

(1) Introduction and Nomenclature

By

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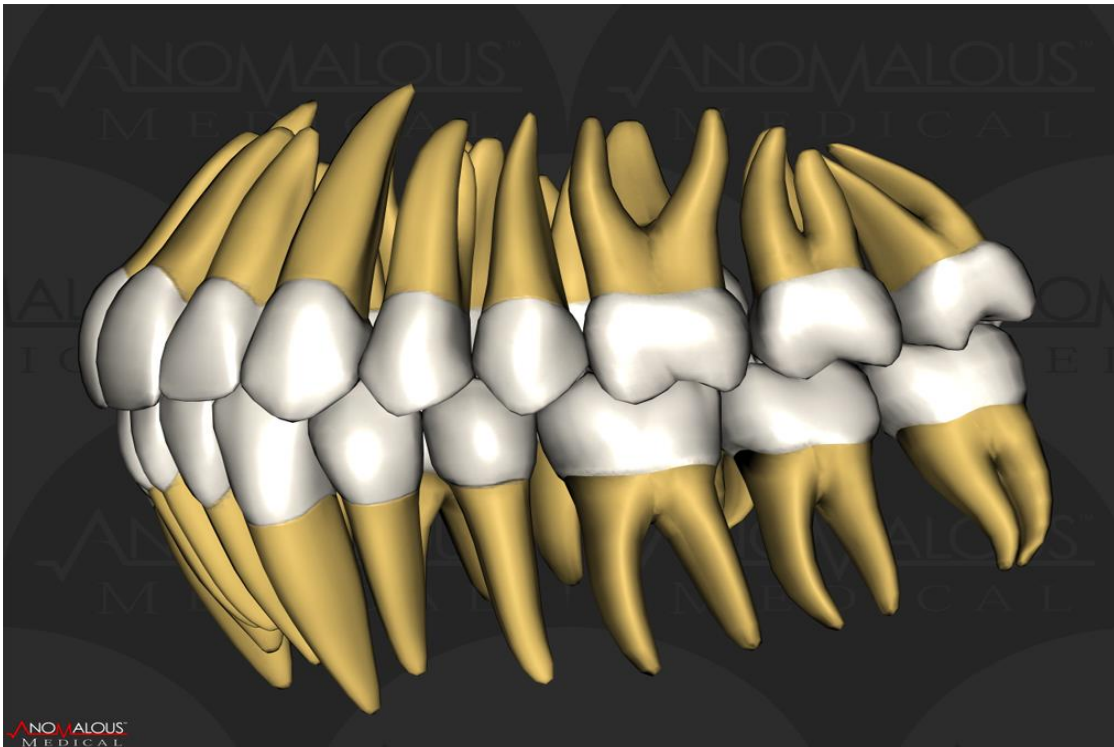
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Human Dentition

Dental Morphology, Dental Anatomy

Definition

general arrangement & anatomy of the human teeth



تسمية Teeth Nomenclature

Named by

I. Arch,

II. Side,

III. Set,

IV. Class.



I. Two Dental arches

(comprises one half of dentition)

Maxilla = upper

Mandible = lower

II. Two Sides

(divided by the midline)

Left

Right

Divide the set of teeth
into two identical image

mirror → نفس الاسم
والشكل بين جهة يمين وجهة شمال

III. Two sets

Deciduous = Primary = Milky → مرحلة انتقالية
temporary

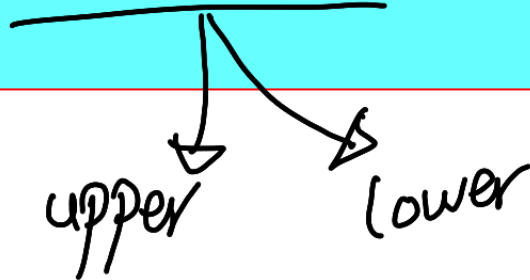
Permanent = Secondary = Adult

IV. Two Classes

Anteriors (incisors + canines)

Posteriors (premolars + molars)

Dental Arches And Quadrants



الاجل

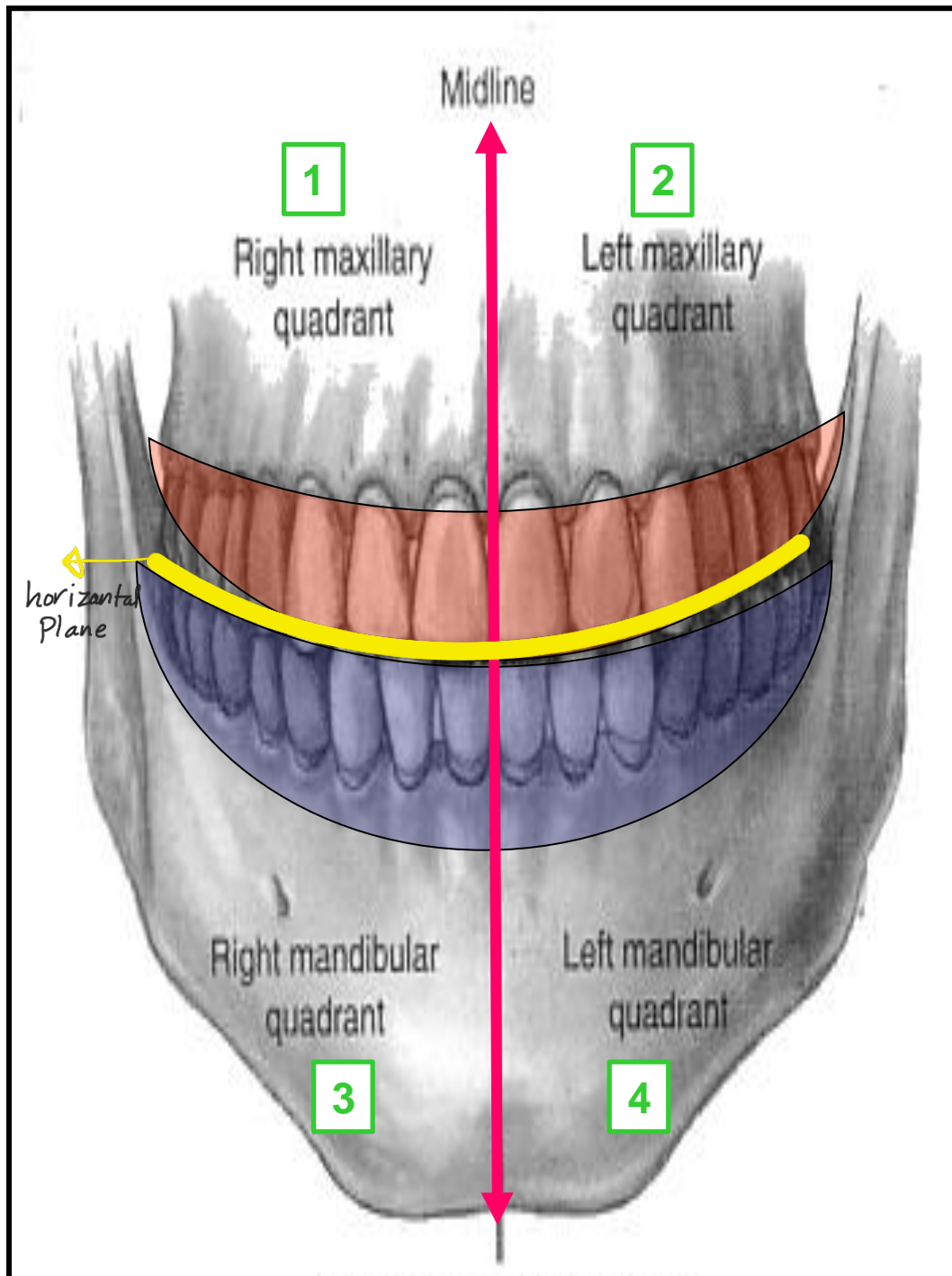
-The **Upper** arch is called the **Maxilla**

The Teeth In This Arch Are Called **Upper Or Maxillary Teeth**.

-The **Lower** arch is called the **Mandible** the teeth in this arch are called **Lower or Mandibular Teeth**.

-Each dental arch has a **Midline** that divides the arch into two approximately equal right and left segments named as **Quadrant**.

-There are **Four Quadrants** in the entire oral cavity.



Sets of Dentition

1-The primary dentition

20 teeth.

10 maxillary &

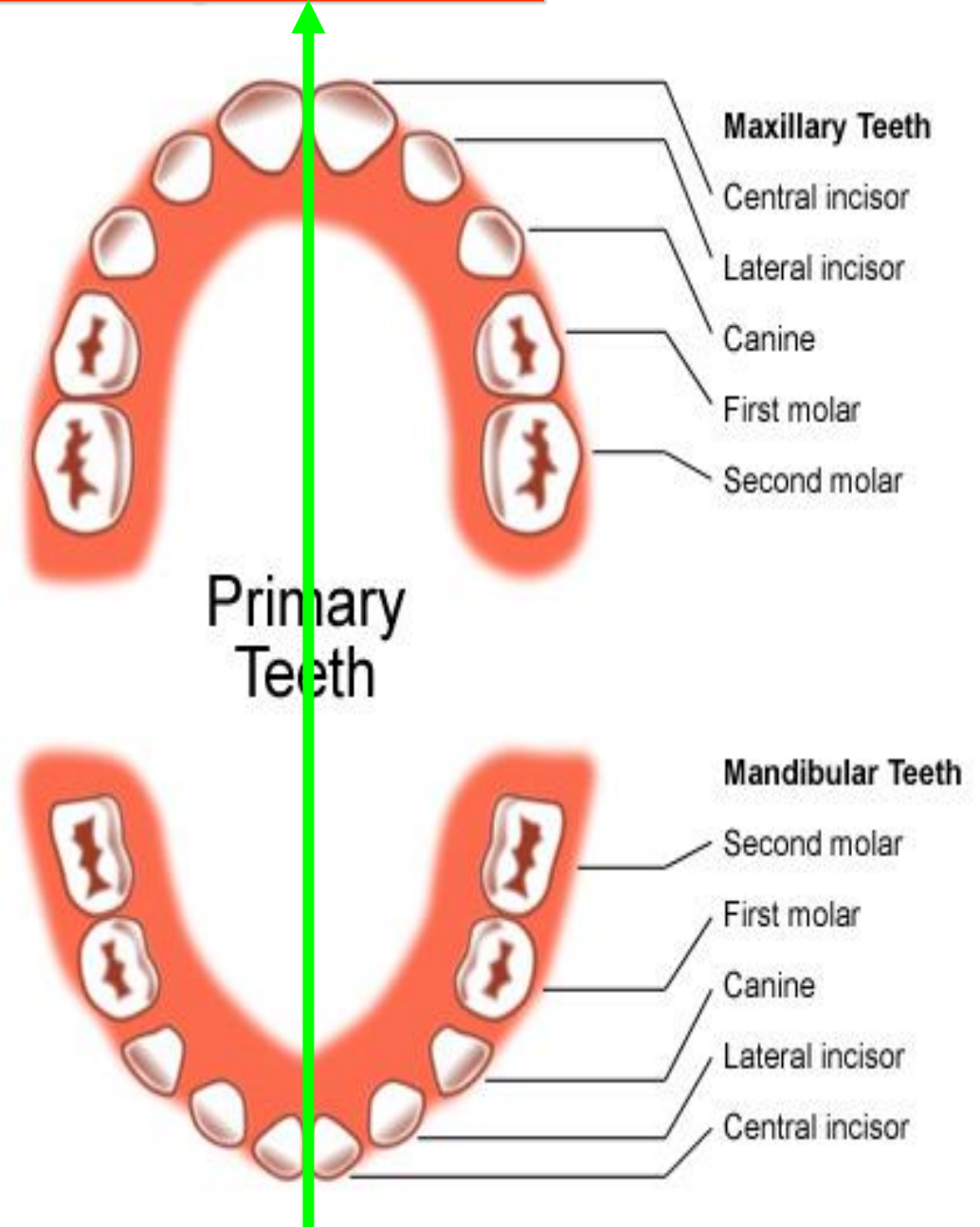
10 mandibular.

5 teeth in each quadrant.

2 incisors. فَوَاطِع

1 canine. نَاب

and 2 molars. طَاحُونَة



2-The permanent dentition:

32 teeth,

16 maxillary &

16 mandibular.

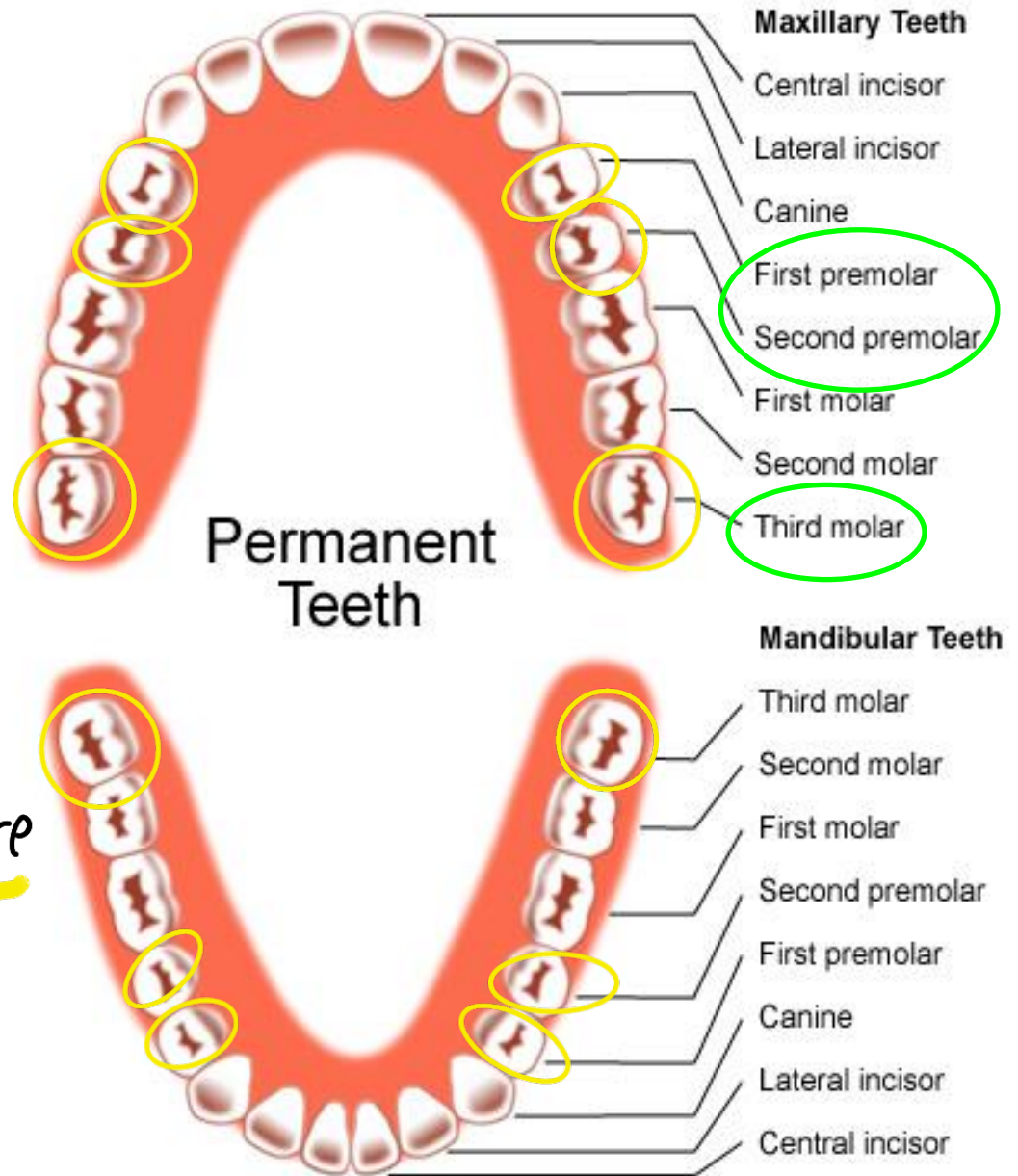
8 teeth in each quadrant

2 incisors.

1 canine.

2 premolars. → هنا الفرق

and 3 molars. → 1 molar more



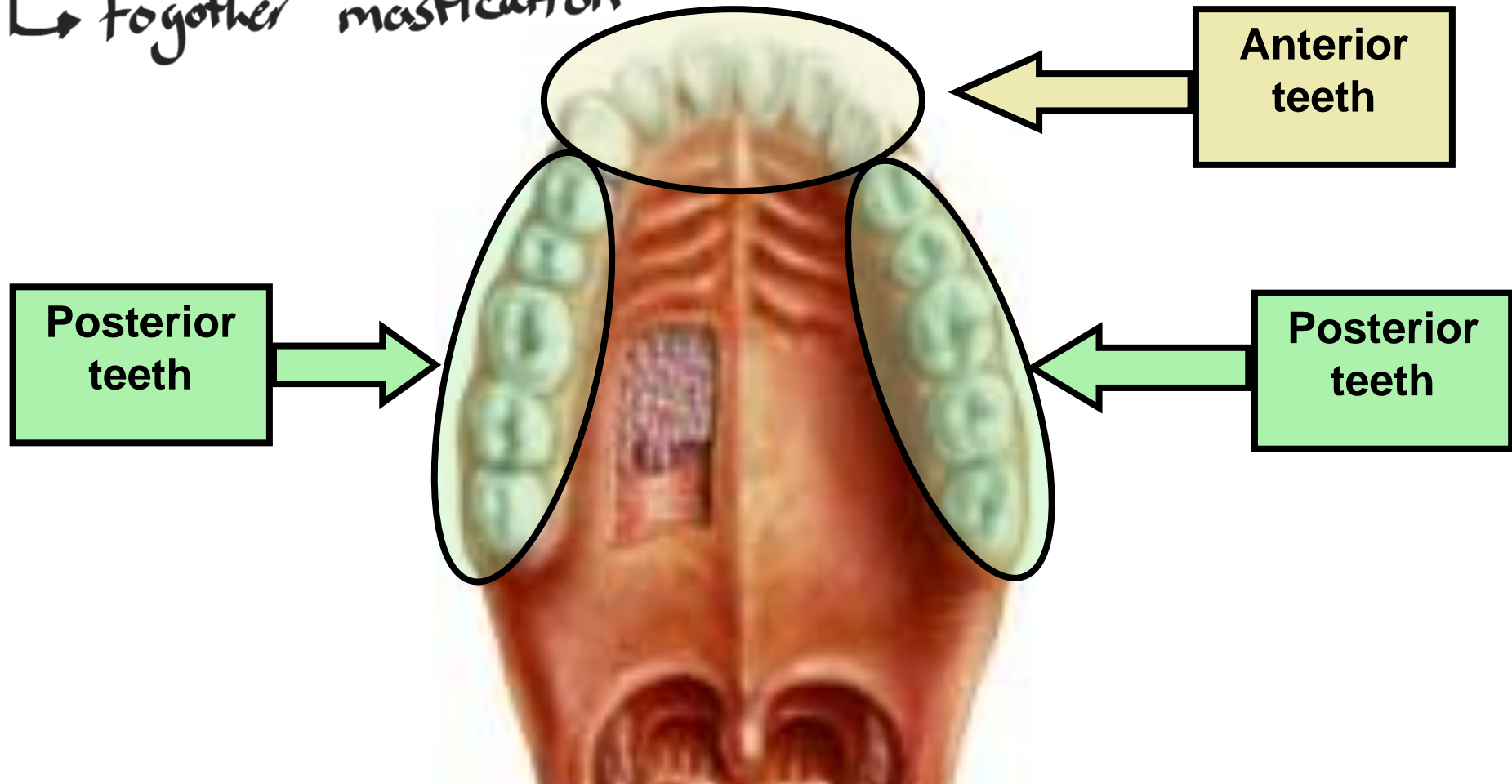
Classes of Teeth

↳ with different function

The teeth in the arch can be grouped as follow:

- 1- **Anterior teeth** (Incisors + canines) ² ₁ → *esthetic*
- 2- **Posterior teeth** (premolars + molars) ² ₃ → *occlusion*

→ together mastication



عمر من ال
midline

Order of Nomenclature

(arch , side, set ,tooth)

= **tooth identity**

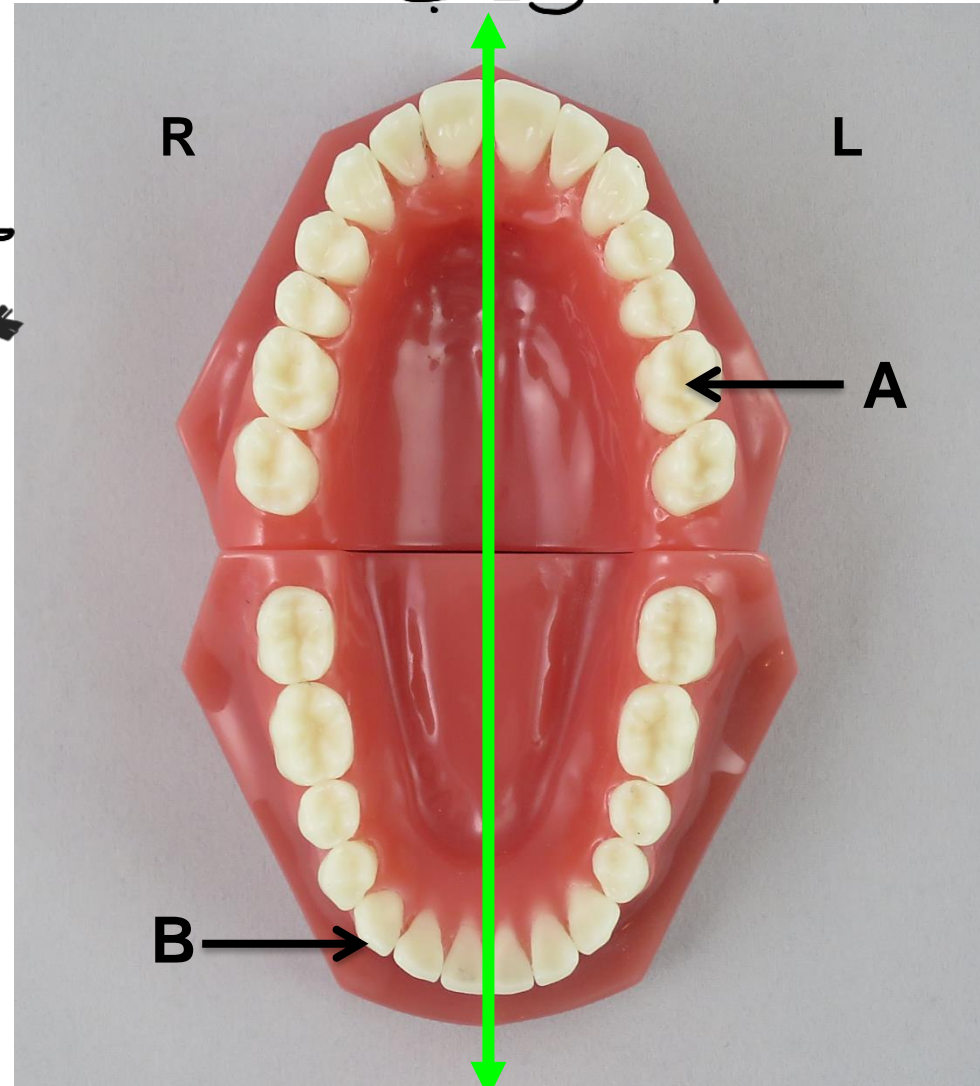
يمينك شمال المريض
شمالك يمين المريض

□ **Examples:-**

A) Upper (maxillary) left
permanent first molar

B) Mandibular right permanent
canine

زى اسمك
لا زعم بالترتيب



Three Periods of Human Dentition

1) Primary Dentition Period

- It begins with the eruption of the deciduous mandibular central incisor, and it ends when the permanent first molar erupts
- [from 6 months to 6 years approximately].
- Both dental arches contain deciduous teeth only

2) Mixed Dentition period

* first tooth to erupt is first molar

6 yr

- It occurs between 6 years to 13 years of age approximately.
- Both dental arches contain some primary and permanent teeth

* upper canine is the last tooth to be replaced → 13 yr

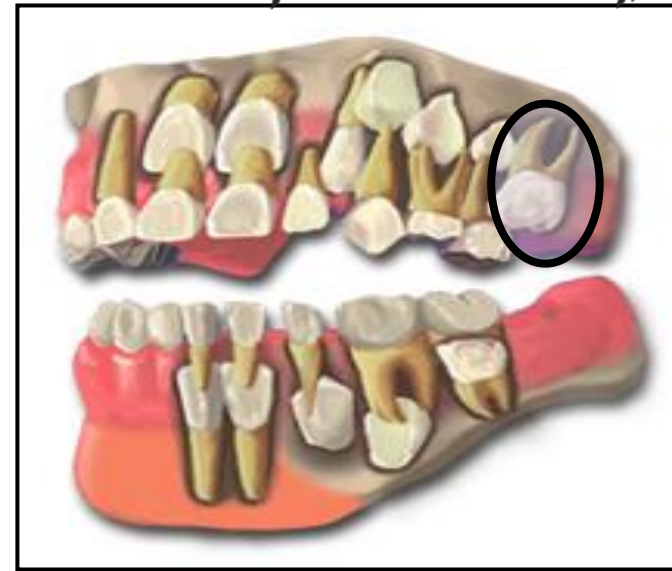
3) Secondary Dentition [permanent] period:

- It occurs after 13 years of age.
- Both dental arches contain permanent teeth only.

مهم

N.B: The permanent molars are not preceded with deciduous teeth so they may be termed as non-succedaneous teeth.

غير مسبقة أسنان قبلها



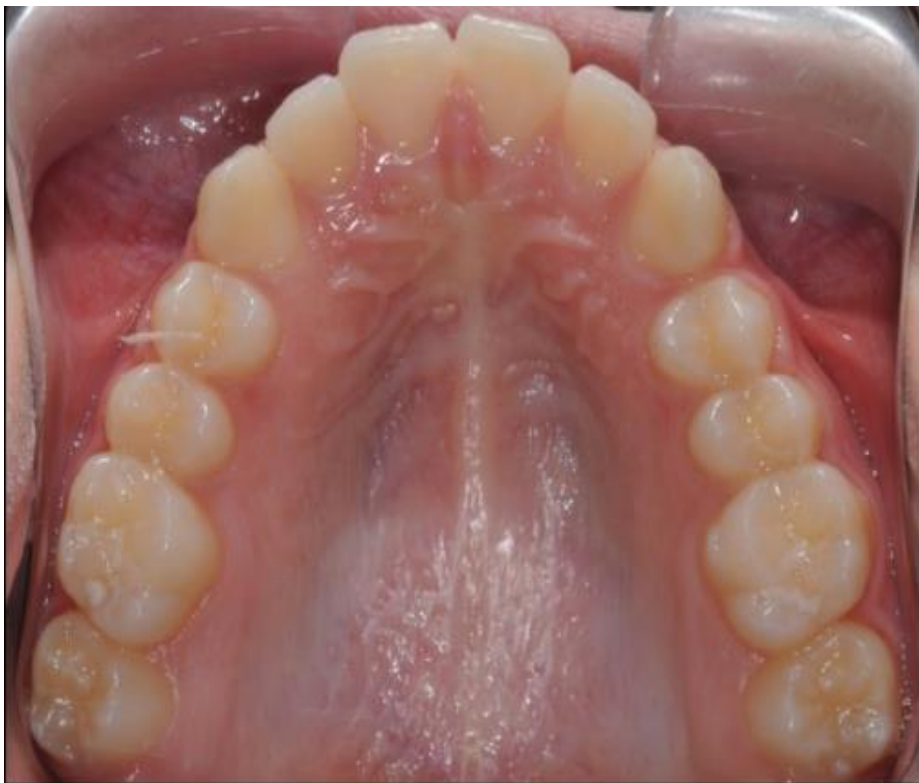


* لولقيهم (كش من ٥/٥ mixed



1st molar

Adult



Function Of Teeth

1- Mastication

مضغ



2- Appearance



Nice smile



Bad smile



3- Speech



4- Growth of jaws

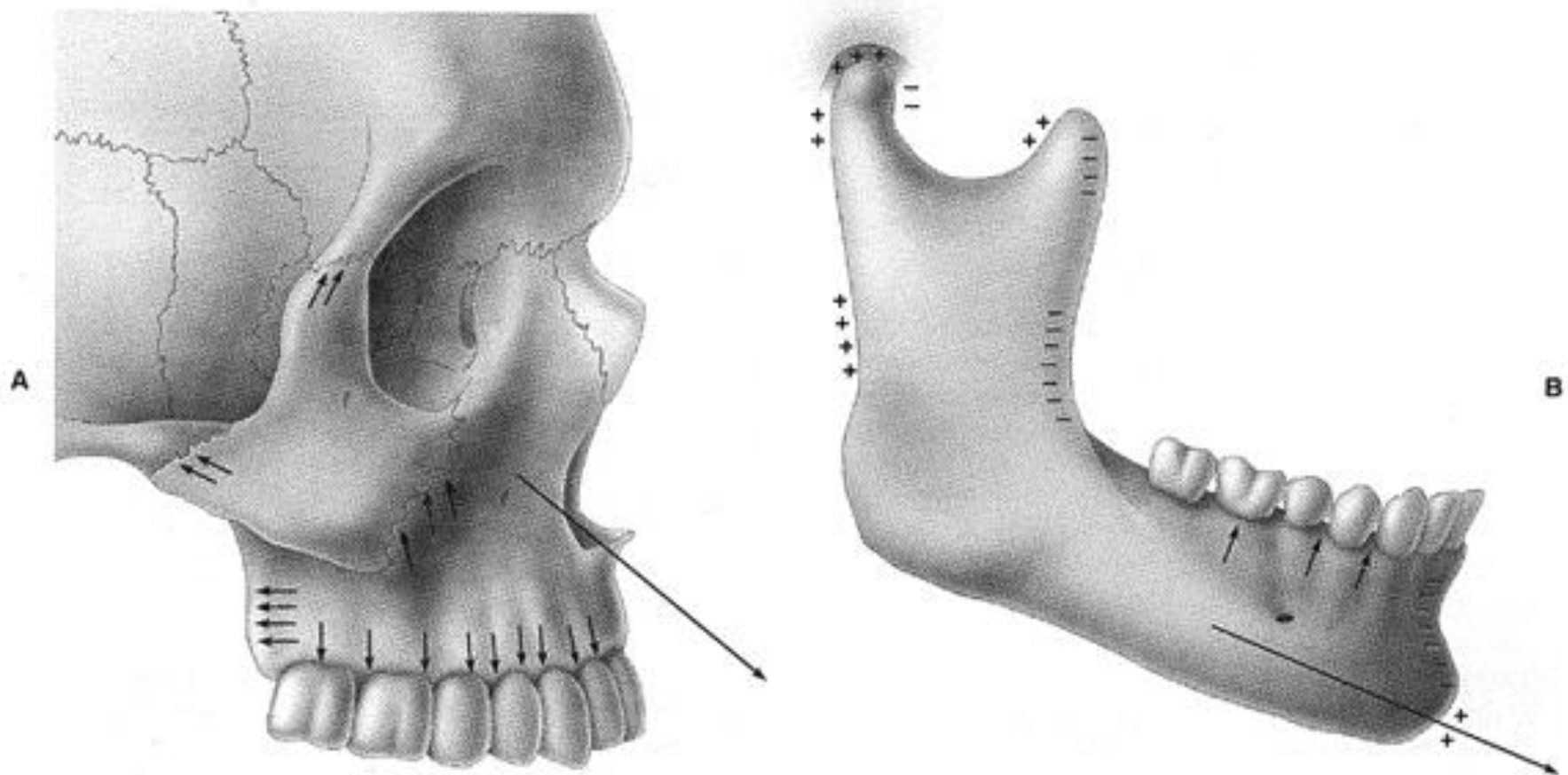


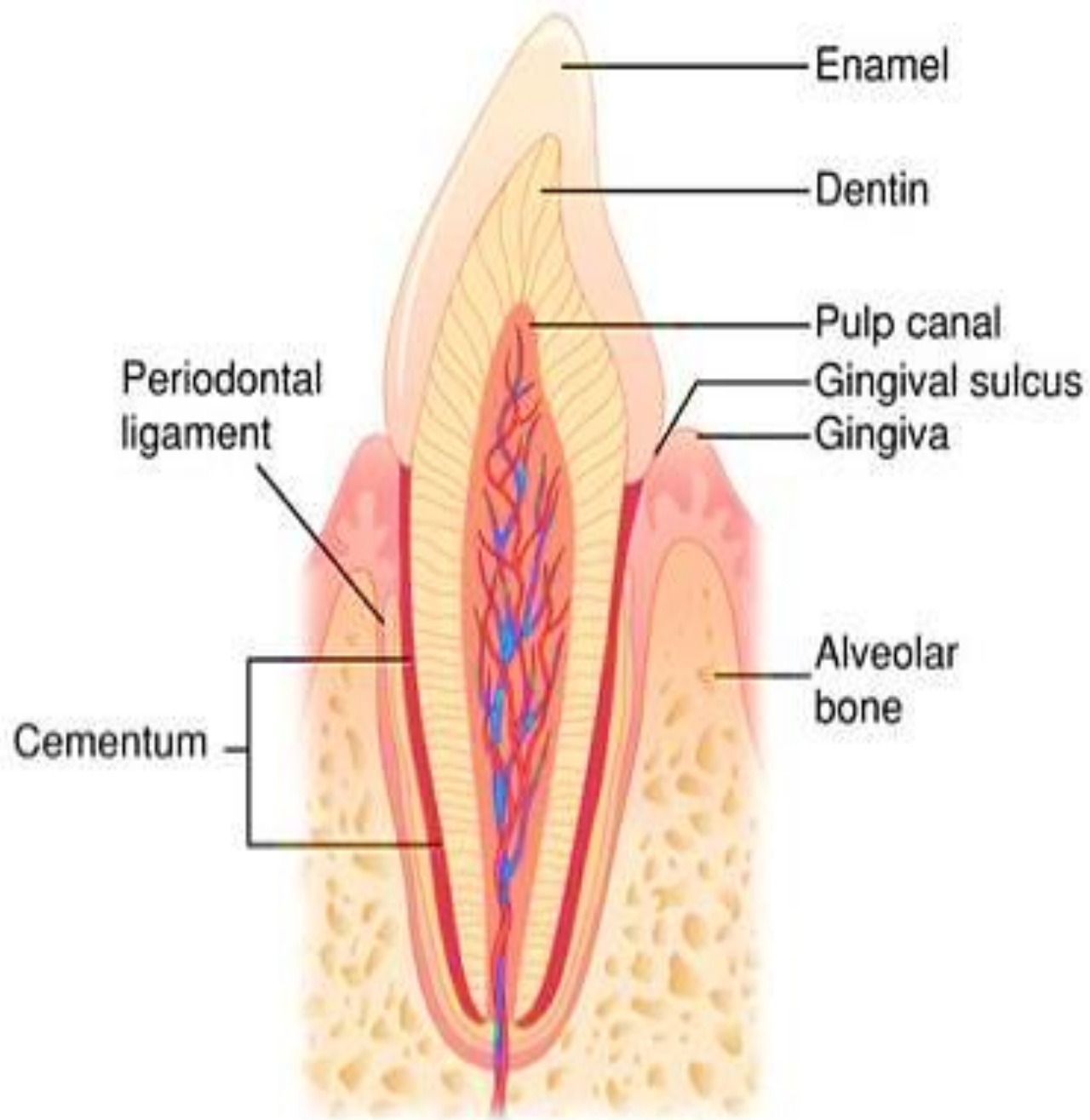
Figure 4-2 A, Different aspects of the growth of the nasomaxillary complex. B, Different aspects of the growth of the mandible.

5- For animals



Morphological and structural features of the tooth





Simple Quiz

R

L

A

Upper left permanent canine

B

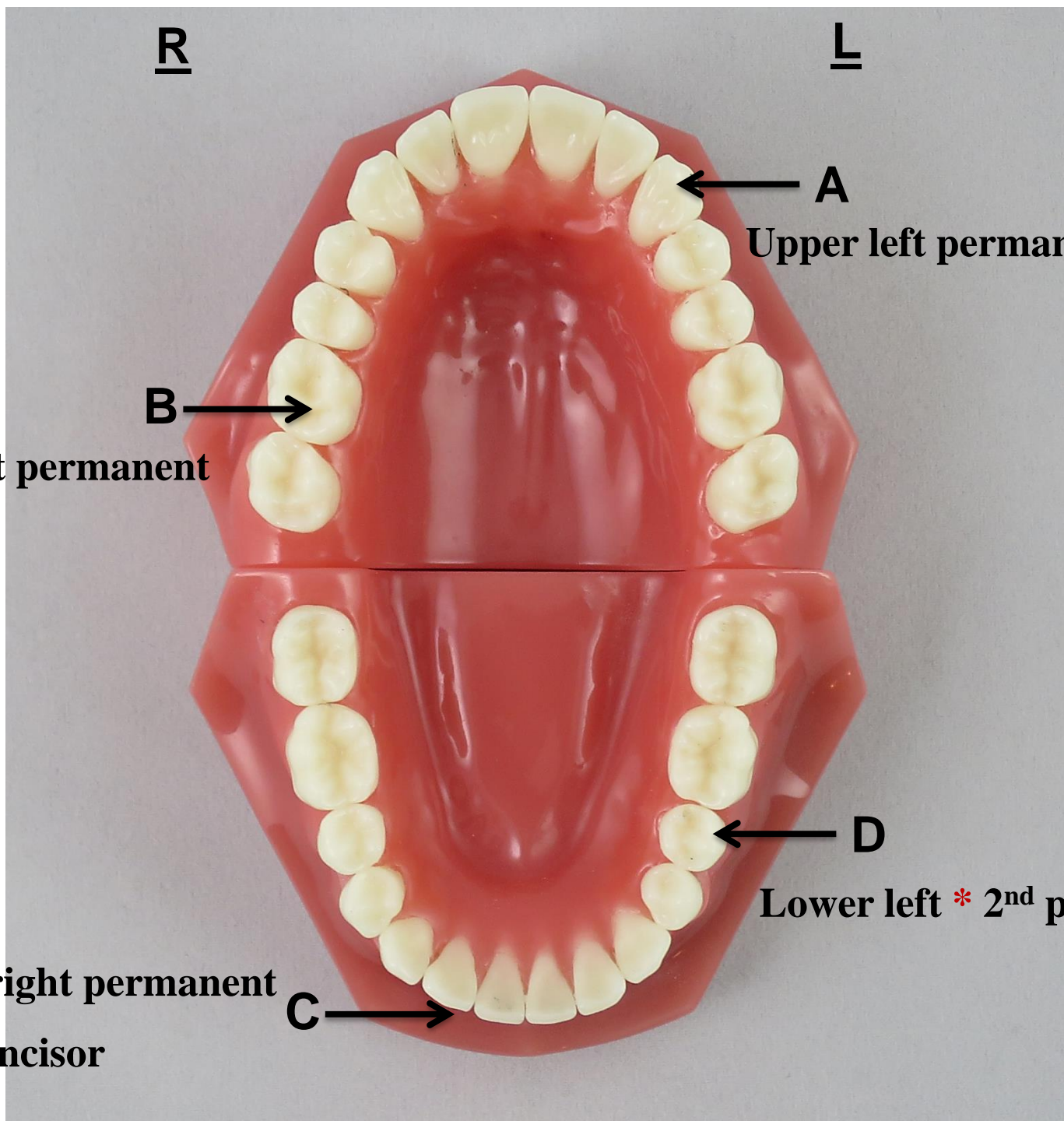
Upper right permanent
1st molar

D

Lower left * 2nd premolar

C

Lower right permanent
lateral incisor



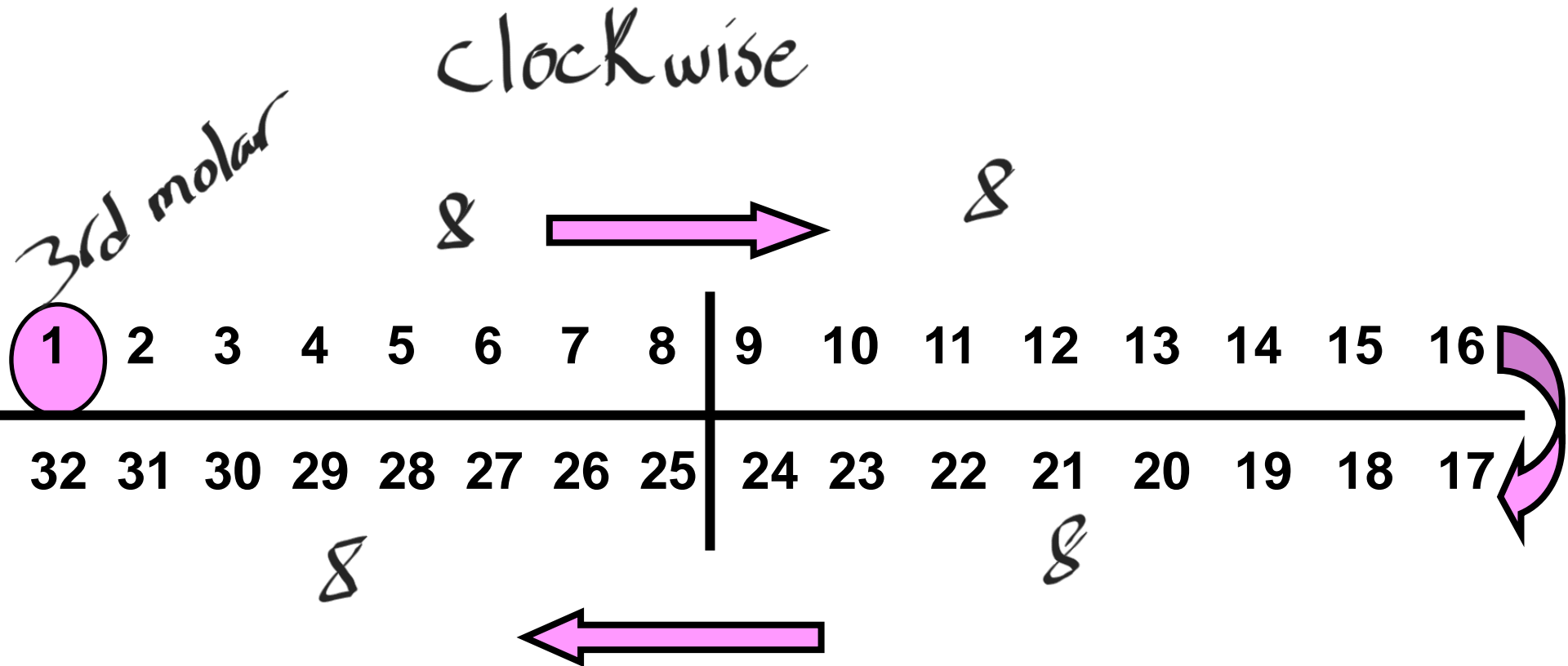
❑ NUMBERING AND CODING SYSTEMS OF THE TEETH



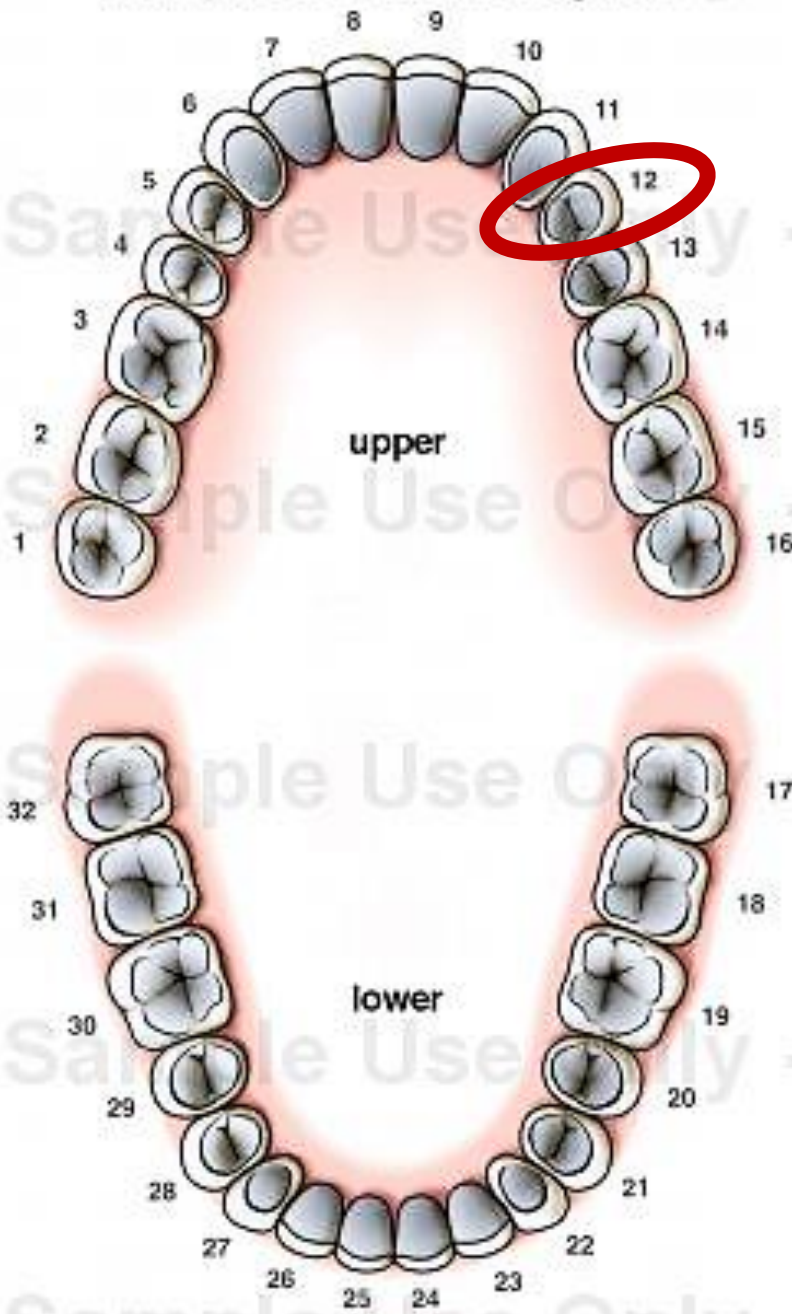
1)The universal numbering system

- The number is always preceded by the sign # to designate that the system is used for universal system.

Permanent teeth (1 – 32)



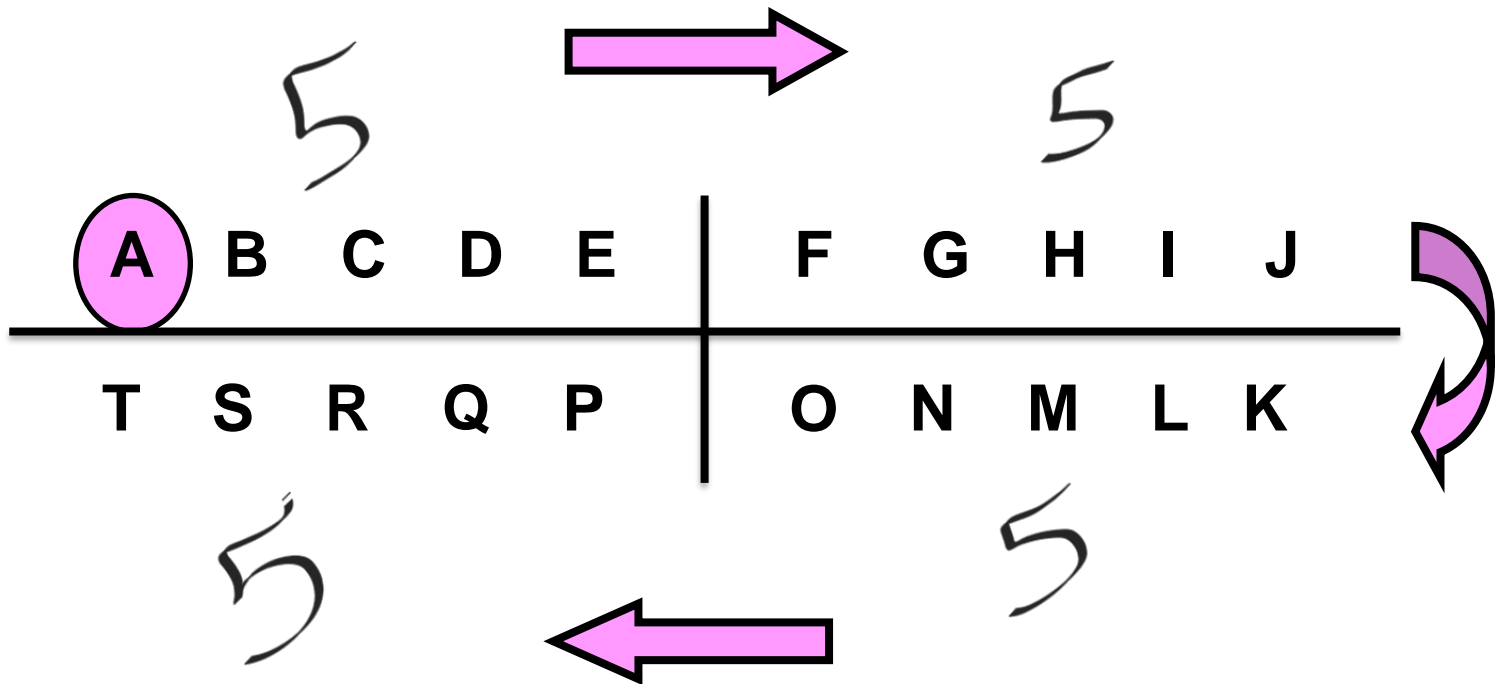
Permanent (Adult) Teeth Diagram
Permanent Teeth Diagram



#12

Permanent
maxillary left
first
premolar

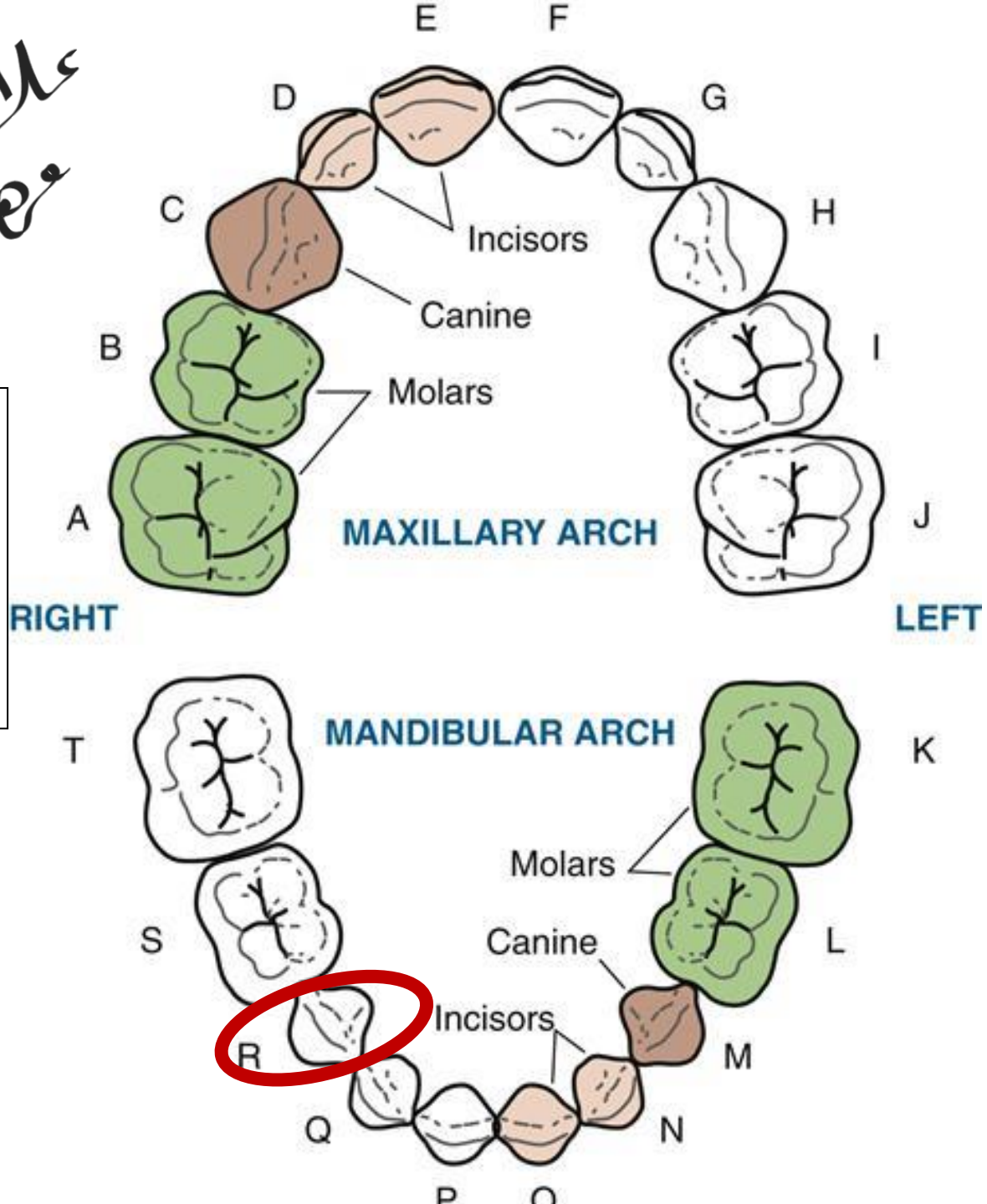
Deciduous teeth (A – T)



الانسان
السن

#R

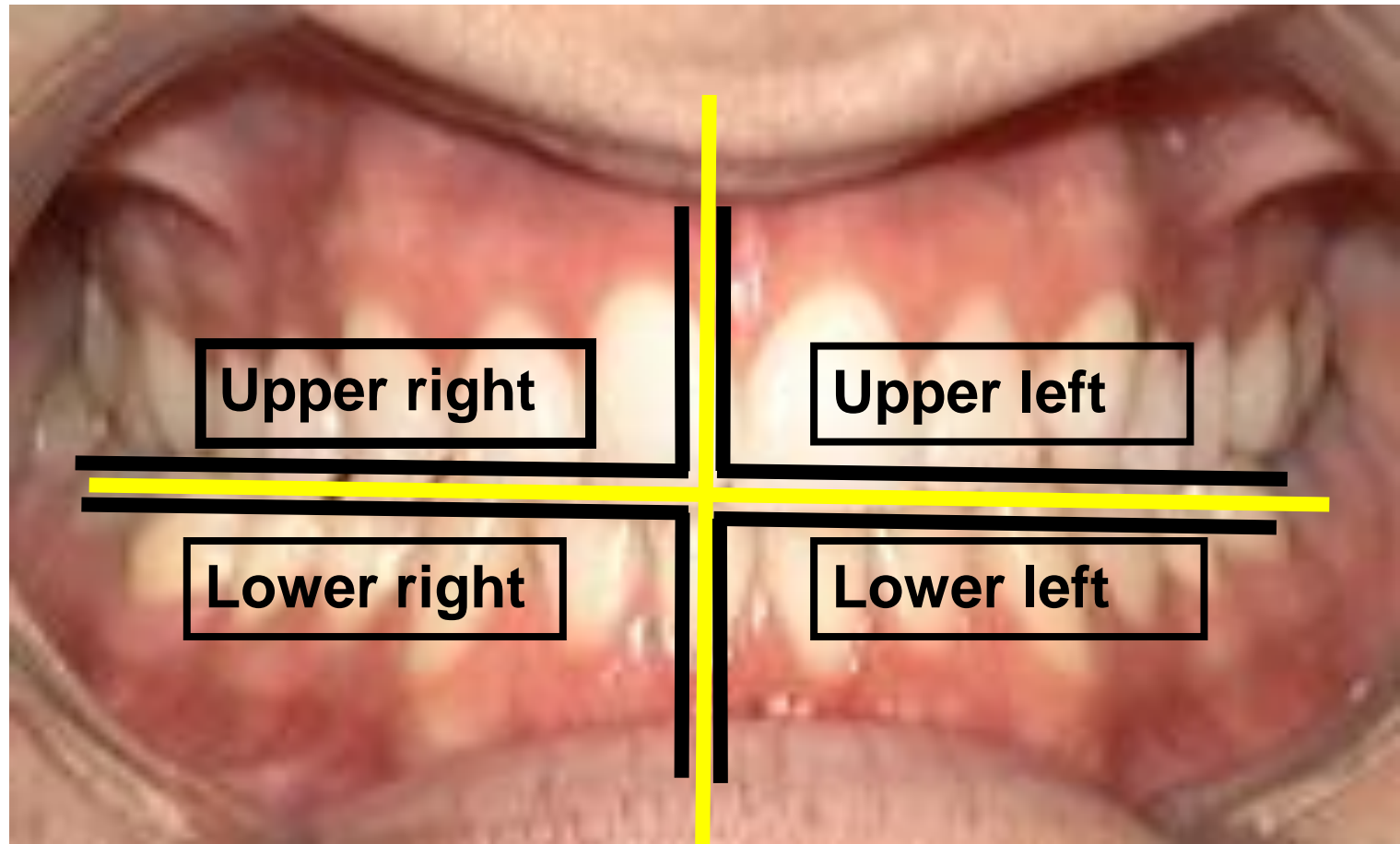
deciduous
lower right
canine



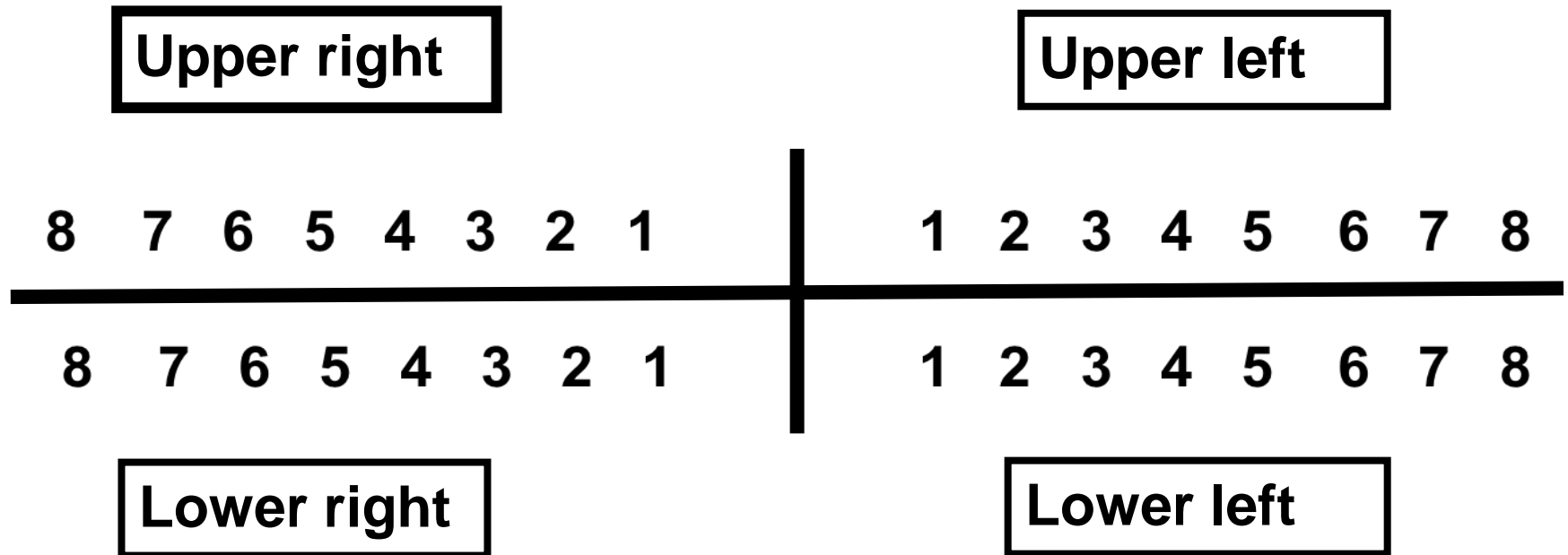
2) Palmer Notation System:

↳ Box

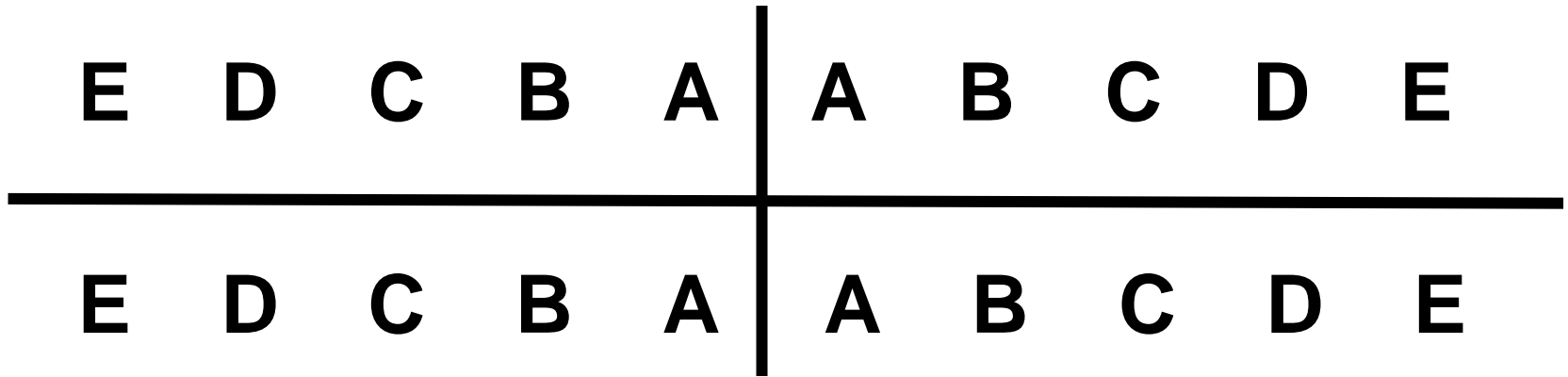
- It represents the 4 quadrants of the dentition as if you are facing the patient.

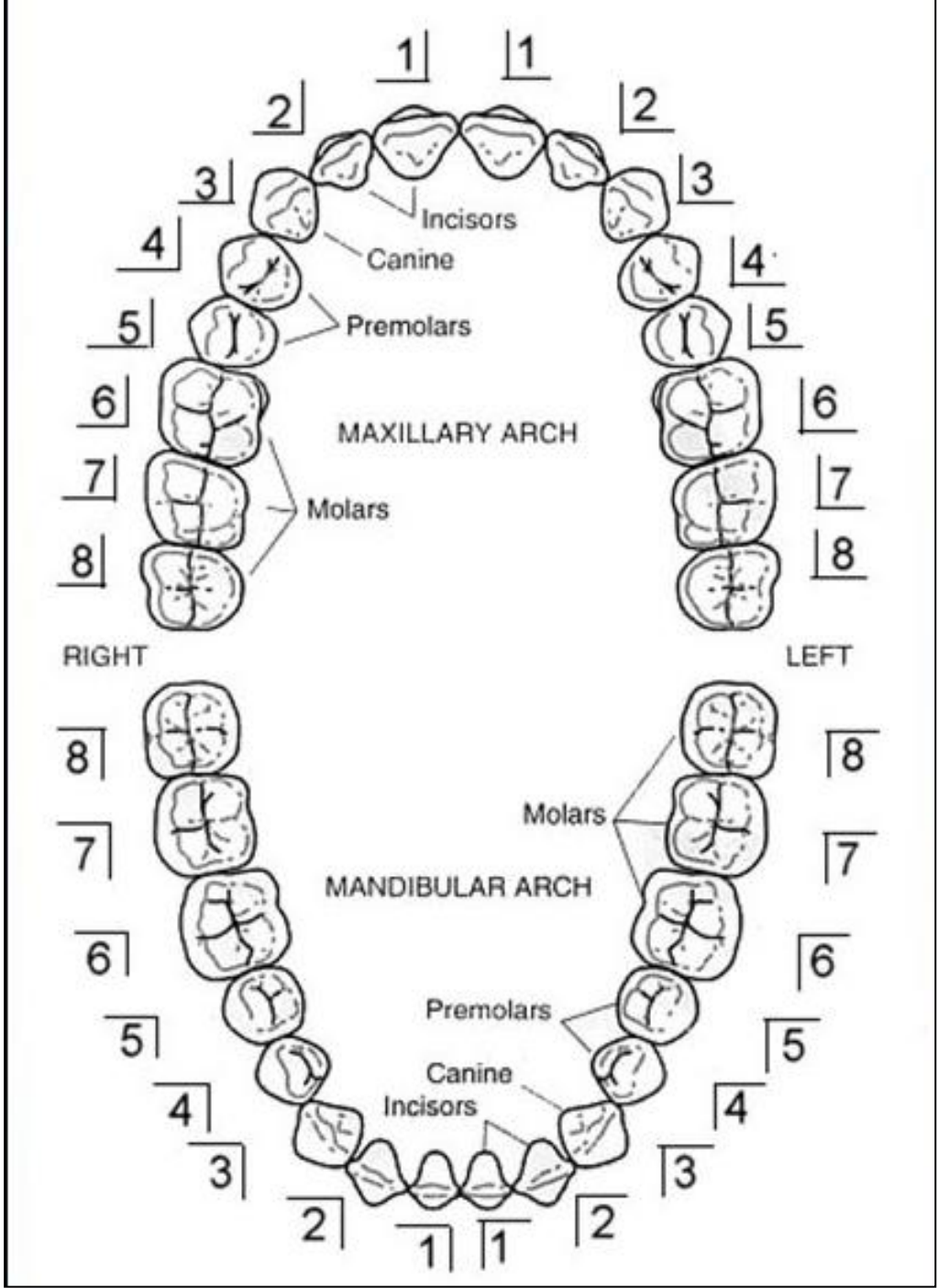
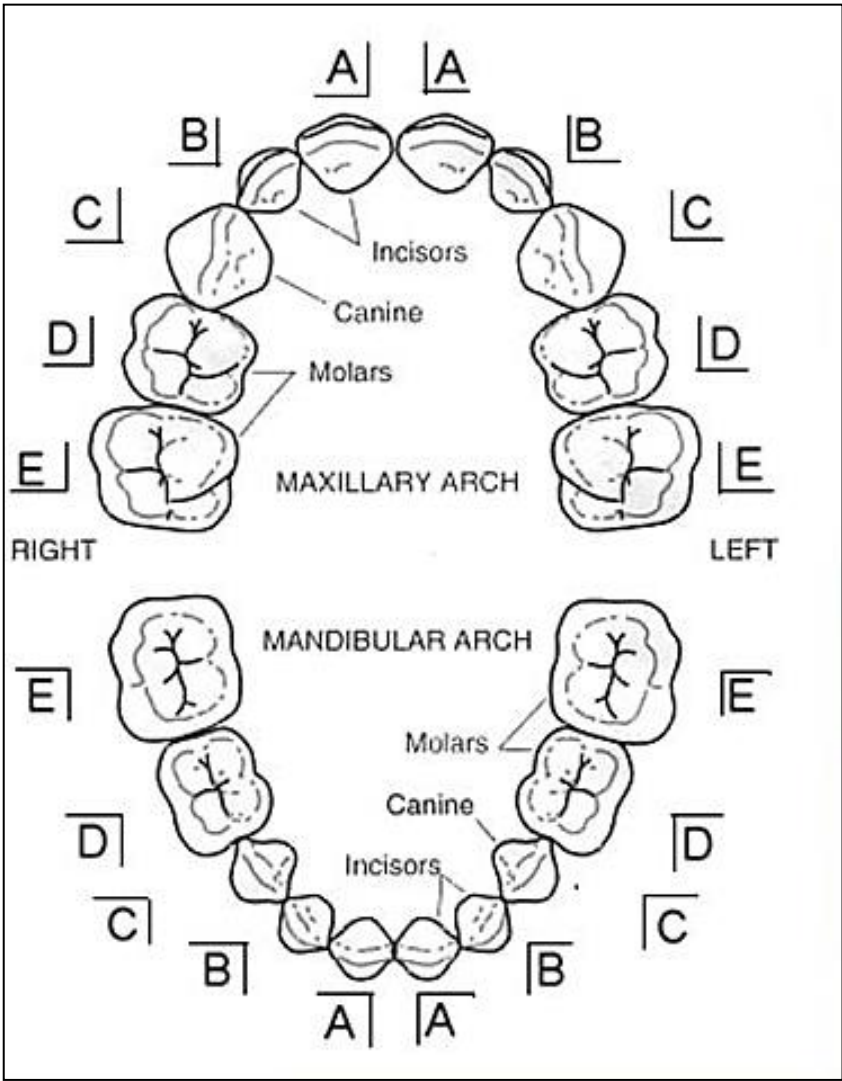


- The permanent teeth are numbered from 1-8 on each side from the midline.



- The deciduous teeth are lettered from A-E on each side from the midline.





3- The Federation Dentaire international (FDI)

- The teeth are designed by using **binomial** systems:
- The **first digit** of the code is located at the left side and indicates the quadrant.

In the permanent dentition.

U.R.	1	2	U.L.
L.R.	4	3	L.L.

In the deciduous dentition.

U.R	5	6	U.L.
L.R.	8	7	L.L.

- The **second digit** is located at the **right side** and indicates the number of the tooth in the quadrant according to Palmer's.
- The two numbers should be pronounced separately.

بدون هما شتایی

Permanent teeth

18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38

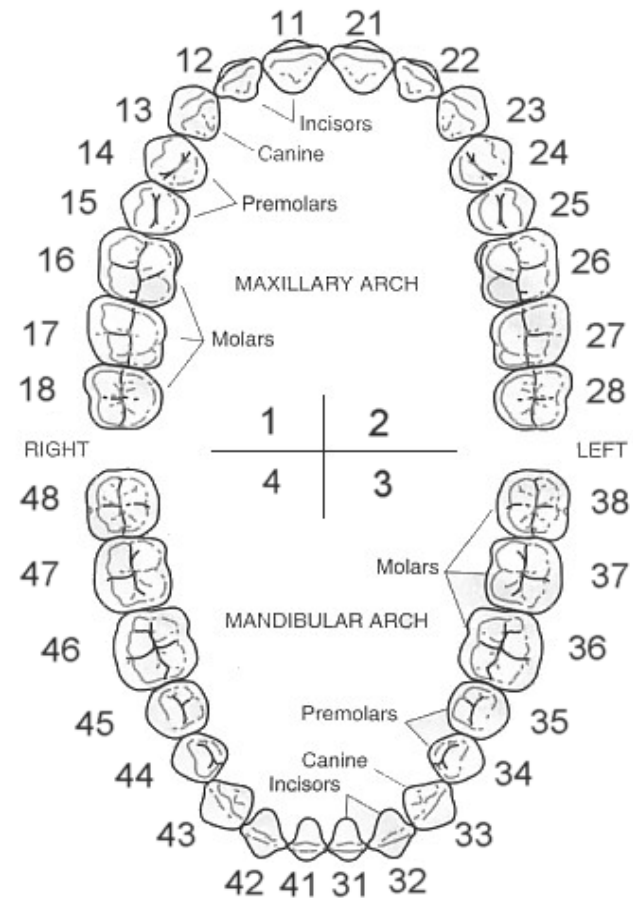
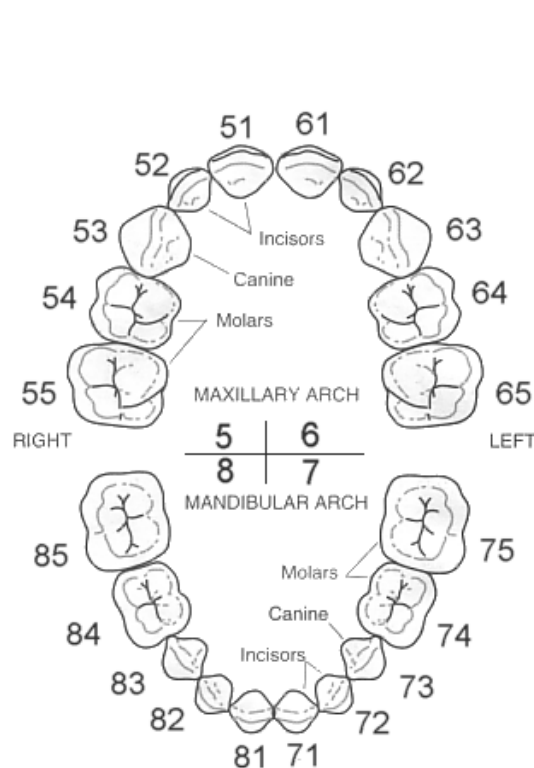
Deciduous teeth

55 54 53 52 51

61 62 63 64 65

85 84 83 82 81

71 72 73 74 75



Morphological and structural features

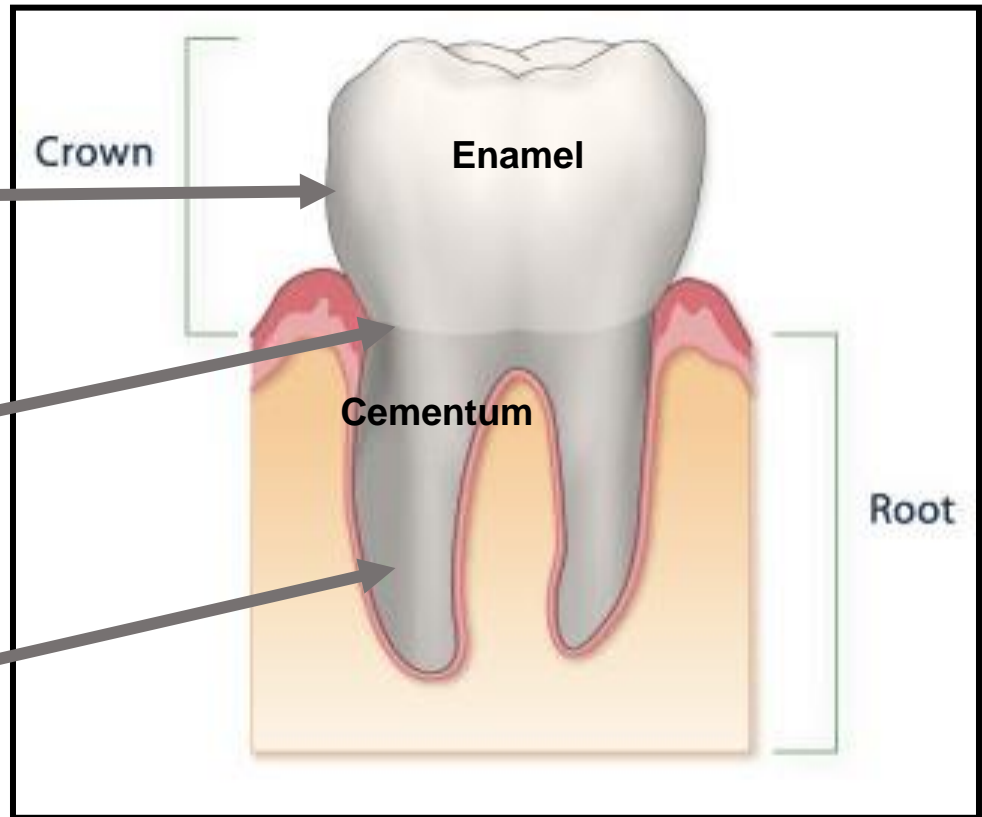
1- Macro-anatomy of the tooth

- Each tooth has **3** anatomical parts:

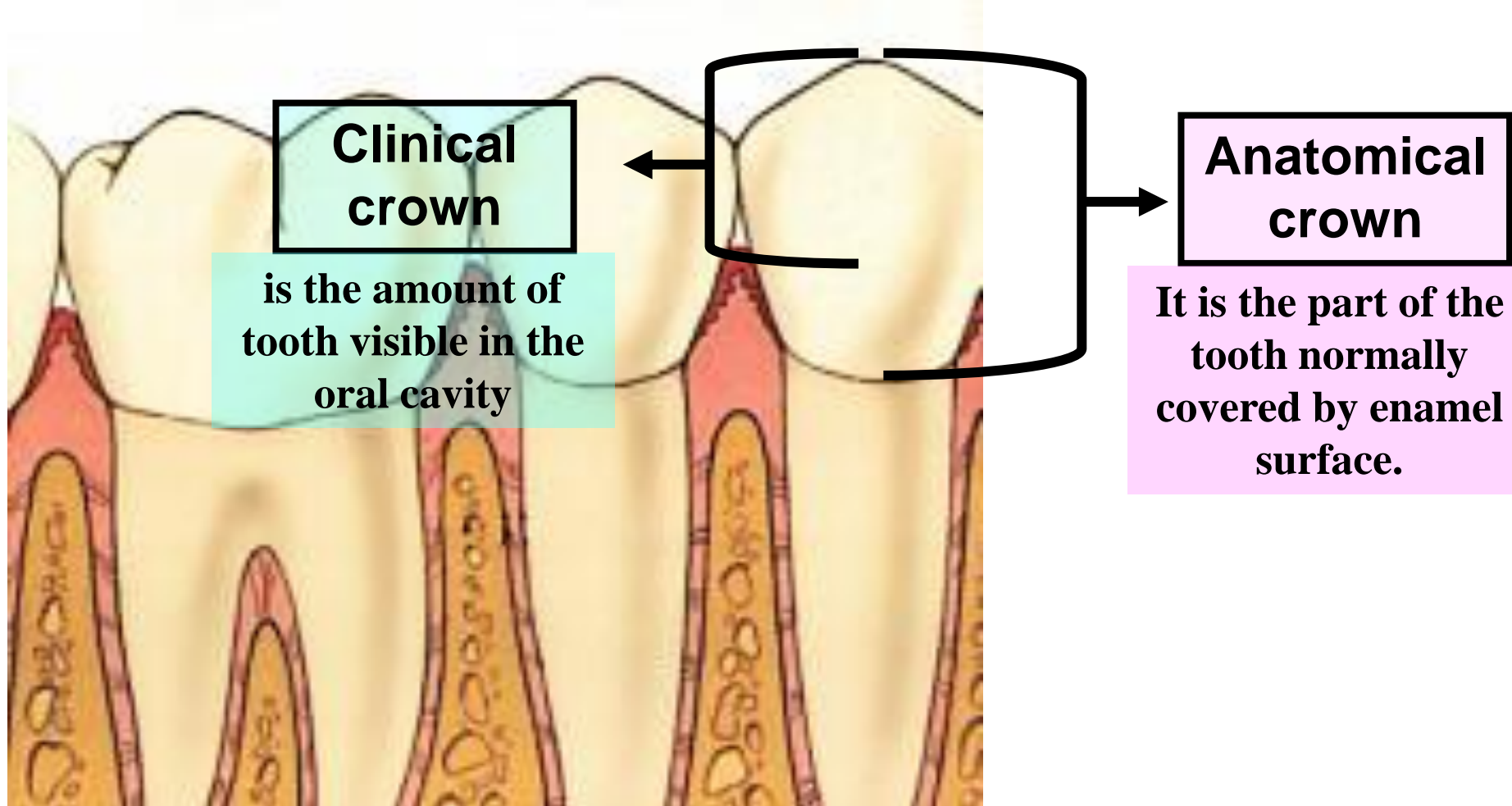
I. **Crown**

II. **The Neck** cervical line or cemento-enamel junction (CEJ). *→ gingival line covers it*

II. **Root** (s)



Anatomical & Clinical Crown



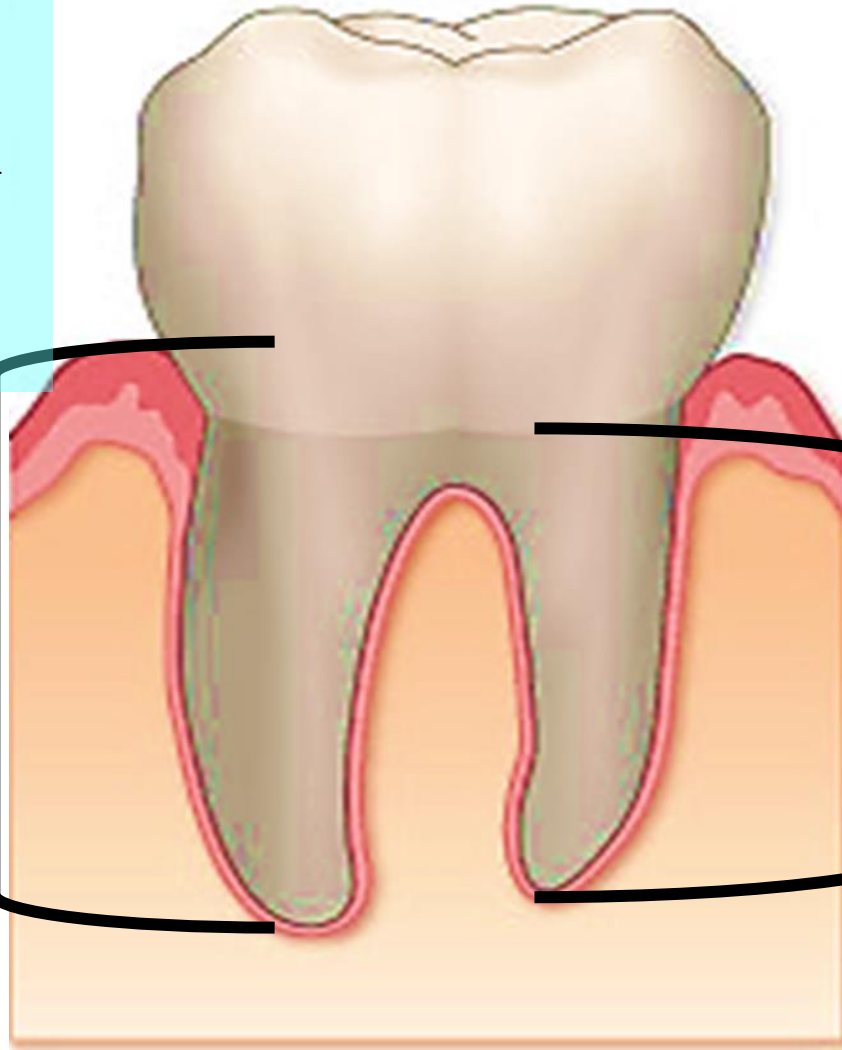
Anatomical & Clinical Root

The amount of tooth that is not visible in the oral cavity, since it is beneath the gingiva.

The part of the tooth covered by cementum surface

Clinical Root

Anatomical Root



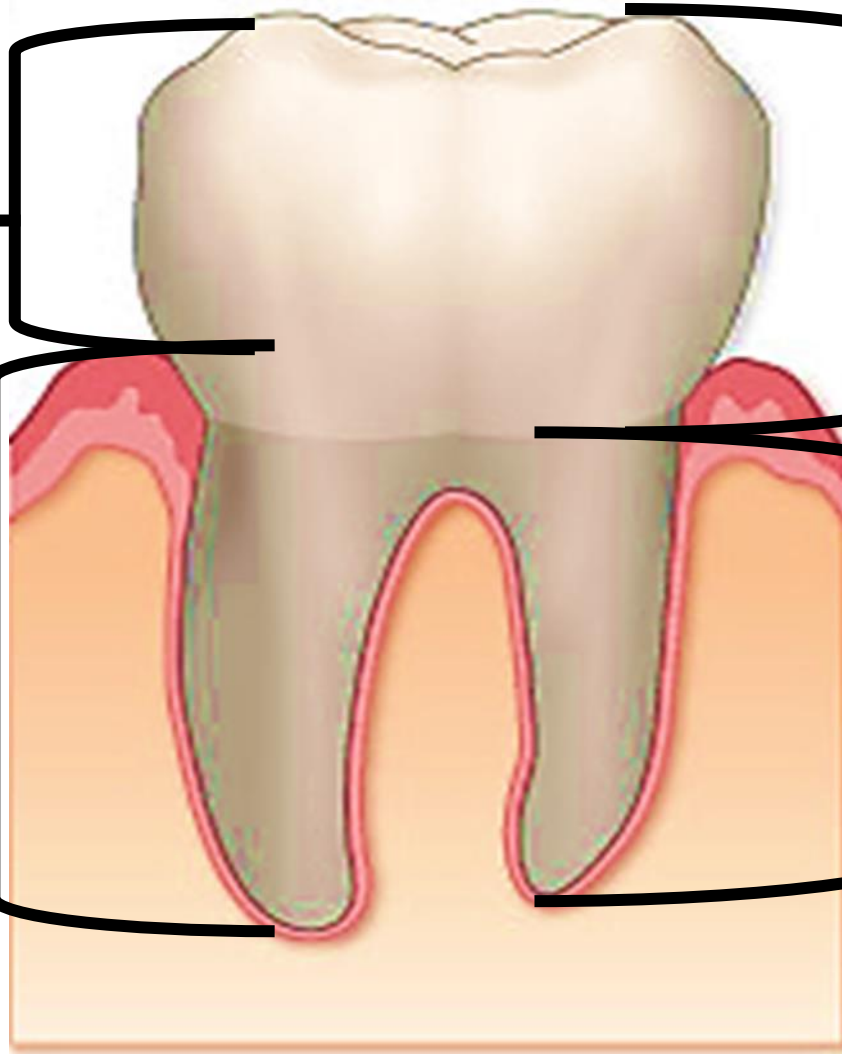
Notice the difference carefully

**Clinical
crown**

**Anatomical
crown**

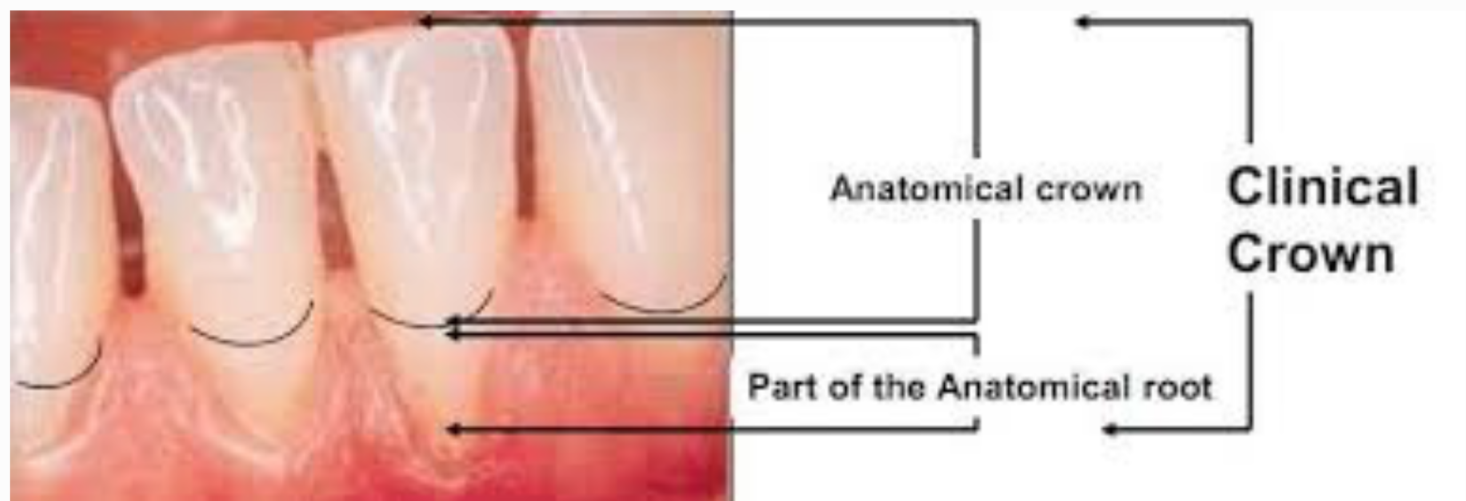
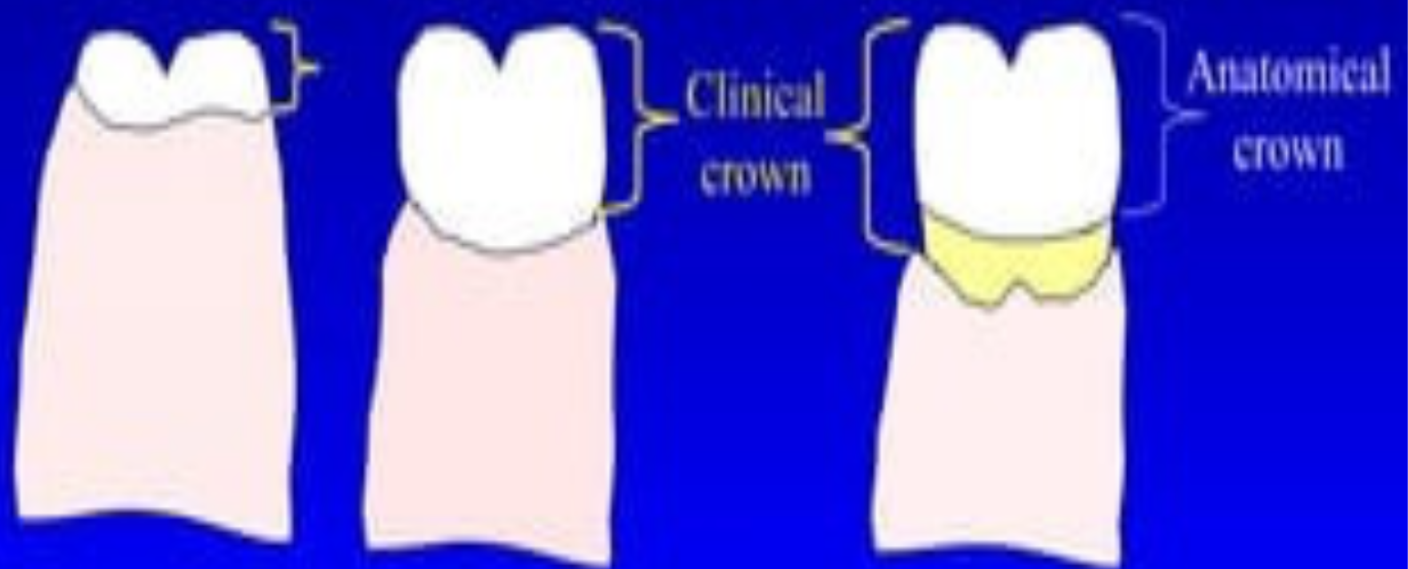
**Clinical
Root**

**Anatomical
Root**



Dental Anatomy

- b. **Clinical crown**- visible part of tooth above the gum line.



The root number

A) **One:** as in anterior teeth and premolars except the upper 4.

B) **Two:** as in upper 4 and lower molars.

C) **Three:** as in upper molars.

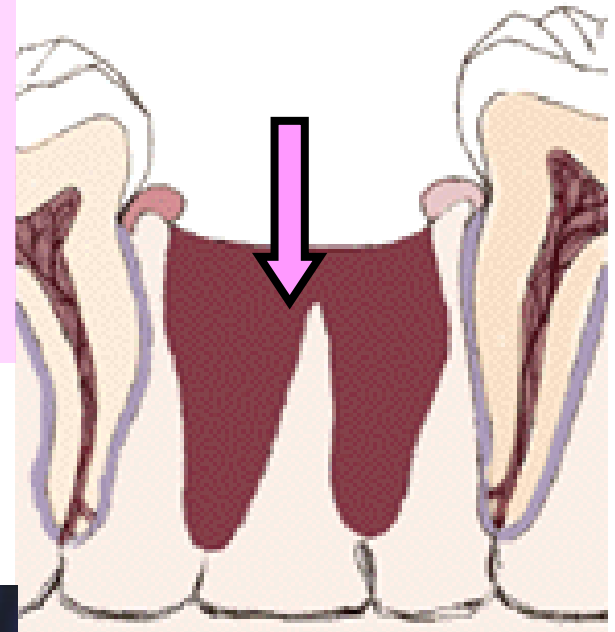
Single-rooted



Multi-rooted

Socket

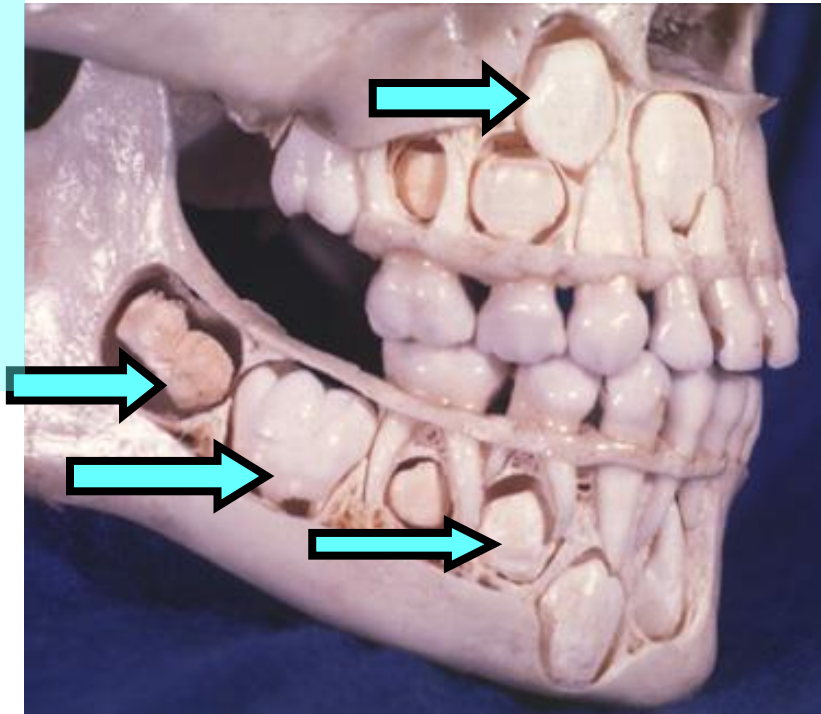
The portion of the alveolar process into which the roots are set

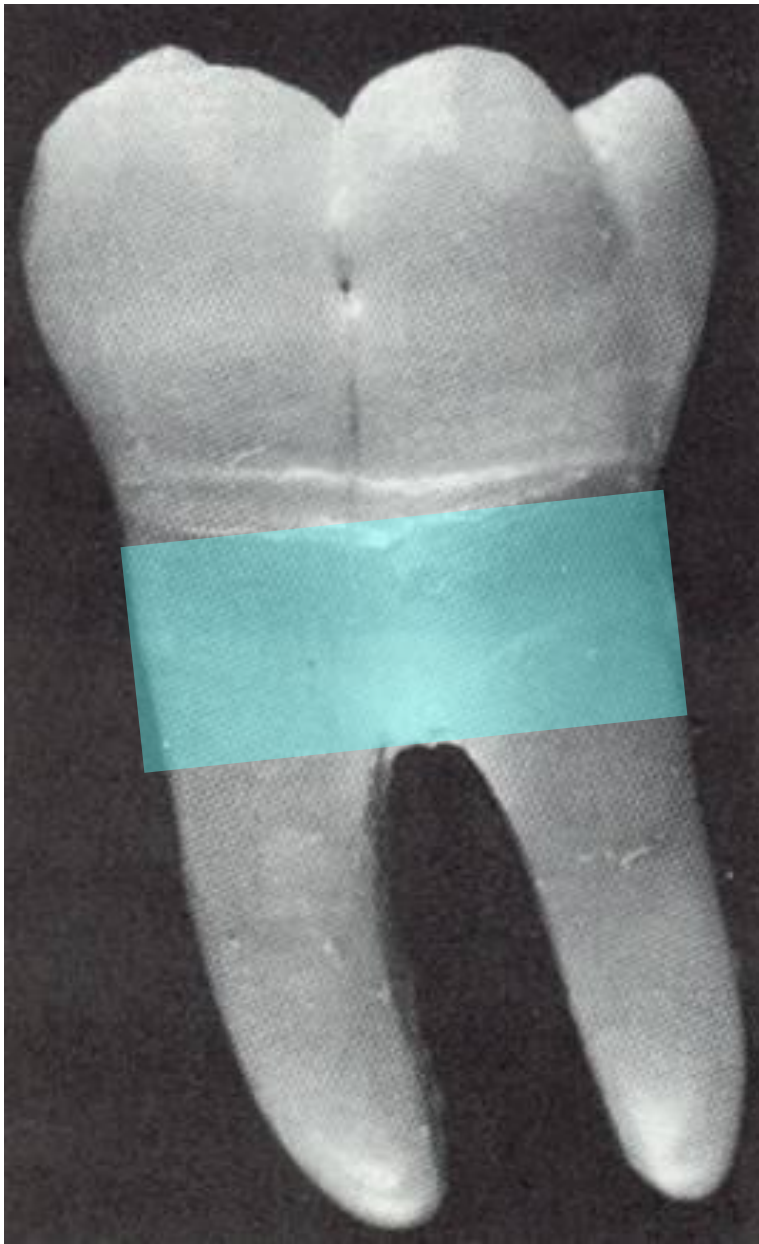


Crypt

Bony space or cavity which encloses the developing tooth

تشاء
تكوين السن



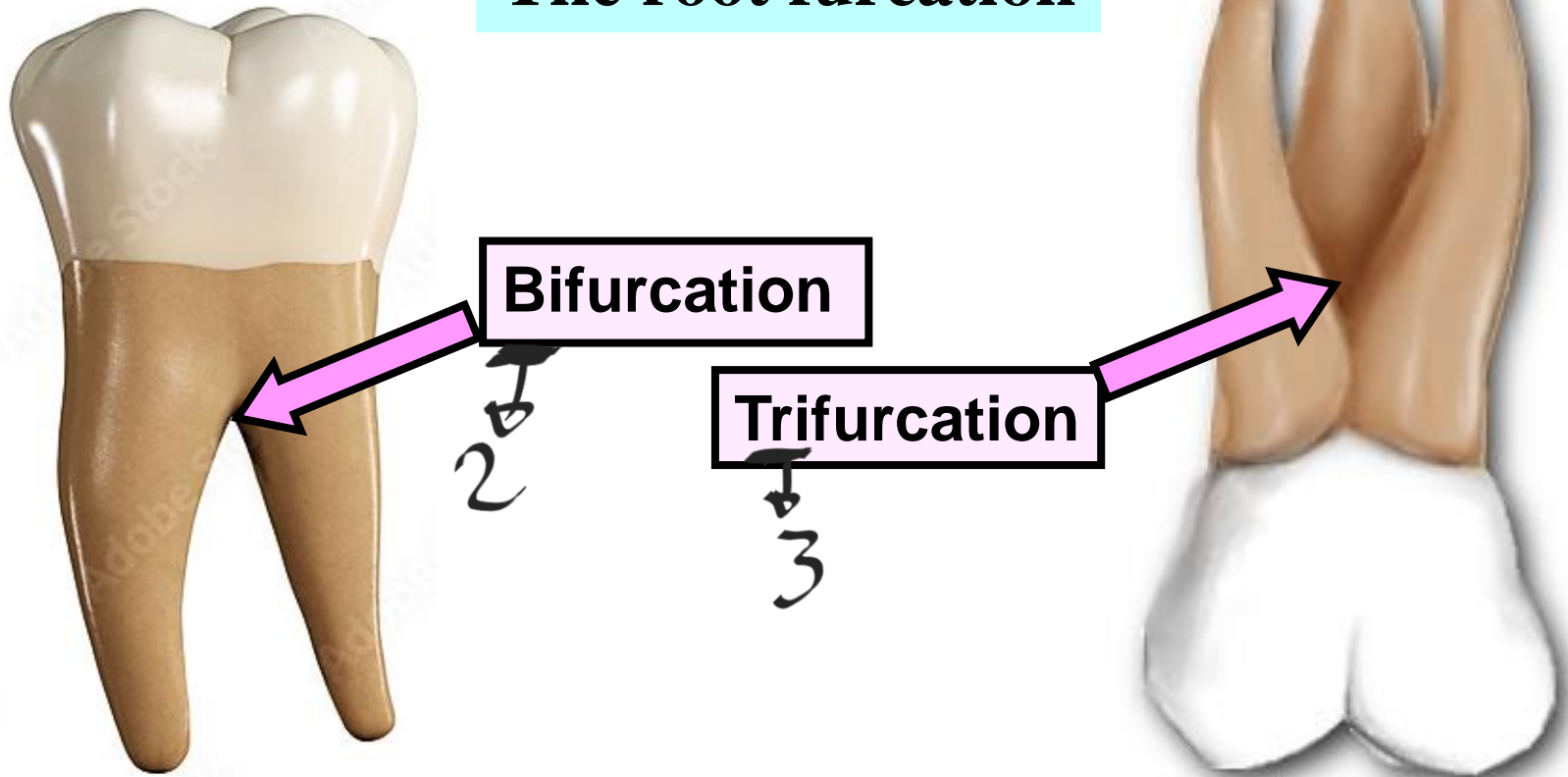


جذع السن

Root trunk

The area which extends apically from the cement-enamel junction (CEJ) to the root furcation

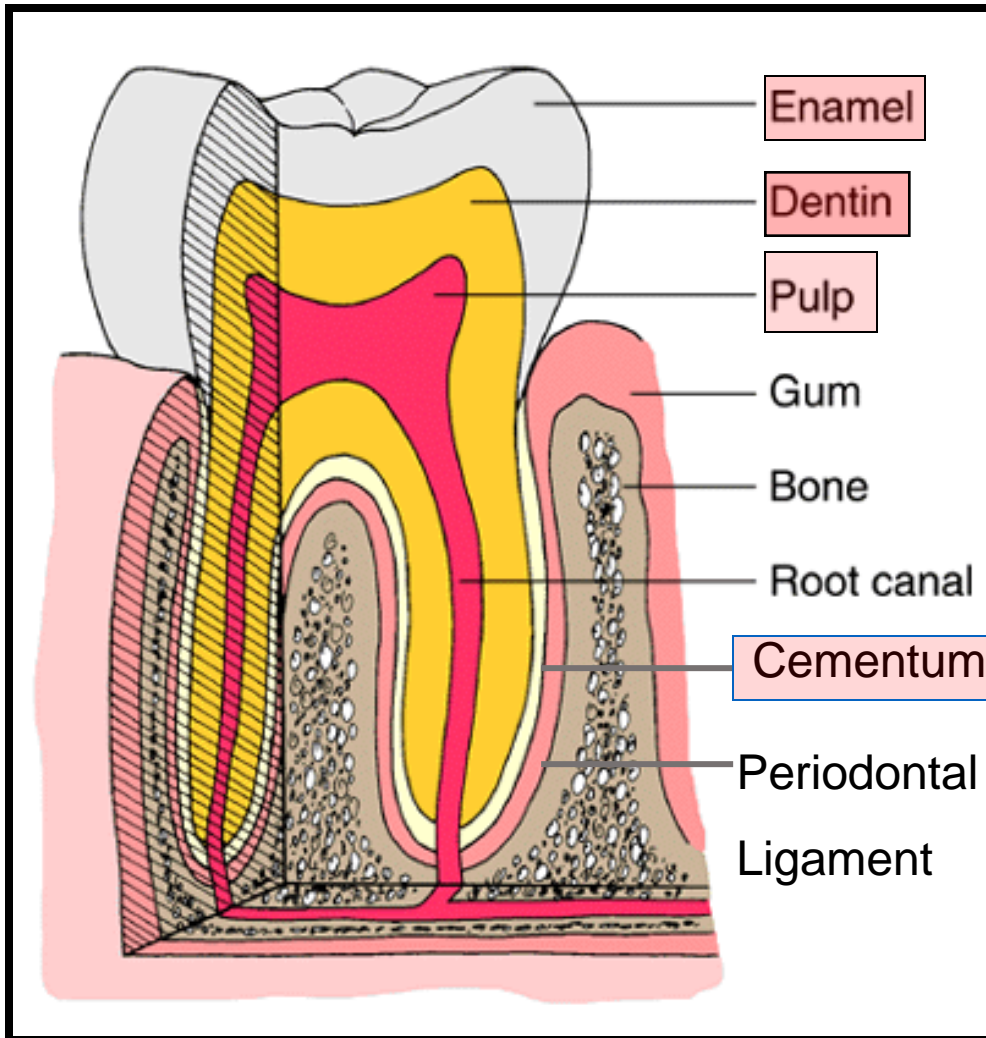
The root furcation



The area where the tooth root divide and branch into two (**Bifurcation**) or three (**Trifurcation**) roots

Tooth Anatomy

2- Micro-anatomy of the tooth



- **3 calcified tissues:**

Enamel: white protective external surface of the anatomic crown.

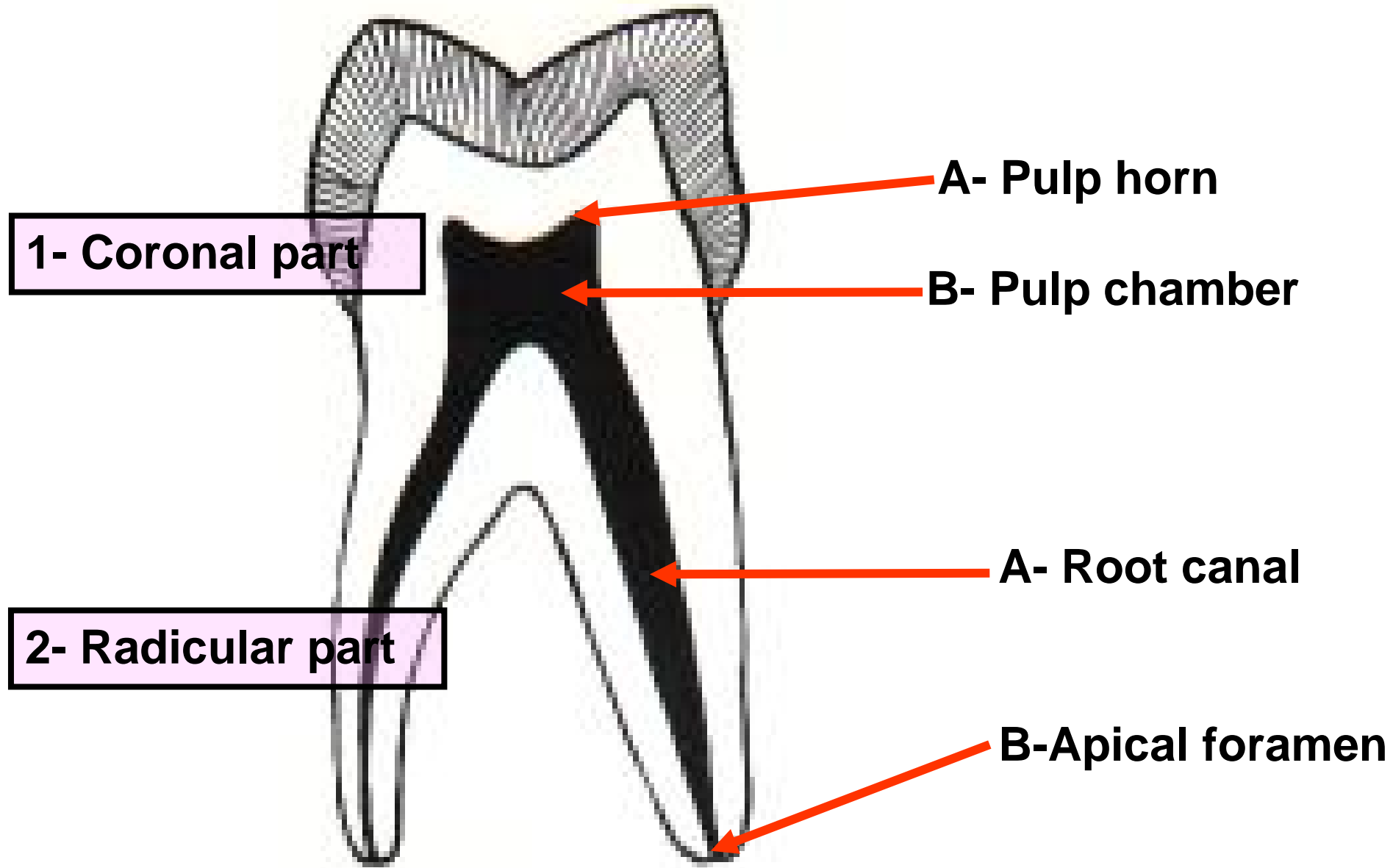
Dentin: the major bulk of the inner portion of each tooth crown and root.

Cementum: yellow external layer of the tooth root.

- **1 soft specialized CT:**

Pulp

Pulp Cavity



Tissue Junctions

**Dentino-enamel
junction (DEJ)**

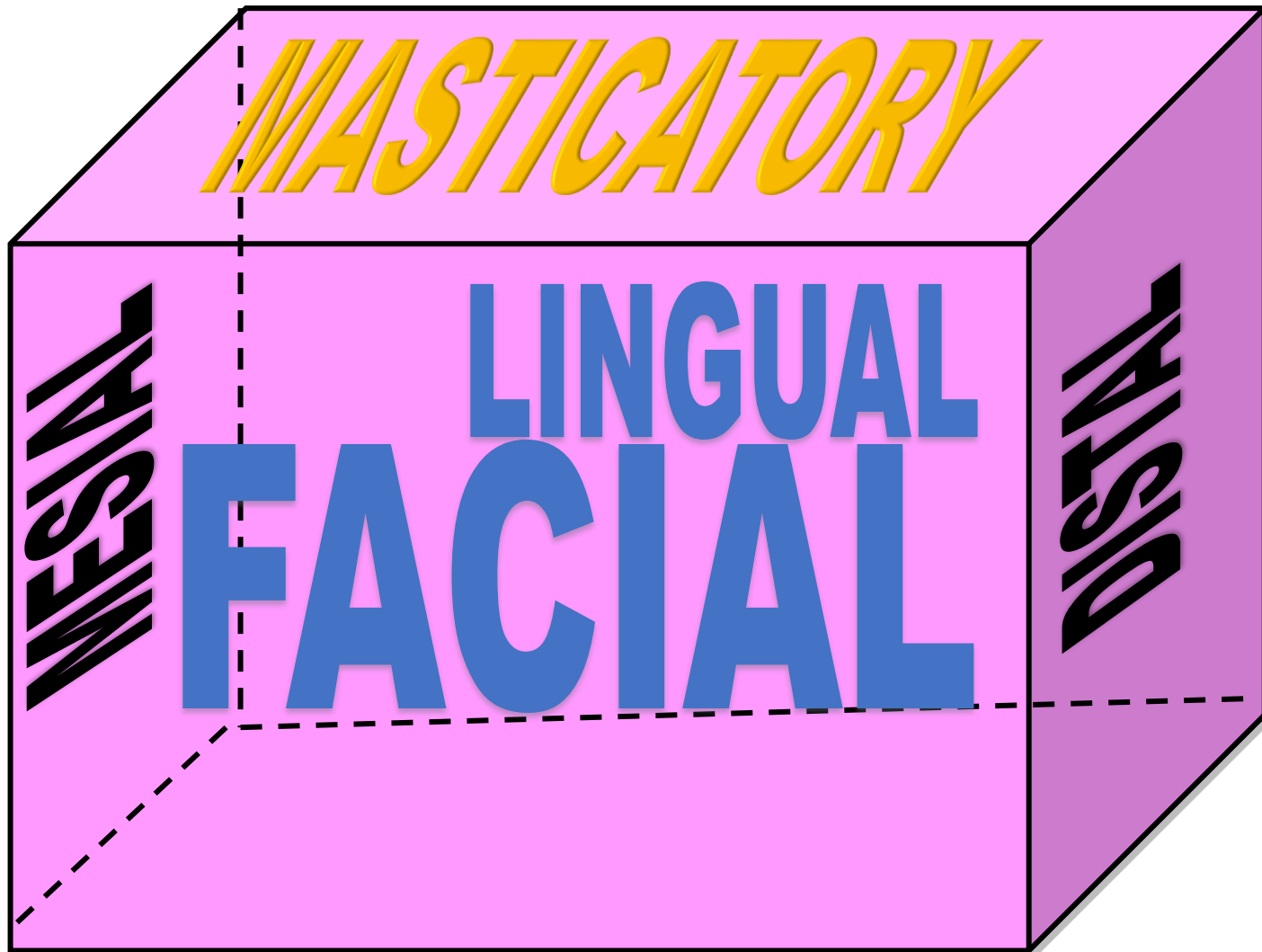
**Cemento-enamel
junction (CEJ)
or
Cervical line**

**Dentino-
cemental
junction**



Tooth Surfaces

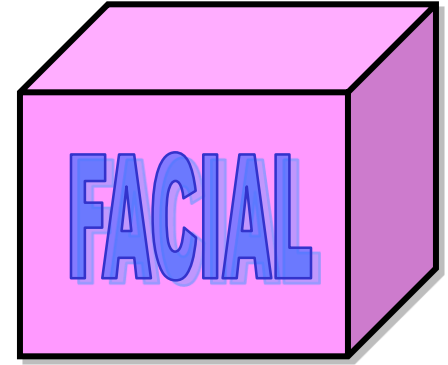
- Each tooth has **5** surfaces
- like a box with 4 sides and a roof.



Facial Surface

- **Facial Surface:** It is the surface of the tooth which facing the lip or cheek. The facial surface also known as the **labial surface** if it is an anterior tooth, or **buccal surface** if it is a posterior tooth.

Facial Surface

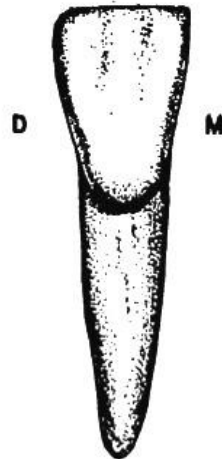
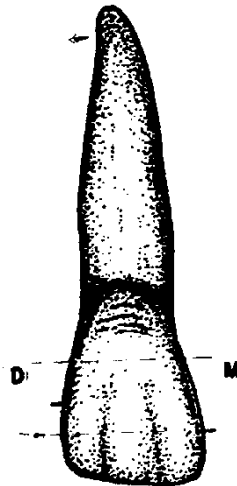


Labial

(LIP)

for

anterior teeth



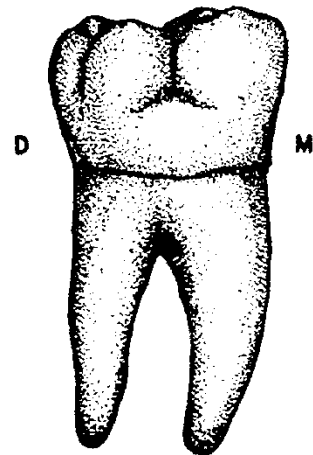
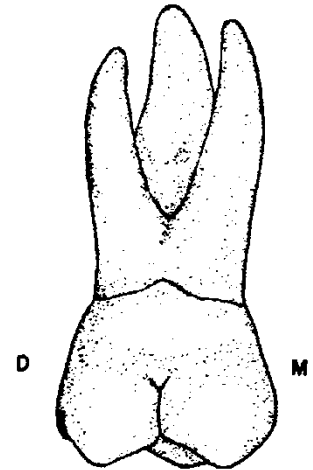
LABIAL

Buccal

(CHEEK)

for

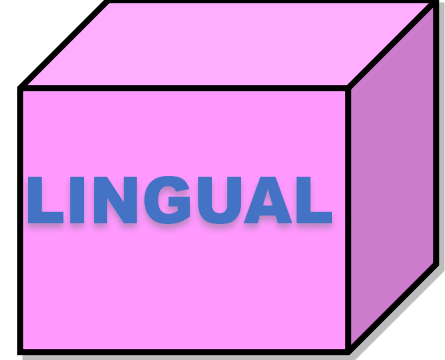
posterior teeth



Lingual Surface

- **Lingual Surface:** It is the surface of the mandibular teeth which facing the tongue.
- **Palatal Surface:** It is the surface of the maxillary teeth which facing the palate.

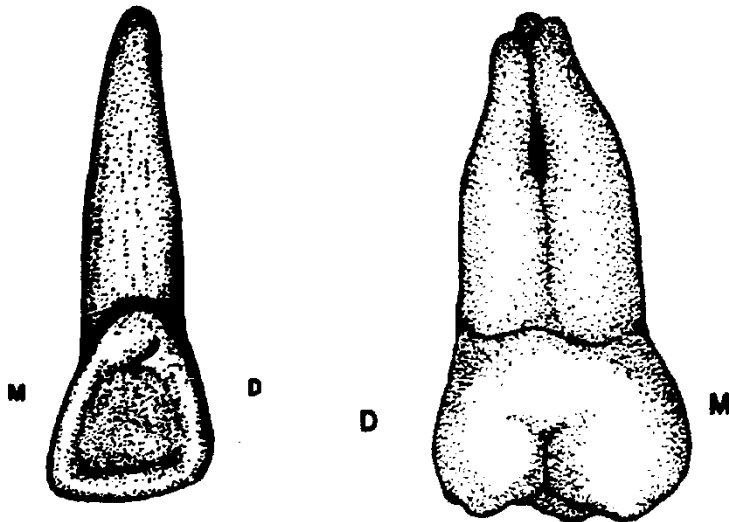
Lingual Surface



Palatal

(palate)

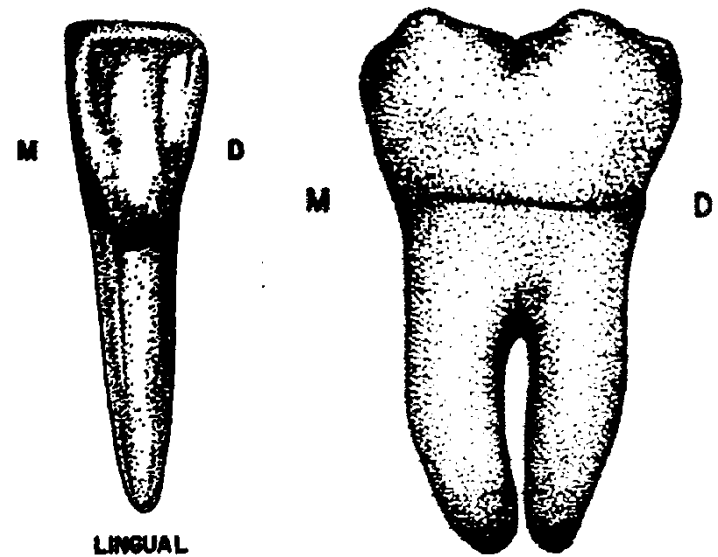
for maxillary teeth



Lingual

(tongue)

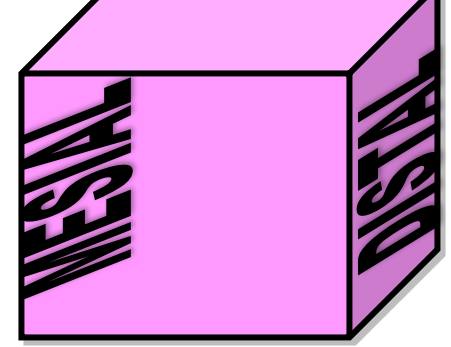
for mandibular teeth



Proximal Surface

- **Proximal Surface:** It is the surface of the tooth that faces the neighboring tooth's surface in the same arch. Each tooth has two proximal surfaces (mesial and distal).
- The **mesial proximal surface** of a tooth is closest to the midline of the face.
- The **distal proximal surface** faces away from midline.

Proximal Surface



Mesial

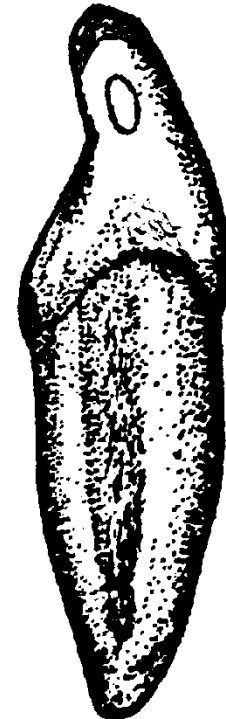
(toward midline)



MESIAL

Distal

(away from midline)



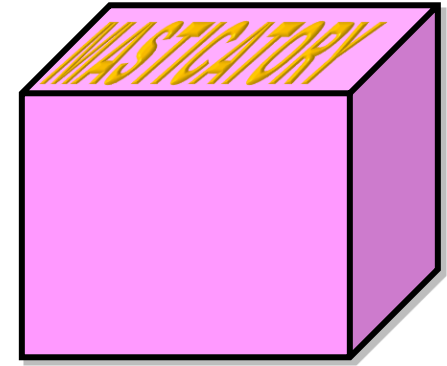
DISTAL

for all the teeth

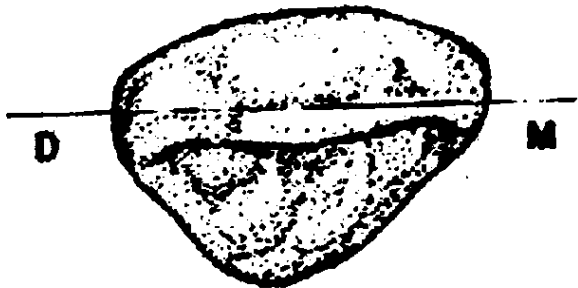
Masticatory Surface

- The **masticatory** or **biting** Surface:
- The **occlusal** surface: - It is the fifth surface of the posterior teeth.
- The **incisal** surface:-It is the fifth surface of the anterior teeth.

Masticatory Surface

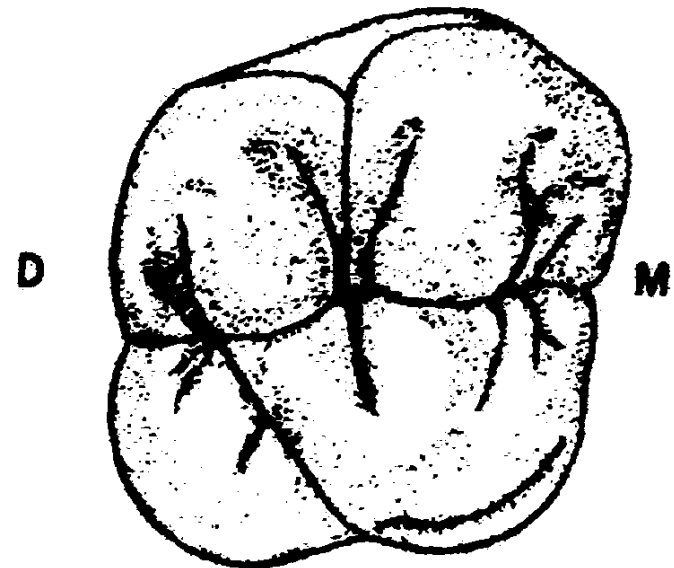


Incisal



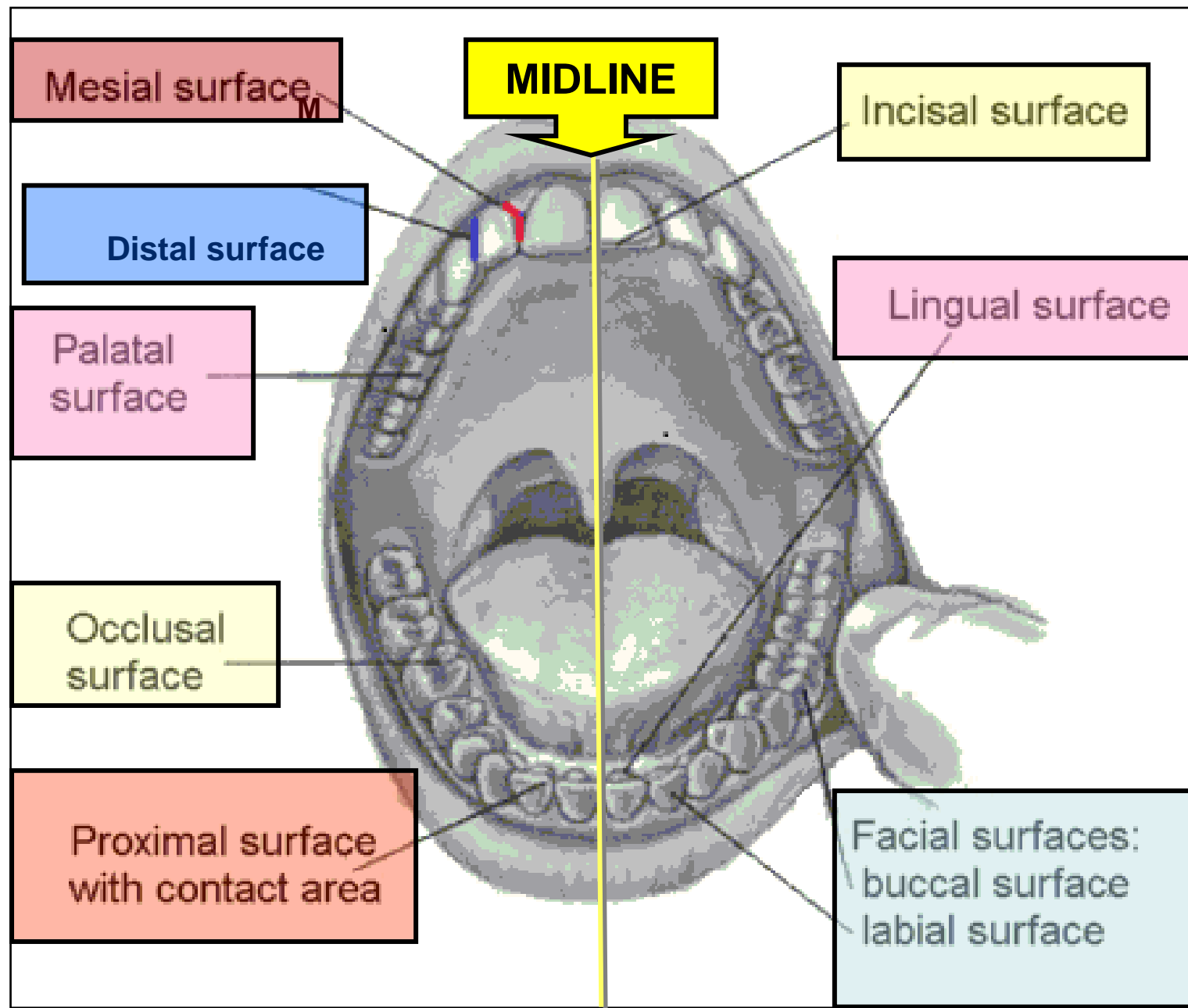
For anterior teeth

Occlusal



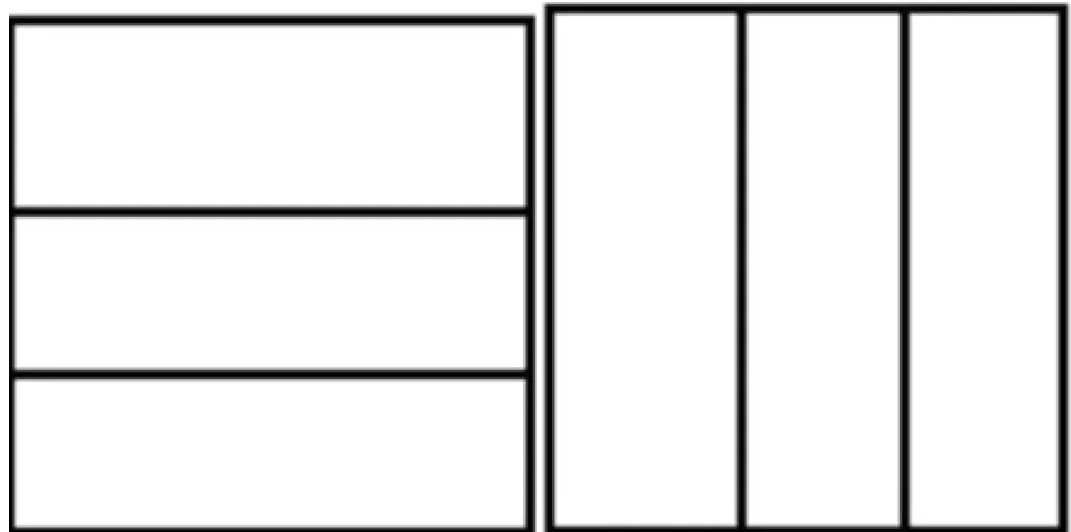
For posterior teeth

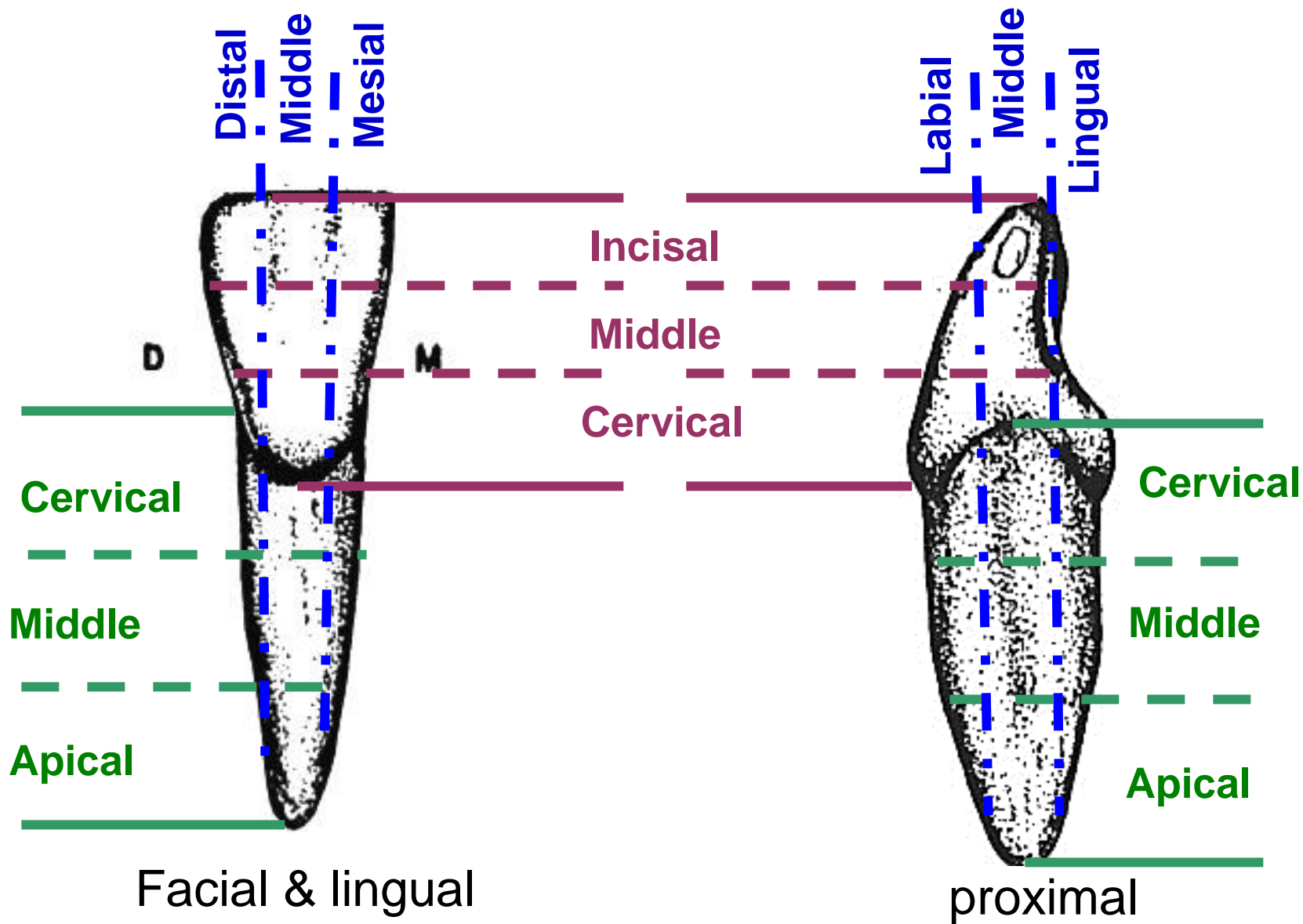
- The surfaces are identified by the relationship to other orofacial structures.

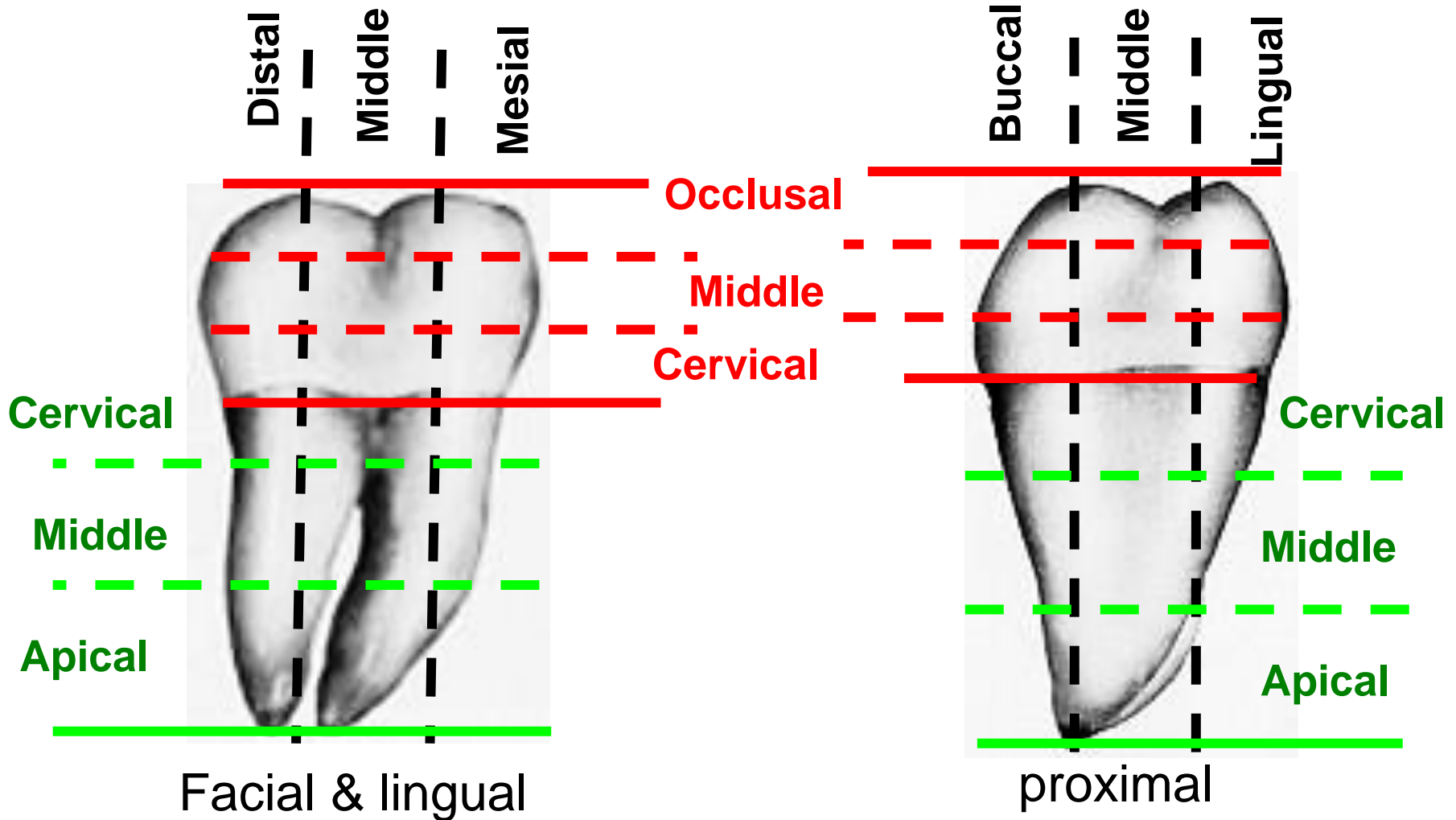


Division of surfaces Into Thirds

- For descriptive purposes (to locate the anatomical landmarks)
- For crown surfaces & the root
- Divided horizontally or vertically into three portions or thirds.

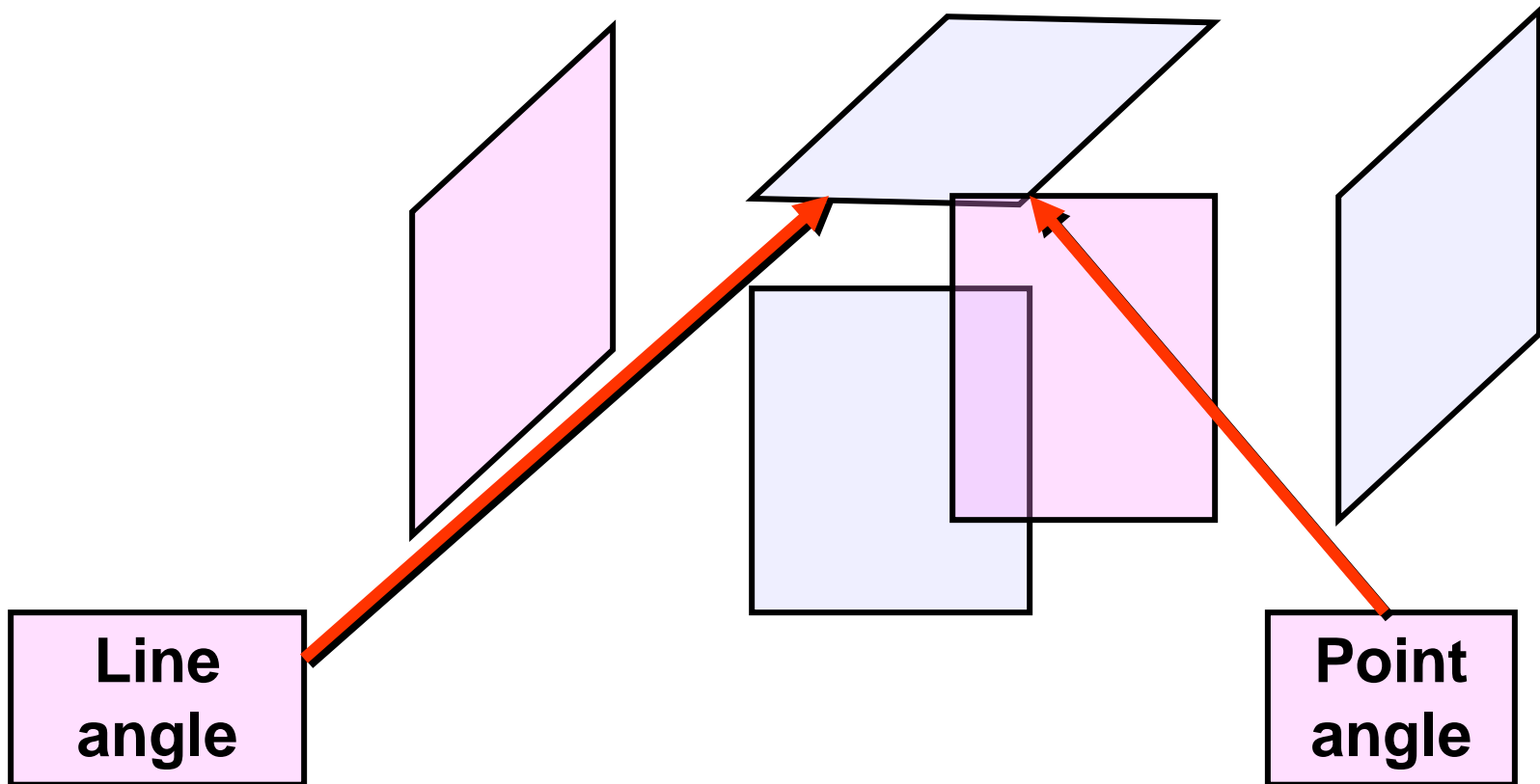






For posterior teeth

Line & Point Angles



Incisal Edge

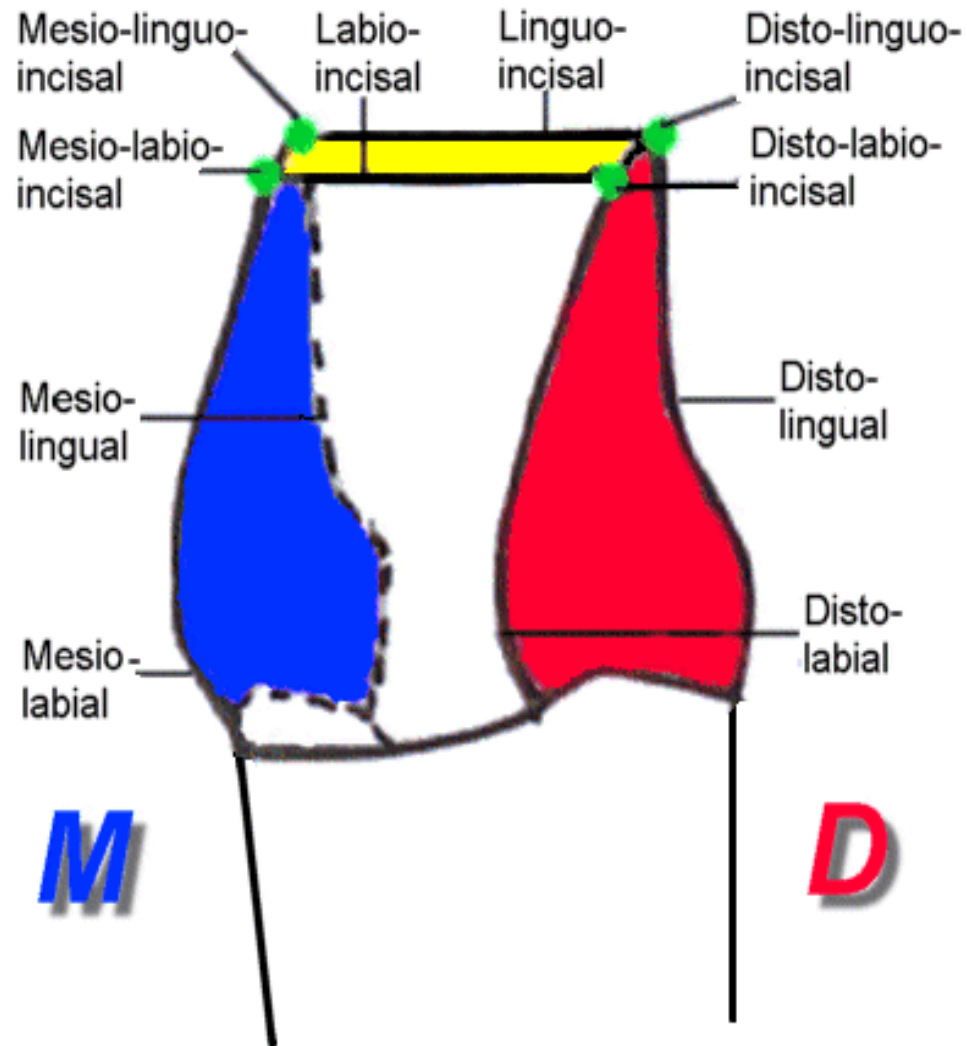
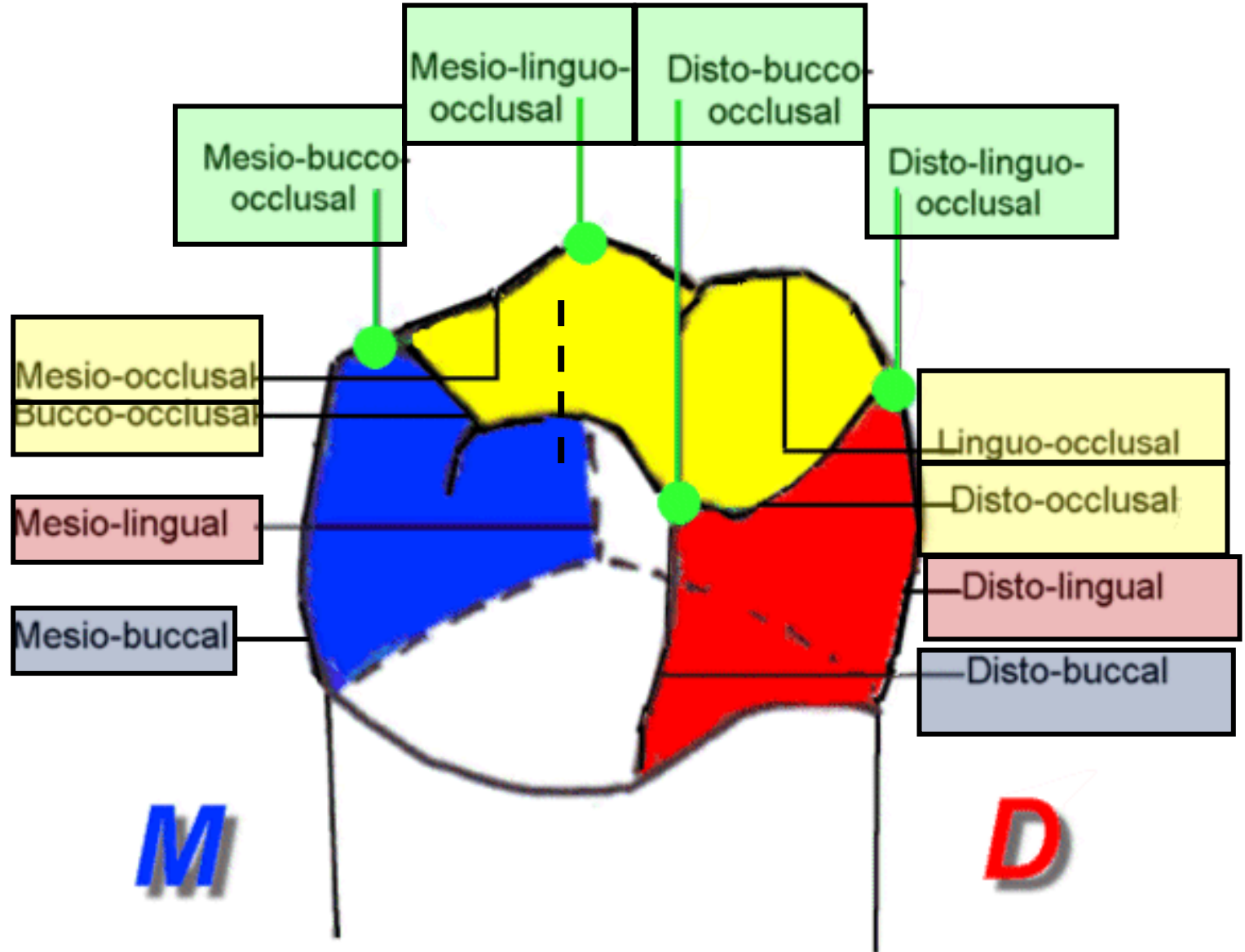


Fig. 9: Line and point angles of anterior teeth.



Line and point angles of posrterior teeth

Thank You
So Much

