



(1) Introduction and Nomenclature

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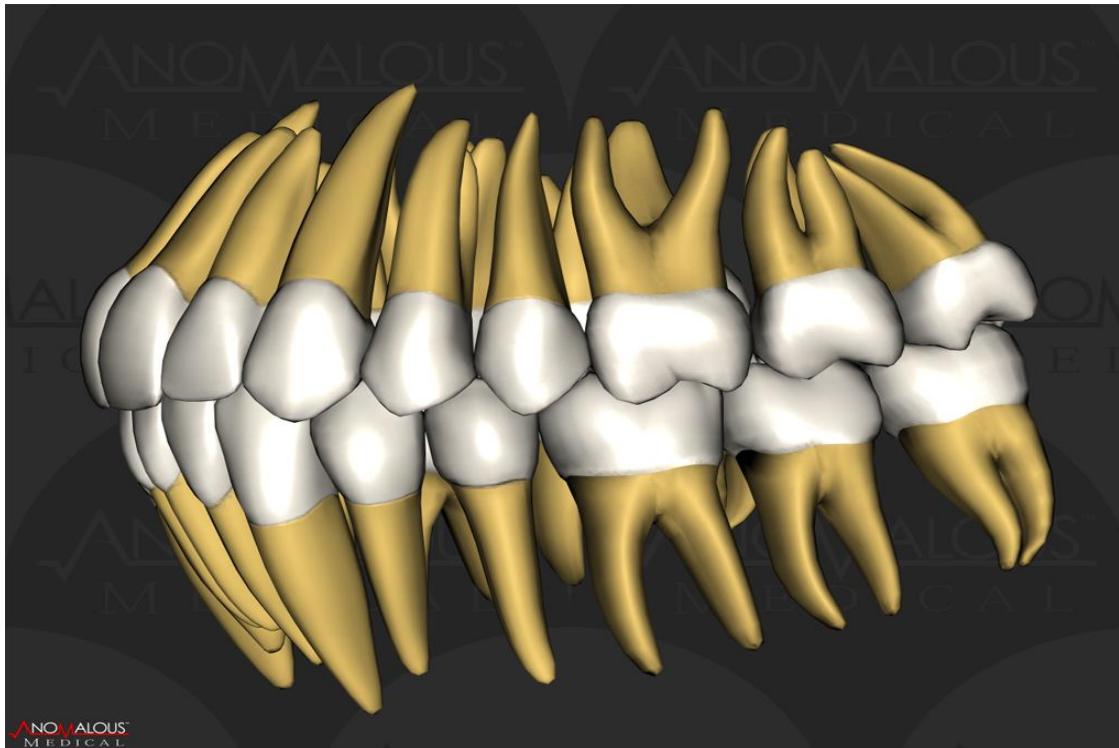
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Human Dentition

Dental Morphology, Dental Anatomy

Definition

general arrangement & anatomy of the human teeth



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

نفسي اثنان مع مرآة → mirror

وأنا كل بسي مجهزة بعين ومرآة شهاد

مرحلة انتقالية
Temporary

III. Two sets

Deciduous = Primary = Milky

Permanent = Secondary = Adult

IV. Two Classes

Anteriors (incisors + canines)

Posterior (premolars + molars)

Dental Arches And Quadrants



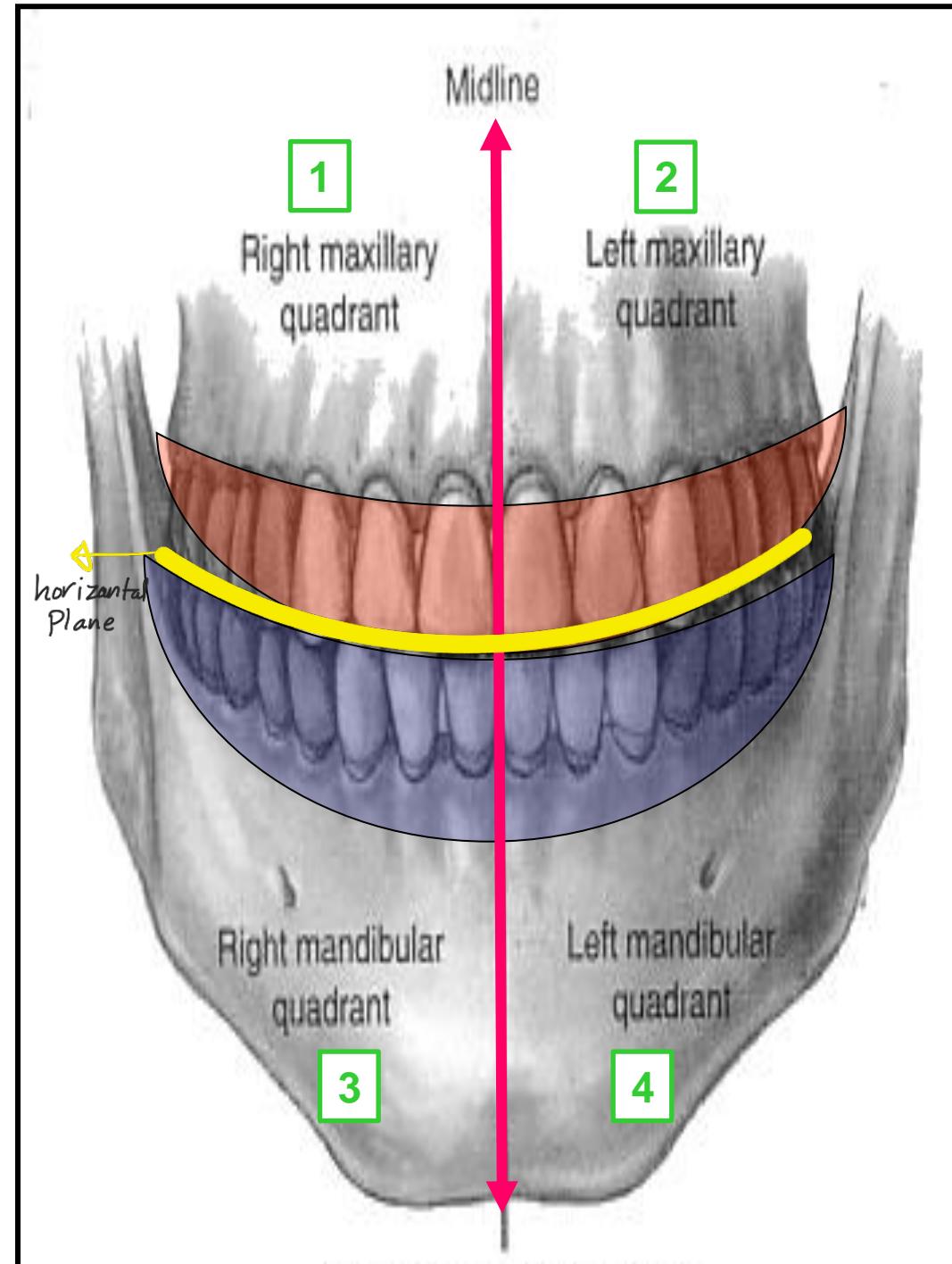
-The **Upper** arch is called the **Maxilla**

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.

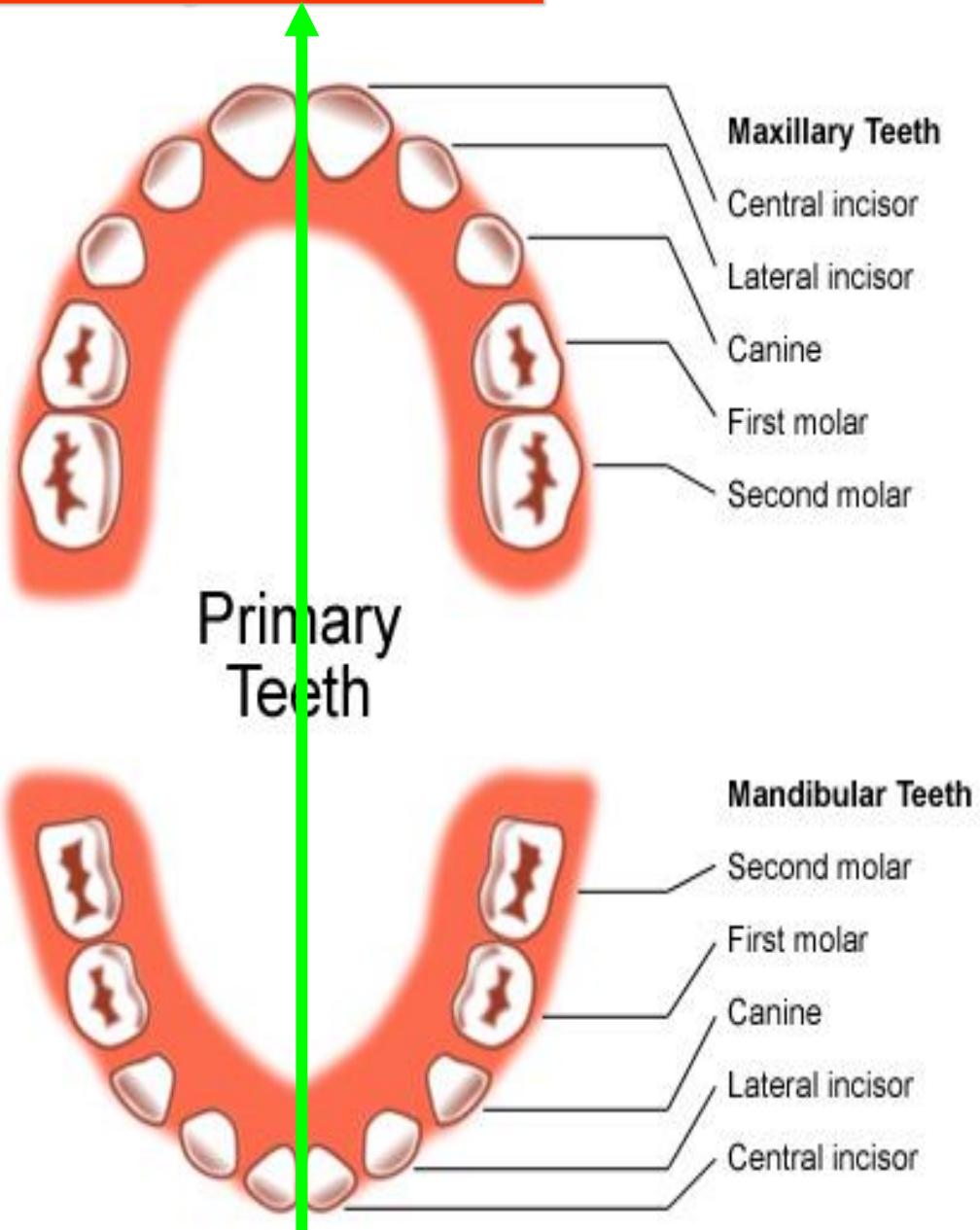
خواط

1 canine.

ناب

and 2 molars.

طحونه



2-The permanent dentition:

32 teeth,

16 maxillary &

16 mandibular.

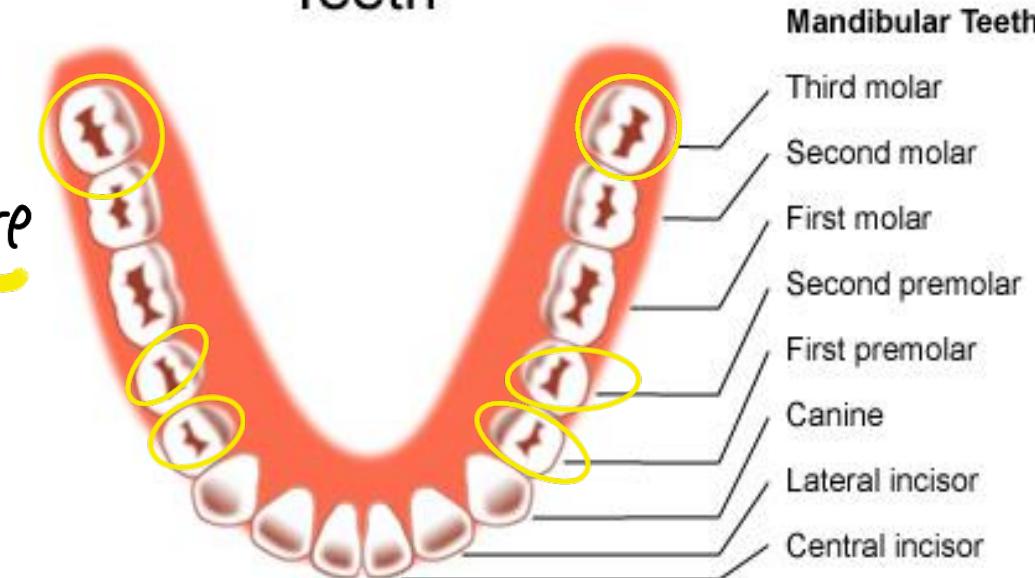
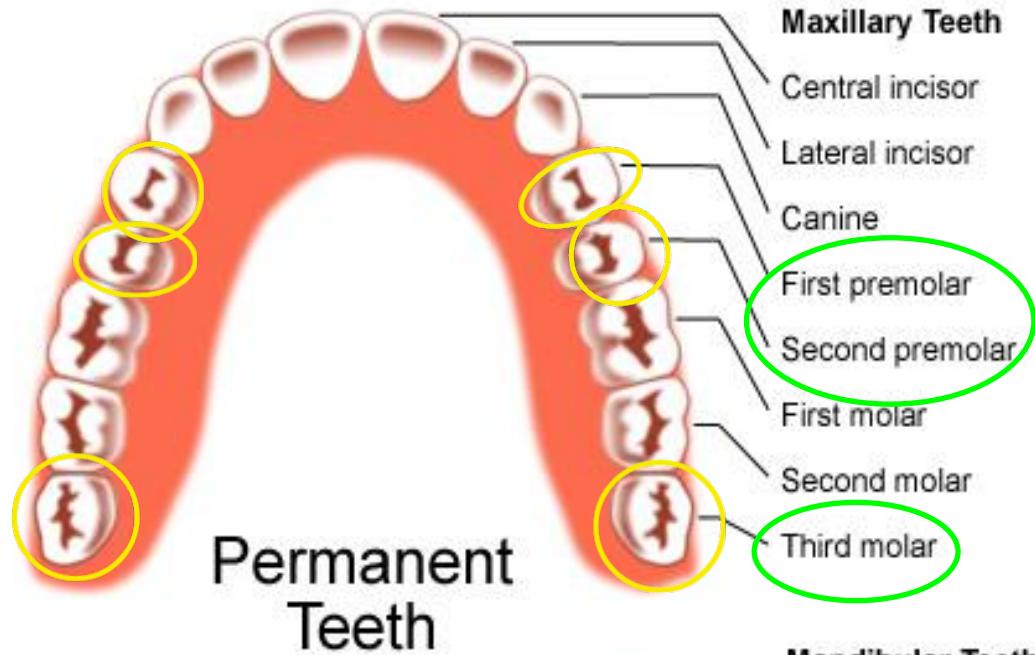
8 teeth in each quadrant

2 incisors.

1 canine.

2 premolars. *هنا الفرق*

and 3 molars. *→ 1 molar morph*



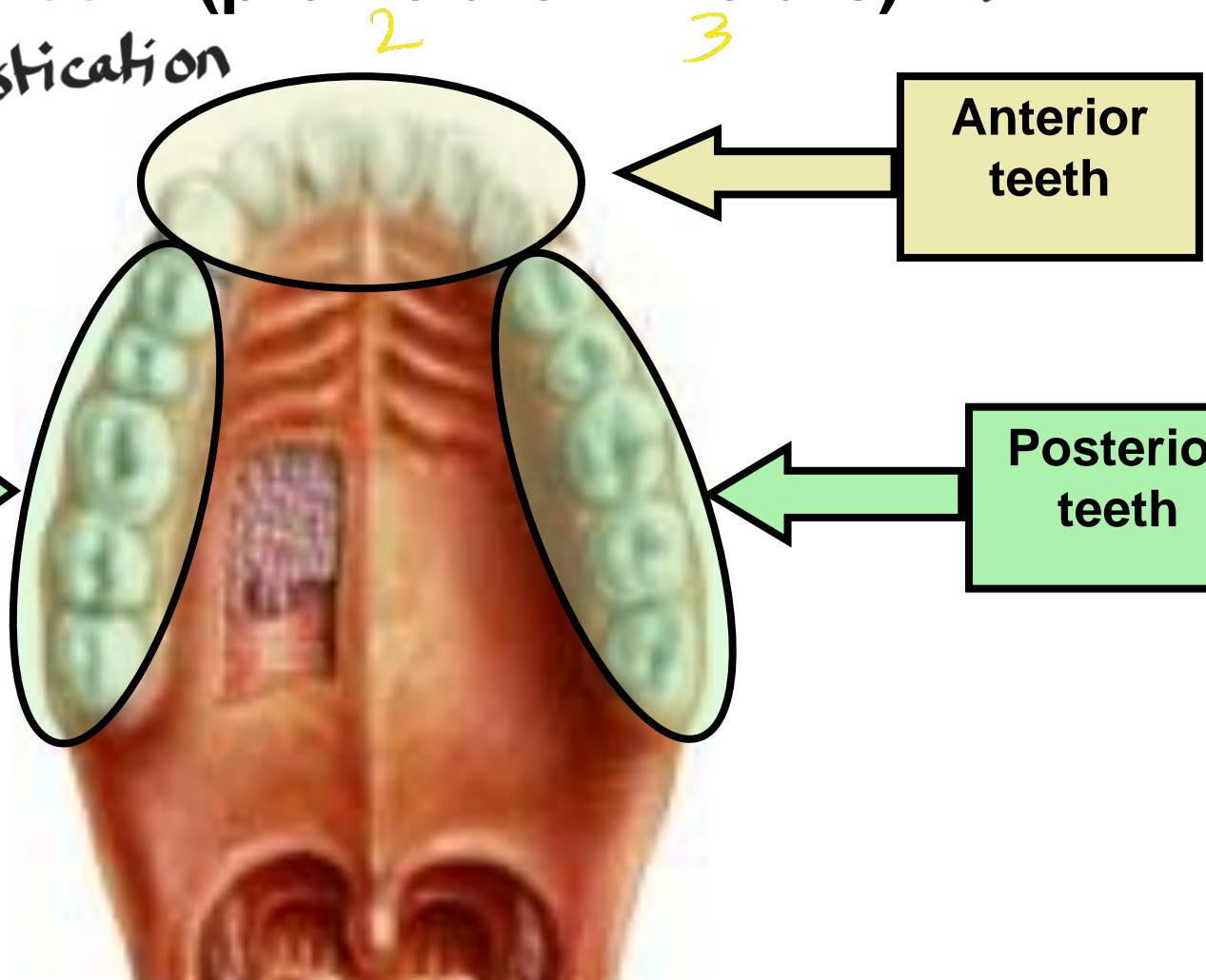
Classes of Teeth

→ with different function

The teeth in the arch can be grouped as follow:

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

→ together mastication



Posterior teeth

Posterior teeth

Anterior teeth

من امتحان
midline

Order of Nomenclature

(arch , side, set ,tooth)

= tooth identity

* يمينك شمال المريض
* شمالك يمين المريض

Examples:-

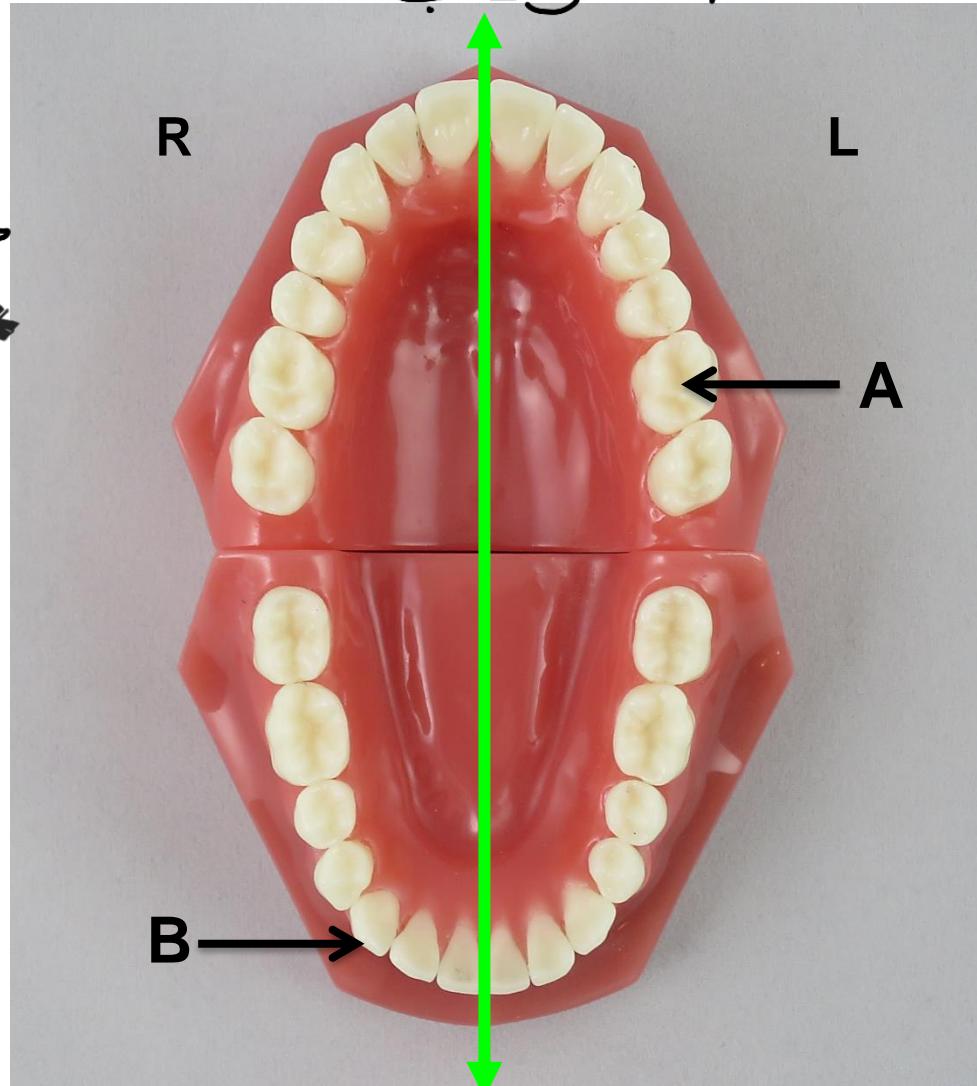
A) Upper (maxillary) left

permanent first molar

B) Mandibular right permanent

canine

زیگ میانی
کارزم بالترست



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

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

3) Secondary Dentition [permanent] period:

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



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

غير مسبقة بأسنان قابلها





* لوالعظام (كتش من 10 mixed



1st molar

Adult



Function Of Teeth

1- Mastication

مضخ



2- Appearance



3- Speech



4- Growth of jaws

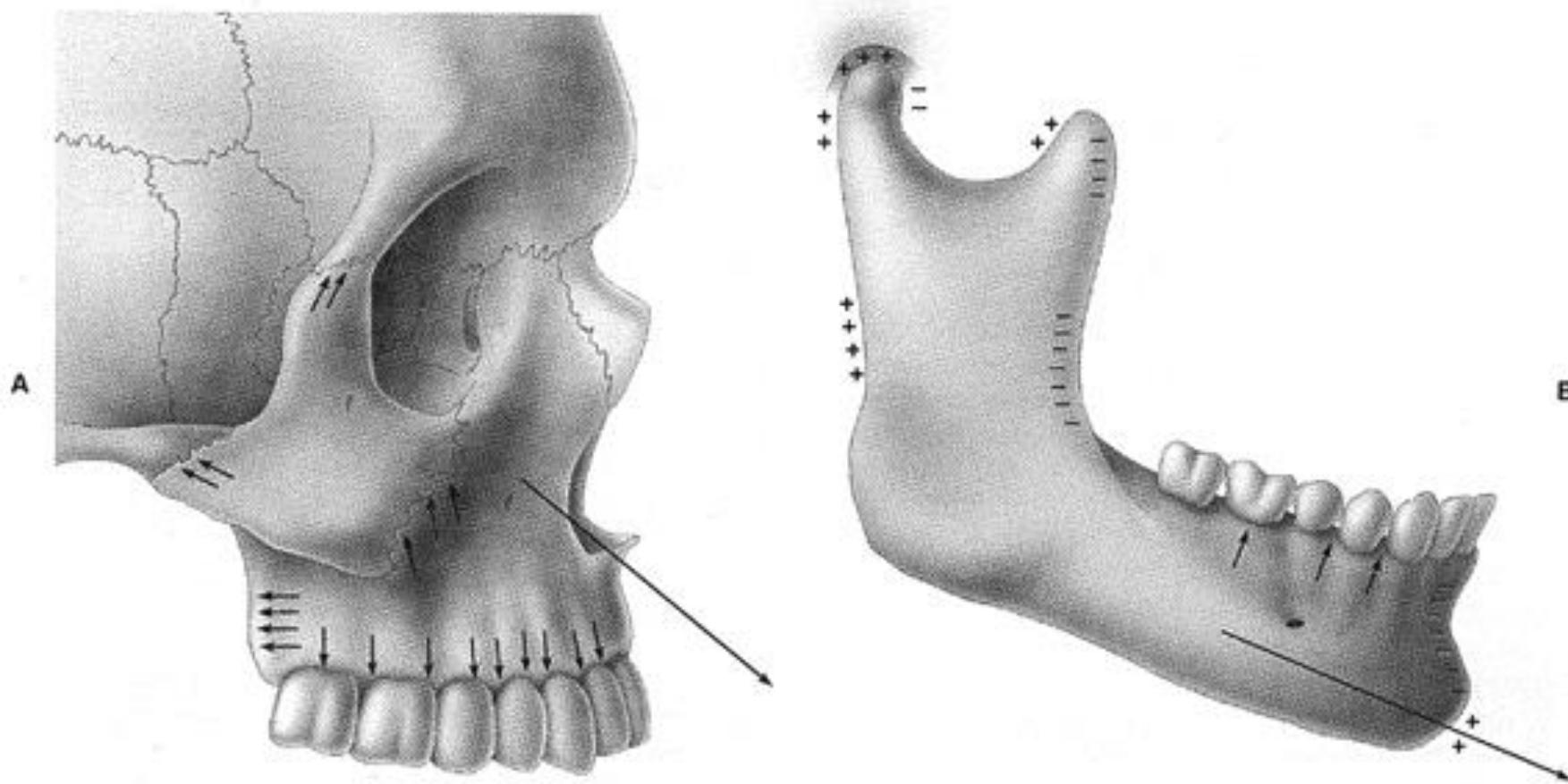


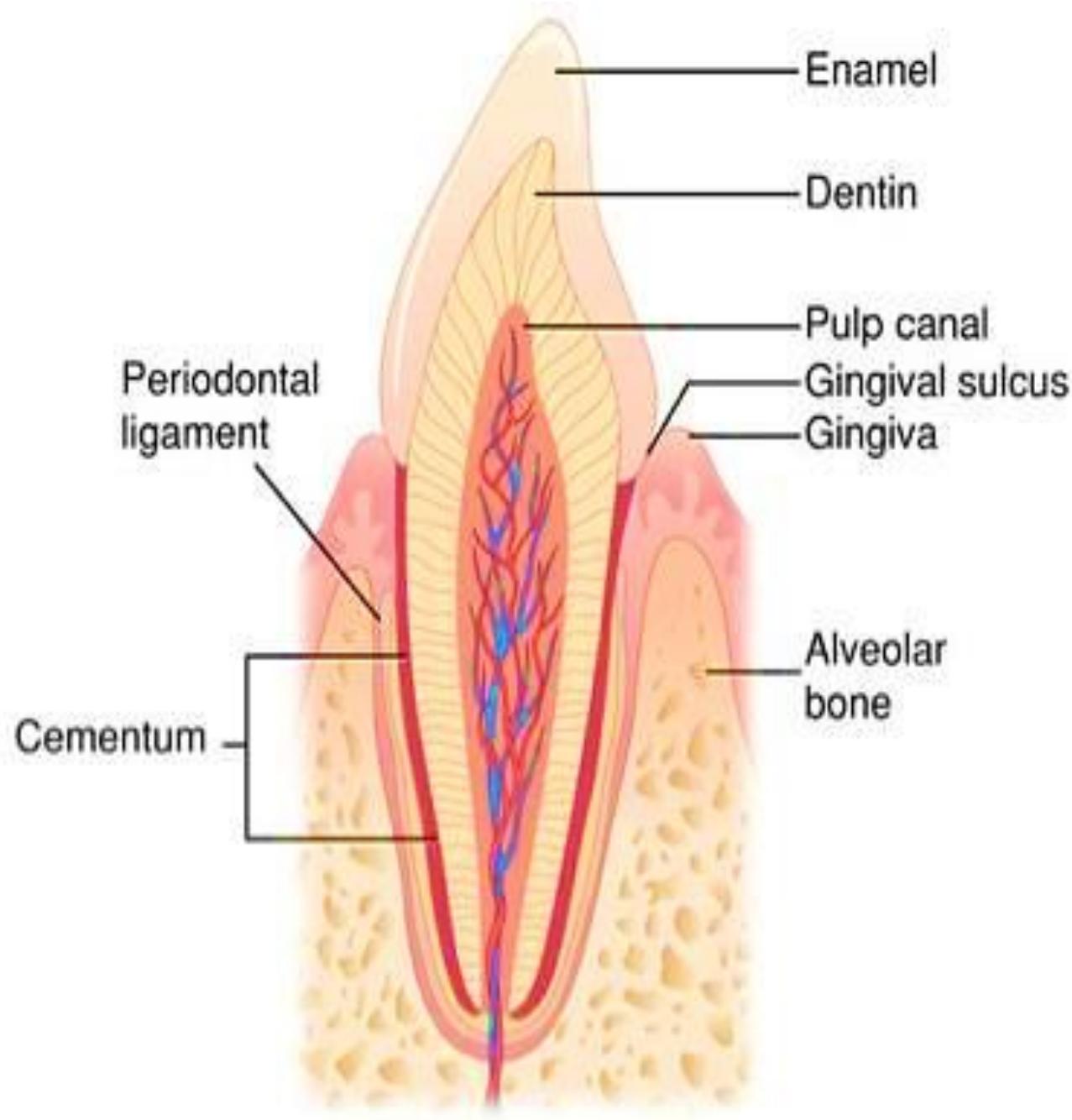
Figure 4-2 **A**, Different aspects of the growth of the nasomaxillary complex. **B**, Different aspects of the growth of the mandible.

5- For animals



Morphological and structural features of the tooth





Simple Quiz

R

L

Upper right permanent
1st molar

B →

← **A**

Upper left permanent canine

Lower right permanent
lateral incisor

← **C** →

← **D**

Lower left * 2nd premolar

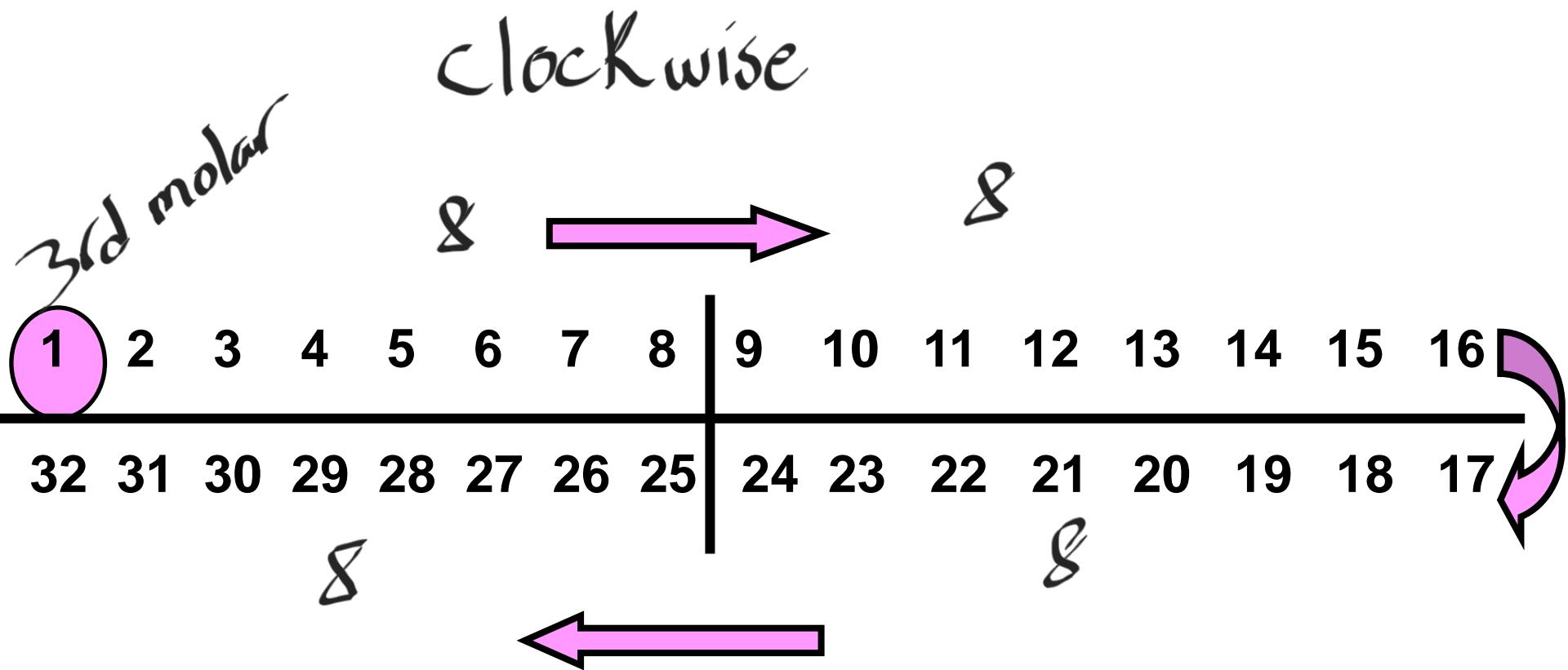
NUMBERING AND CODING SYSTEMS OF THE TEETH



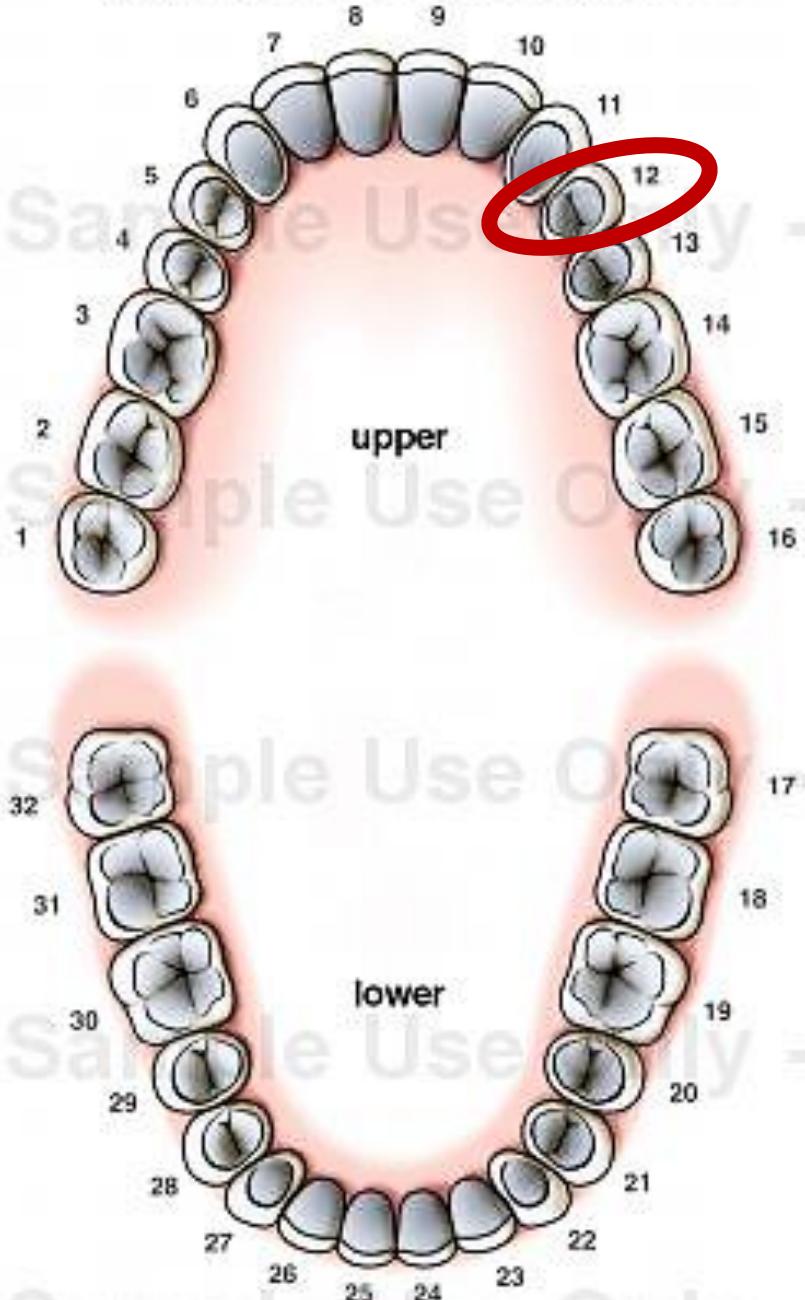
1) The universal numbering system

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

Permanent teeth (1 – 32)



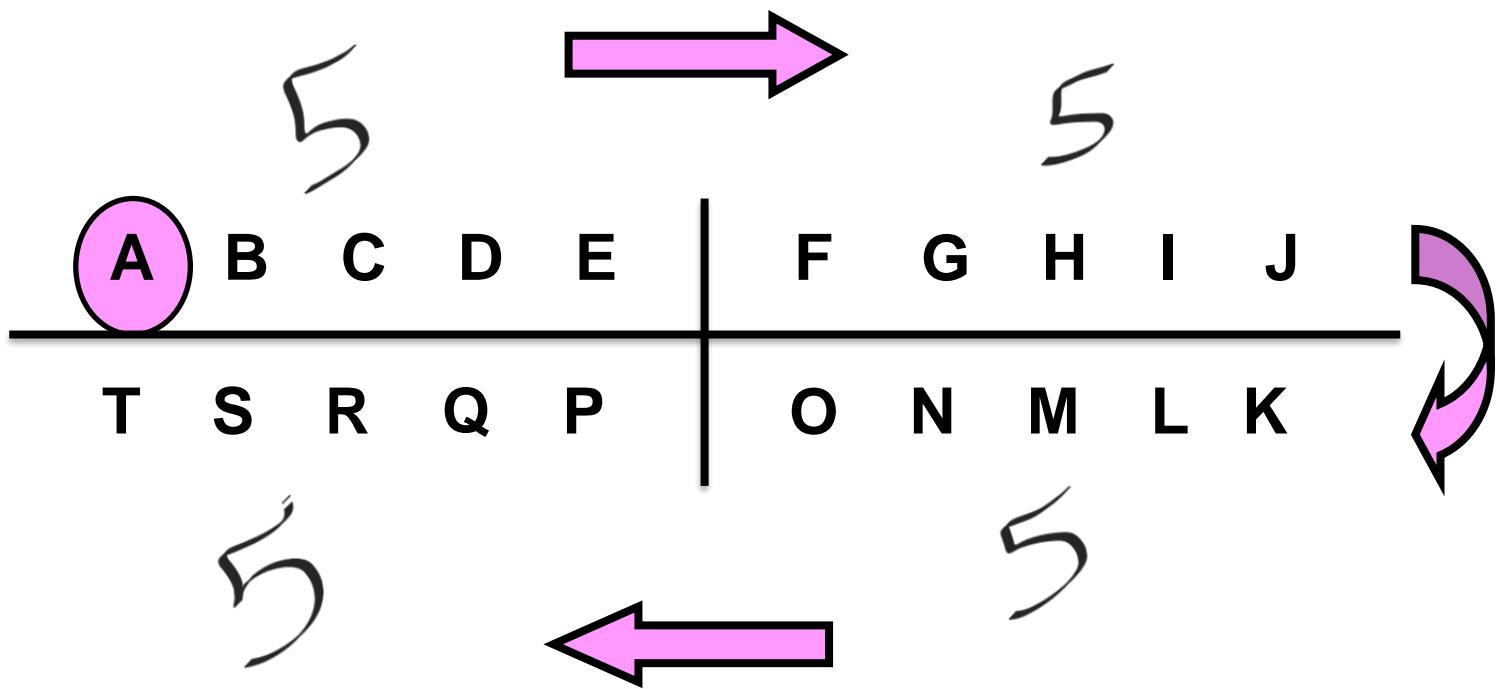
Permanent (Adult) Teeth Diagram
Permanent Teeth Diagram



#12

Permanent
maxillary left
first
premolar

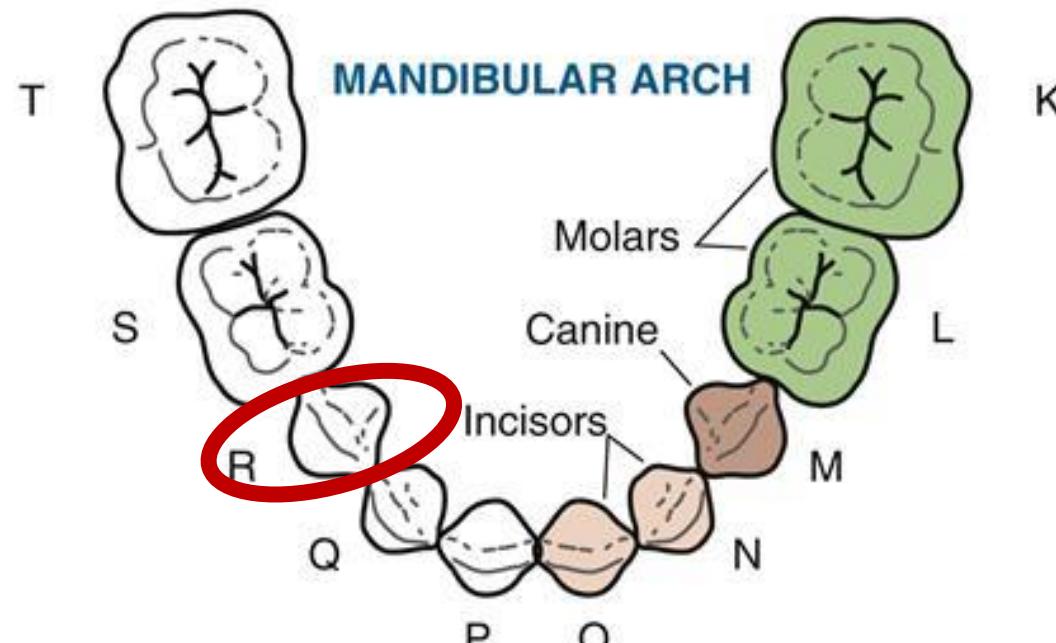
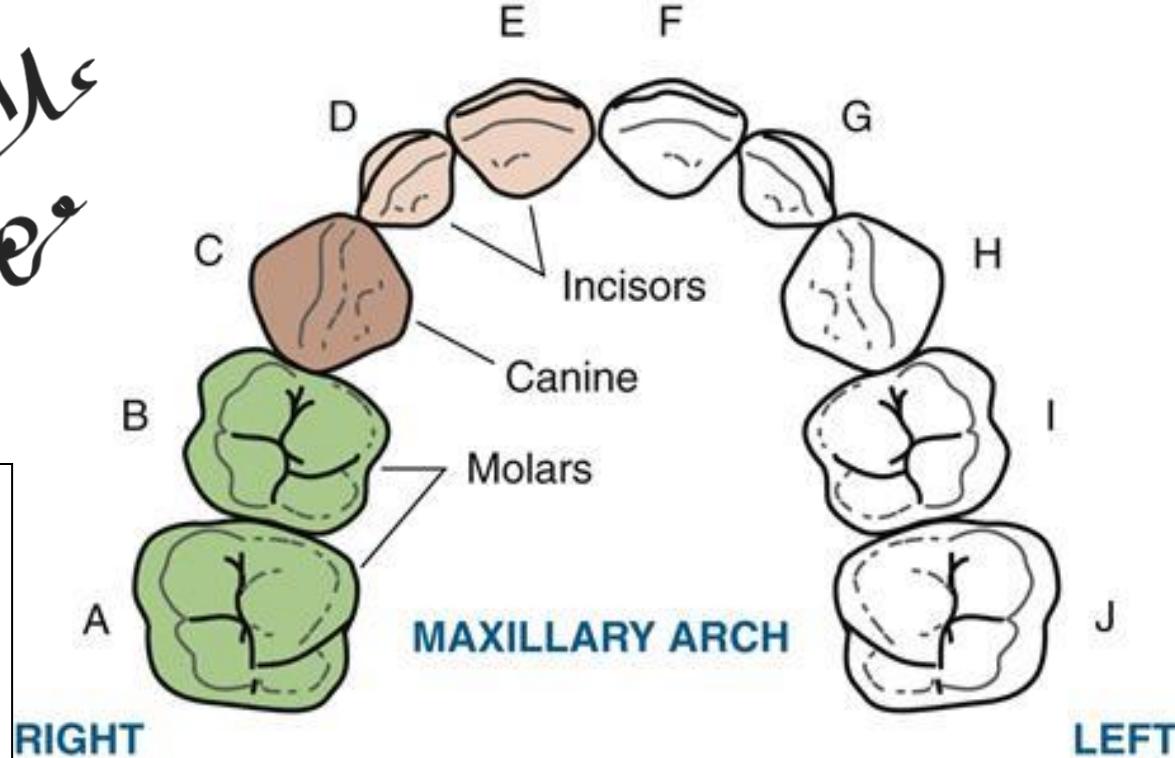
Deciduous teeth (A – T)



عَلَيْكُمْ الْحَمْدُ لِلّٰهِ رَبِّ الْعٰالَمِينَ

#R

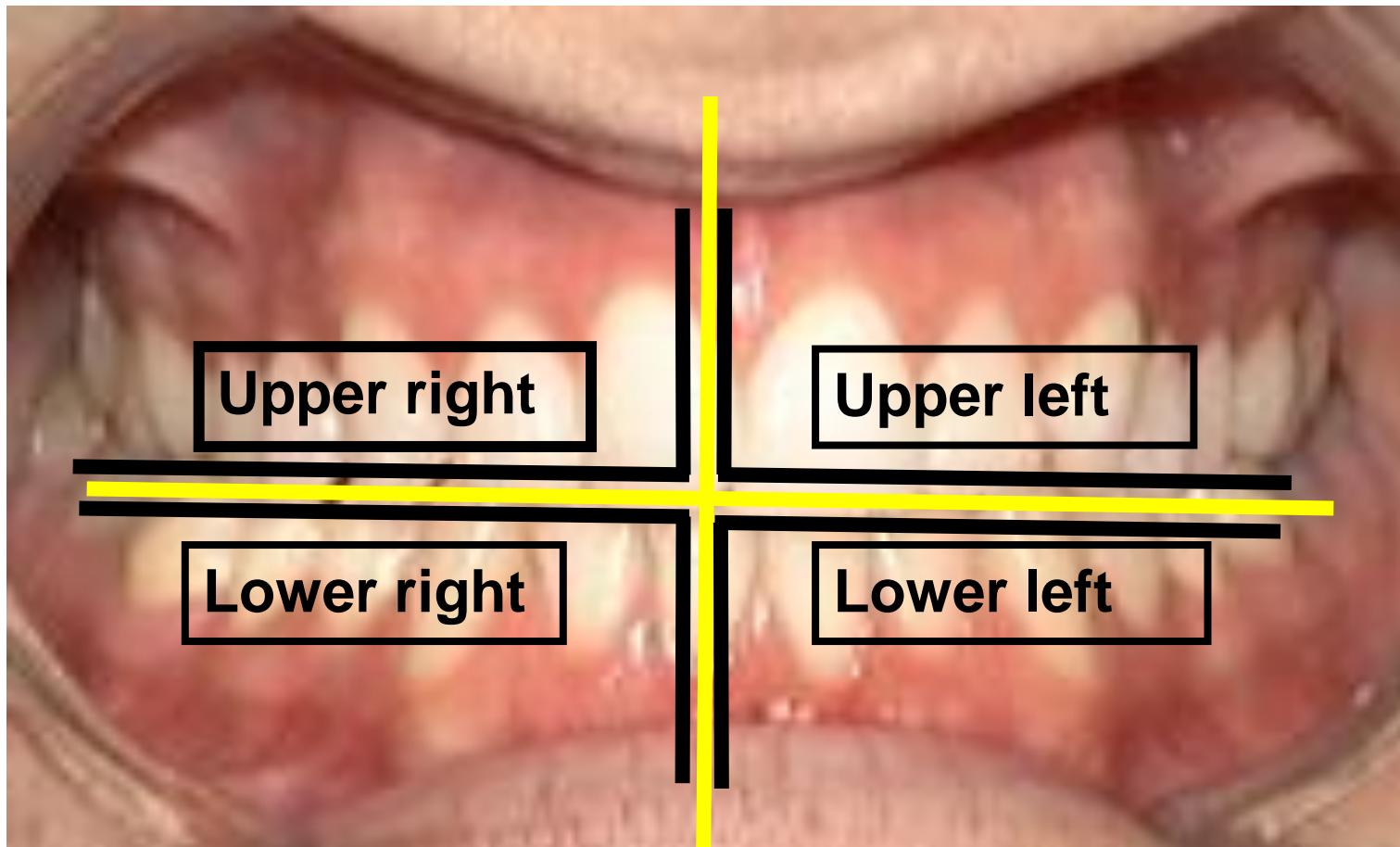
deciduous
lower right
canine



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.

Upper right

8 7 6 5 4 3 2 1

Upper left

1 2 3 4 5 6 7 8

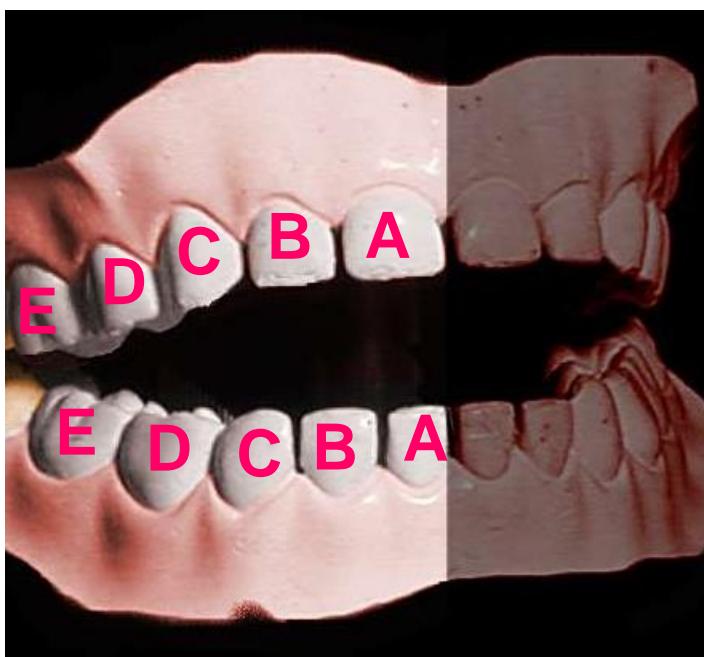
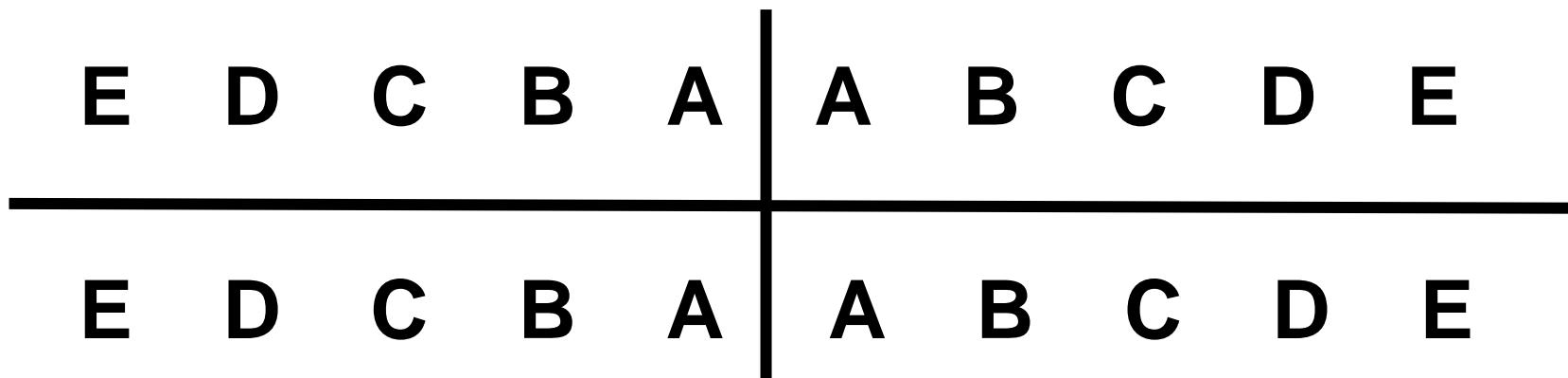
8 7 6 5 4 3 2 1

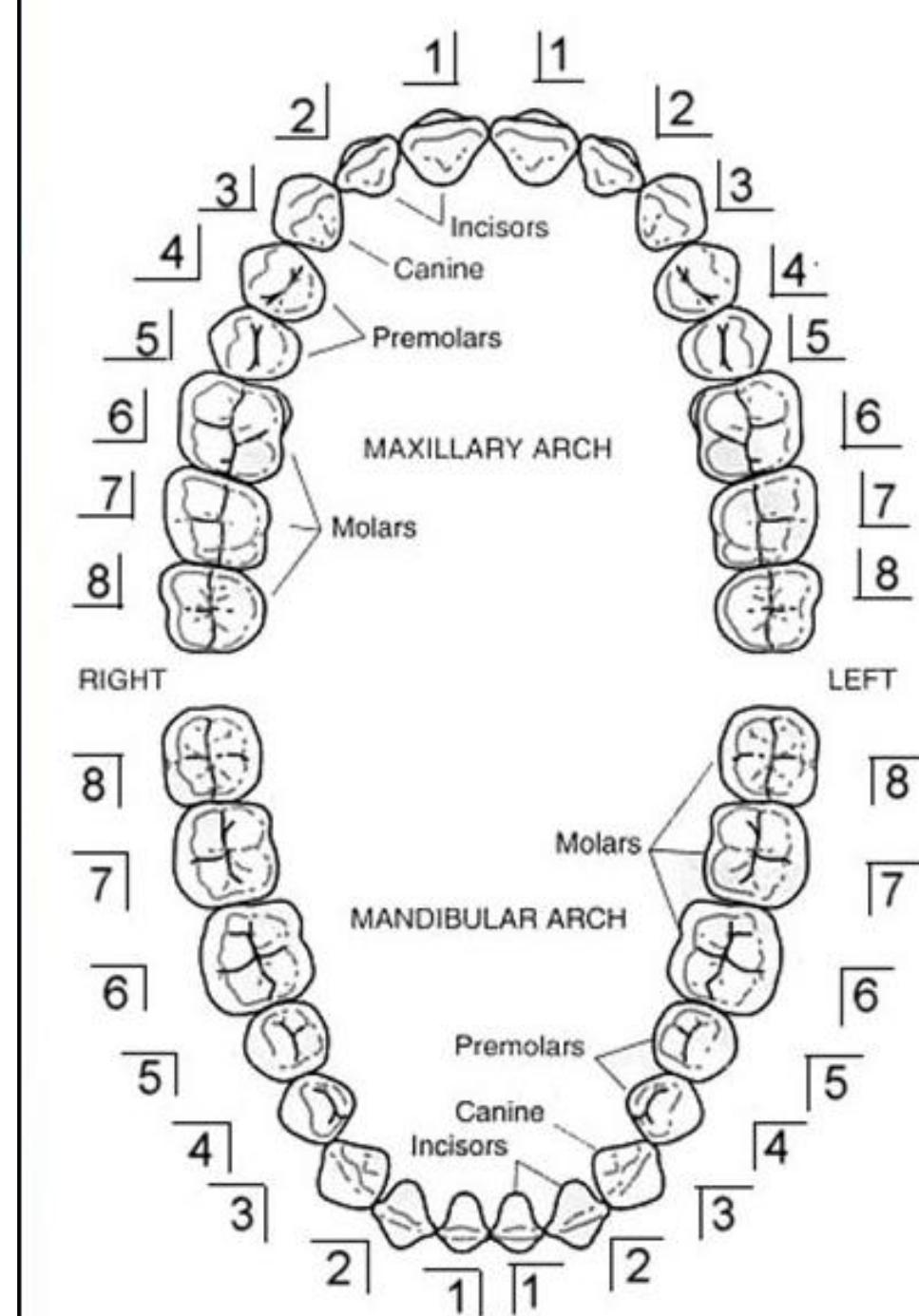
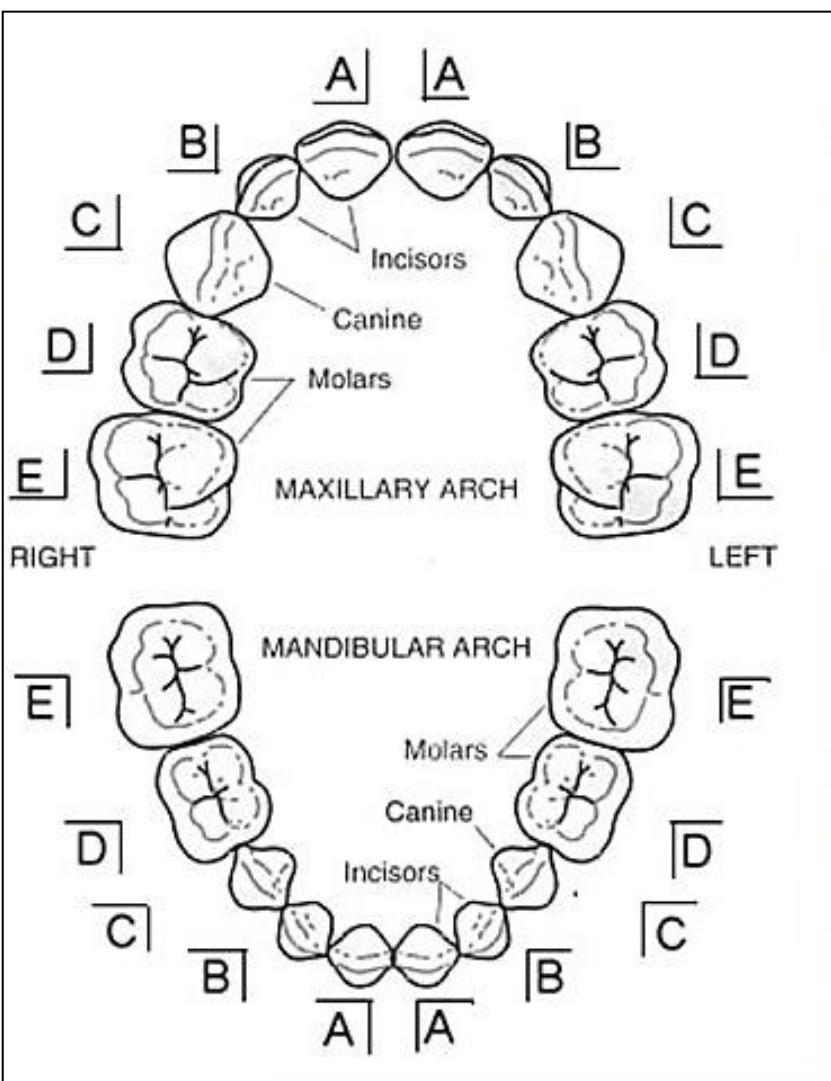
Lower right

Lower left



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

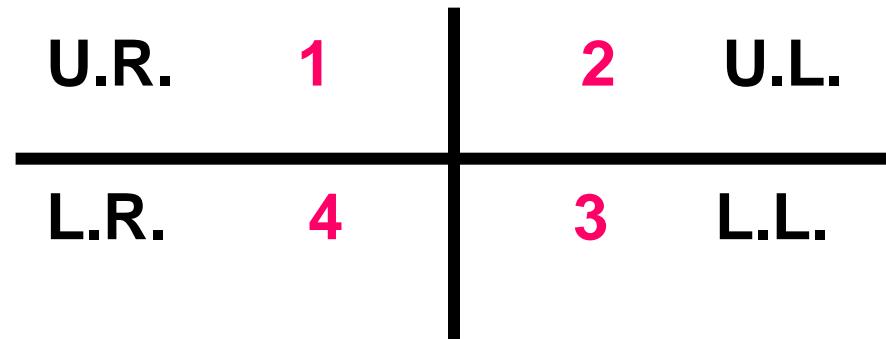




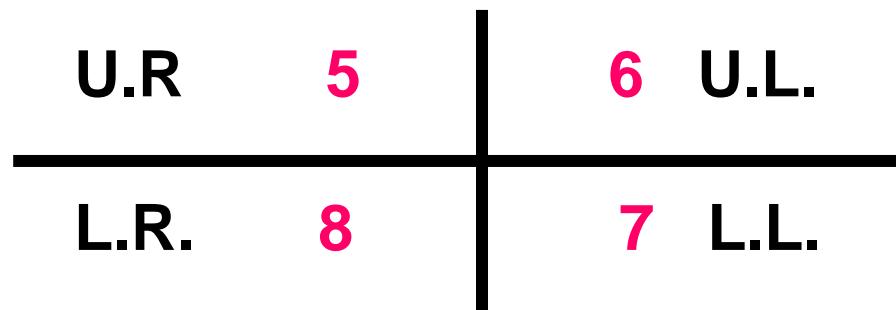
3- The Federation Dentaire internationale (FDI)

- 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.



In the deciduous dentition.



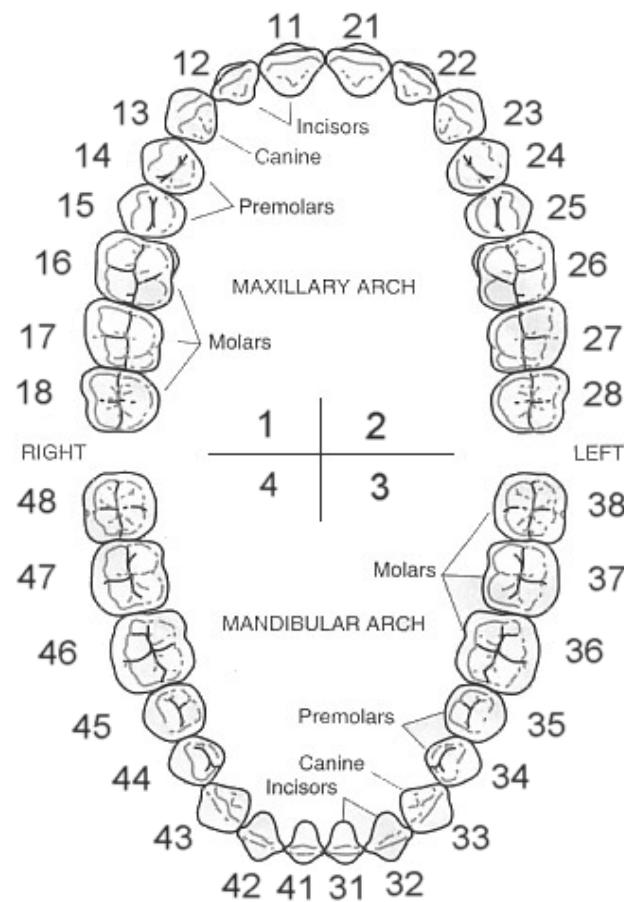
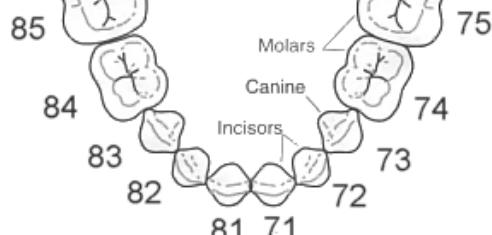
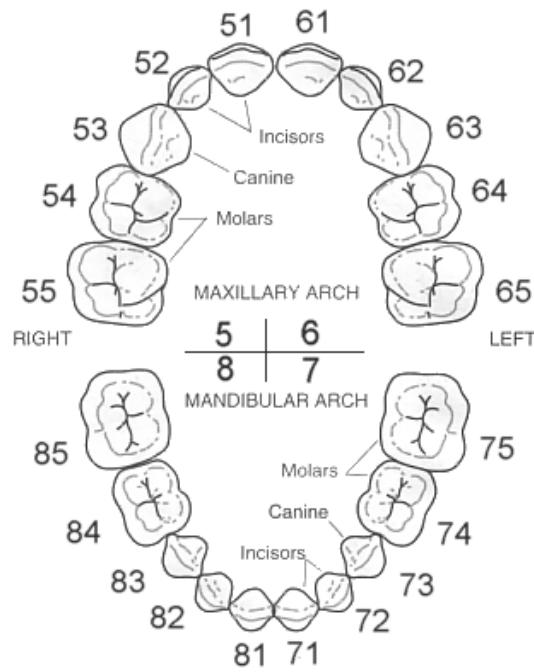
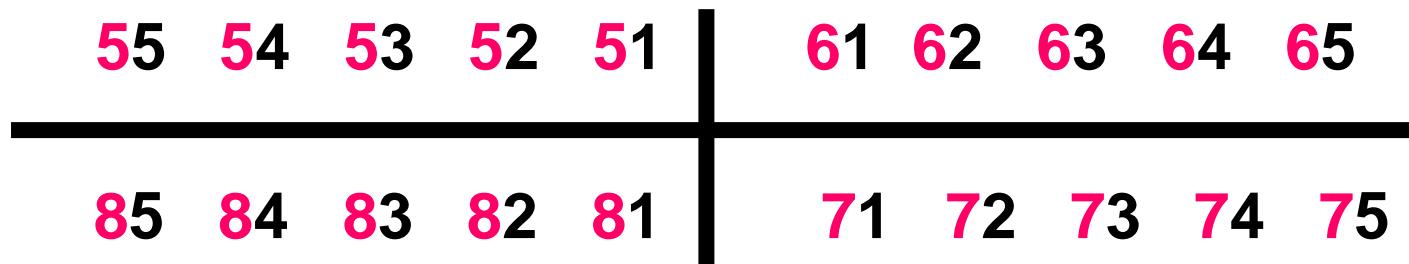
- The **second digit** is located at the **right side** and indicates the number of the tooth in the quadrant according to Palmer's.
- The two numbers should be pronounced separately.

بِرْوَنْ مَا حَسَّنَكُنْ

Permanent teeth

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

Deciduous teeth



Morphological and structural features

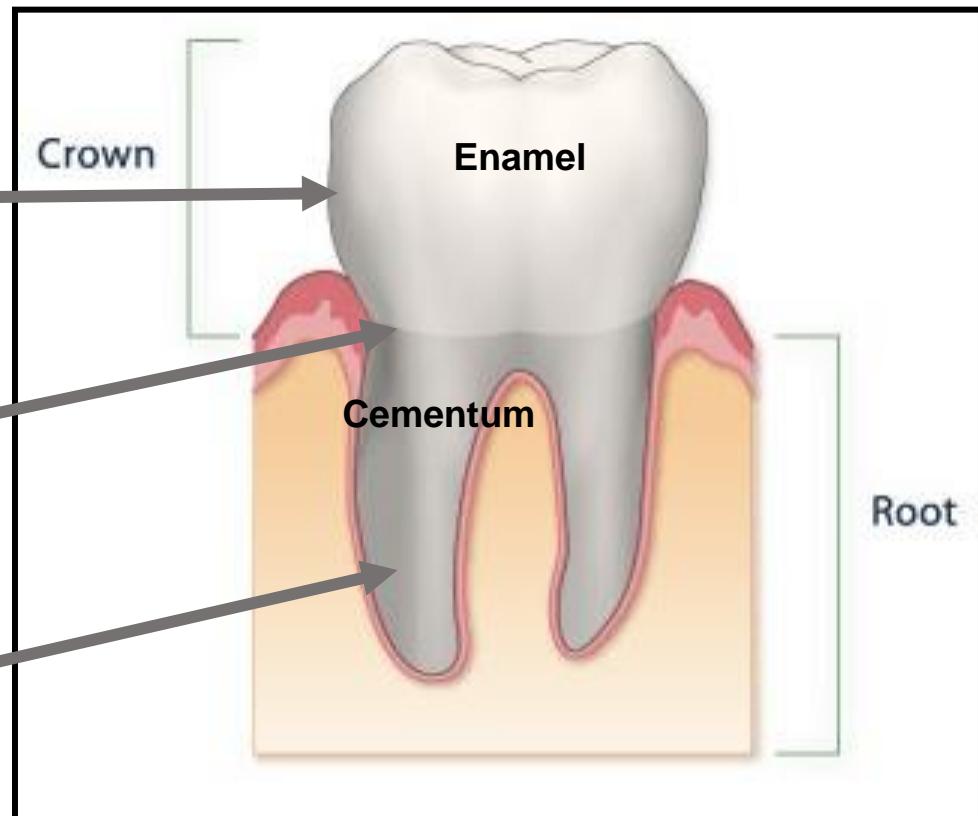
1- Macro-anatomy of the tooth

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

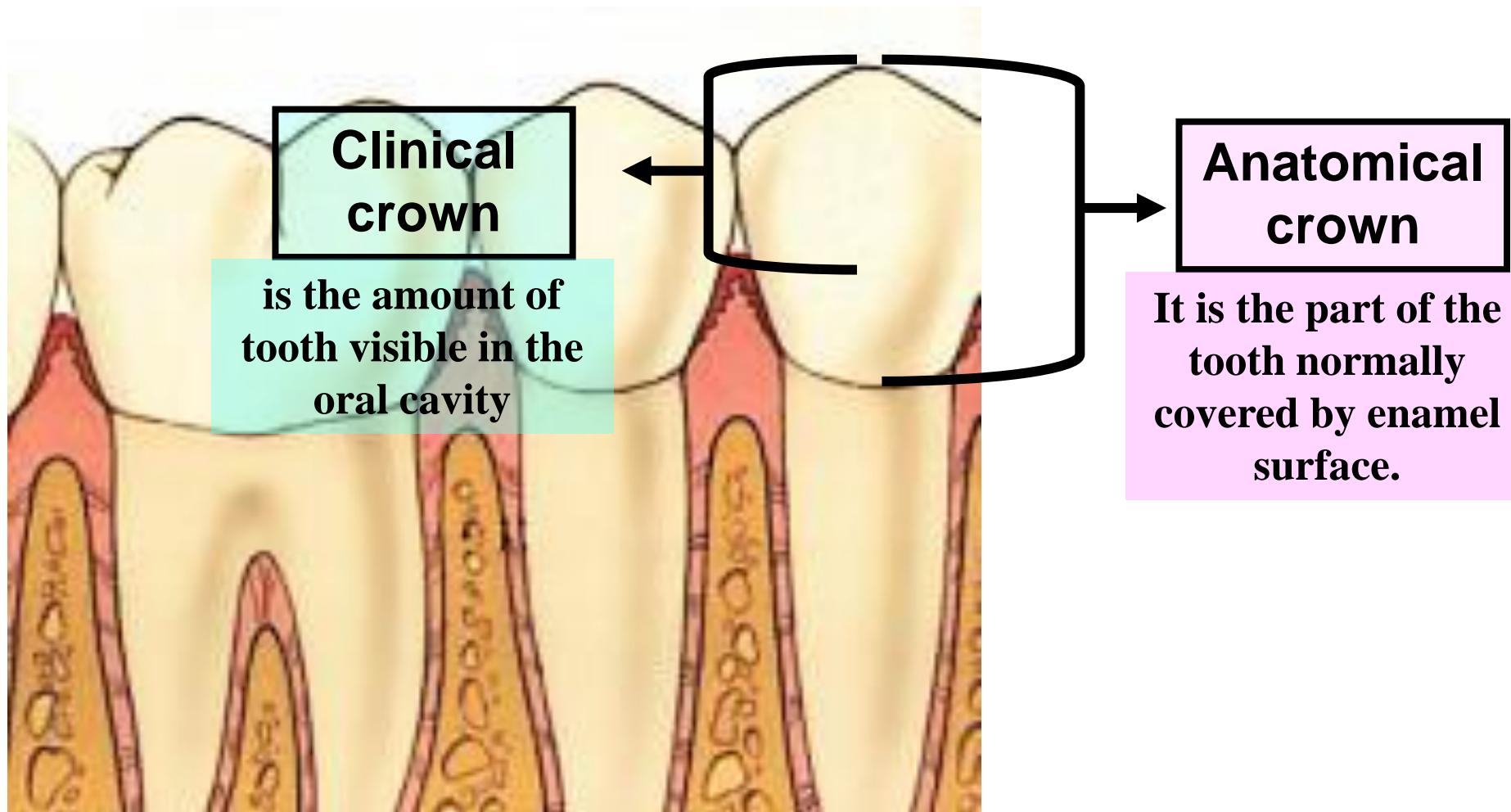
I. **Crown**

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

II. **Root (s)**



Anatomical & Clinical Crown



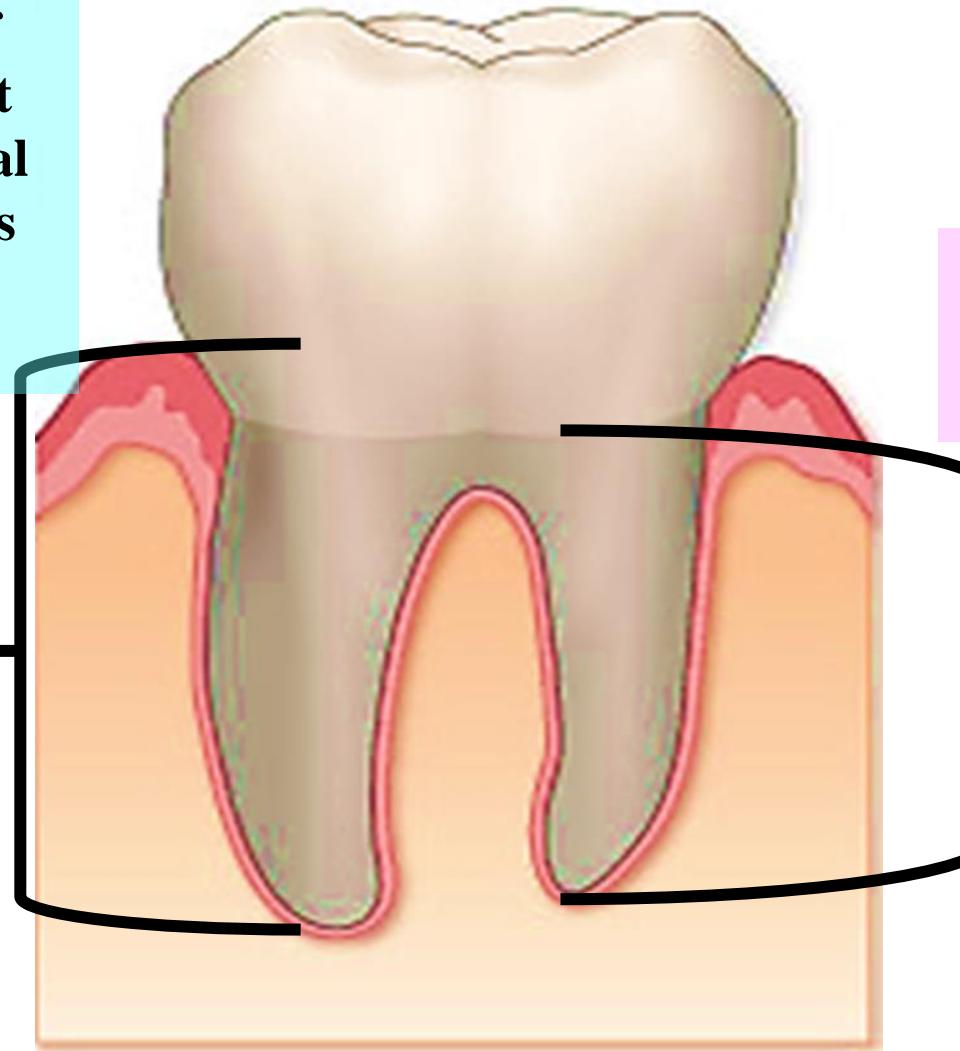
Anatomical & Clinical Root

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

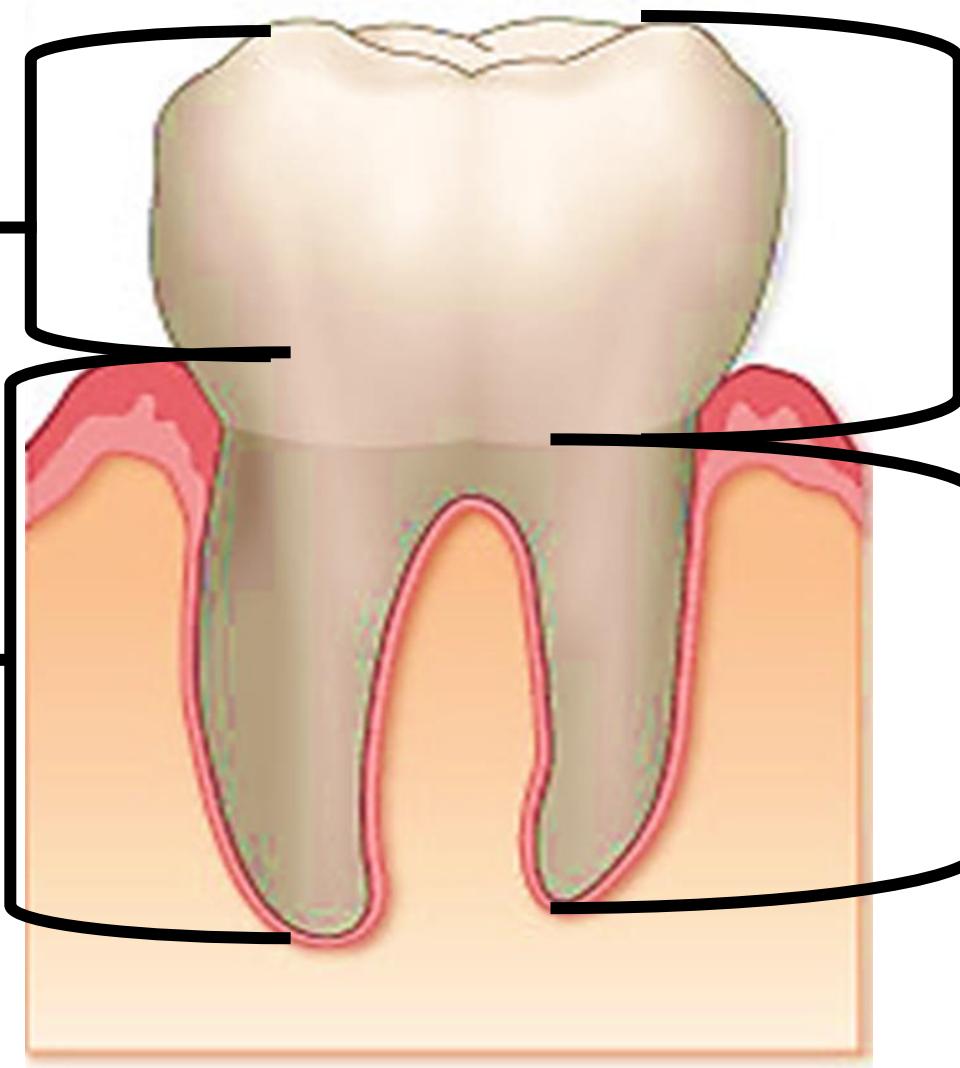
The part of the tooth covered by cementum surface

Clinical Root

Anatomical Root



Notice the difference carefully



**Clinical
crown**

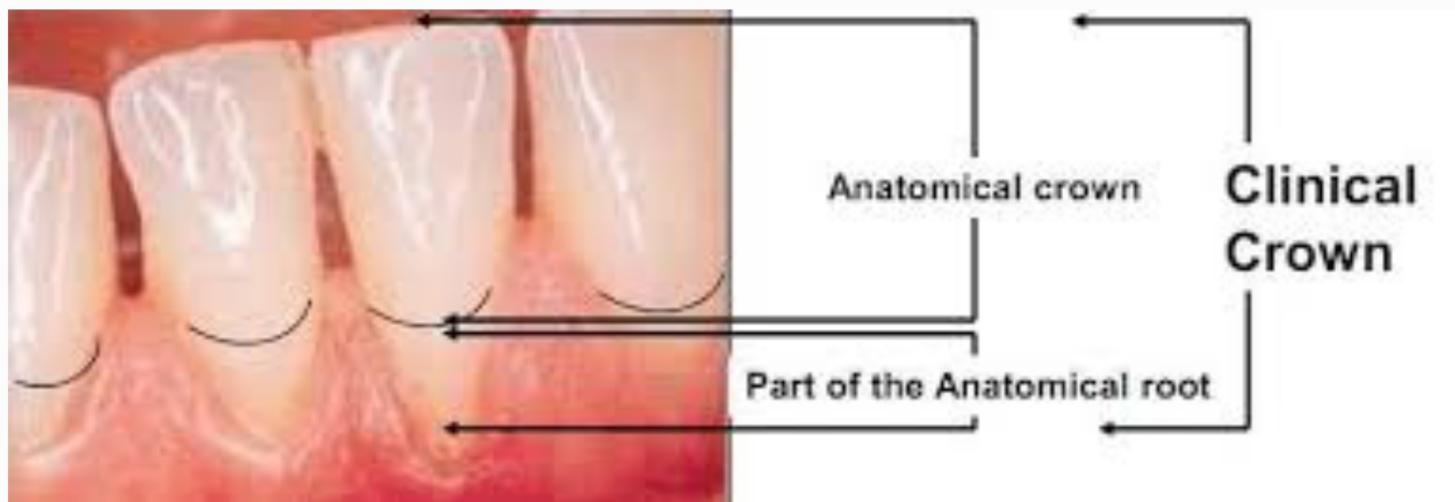
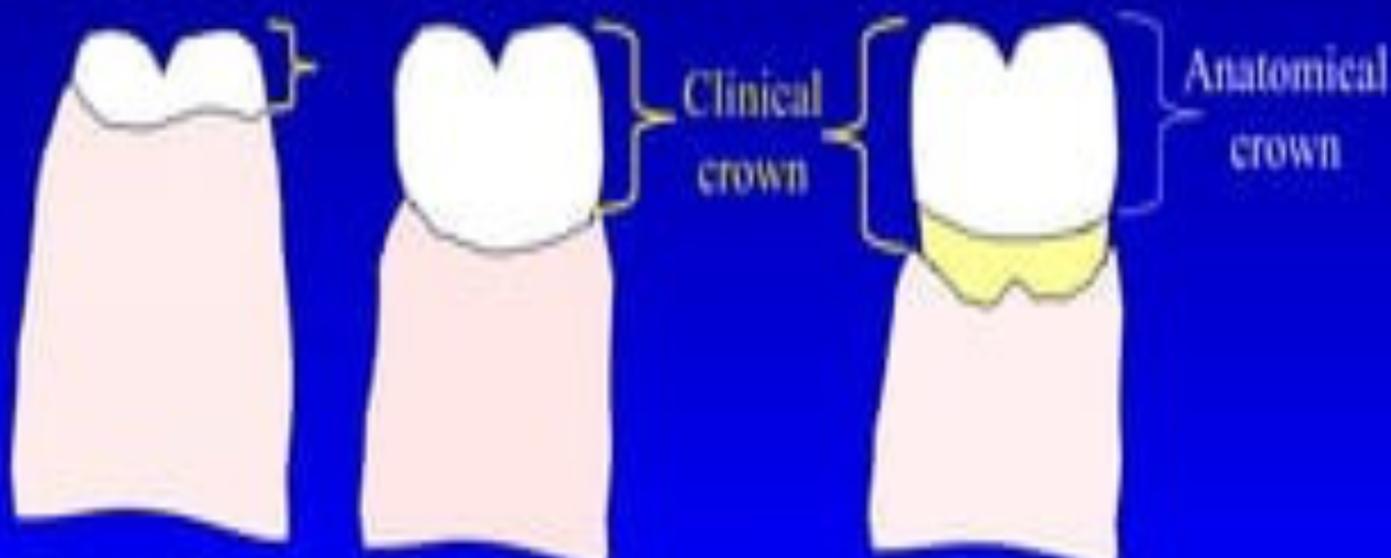
**Anatomical
crown**

**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.



Single-rooted



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



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



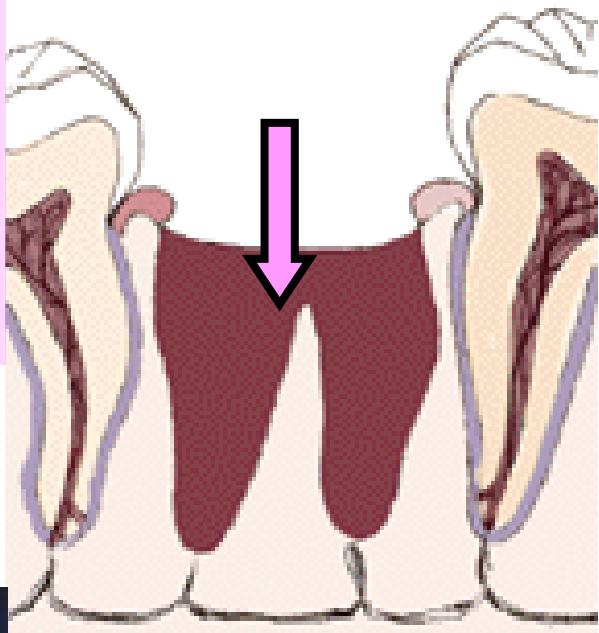
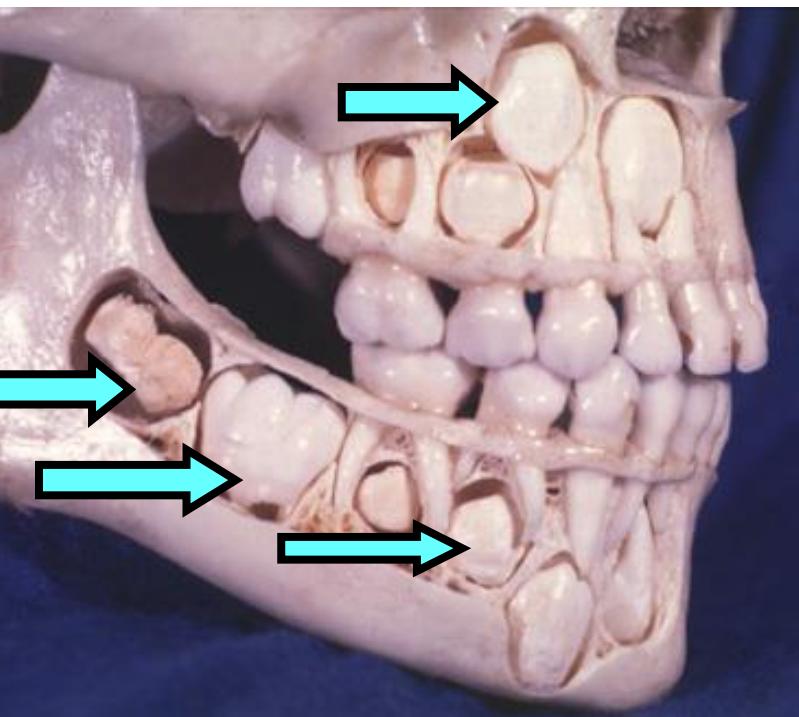
Multi-rooted

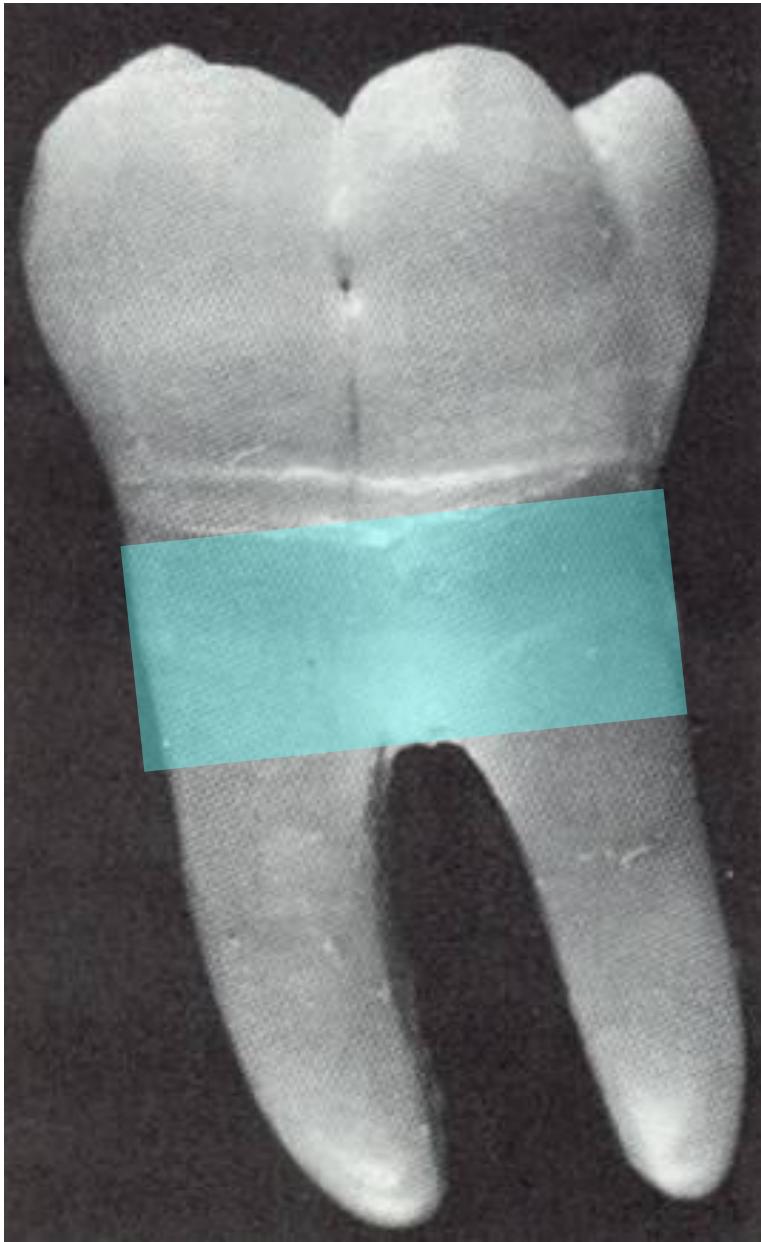
Socket

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

Crypt

Bony space or cavity which encloses the developing tooth



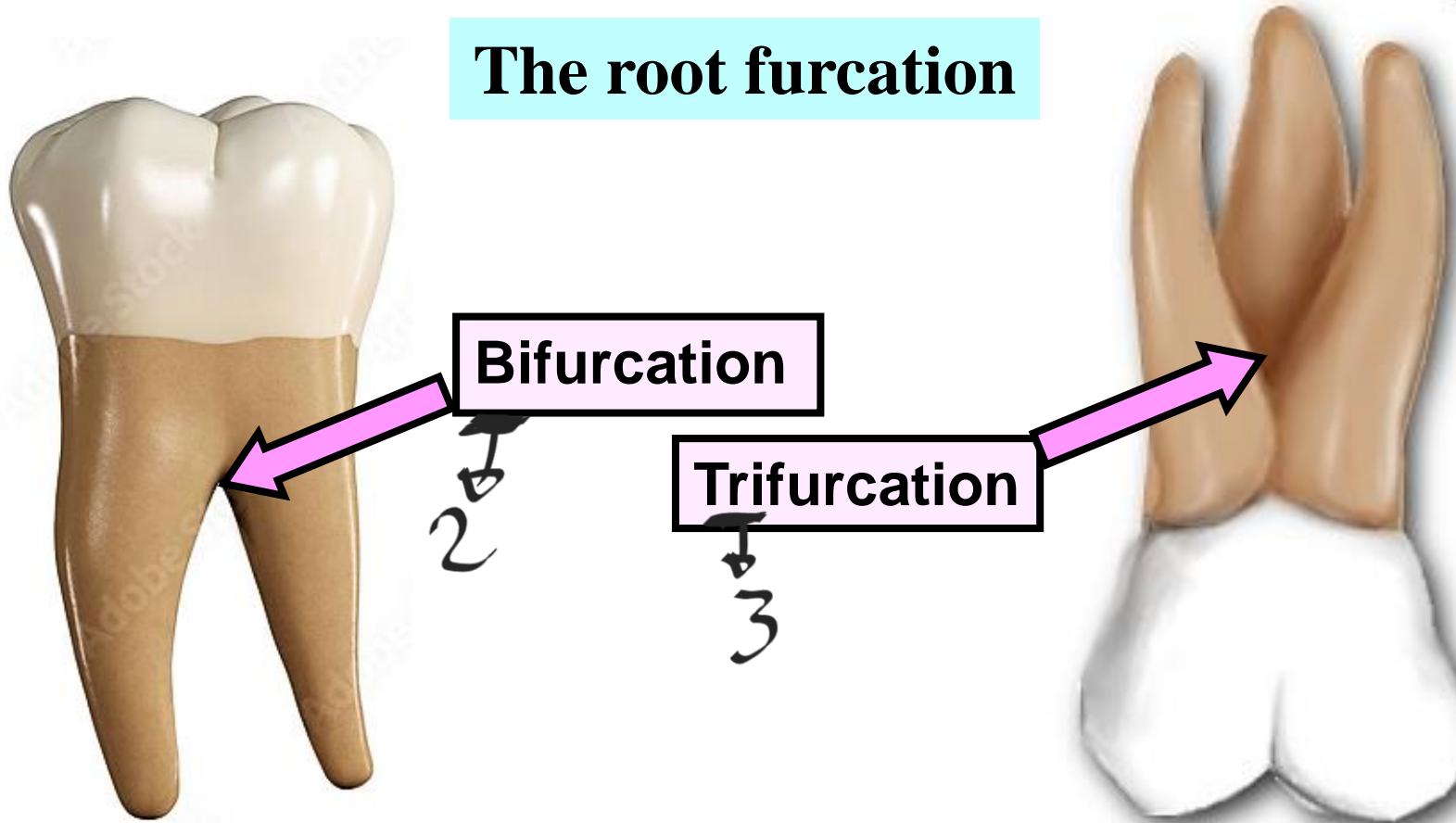


جذع الاسناف

Root trunk

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

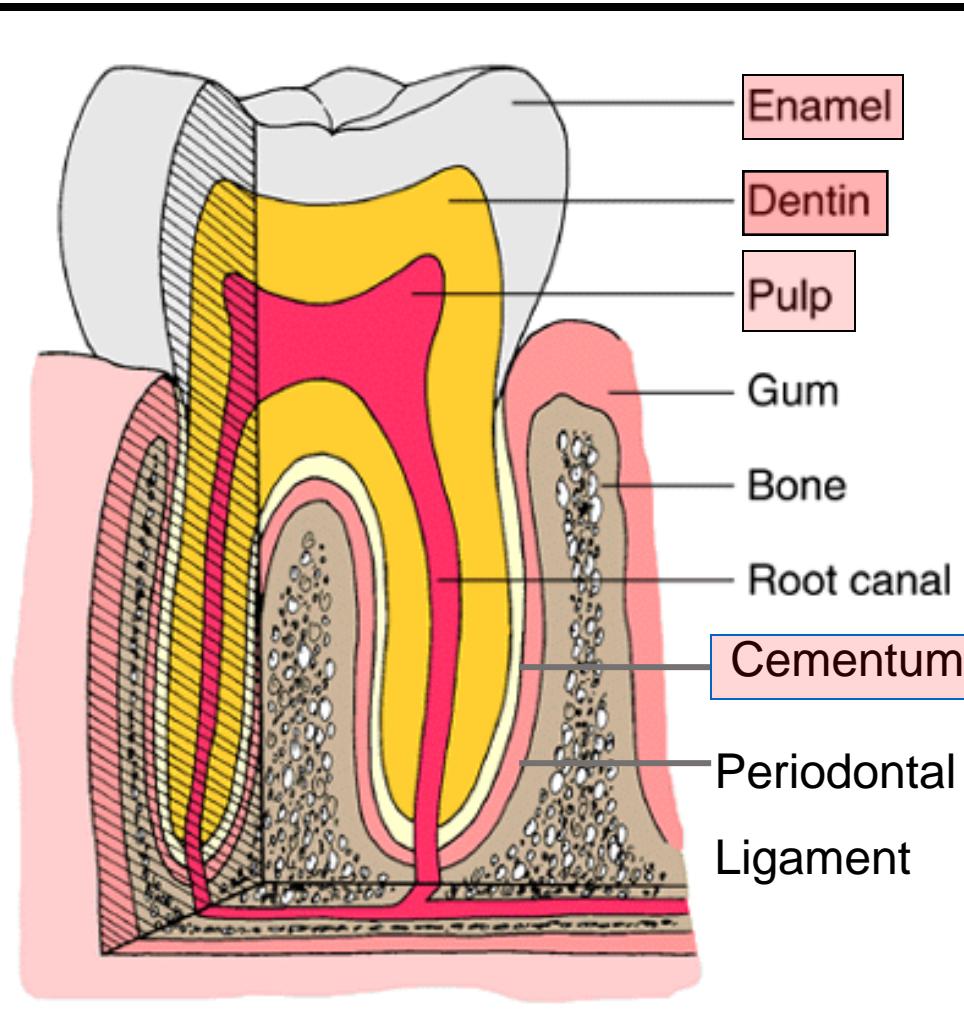
The root furcation



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:**

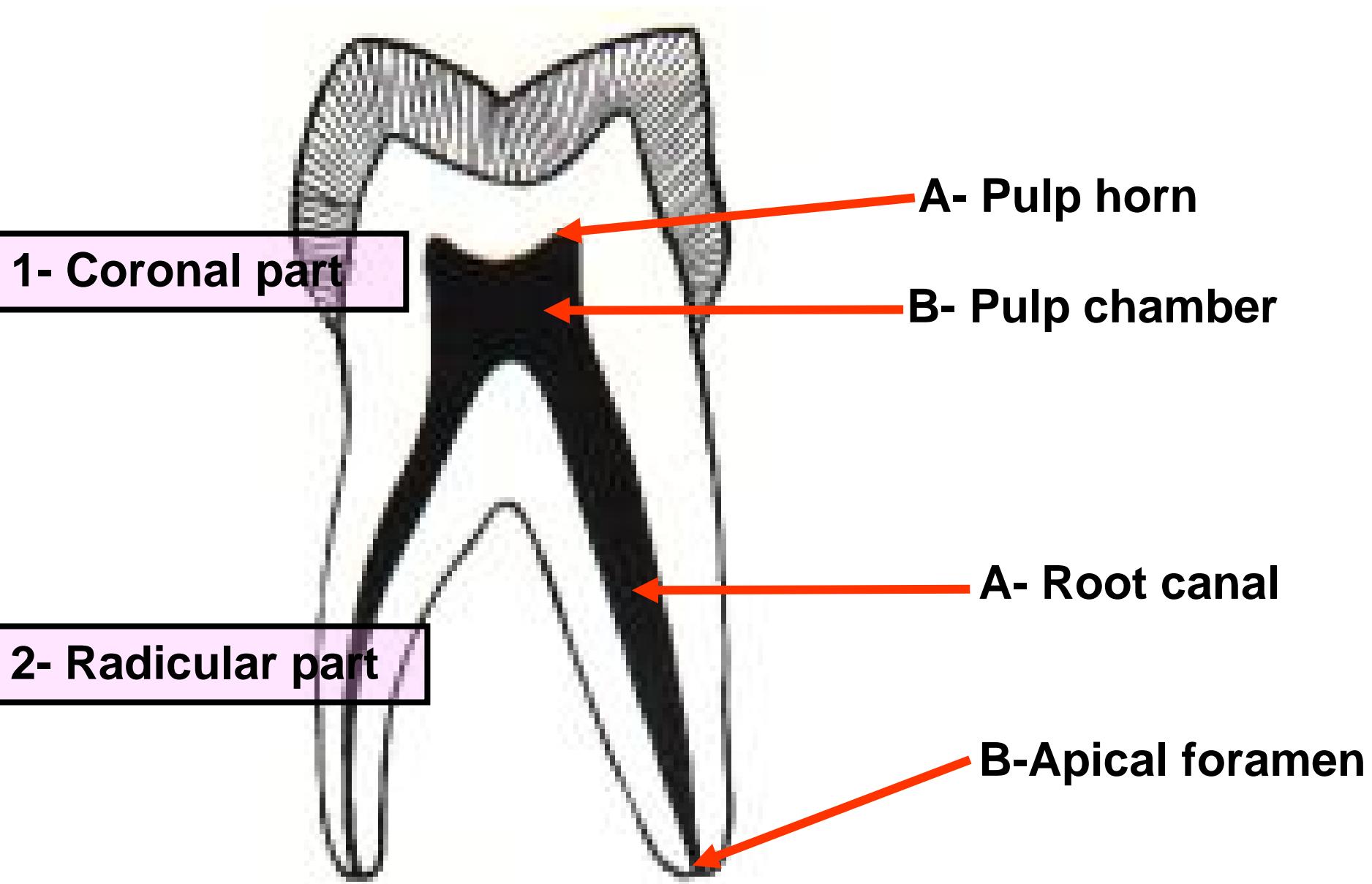
Enamel: white protective external surface of the anatomic crown.

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

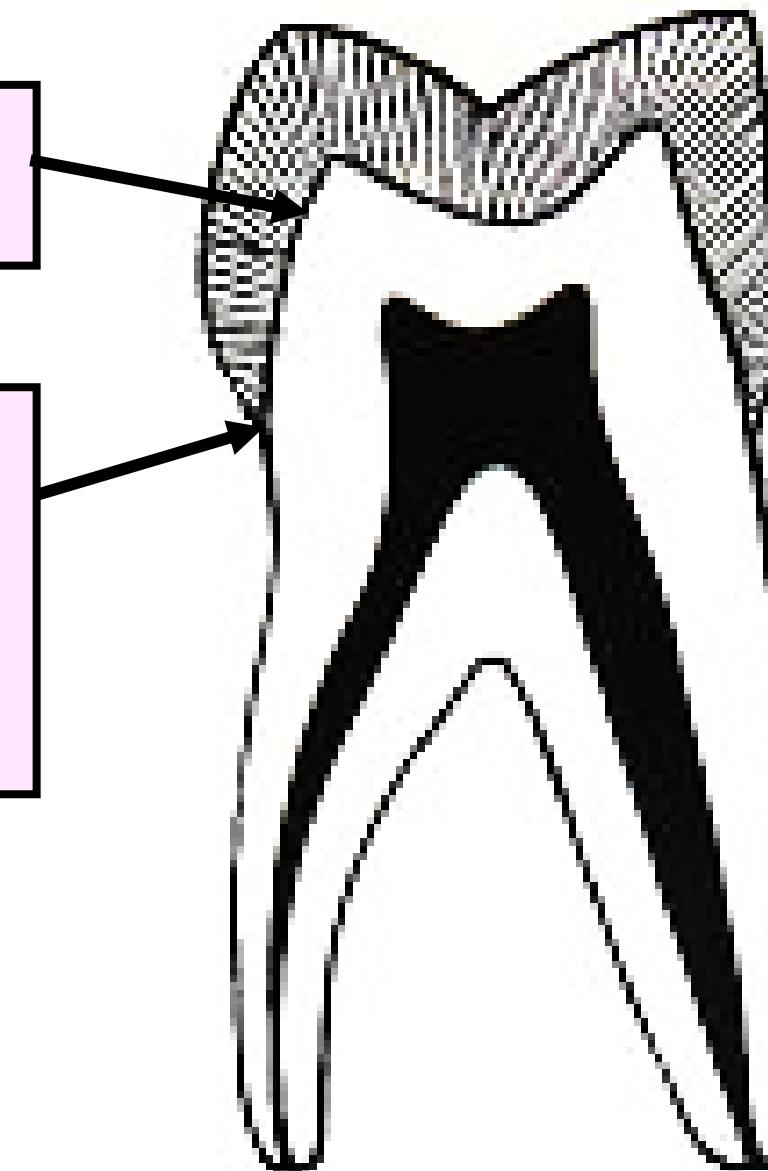
Dentino-enamel
junction (DEJ)

Cemento-enamel
junction (CEJ)

or

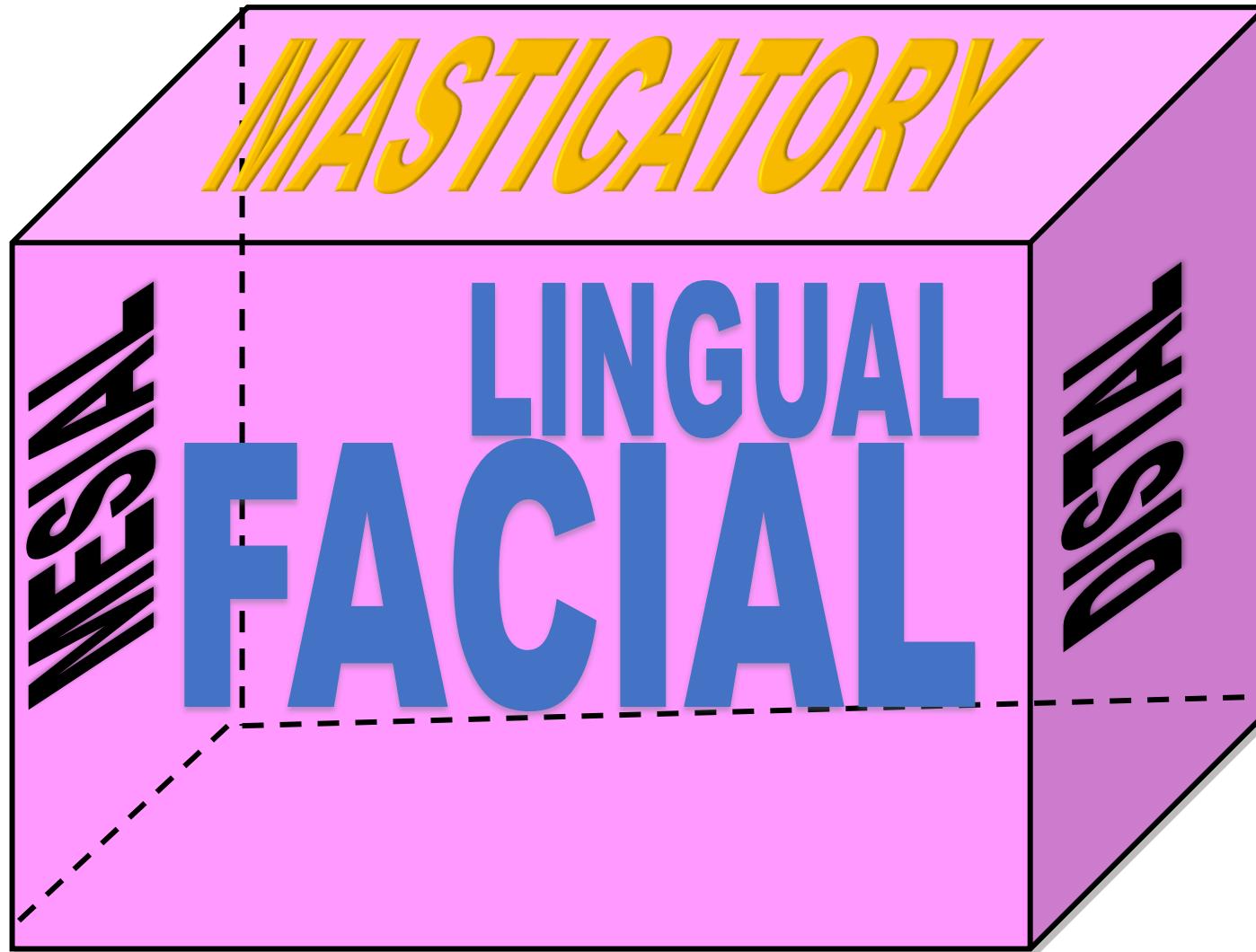
Cervical line

Dentino-
cemental
junction



Tooth Surfaces

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



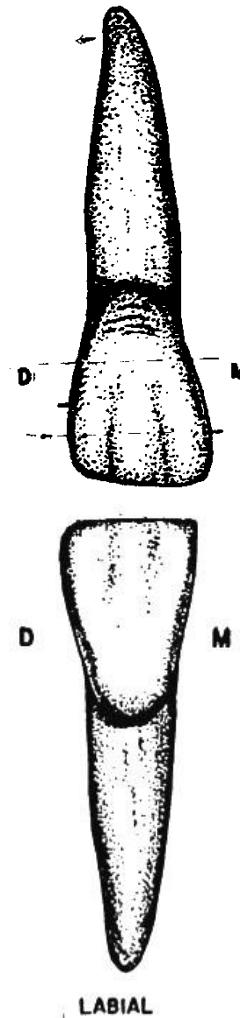
Facial Surface

- **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.

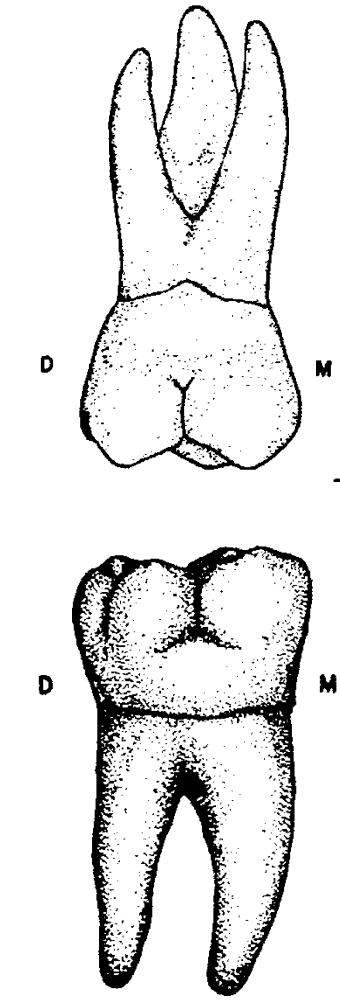
Facial Surface

FACIAL

Labial
(LIP)
for
anterior teeth



Buccal
(CHEEK)
for
posterior
teeth



Lingual Surface

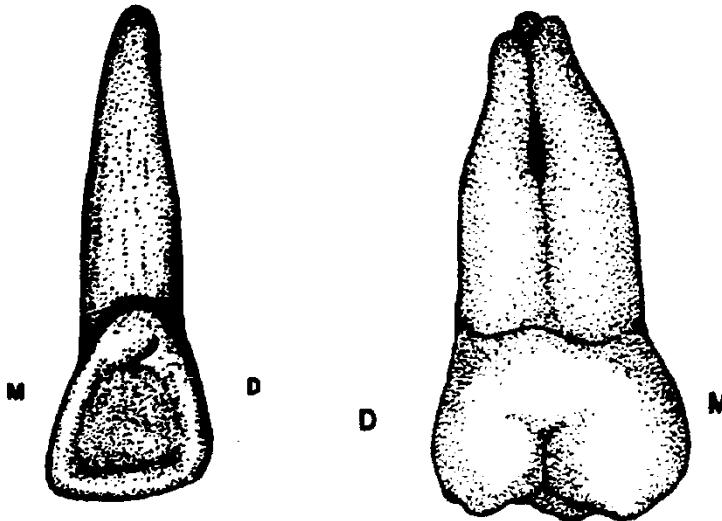
- **Lingual Surface:** It is the surface of the mandibular teeth which facing the tongue.
- **Palatal Surface:** It is the surface of the maxillary teeth which facing the palate.

Lingual Surface

LINGUAL

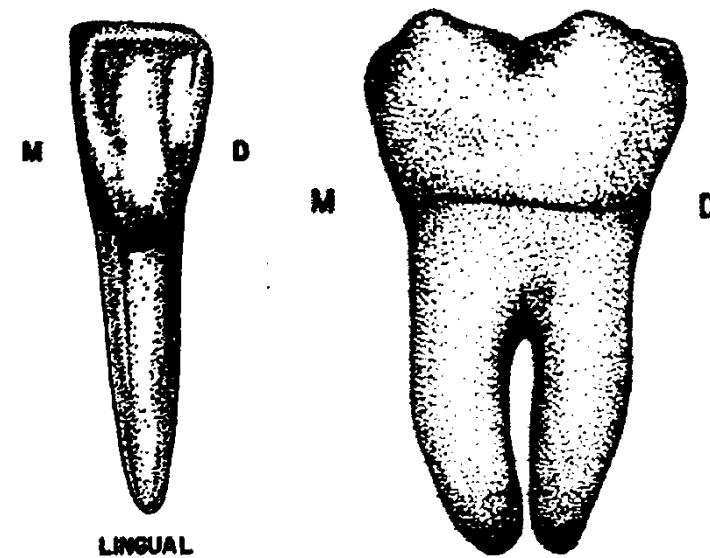
Palatal
(palate)

for maxillary teeth



Lingual
(tongue)

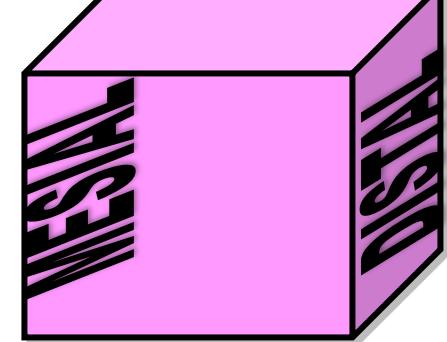
for mandibular teeth



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



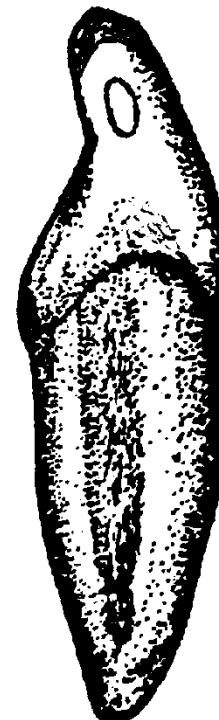
Mesial

(toward midline)



Distal

(away from midline)



for all the teeth

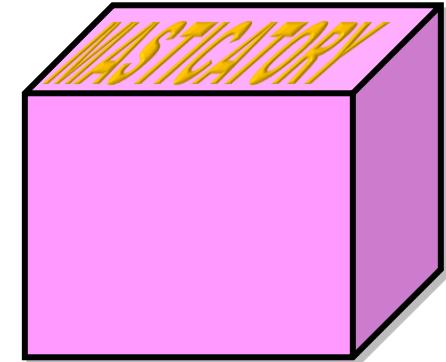
MESIAL

DISTAL

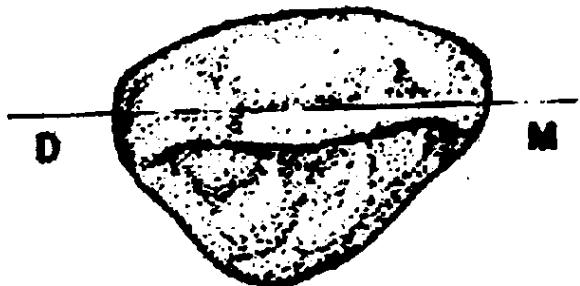
Masticatory Surface

- 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

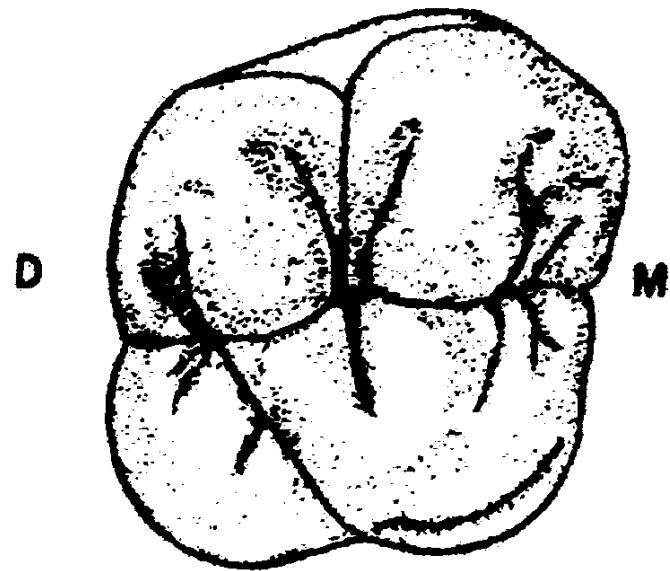


Incisal



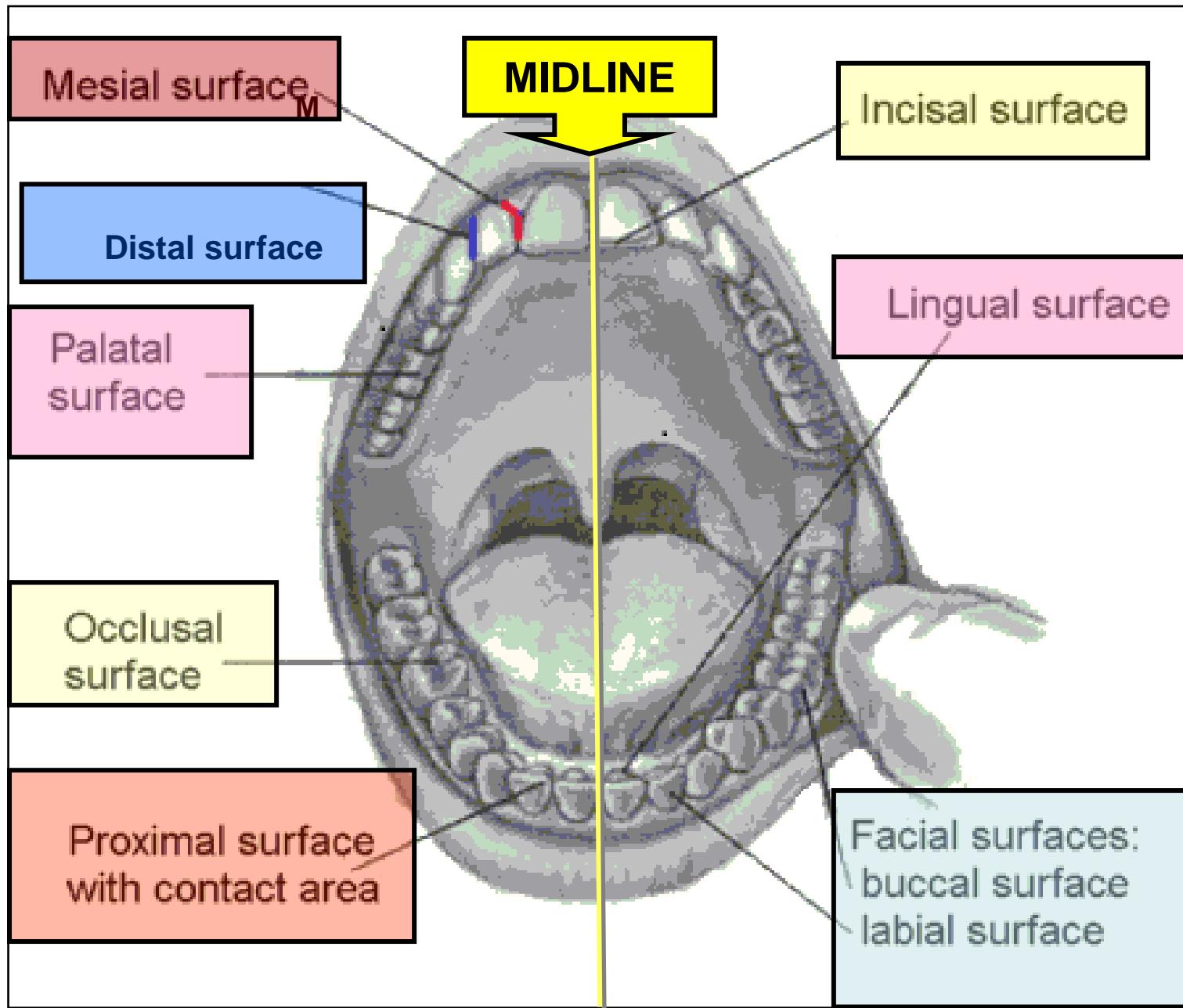
For anterior teeth

Occlusal



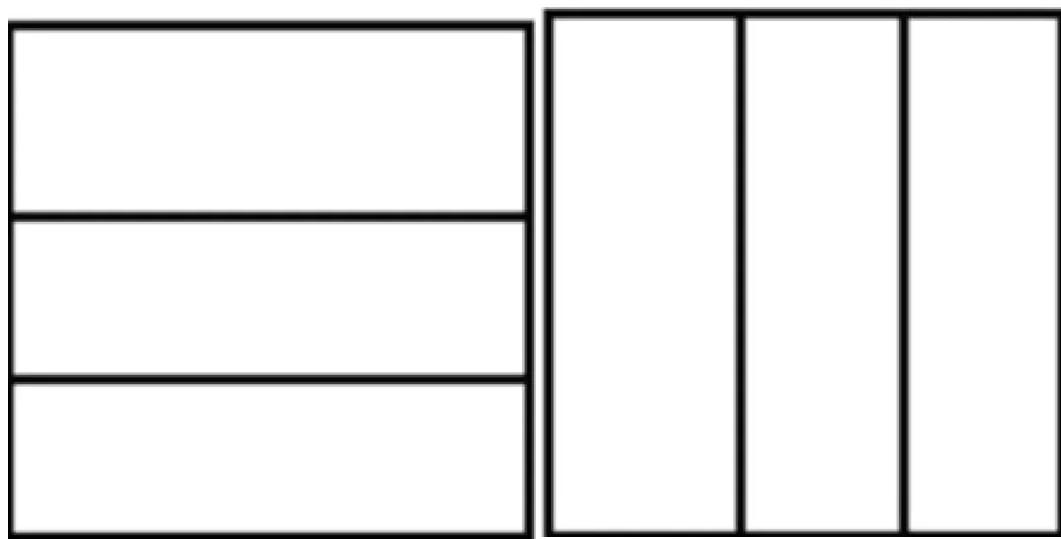
For posterior teeth

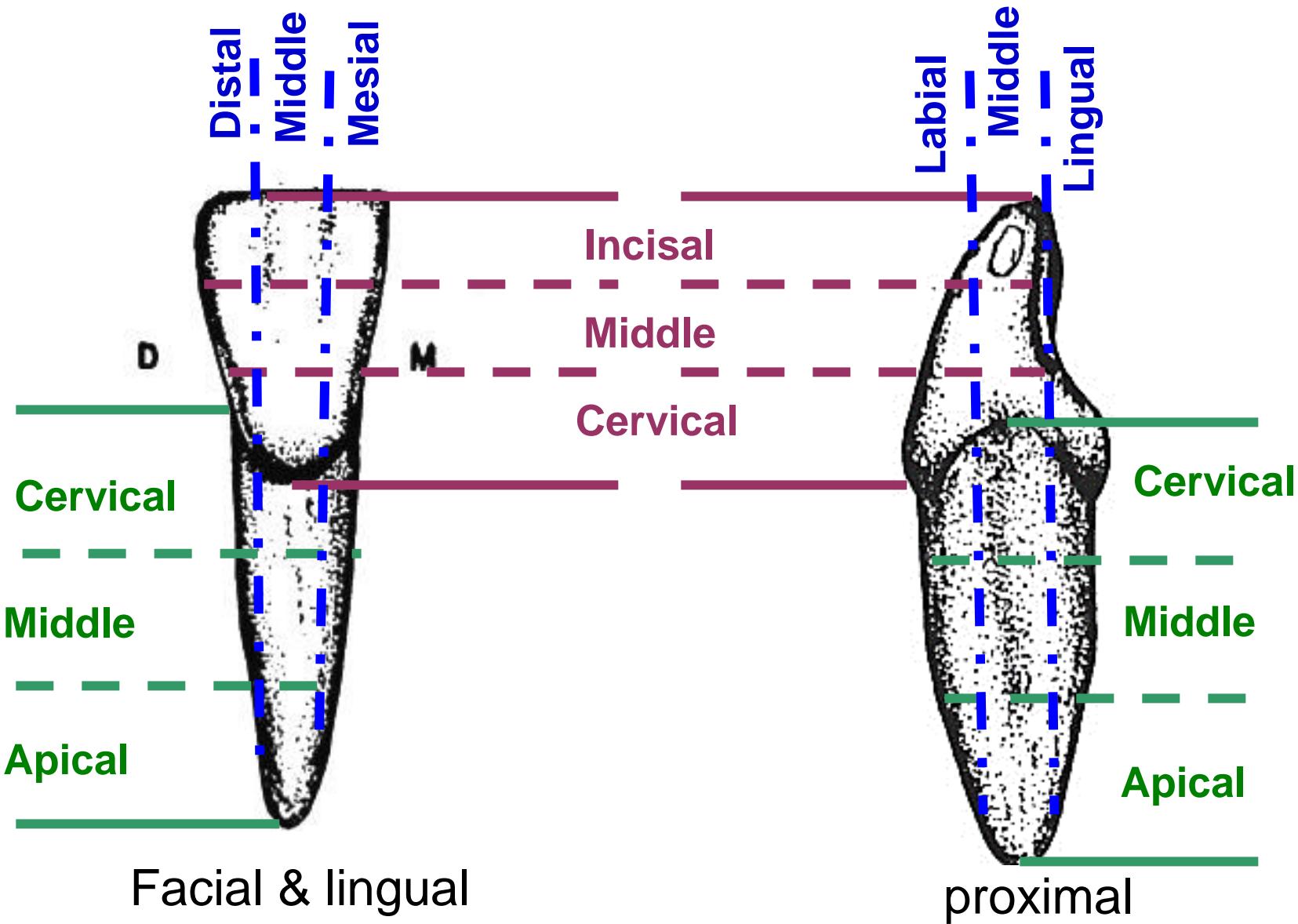
- The surfaces are identified by the relationship to other orofacial structures.



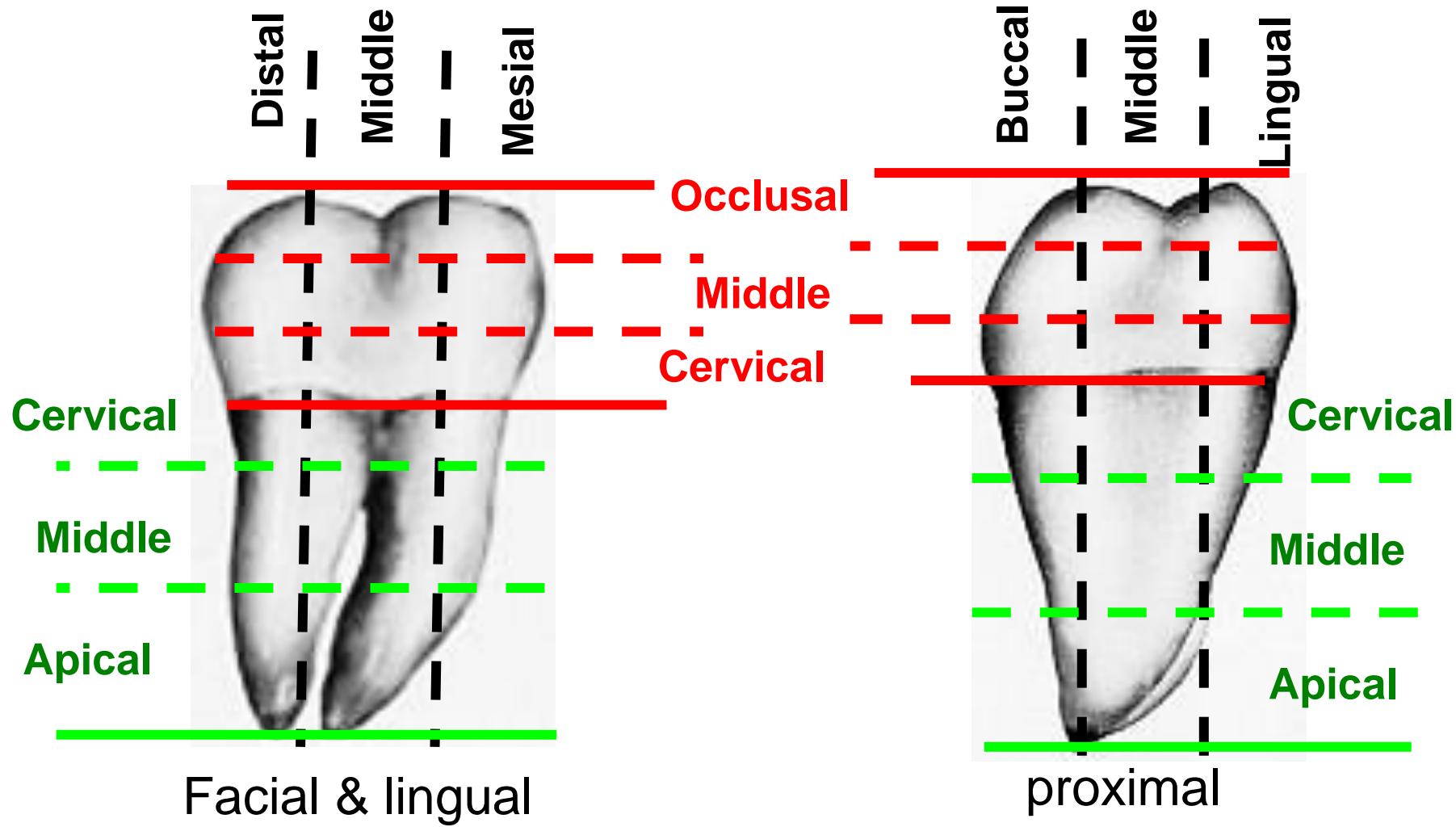
Division of surfaces Into Thirds

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

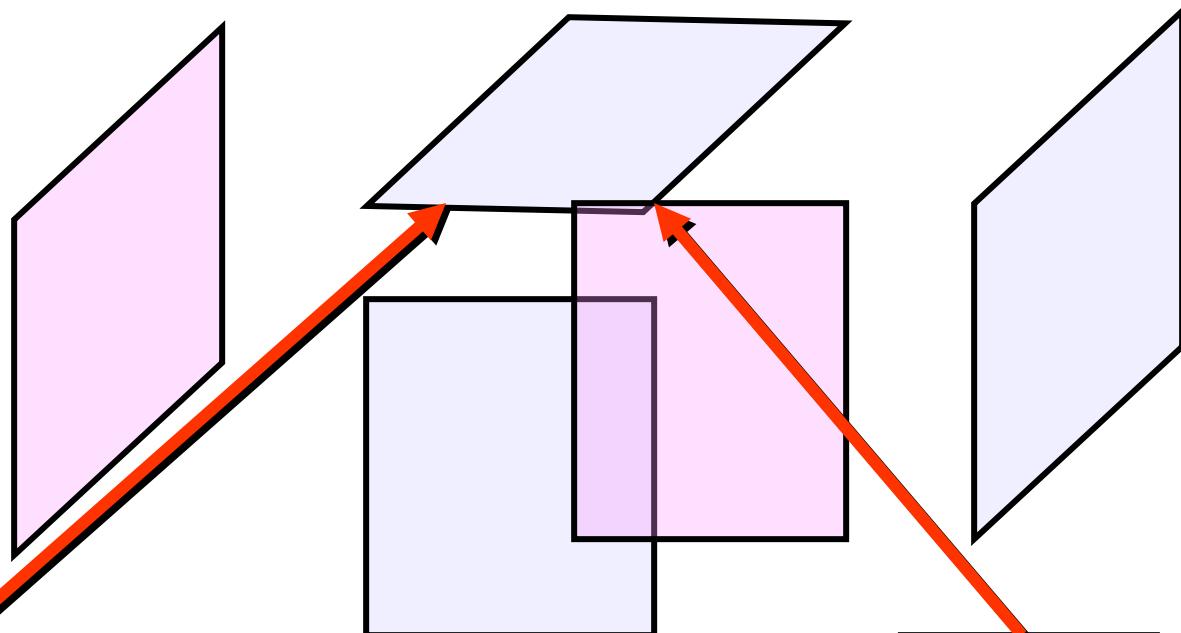




For anterior teeth



Line & Point Angles



**Line
angle**

**Point
angle**

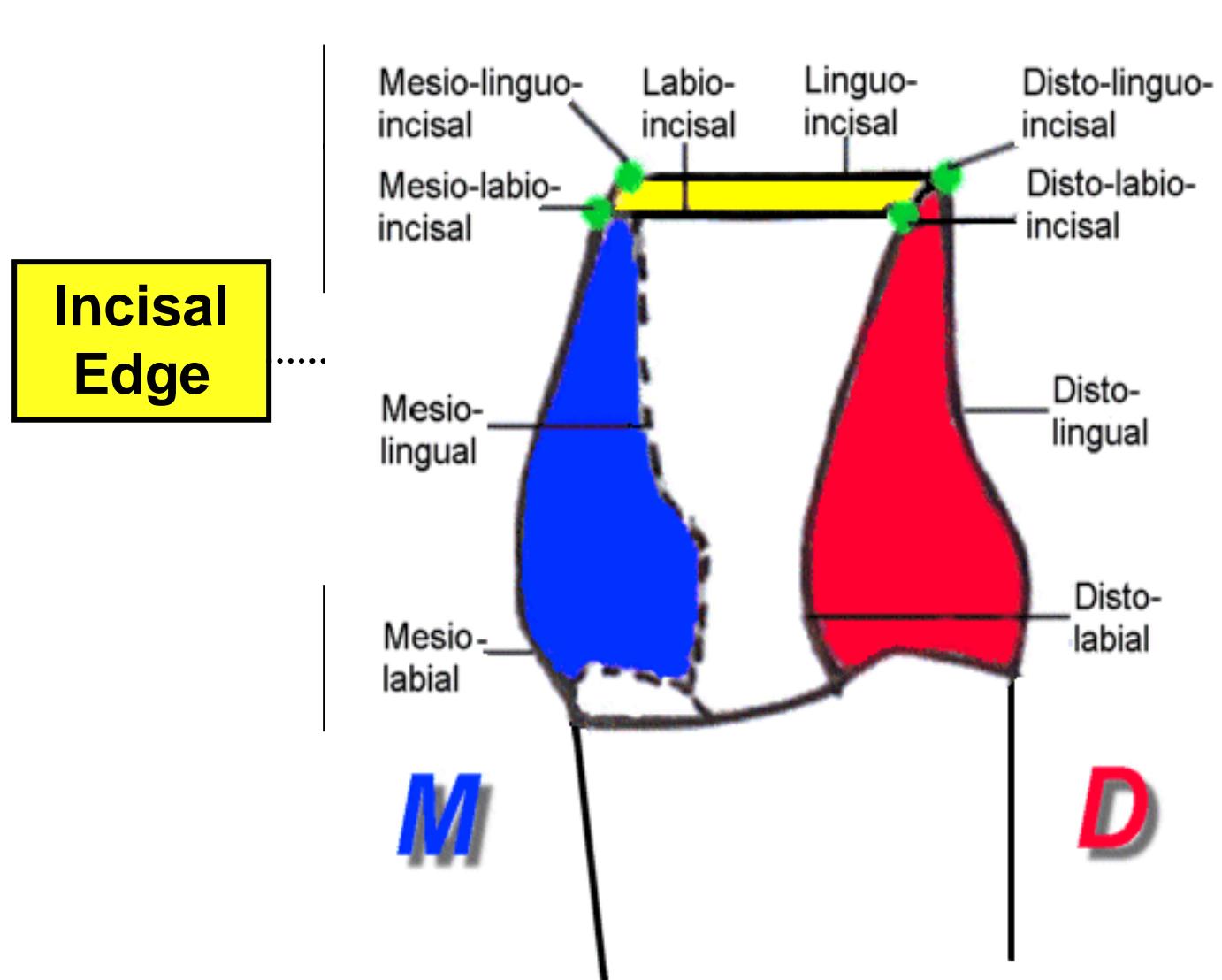
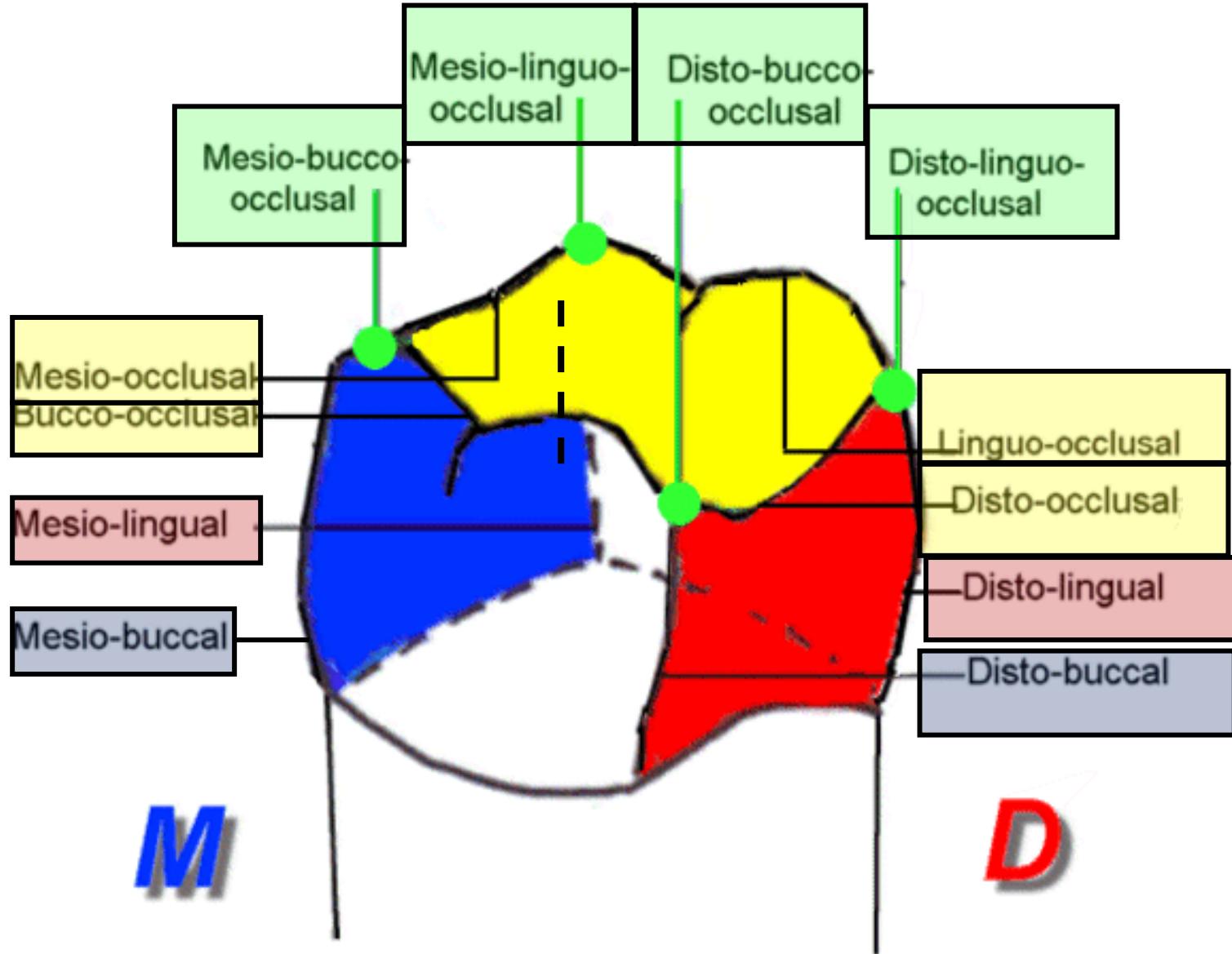


Fig. 9: Line and point angles of anterior teeth.



Line and point angles of posterior teeth

change
see much

