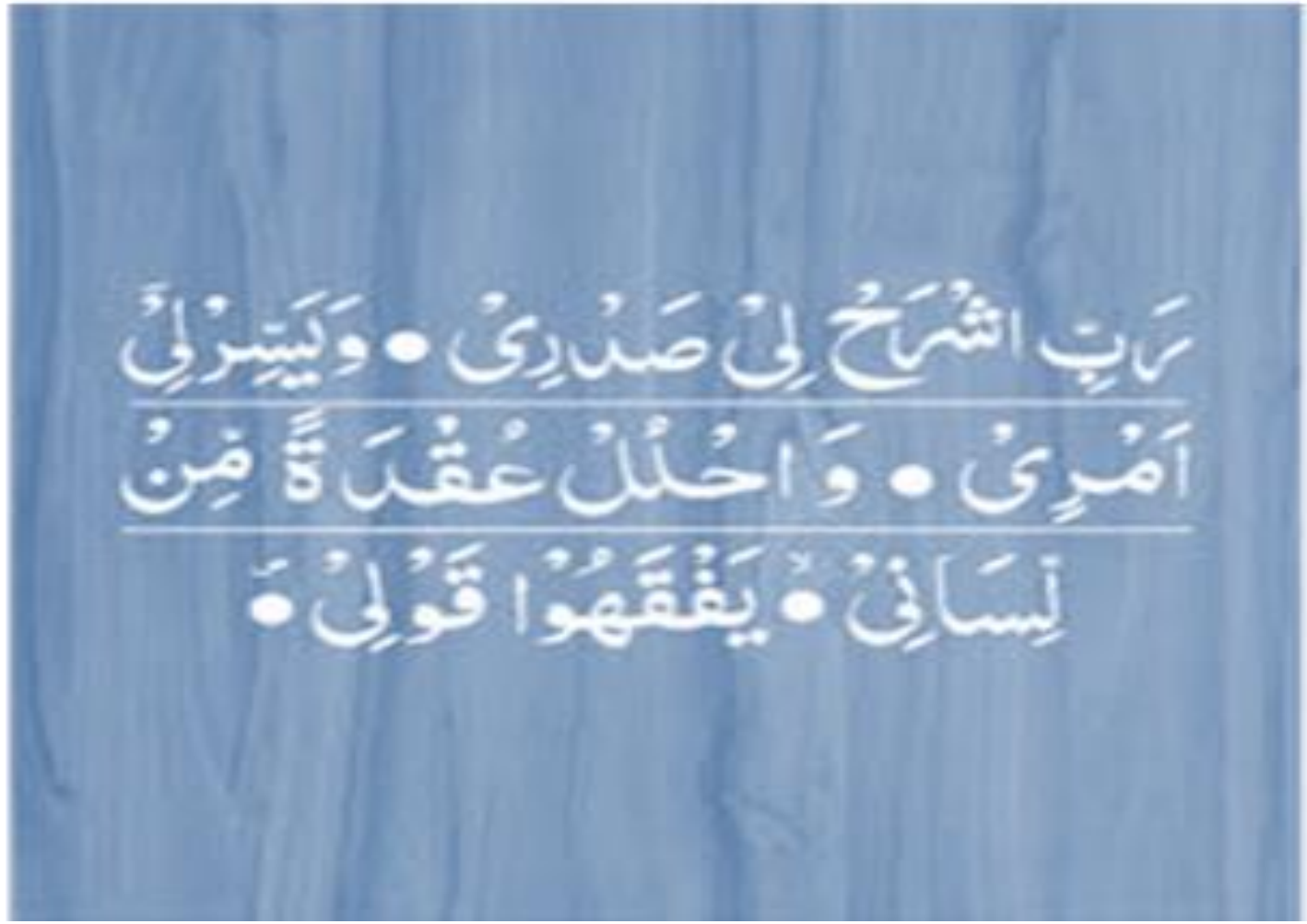
رَبِّ اشْرَحْ لِي صَدْرِي • وَيَسِّرْ لِي
أَمْرِي • وَاحْلُلْ عُقْدَةً مِنْ
لِسَانِي • يَفْقَهُوا قَوْلِي •

INTRODUCTION TO TOOTH MORPHOLOGY

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DIKIOHS

Pre-Test

Which of the following is NOT a primary function of dental anatomy?

a) Understanding tooth morphology
b) Studying tooth eruption patterns
c) Diagnosing systemic diseases
d) Learning occlusion patterns

Answer: c) Diagnosing systemic diseases

How many sets of dentition do humans naturally develop in their lifetime?

a) One
b) Two
c) Three
d) Four

Answer: b) Two

Have you heard about FDI or ADA

The American Dental Association (ADA) and the Fédération Dentaire Internationale (FDI) are two major dental organizations, but they have different scopes, functions.

ADA (American Dental Association)	FDI (Fédération Dentaire Internationale)
1859 (USA)	1900 (Switzerland, International)
National (United States)	International (Global)
Standardization, education, advocacy, and policy-making for dentists in the U.S.	Global oral health promotion, research, and standardization in dentistry.

Which part of the tooth is covered by enamel?

a) Root
b) Crown
c) Pulp
d) Cementum

Answer b) Crown

Introduction to human dentition

Learning Objectives:

By the end of this lecture, students should be able to:

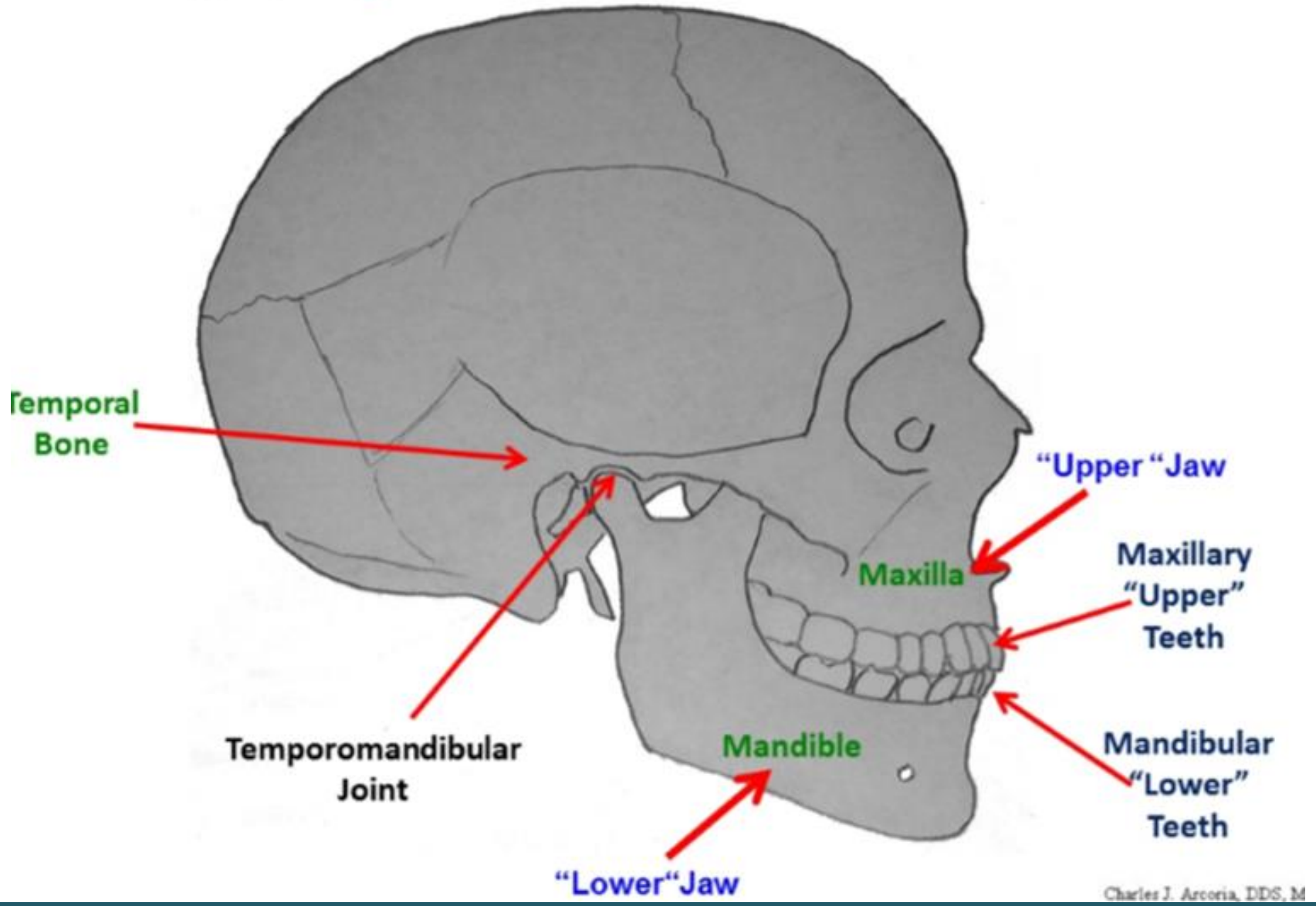
1. Define dental anatomy and its significance in clinical practice.

1. Describe the formation and classification of dentitions.

1. Understand dental nomenclature and various tooth numbering systems.

1. Identify the divisions of teeth into thirds, line angles, and point angles.

Maxillary & Mandibular Arches



1. Introduction to oral structures:

Each human being has 2 jaws:

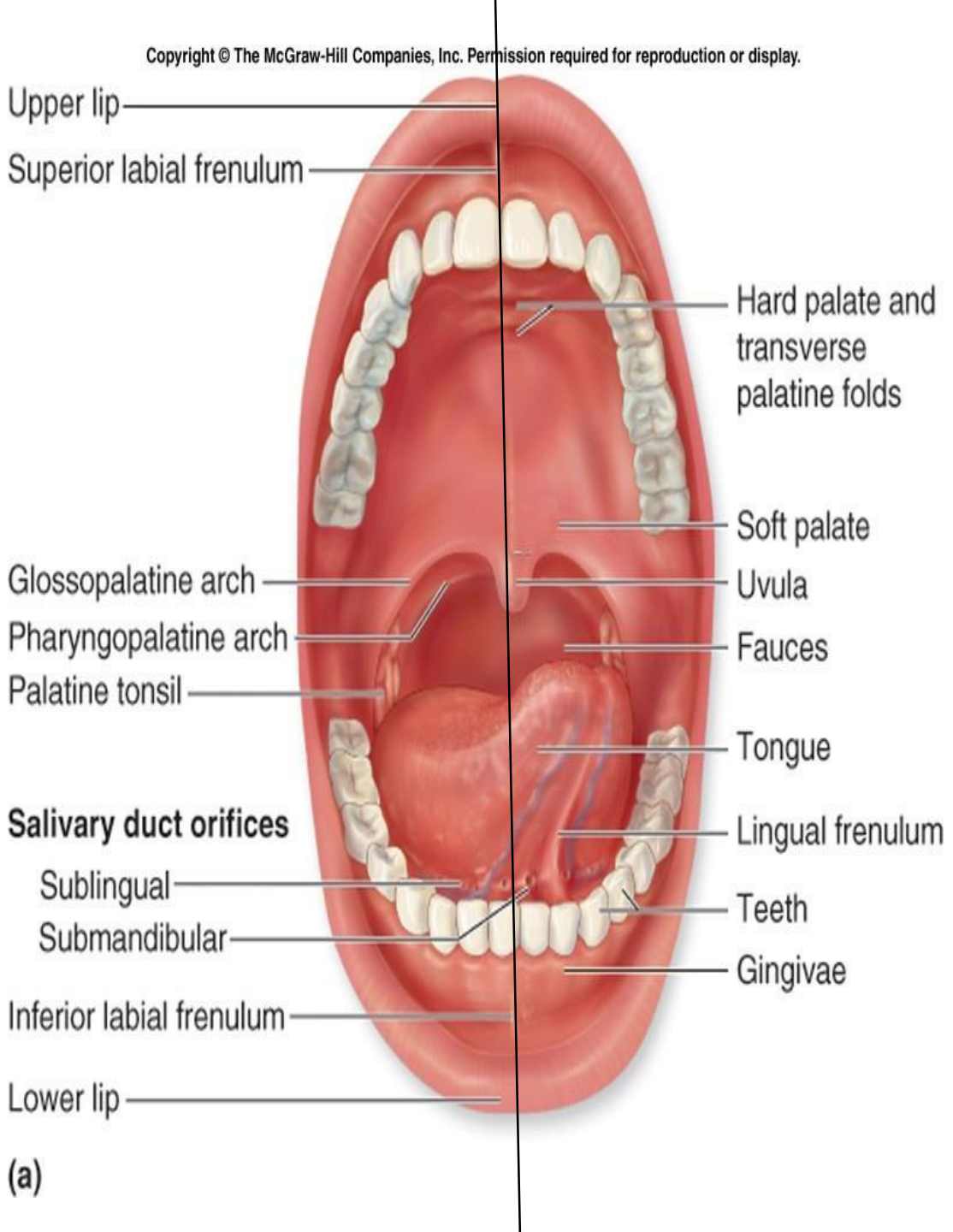
Upper jaw → maxilla → maxillary teeth. Lower jaw

→ mandible → mandibular teeth.

A midline divides the oral cavity into 2 equal halves.

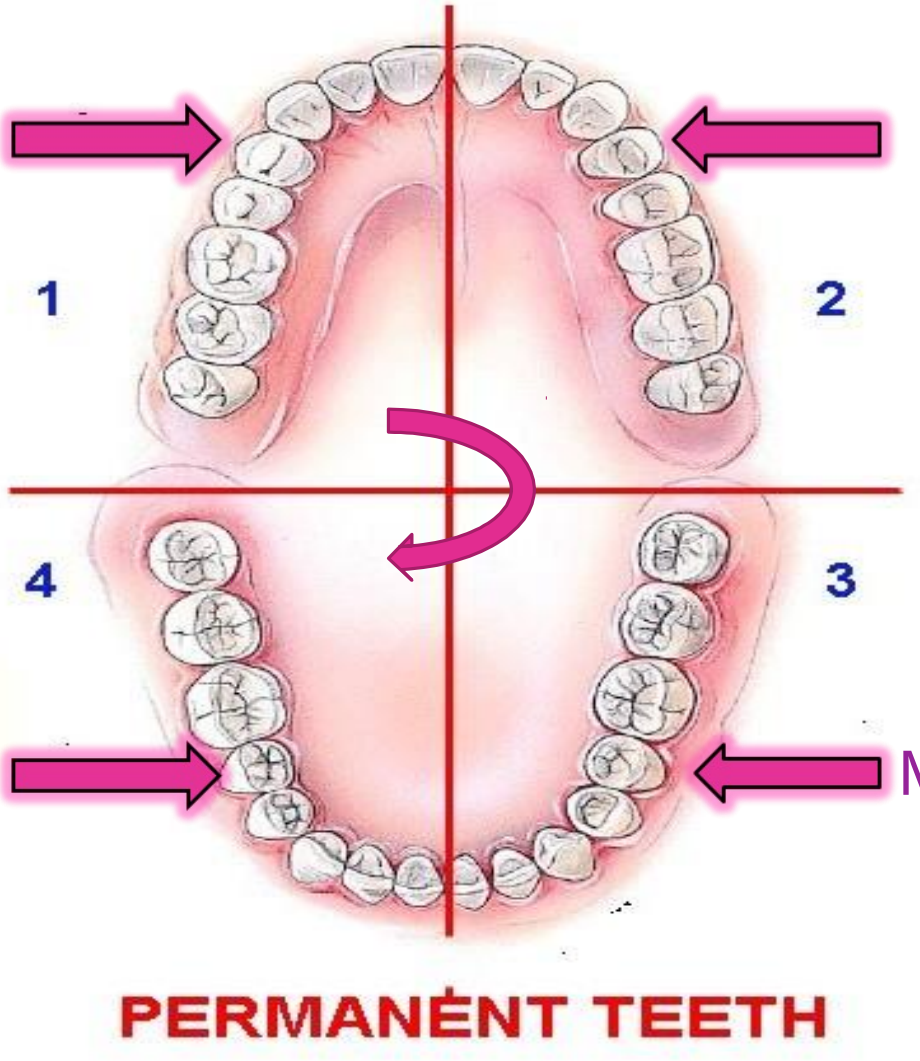
So the teeth in oral cavity are divided into →

4 Quadrants



Maxillary Right quadrant

Maxillary Left quadrant



Mandibular Right quadrant

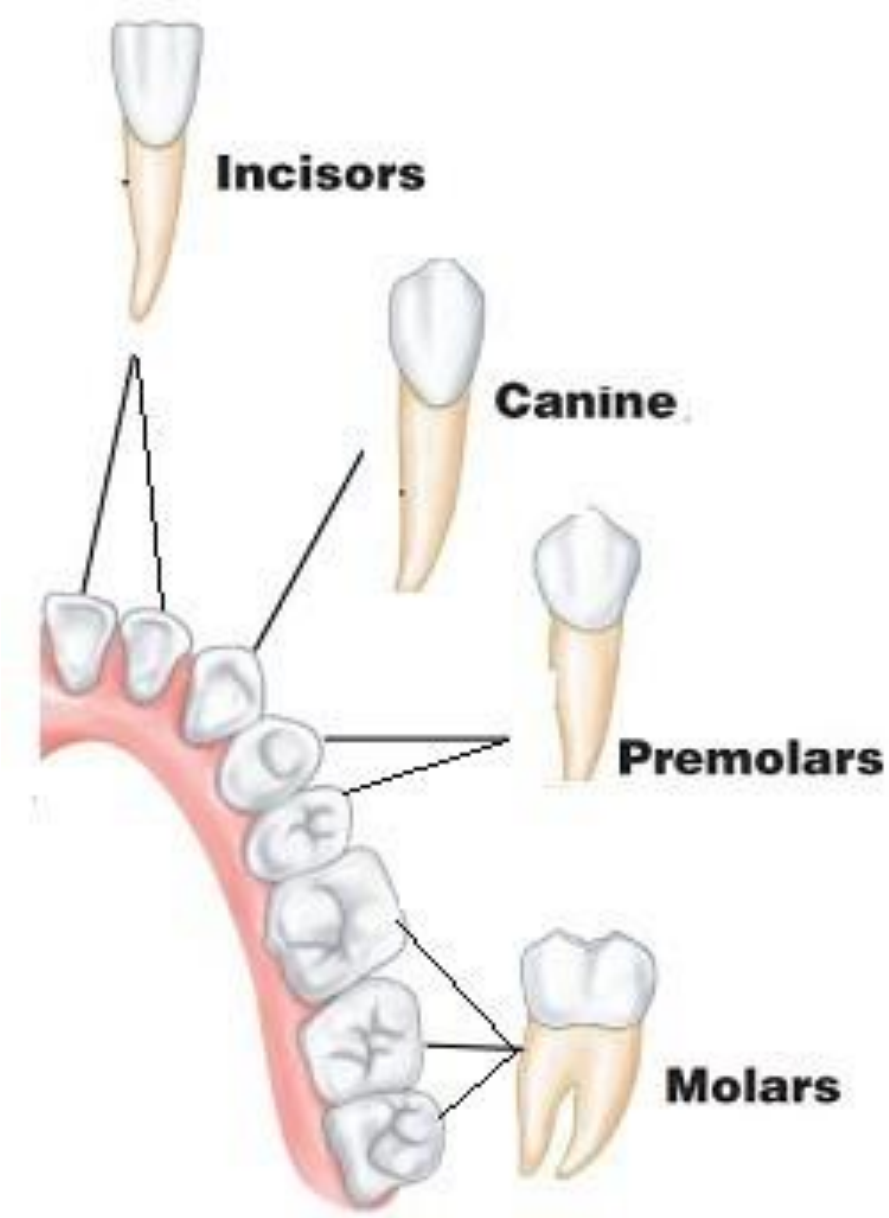
Mandibular Left quadrant

Types of teeth. 2

There are 4 types of teeth:

Two types called Anteriors

The other 2 types are called Posteriors



Anterior teeth

Incisors

There are 2 incisors in each quadrant

1 central next to midline 1 lateral

Canines

There is 1 canine in each quadrant

Has 1 cusp so called (cuspid)

Posterior teeth

premolars

There are 2 in each quadrant

1st & 2nd premolars

Mainly have 2 cusps

Molars

There are 3 in each quadrant 1st, 2nd, 3rd

The are multicuspid and multirooted

:Types of dentition.

There are 3 types of dentition in humans: 3

DECIDUOUS DENTITION

MIXED DENTITION

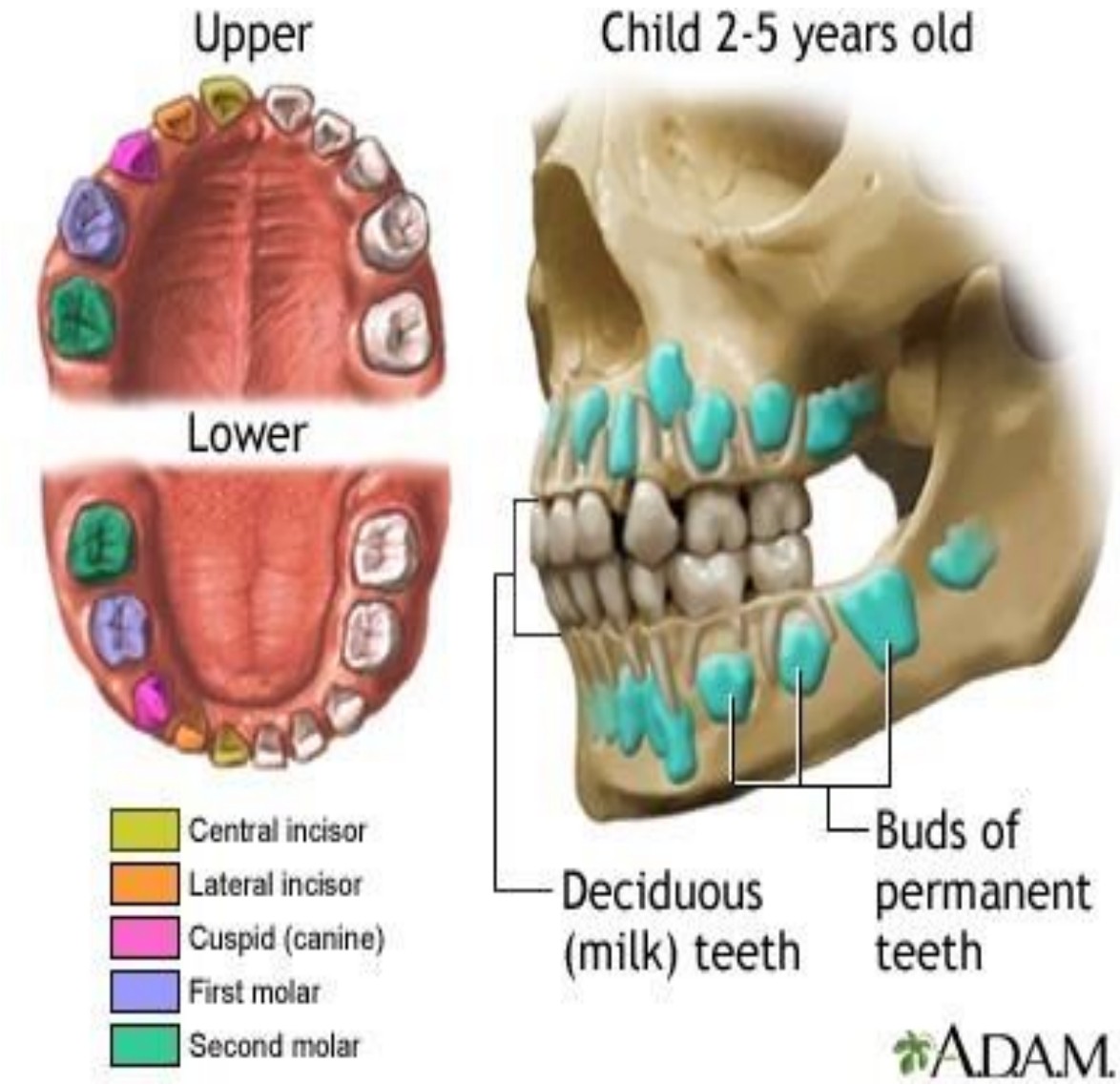
PERMANENT DENTITION

1. Deciduous dentition:

- They are also called primary, milk, or temporary teeth.
- The teeth start to appear at 6 months and continue to erupt till age of 2.5-3 years.
- They are 20 in number. 5 for each quadrant.

❖ 2 Incisors.
❖ 1Canine.
❖ 2 Deciduous Molars.

These teeth are called (Predecessors)

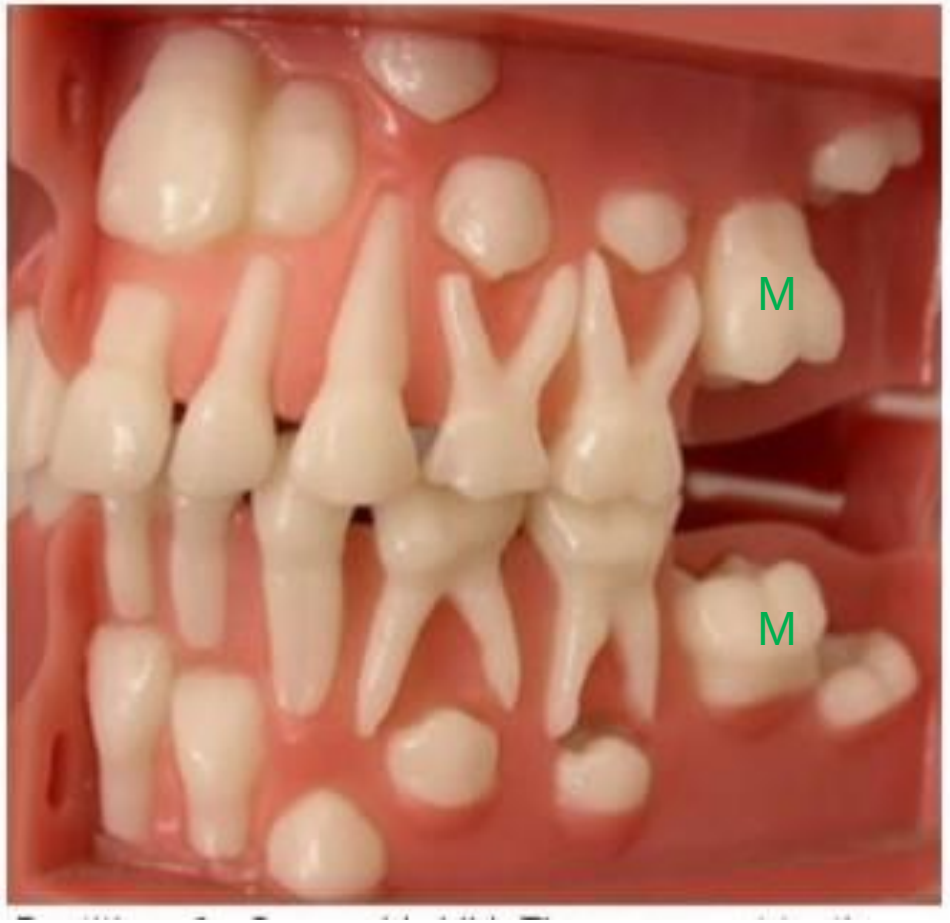


2. Mixed dentition:

- It is type of dentition where both deciduous and permanent teeth are present in the oral cavity.
- It usually starts with eruption of 1st permanent molar.
- Begins from 6-12 years with the shedding of last deciduous tooth

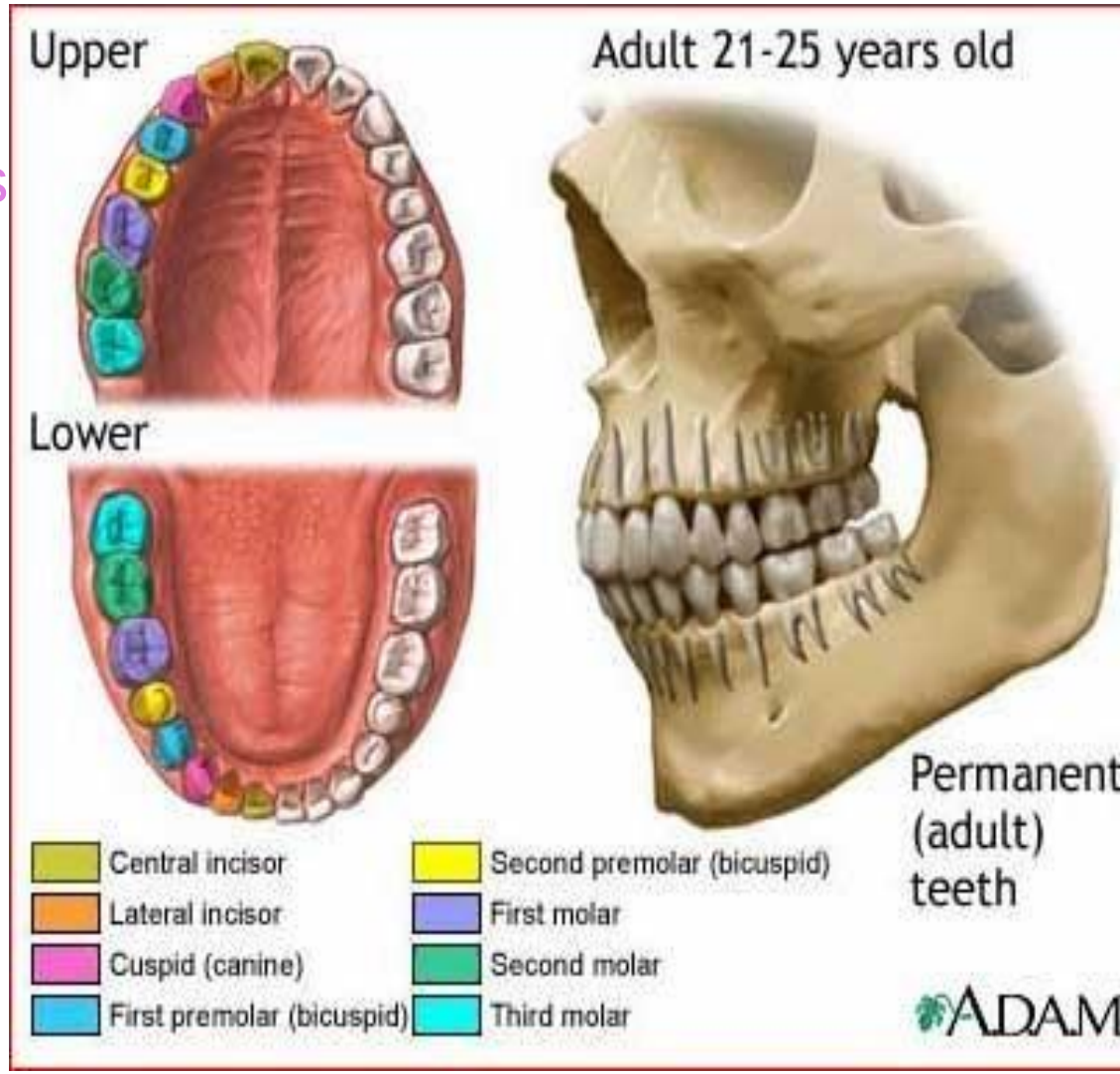
Succedaneous teeth:

- 20 decideous teeth are replaced by 20 permanent teeth.
- 2 D Incisors are replaced by 2 P Incisors
- 1 D Canine is replaced by 1 P Canine
- 2 D Molars are replaced by 2 Premolars
- The 3 Permanent Molars are not considered as a succedaneous teeth (no predecessors)



3. Permanent dentition:

- They are also called secondary or adult teeth
- They start to erupt at 6 years till nearly 21 years with eruption of permanent 3rd molar (wisdom tooth).
- They last for long time and are not replaced.
- They are 32 teeth
- In each quadrant:
- 2 incisors central and lateral (1,2)
- 1 canine (3) 2 premolars (4, 5) 3 molars (6,7,8)



Dental formula.

- A number and letter designation of the various types of teeth found in a dentition.
- It indicates the dentition of only one side of the mouth, but includes upper and lower teeth, so dental formula includes just half of the teeth

Deciduous

$$I\frac{2}{2}C\frac{1}{1}M\frac{2}{2}=10$$

Permanent

$$I\frac{2}{2}C\frac{1}{1}P\frac{2}{2}M\frac{3}{3}=16$$

Numbering systems.

It is used to serve as abbreviations instead of writing the entire name of a tooth

These symbols will let us know the tooth is either

Deciduous or permanent

Upper or lower

Right or left

The tooth type

There are 3 numbering or notation systems:

A. Palmer numbering system.

B. International (two digit) system.

C. Universal numbering system.

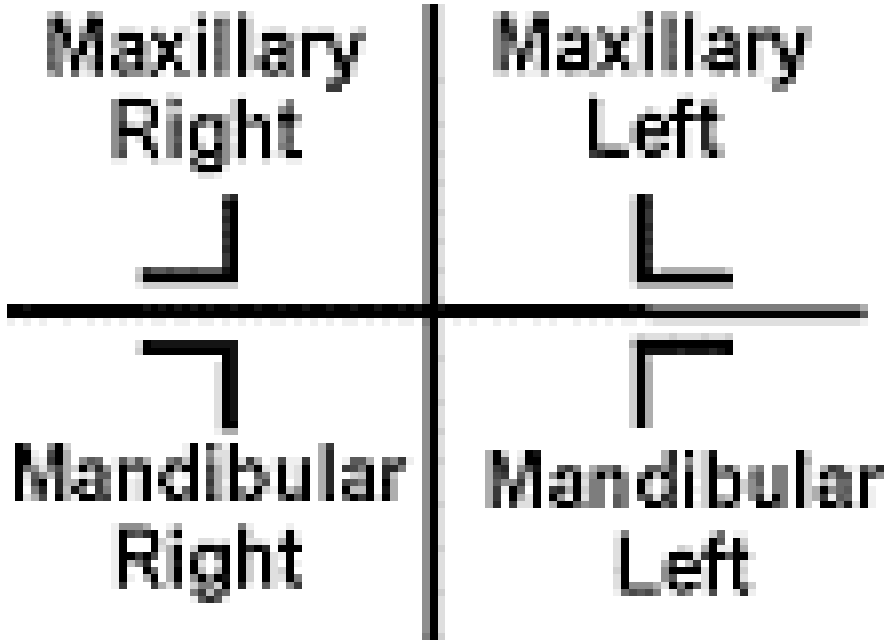
:A. Palmer numbering system

(Symbolic system using quadrant brackets and numbers).

In this system we start from midline.

So number 1 will be for central incisor. while 8

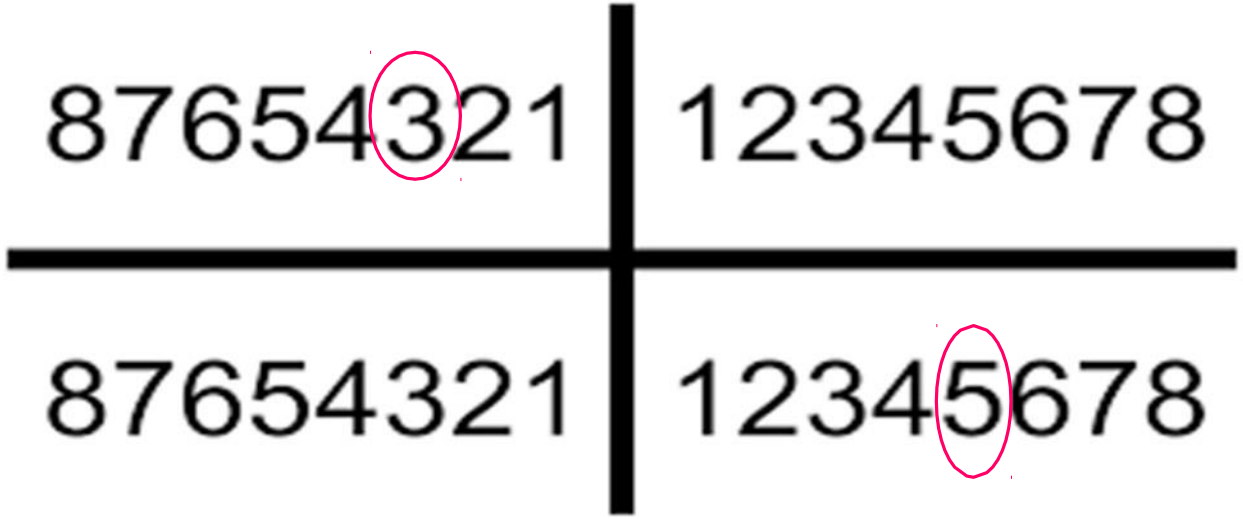
will be for 3rd molar.



A. Palmer numbering system

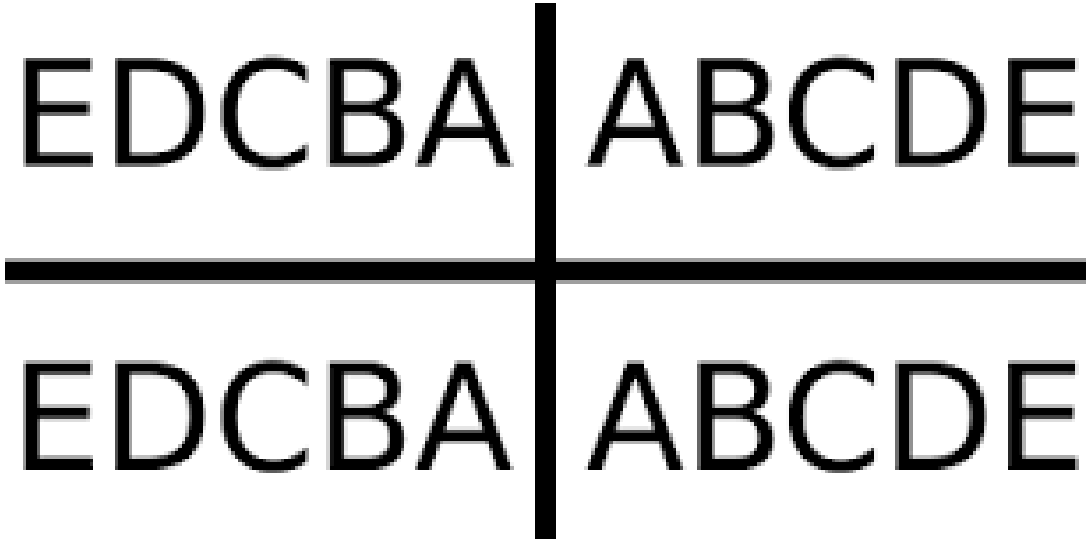
permanent teeth: 3

Ex: This symbol denotes upper right canine. What's 5 ?



Deciduous teeth:

- It starts also from midline. But for deciduous teeth we give alphabetic letters.



- From deciduous central incisor

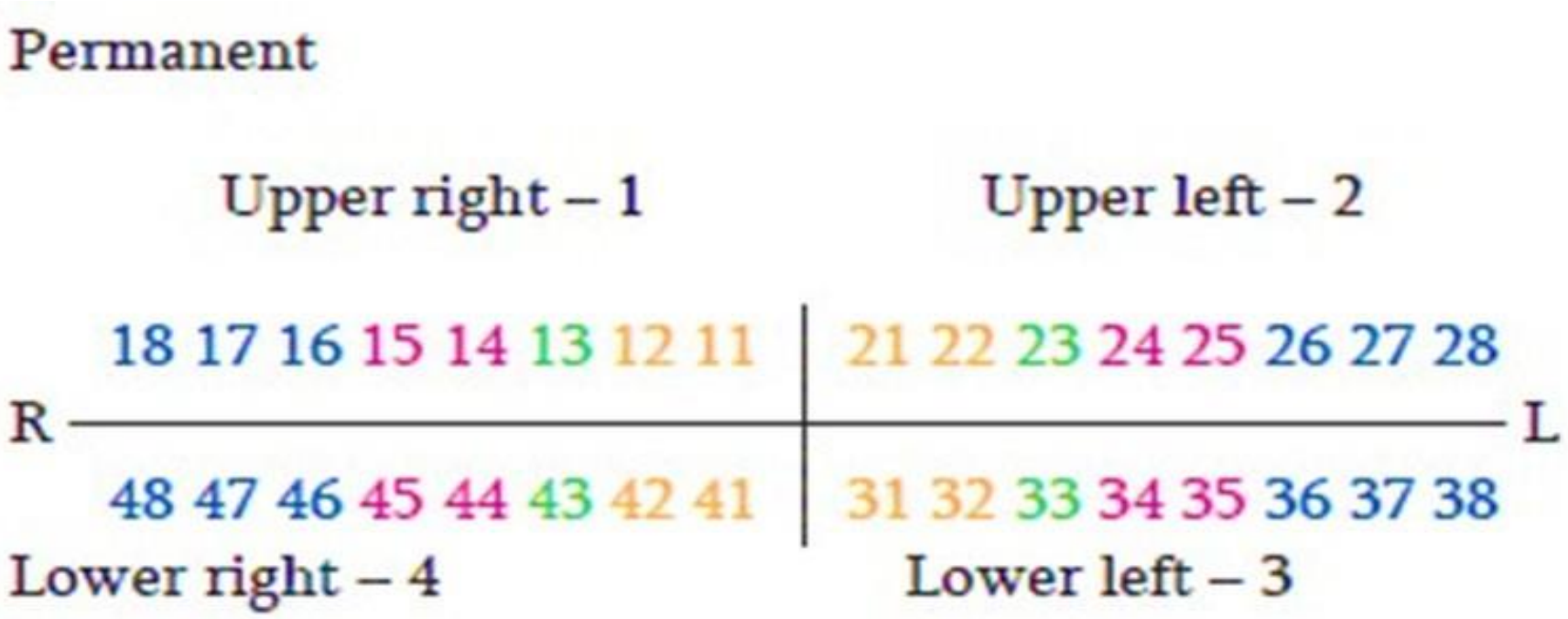
A. ending with deciduous second molar E.

Each quadrant has only 5 teeth.

B. FDI Two-Digit system (international):

Used internationally, numbers quadrants 1-4 for permanent and 5-8 for primary dentition)

- The one on the left is number of quadrant
- The other on the right is for the tooth type



For deciduous

Upper right quadrant takes no. 5

Upper left no. 6

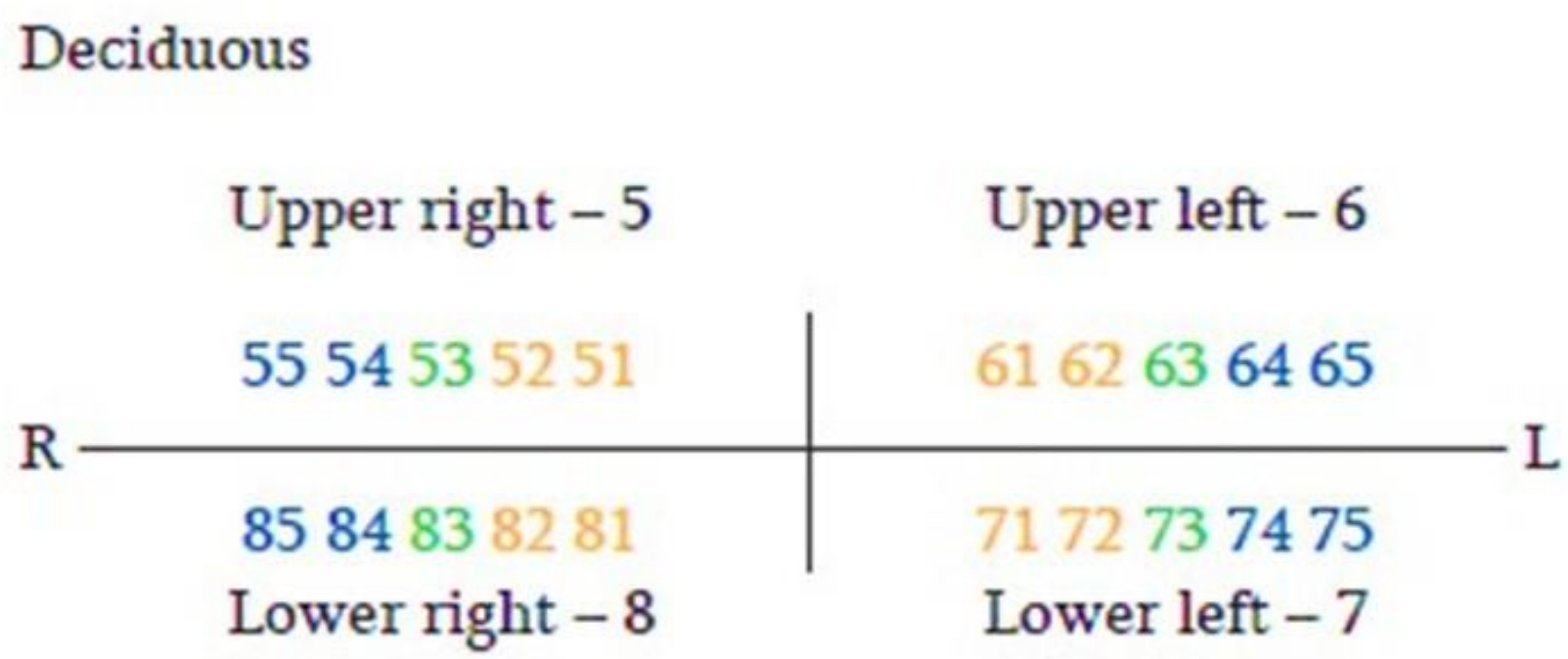
Lower left no. 7

Lower right no. 8 in a clockwise direction

6

6

84



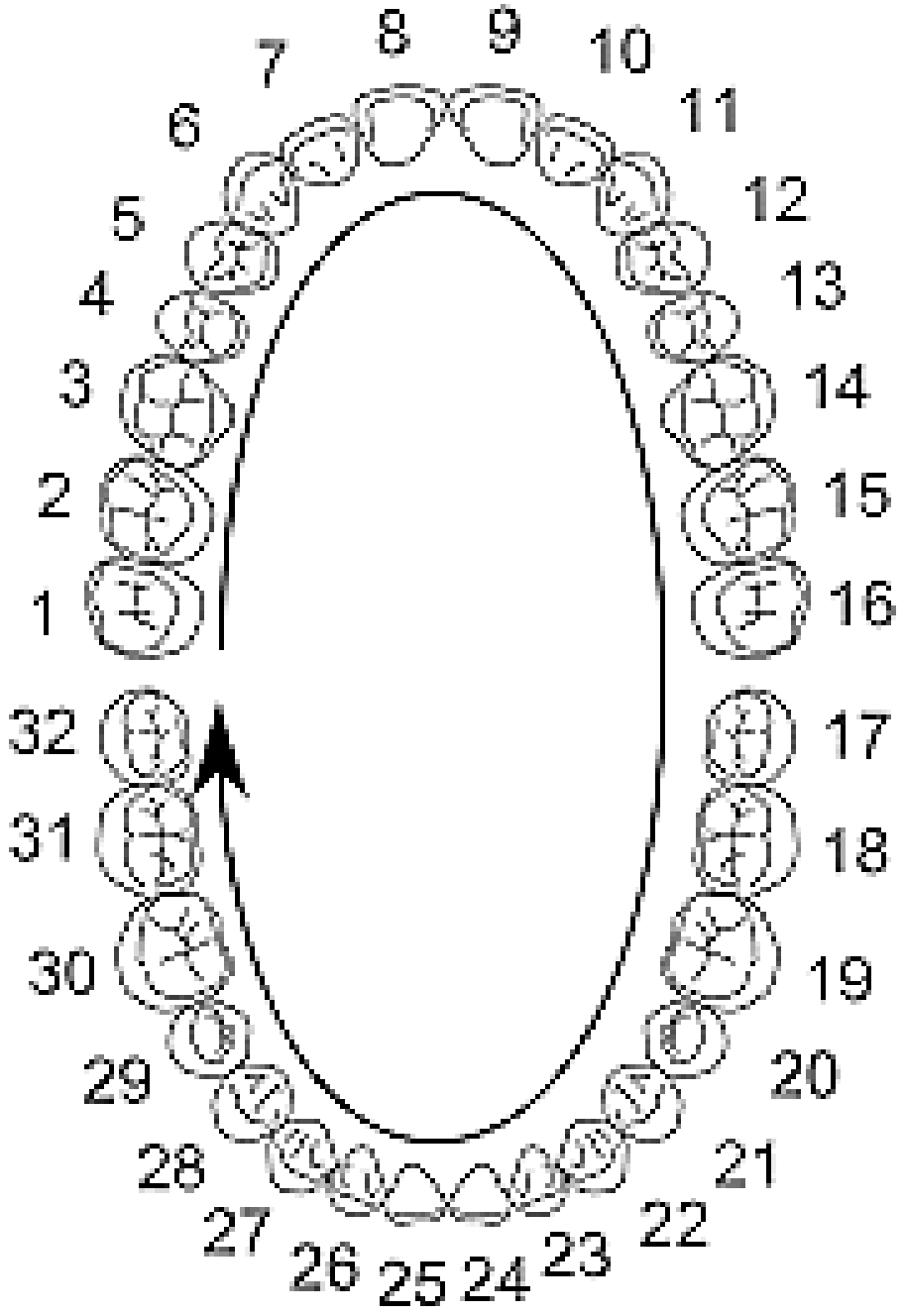
C. Universal system

(ADA-recommended, and A-T for primary teeth).

Permanent :uses numbers 1-32 for permanent teeth

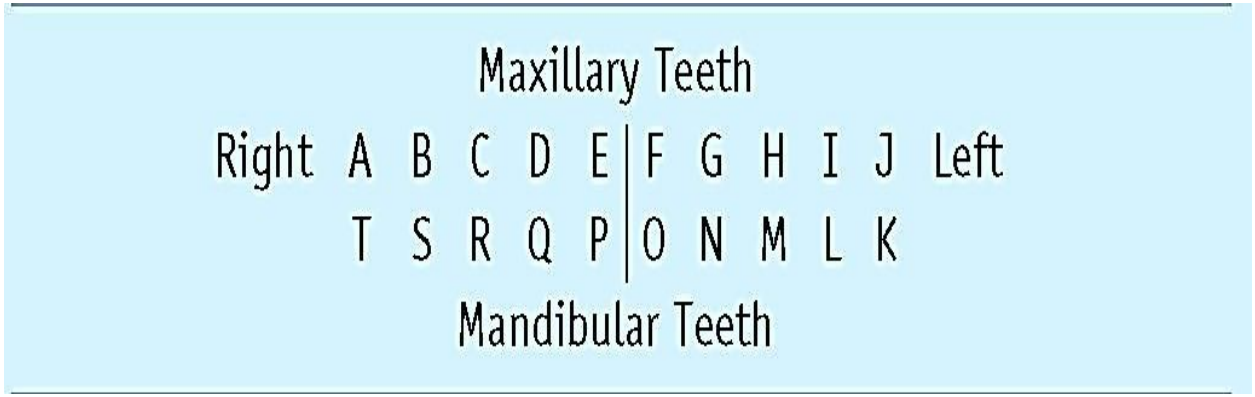
Starting from upper right 3rd molar(1) proceeding clockwise, and ending by lower right third molar (32).

It is always preceded by # sign

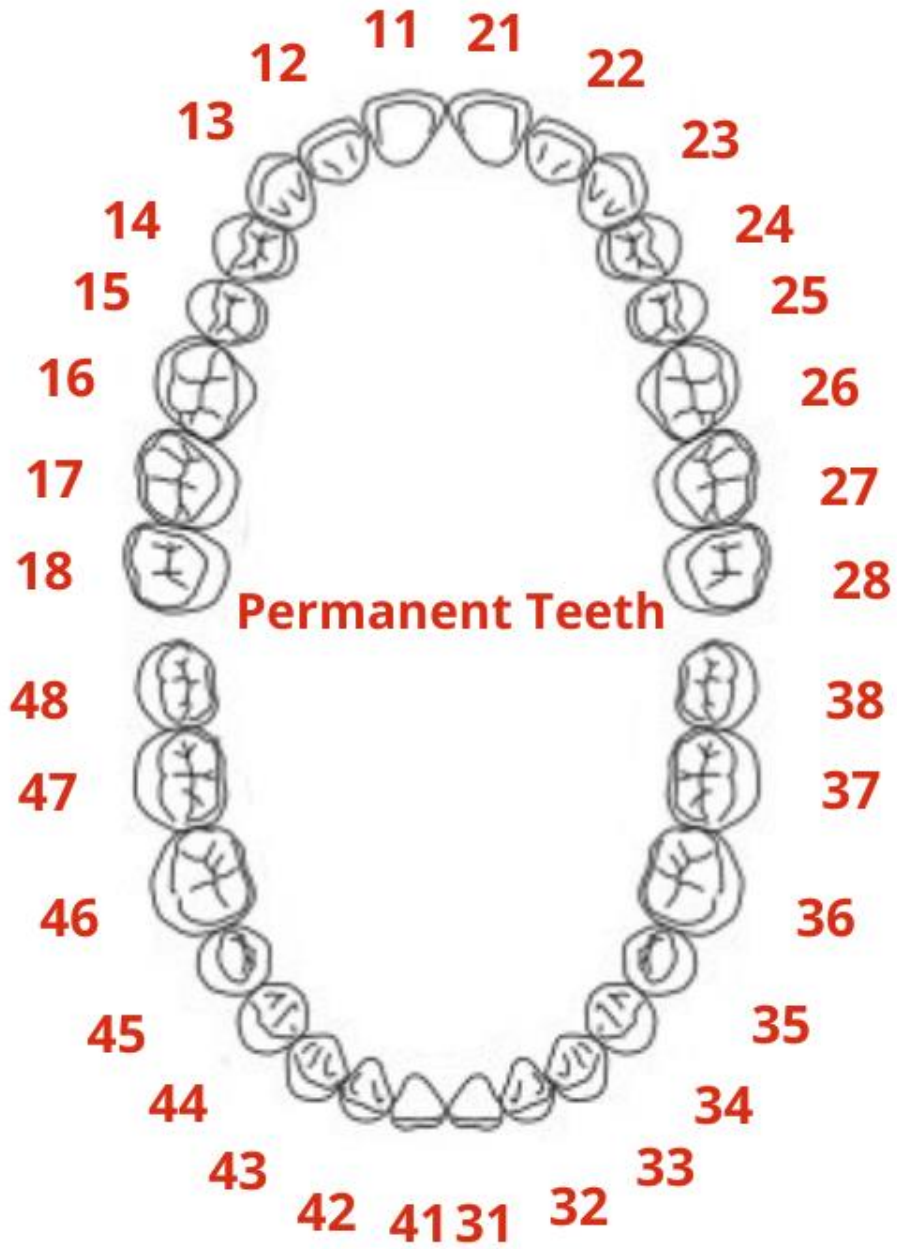


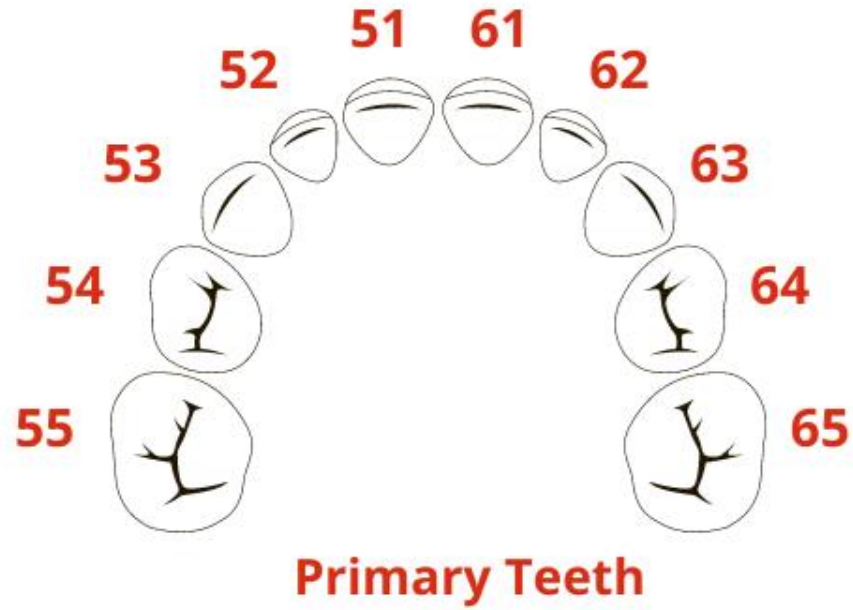
Deciduous:

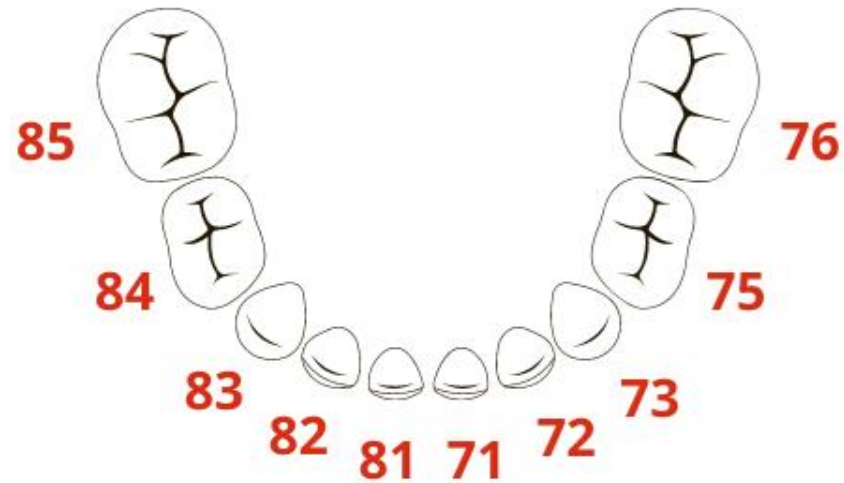
Uses Alphabet A-T for primary teeth



#O is lower left deciduous central incisor


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


51
61
52
62
53
63
54
64
55
65
Primary Teeth

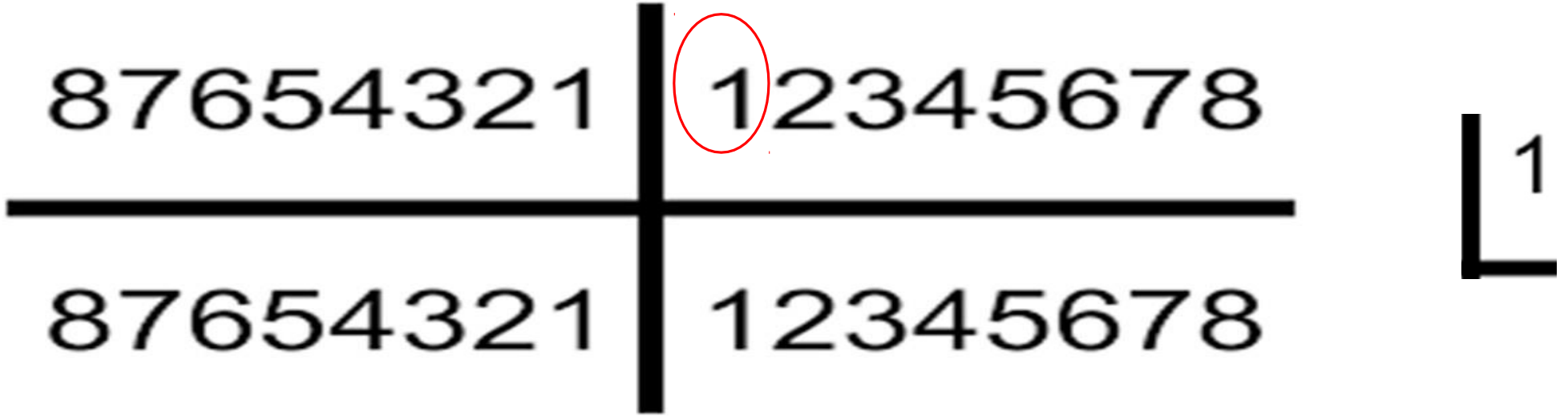

85
76
84
75
83
73
82
81
71
72

Permanent Teeth							
Upper Right							Upper Left
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
Lower Right							Lower Left

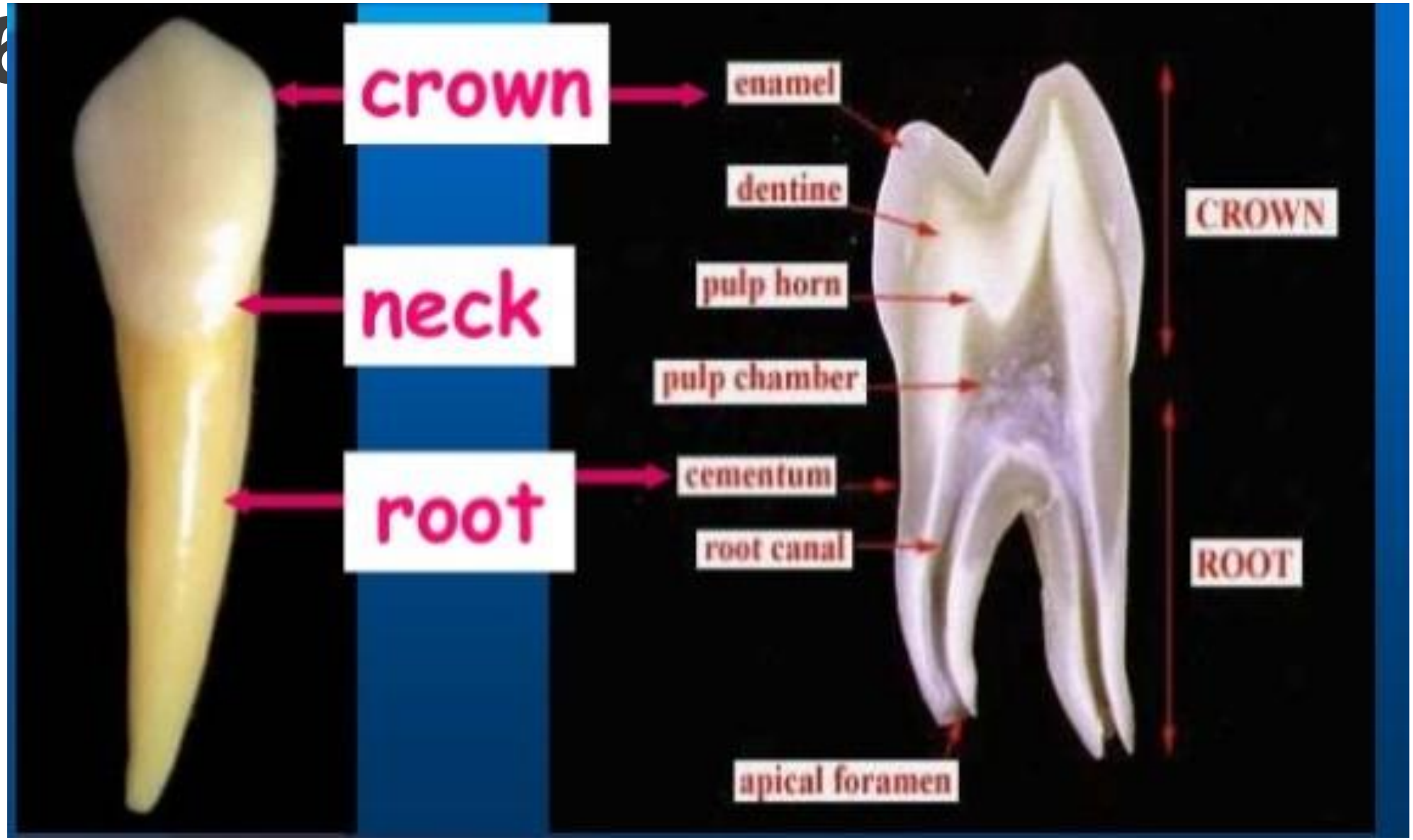
Permanent Teeth							
Upper Right							Upper Left
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Lower Right							Lower Left

Permanent Teeth

Upper Right								Upper Left							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
Lower Right								Lower Left							

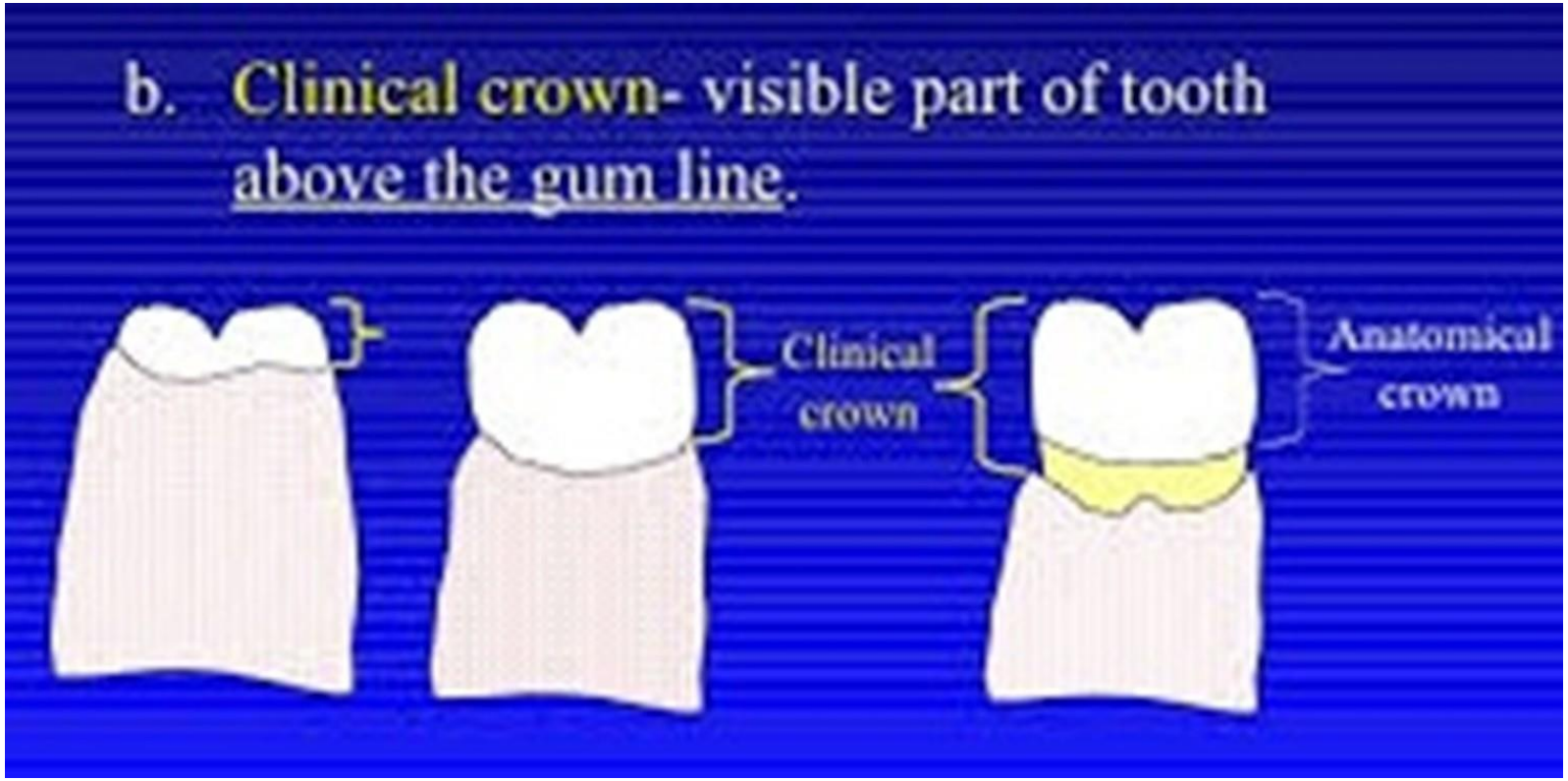


:Macro &micro anatomy.



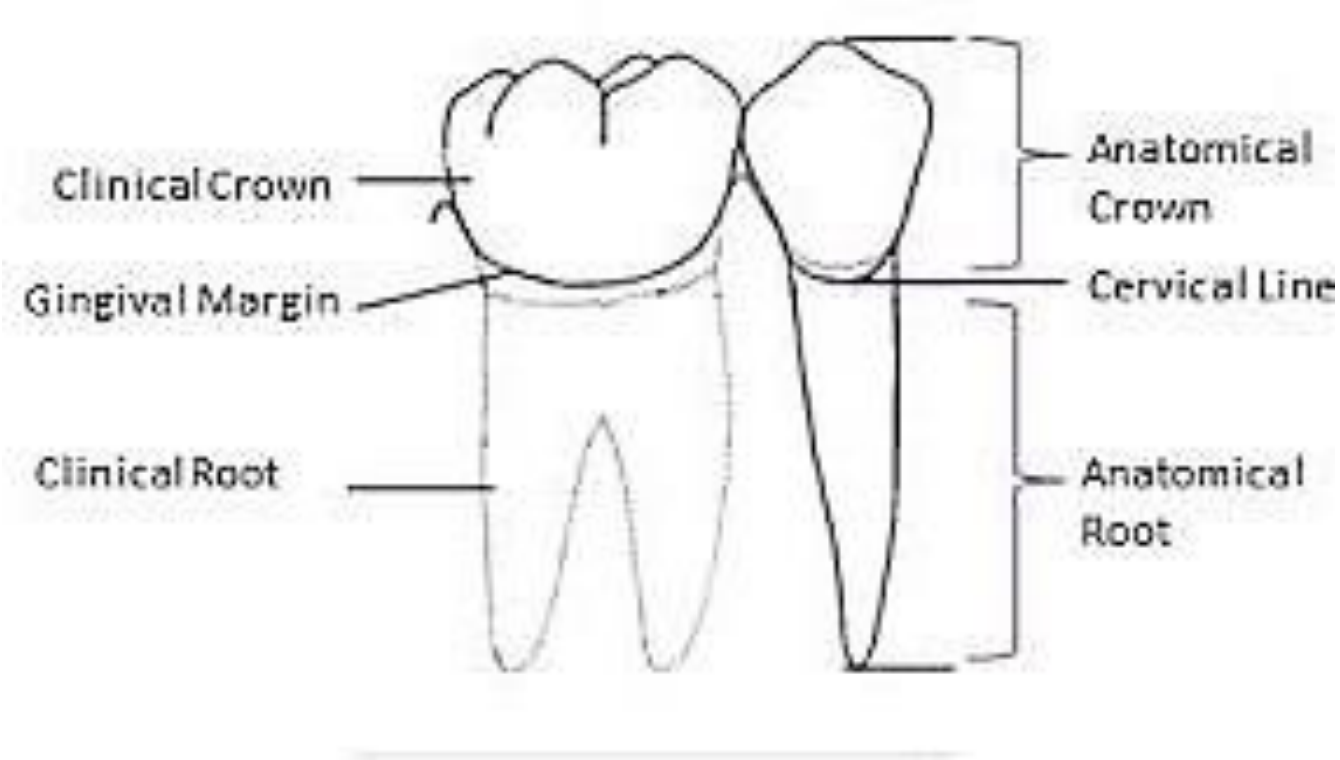
Anatomical Crown is that part of the tooth that is covered by Enamel or outer covering of the tooth. Its up to the cement-enamel junction.

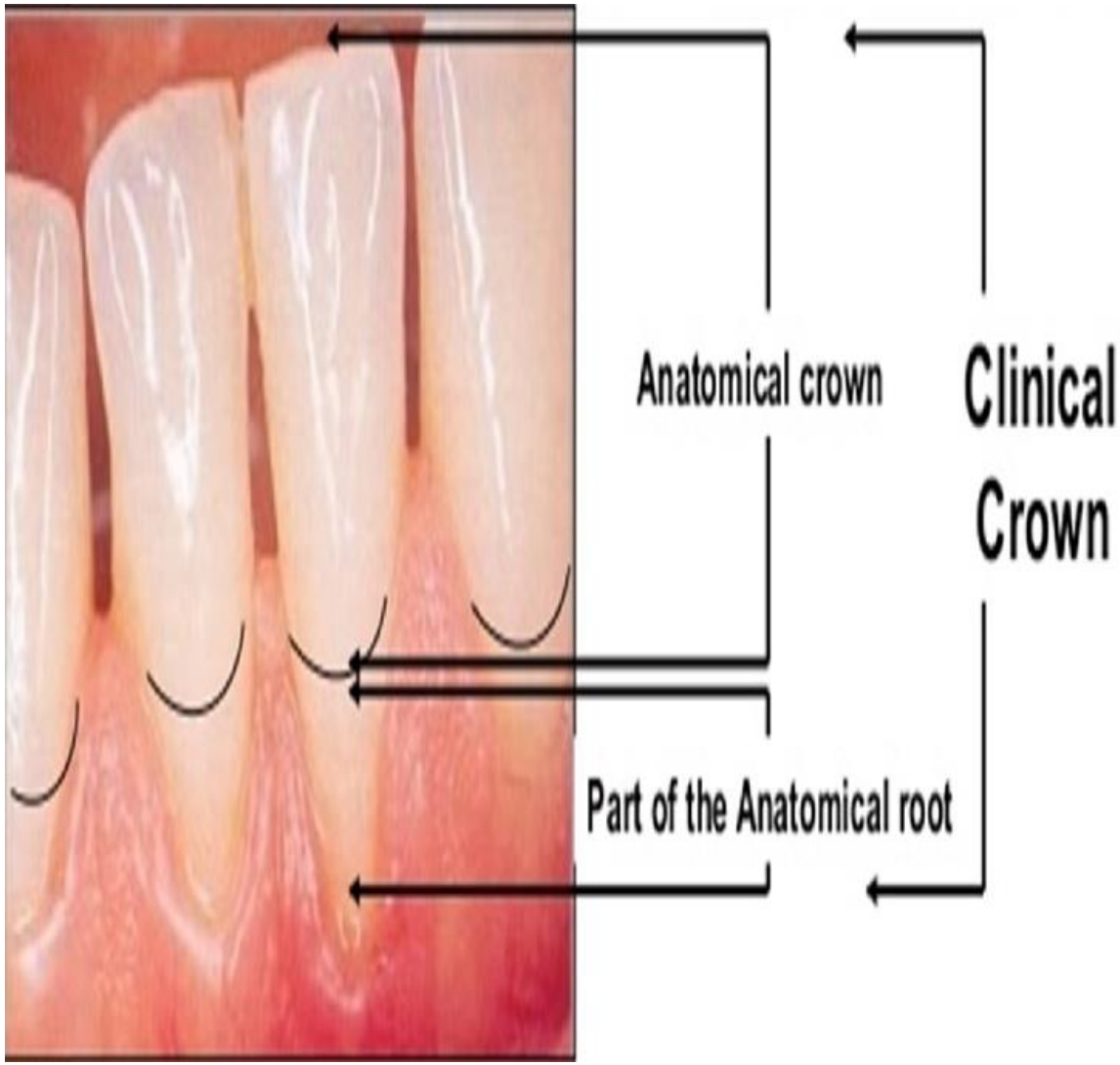
Clinical crown is that part that is visible in the oral cavity.

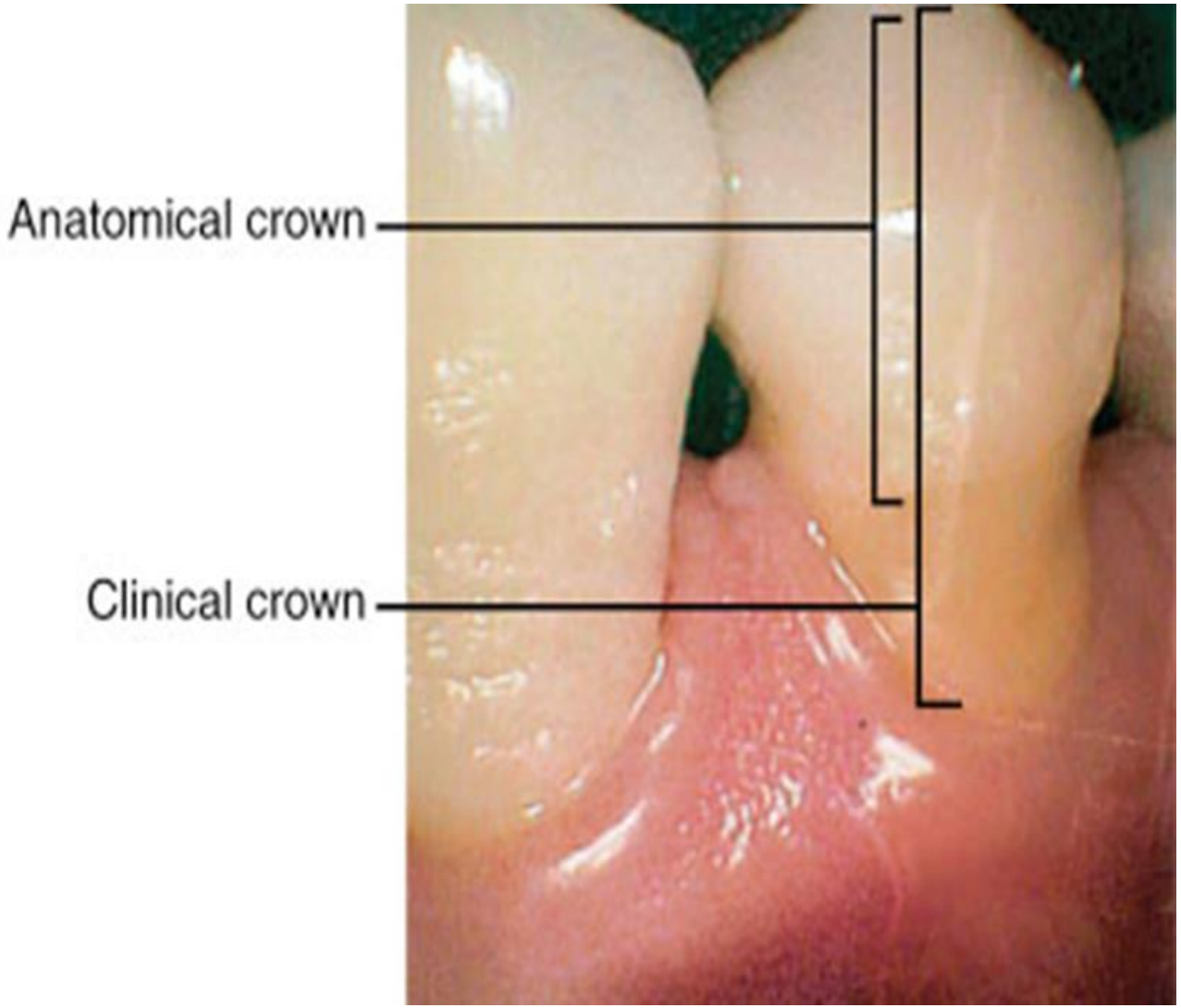


Anatomical root portion of root covered by cementum, defined by CEJ.

Clinical root: portion of root that is not visible in mouth.




Anatomical crown
Clinical
Crown
Part of the Anatomical root


Anatomical crown
Clinical crown

Surfaces of teeth.

7

Crowns of anterior teeth have 4 surfaces and edge. While those of posterior surfaces have 5 surfaces.

1. Facial
2. Lingual
3. Mesial
4. Distal
5. Incisal or occlusal

1. Facial surface

labial surface

The outside surface of anterior teeth facing lip

Buccal surface

The outside surface of posterior teeth facing cheeks (buccinator muscle)

2. lingual/ palatal surface:

The inner surface of teeth facing tongue or palate.

3. Mesial surface:

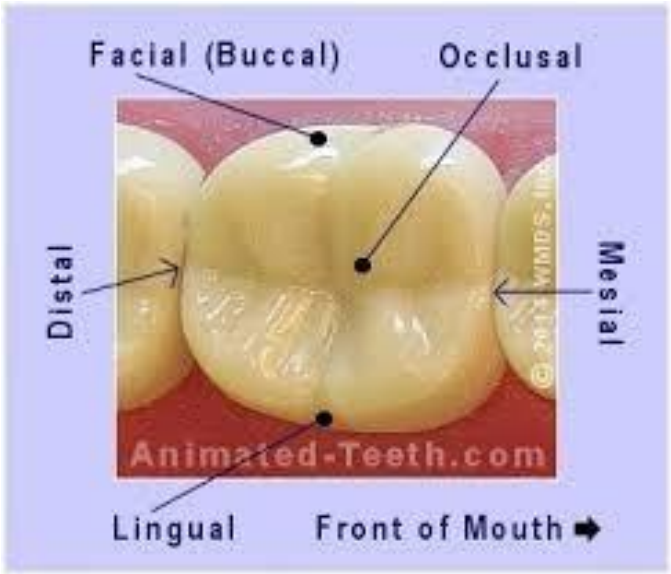
toward Midline

4. Distal surface:

Distant from midline

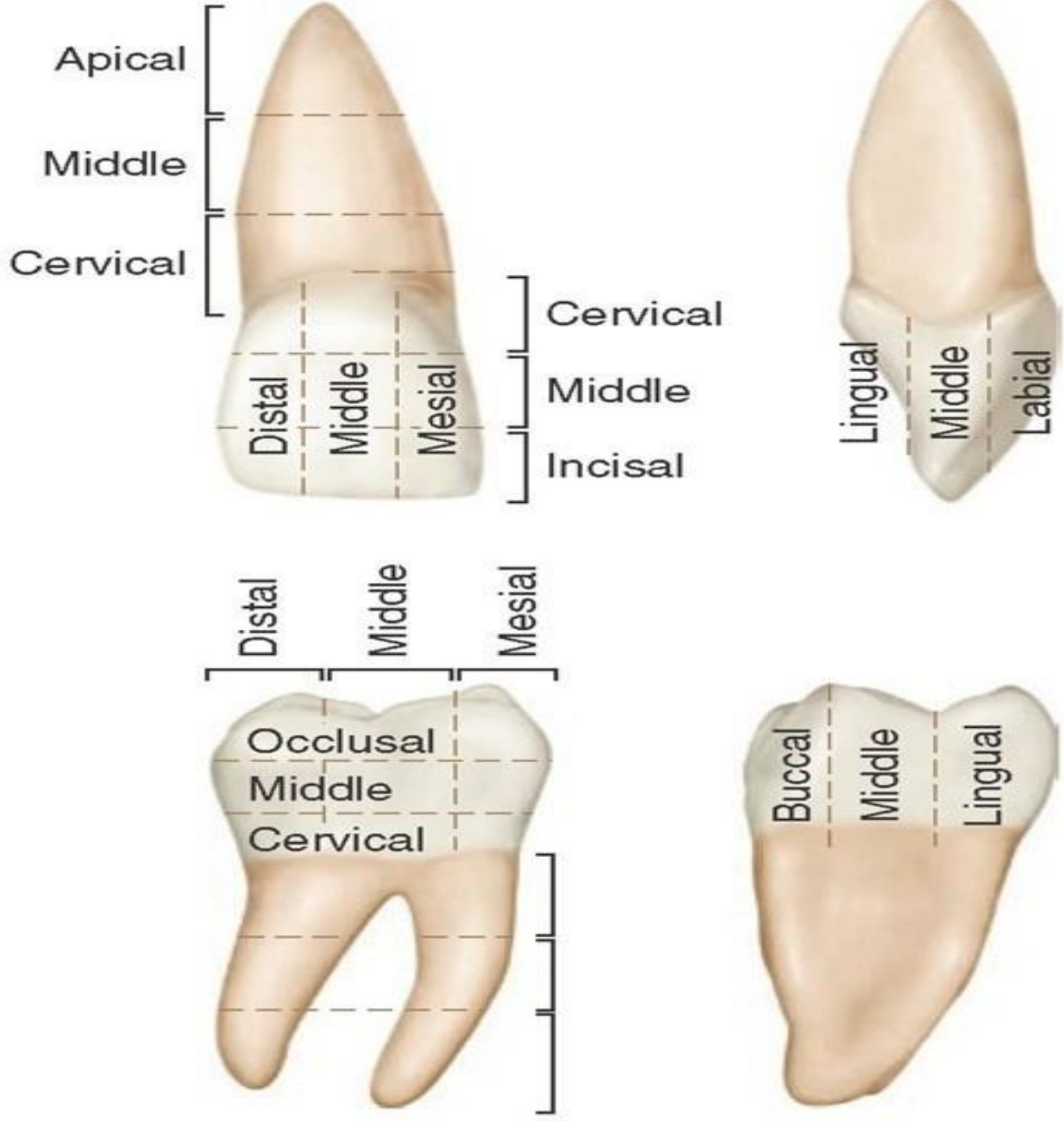
Incisal surface

Biting surface of anterior teeth



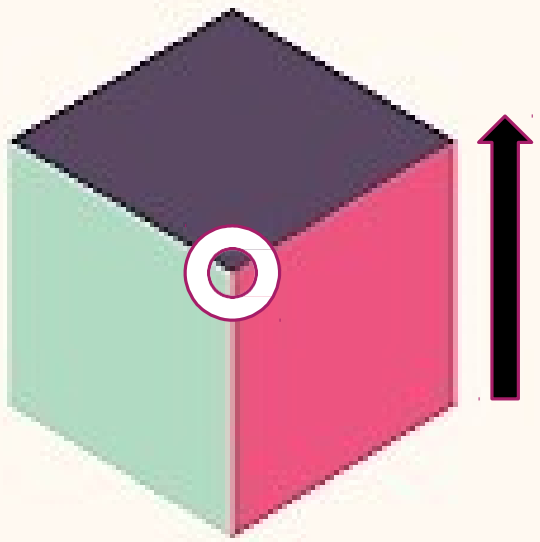
Occlusal surface

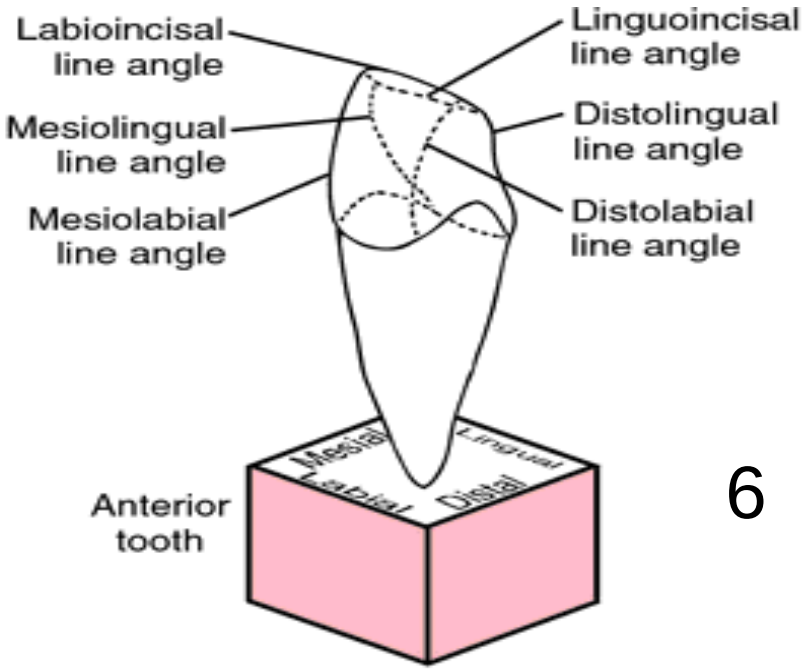
Chewing surface of posterior teeth


Apical
Middle
Cervical
Distal
Middle
Mesial
Cervical
Middle
Incisal
Lingual
Middle
Labial
Distal
Middle
Mesial
Occlusal
Middle
Cervical
Buccal
Middle
Lingual

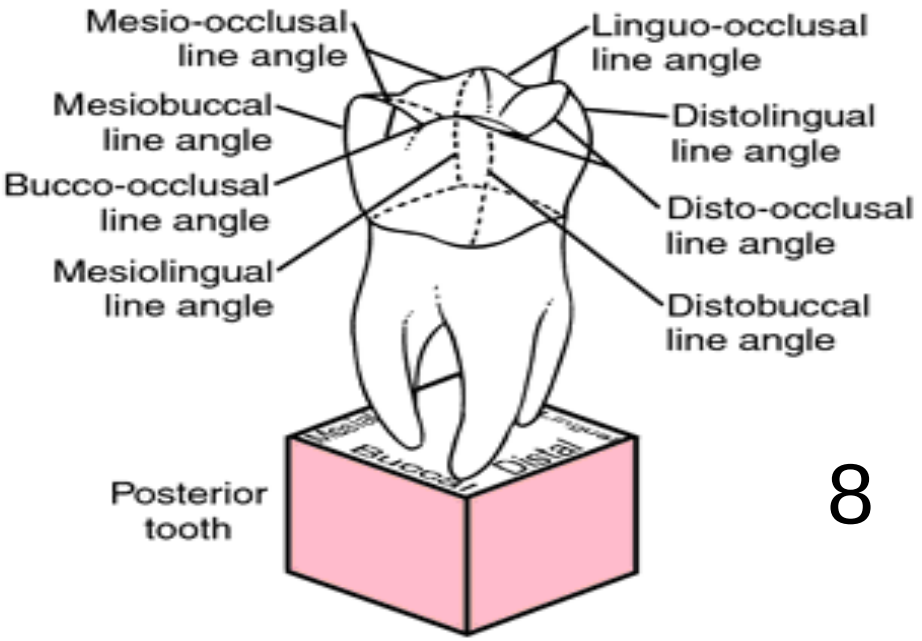
Line and point angles. **8**

- Line angle: is the junction between 2 adjacent surfaces and it is named according to the 2 surfaces sharing in its formation.
- Point angle: is the junction between 3 adjacent surfaces and it is named according to the 3 surfaces sharing in its formation meeting in a point

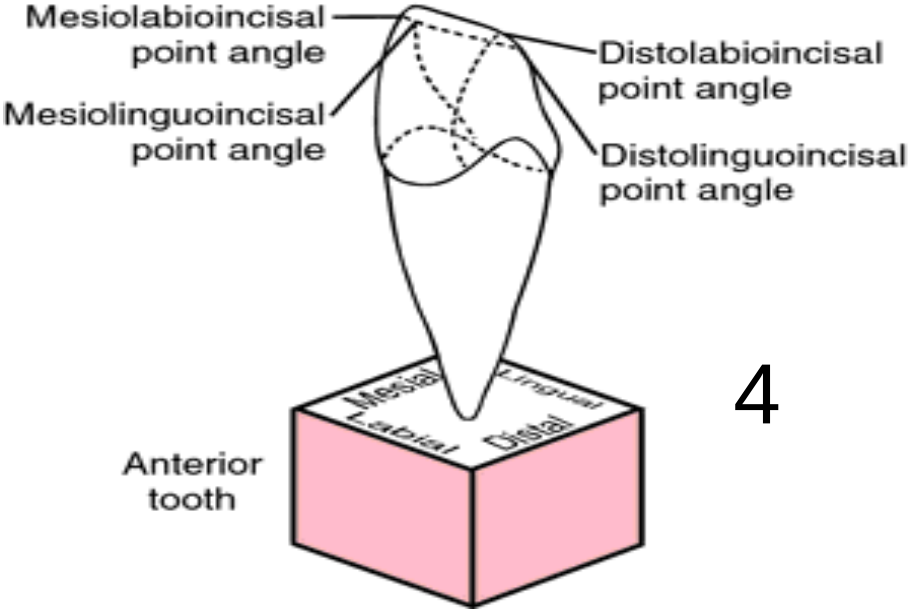



Labioincisal line angle
Linguoincisal line angle
Mesiolingual line angle
Distolingual line angle
Mesiolabial line angle
Distolabial line angle
Anterior tooth
Mesial
Lingual
Labial
Distal

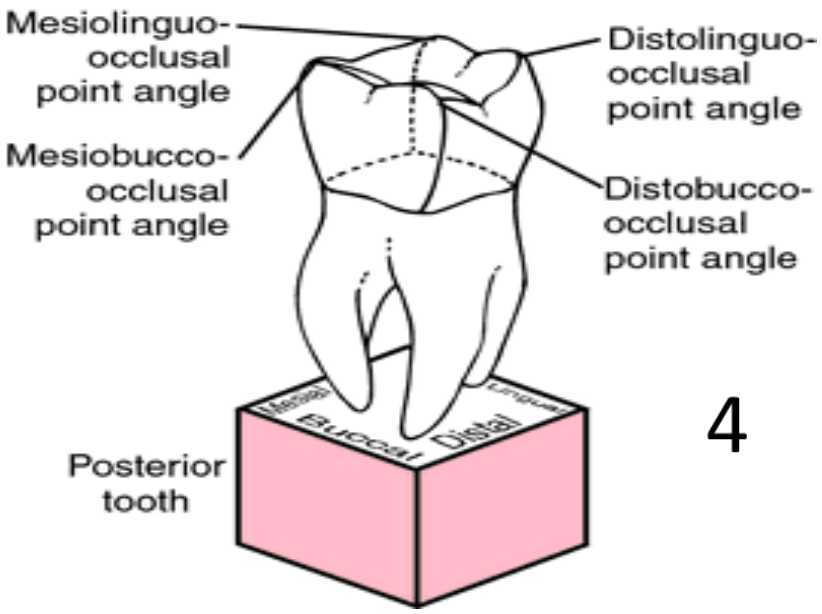
6


Mesio-occlusal line angle
Linguo-occlusal line angle
Mesiobuccal line angle
Distolingual line angle
Bucco-occlusal line angle
Disto-occlusal line angle
Mesiolingual line angle
Distobuccal line angle
Posterior tooth
Buccal
Distal

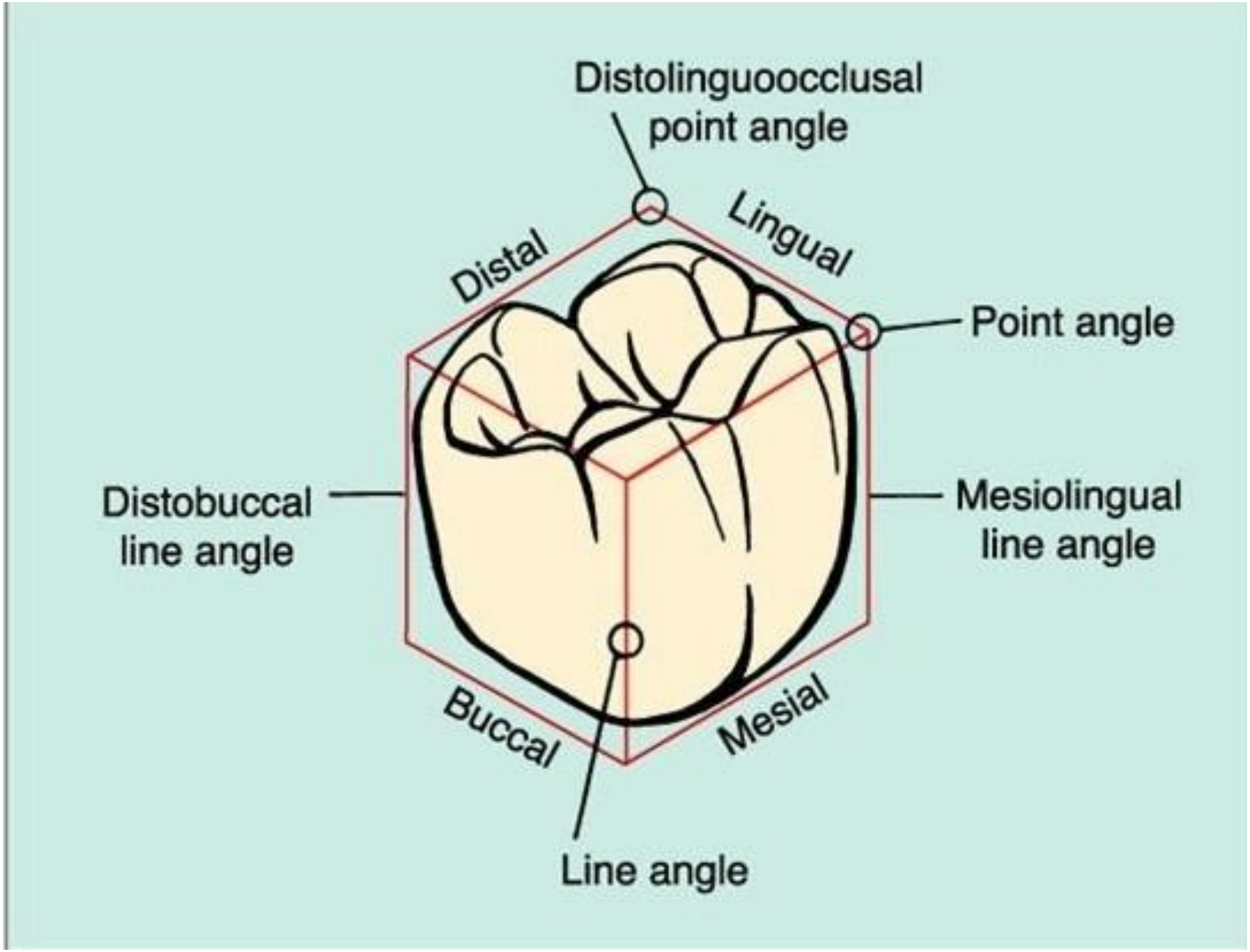
8


Mesiolabioincisal point angle
Distolabioincisal point angle
Mesiolinguoincisal point angle
Distolinguoincisal point angle
Anterior tooth
Mesial
Lingual
Labial
Distal

4


Mesiolinguo-occlusal point angle
Distolinguo-occlusal point angle
Mesiobucco-occlusal point angle
Distobucco-occlusal point angle
Posterior tooth
Buccal
Distal

4


Distolinguoocclusal
point angle
Lingual
Distal
Point angle
Distobuccal
line angle
Mesiolingual
line angle
Buccal
Mesial
Line angle

Post Test

1) Which of the following describes the transition from primary to permanent dentition?

a) Mixed dentition
b) Partial dentition
c) Deciduous dentition
d) Succedaneous dentition

2) In the FDI system, what number represents the upper left first molar?

a) 16
b) 26
c) 36
d) 46

3) Which of the following tooth surfaces faces the lips or cheeks?

a) Lingual
b) Occlusal
c) Facial
d) Incisal

4) A tooth is divided into three sections vertically and horizontally. What is the middle third of the crown called?

a) Cervical third
b) Incisal/Occlusal third
c) Middle third
d) Apical third

5) Which of the following is TRUE about line and point angles?

a) A line angle is formed by the junction of three surfaces
b) A point angle is formed by the junction of two surfaces
c) A point angle is formed by the junction of three surfaces
d) Line and point angles are only found on posterior teeth