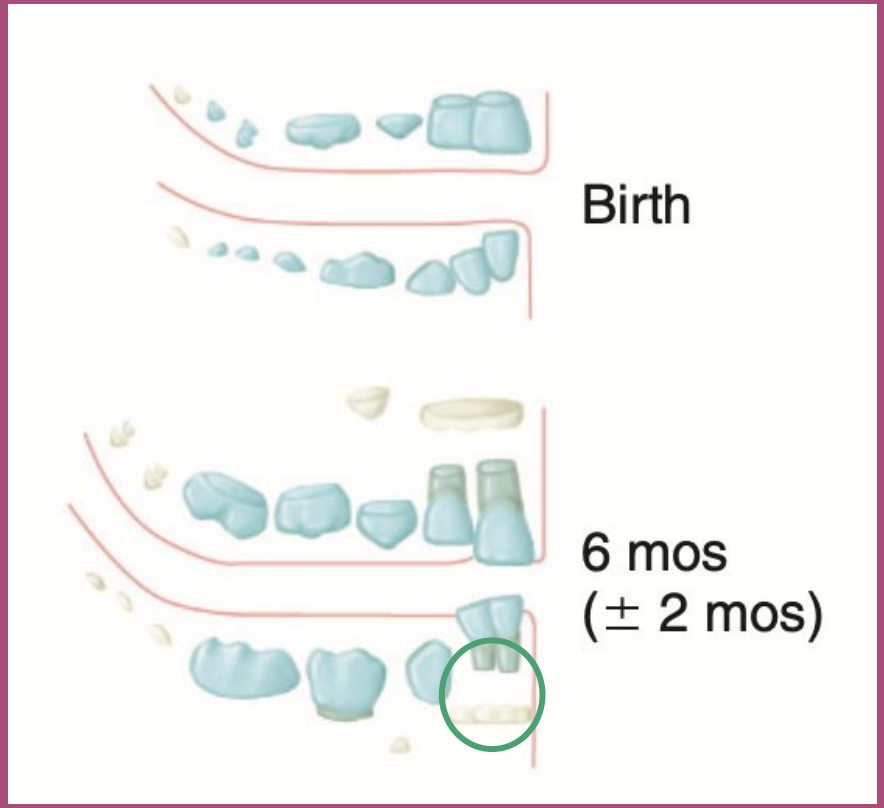
5 months IU

- Calcification of deciduous teeth

7 months IU

- All deciduous tooth buds present
- Permanent first molars also present

Nelson, S. (2015) *Wheeler's dental anatomy, physiology, and occlusion.*



At birth

- No teeth present in the mouth

6 months

- Mandibular central and lateral incisors erupt

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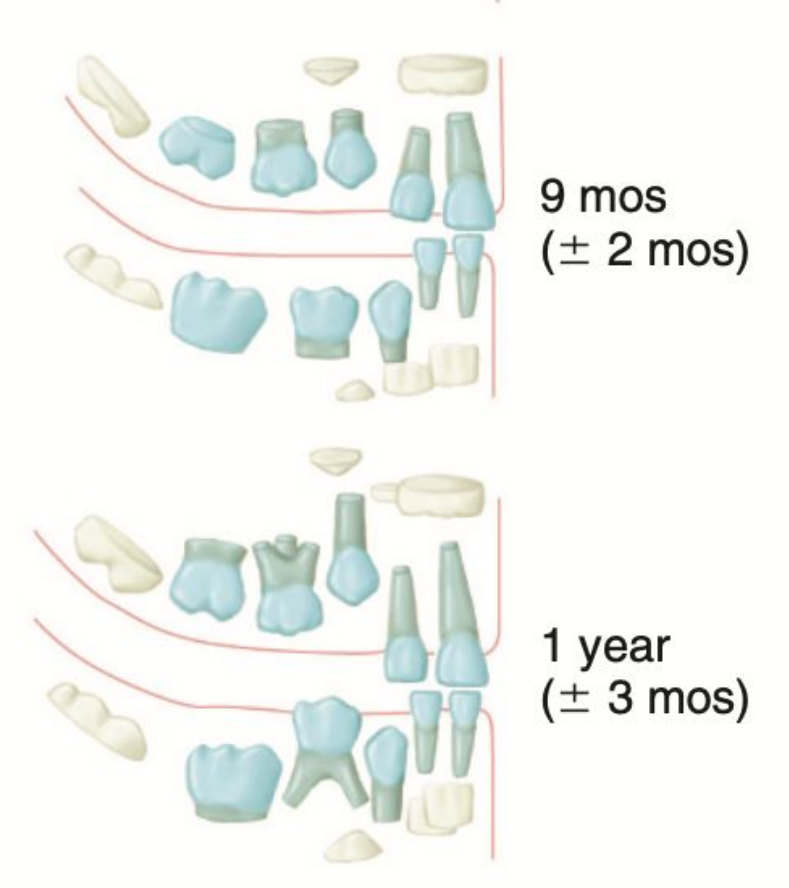

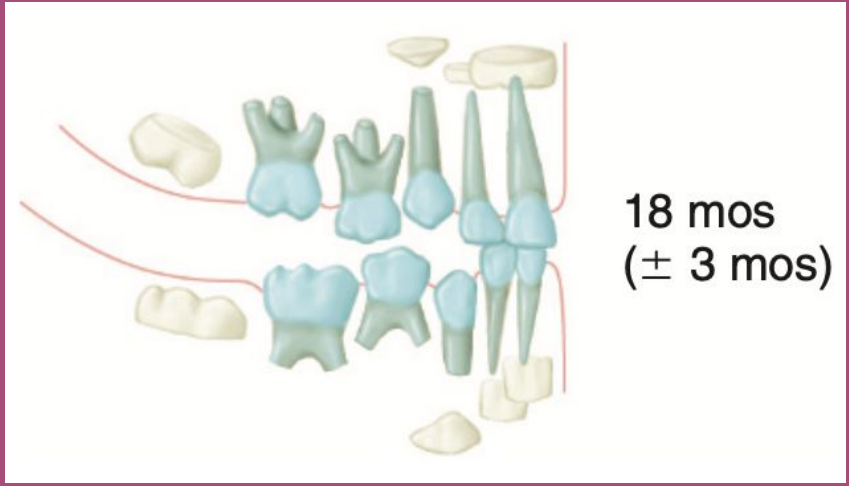

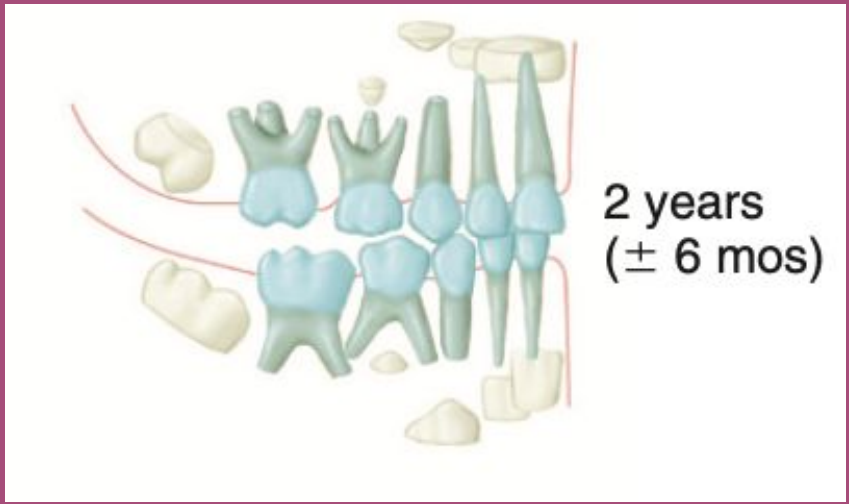

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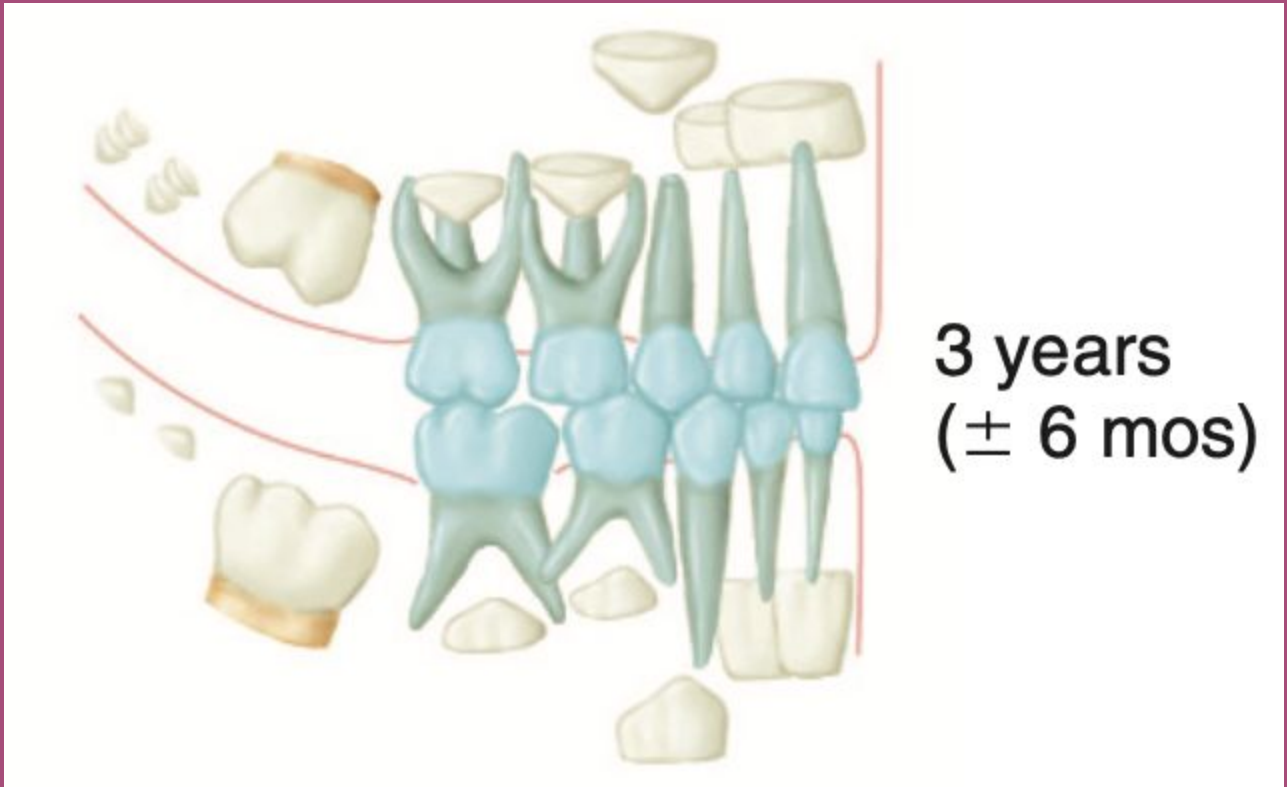

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MIXED DENTITION

- Both deciduous and permanent teeth present
- Also called the **“Ugly Duckling Stage”**
- Begins at 6 years old when the first permanent molar erupts

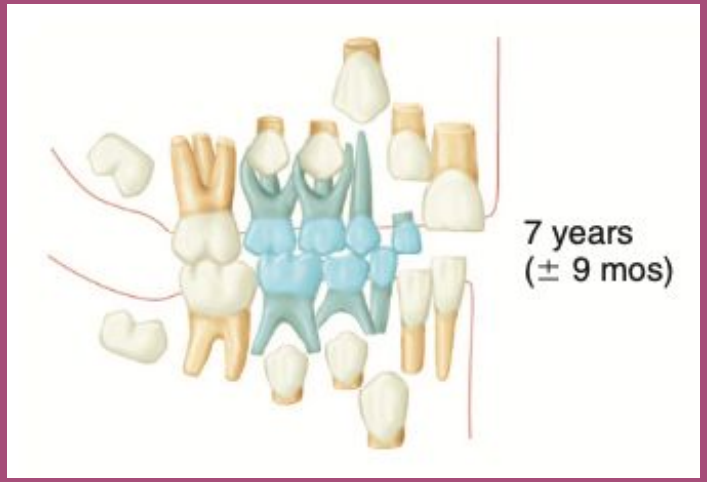
“6 YEAR OLD MOLARS”

- Ends with the exfoliation of the deciduous maxillary canine
- Resorption, exfoliation, and eruption occur at this stage

https://www.kiddiesdentalcare.com.au/6-year-old-molars-and-how-to-help-during-their-eruption/
https://clovedental.in/blog/kids-dentistry/mixed-dentition-phase-happens-childs-teeth-transition

Transition from deciduous to permanent

1. **Resorption**
    - When permanent teeth start to have eruptive movements, it resorbs or “melts” the deciduous tooth root on top of it



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Transition from deciduous to permanent

2. **Exfoliation**
    - When the deciduous tooth is resorbed, it becomes loose and “falls off”
3. **Eruption**
    - Incisal or occlusal movement of teeth into the oral cavity to meet its antagonist on the opposite arch

https://www.animated-teeth.com/baby-teeth/a-deciduous-baby-teeth.htm#tooth.exfoliation

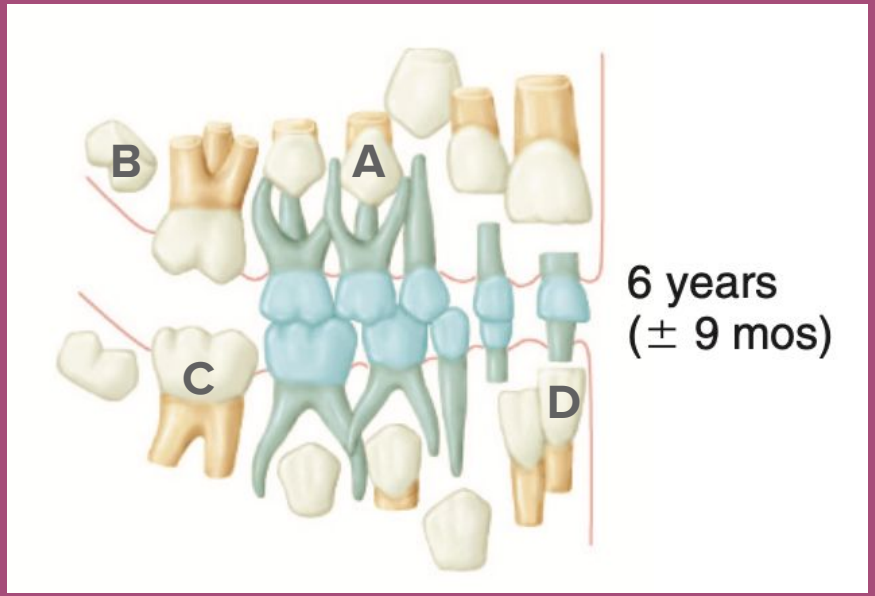
SUCCEDANEOUS VS. NON-SUCCEDANEOUS TEETH

Succedaneous- permanent tooth that replaced a deciduous tooth

Non-Succedaneous- permanent tooth that DID NOT replace a deciduous tooth

First permanent tooth to erupt:

FIRST MOLAR



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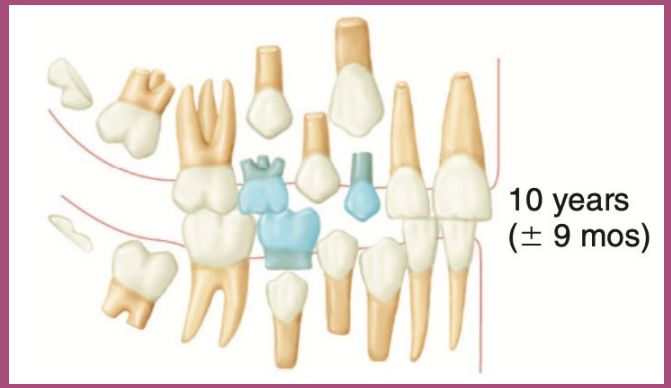
PERMANENT DENTITION

- Only permanent teeth present in the oral cavity
- 12 years old onwards, with the exfoliation of the last deciduous tooth: **MAXILLARY CANINE**



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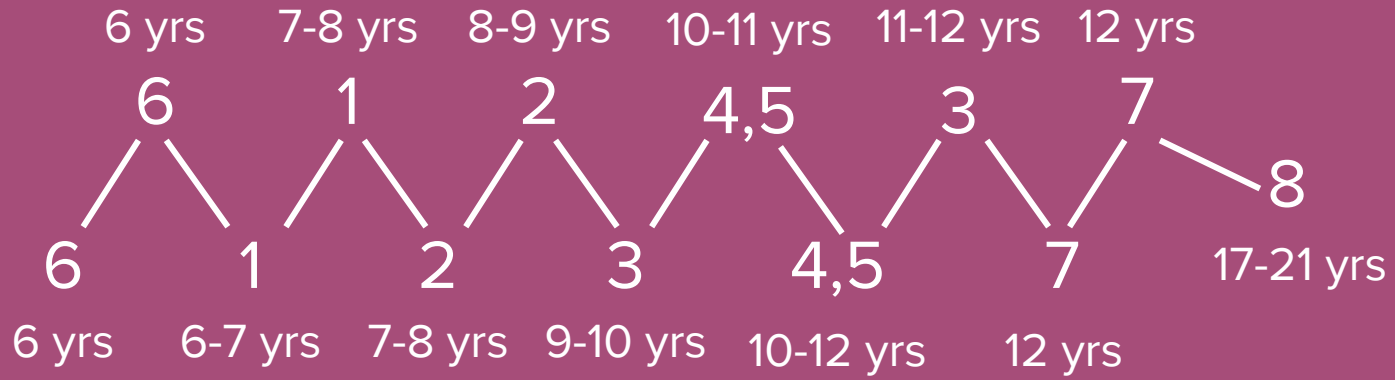
PERMANENT DENTITION

SEQUENCE OF ERUPTION

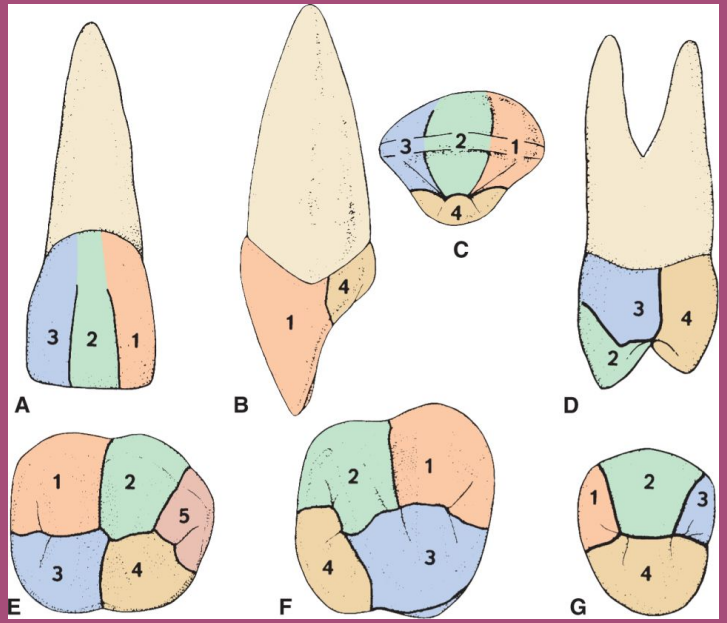


DEVELOPMENT OF THE HUMAN DENTITION

Lobes

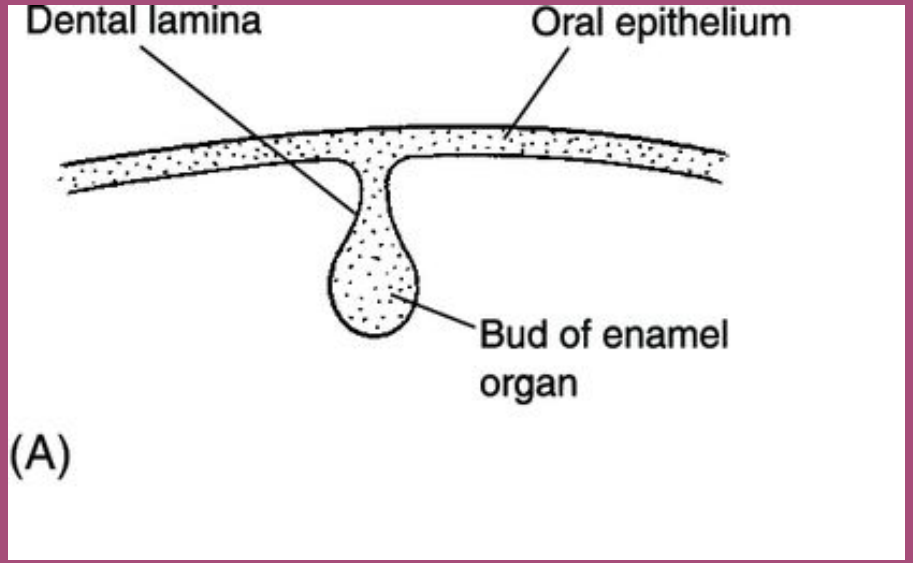
- Primary center of formation
- Each tooth is a combination of at least FOUR or more lobes

- Anteriors: 3 labial, 1 lingual
- Premolars: 3 buccal, 1-2 lingual
- Molars: 2-3 buccal, 2 lingual



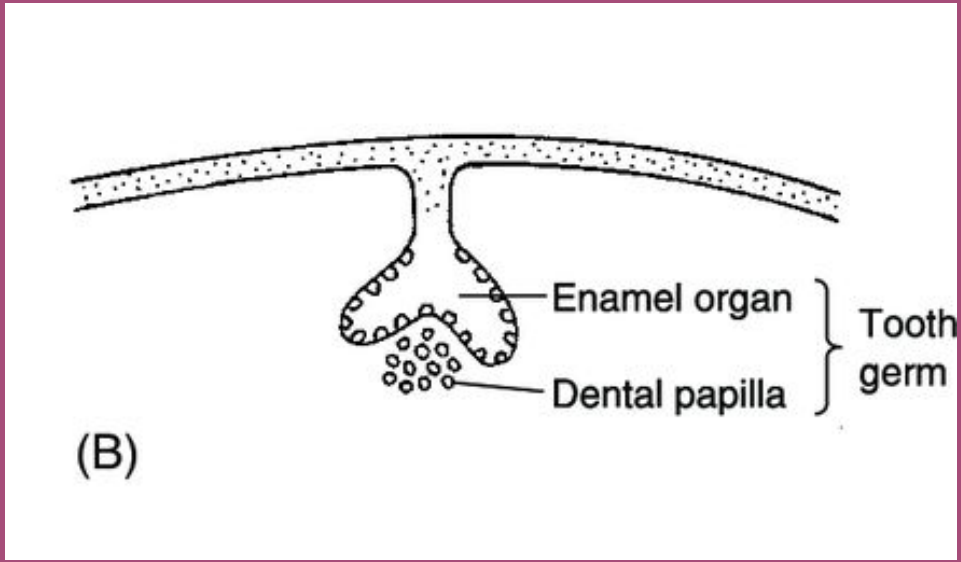
https://www.kidsdentist.in/mammelons
https://pocketdentistry.com/tooth-development-from-lobes/

Bud Stage (Initiation)



Liversidge, H. (2016). *Developmental juvenile osteology.*
Phulari, R. (2014). *Textbook of dental anatomy, physiology, and occlusion.*

Cap Stage (Proliferation)



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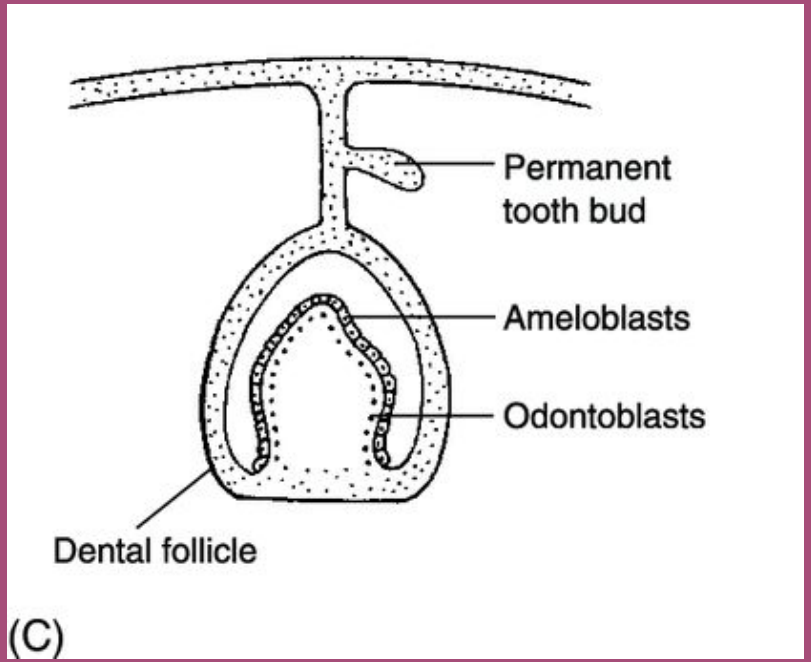
Bell Stage (Morphodifferentiation)



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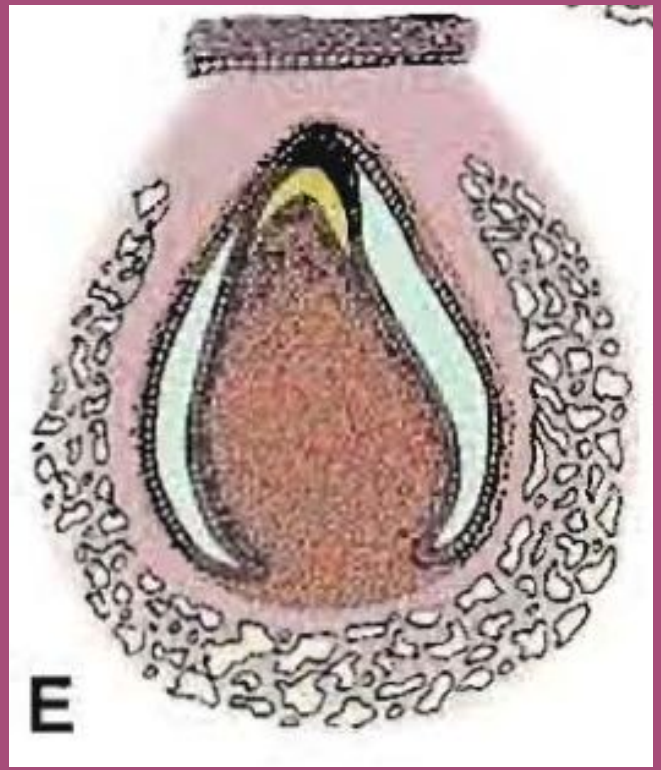
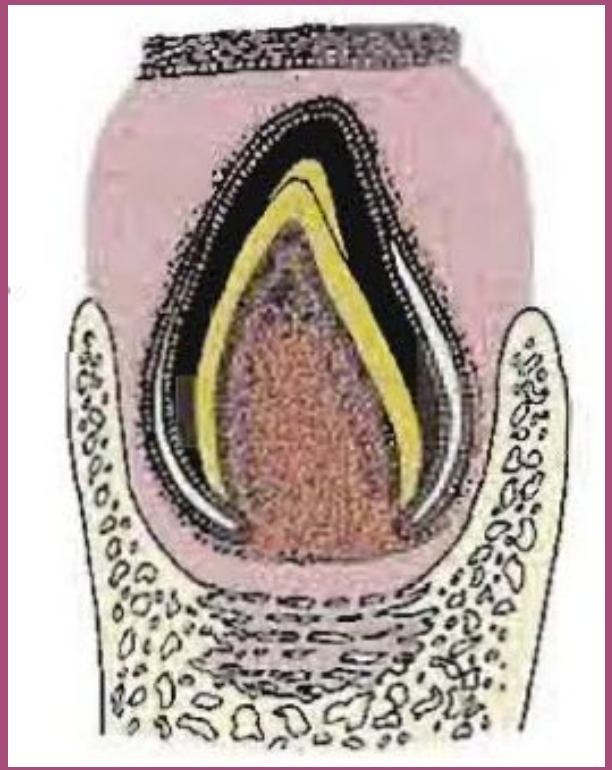
Apposition and Calcification





Avery, J. & Cheigo, D. (2006). *Essentials of oral histology and embryology: a clinical approach.*

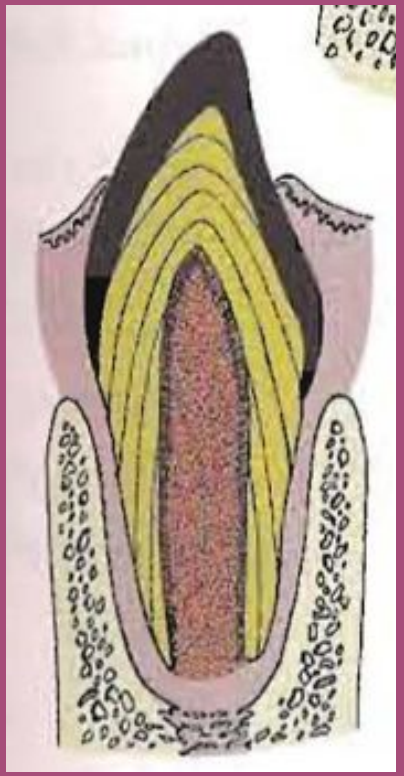
Eruption

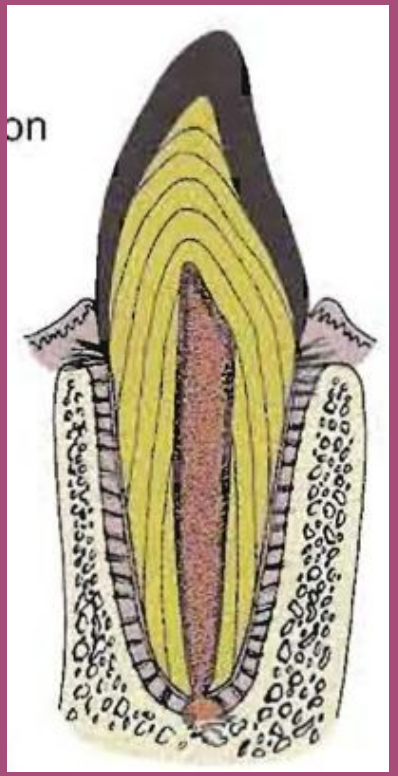
- Movement of the teeth from a developmental position within the jaws to a functional position inside the mouth
- Incisal/occlusal movement of the tooth through the bone and oral mucosa

Eruption: 3 Phases

1. **Pre-eruptive**- development from the tooth bud

2. **Eruptive**- when the root is ⅔ developed, it starts occlusal movement until it pierces the mucosa and reaches the functional plane





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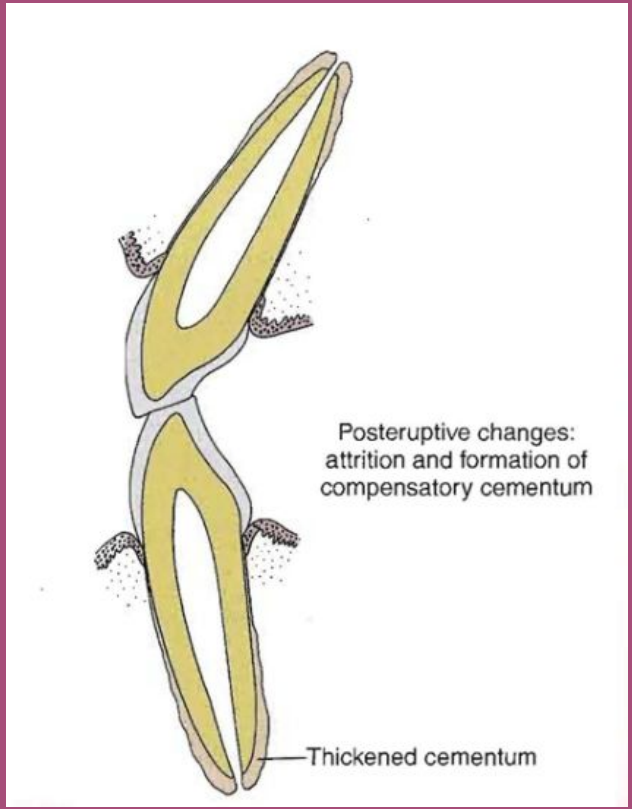
Eruption: 3 Phases

3. **Post-Eruptive**- movements after the tooth is fully erupted to compensate for jaw growth, occlusal wear, and interproximal wear



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