

Dental anatomy

It is the morphology of the various teeth in the human dentitions and knowledge of how the shape ,form ,structure,color,function of the teeth relate to each other in the same dental arch and to the teeth in the opposing arch.



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Dentition : is a term that describes all of the upper and lower teeth collectively

Clinically, there are three dentitions.

➡ **The primary dentition**

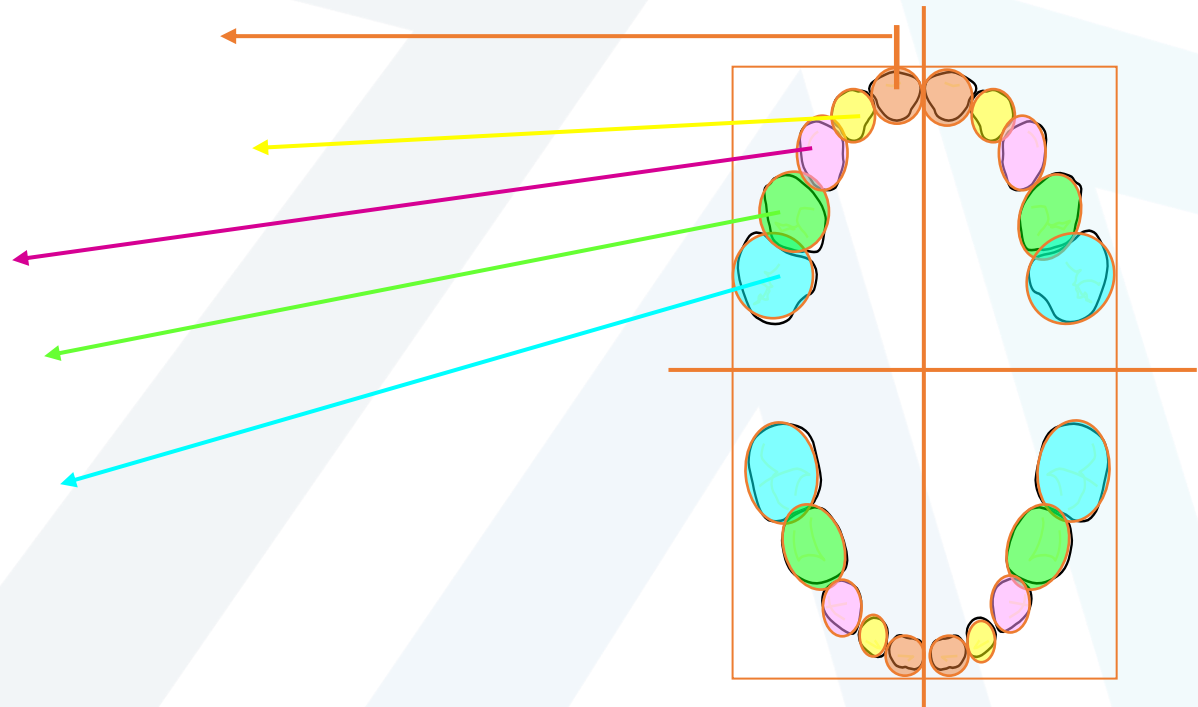
➡ **The mixed dentition**

➡ **The permanent dentition**

primary dentition

Teeth in each quadrant.

- (1) Central incisor
- (2) Lateral incisor
- (3) Cuspid
- (4) 1st molar
- (5) 2nd molar

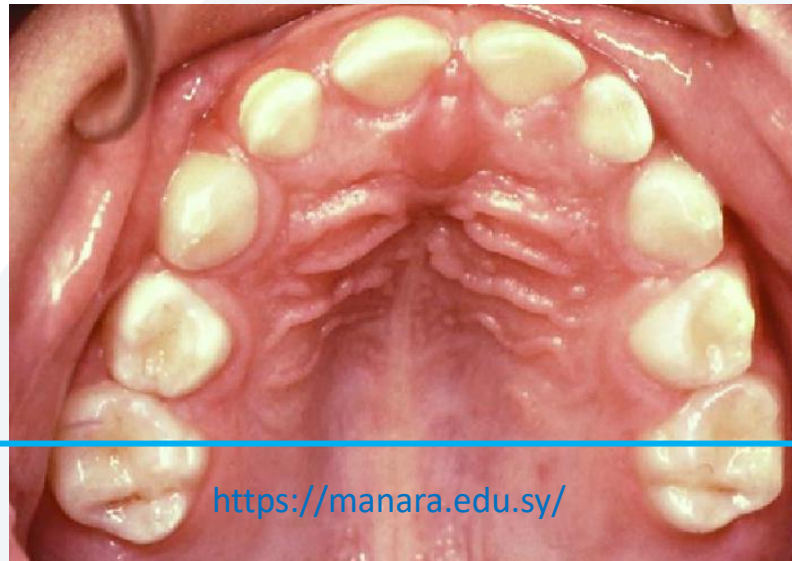


primary dentition

The primary dentition consists of 20 teeth in all: **ten** upper and **ten** lower teeth.

Primary teeth may also be called 'baby' teeth, deciduous, 'milk', or lacteal teeth.

Primary teeth begin to appear at about age six months and are entirely replaced by about ages 12 - 13.

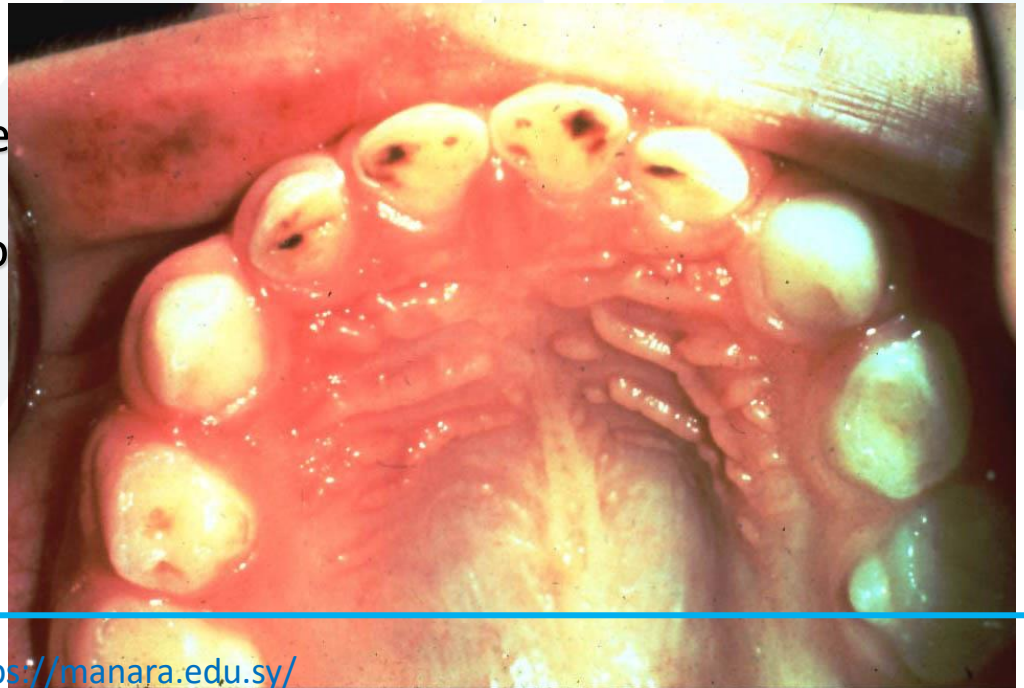




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Teeth in primary dentition are smaller and fewer in number than permanent dentition to conform to the smaller jaw size





The permanent dentition

The permanent dentition is composed of **32 teeth** in all, **16 upper and 16 lower**.

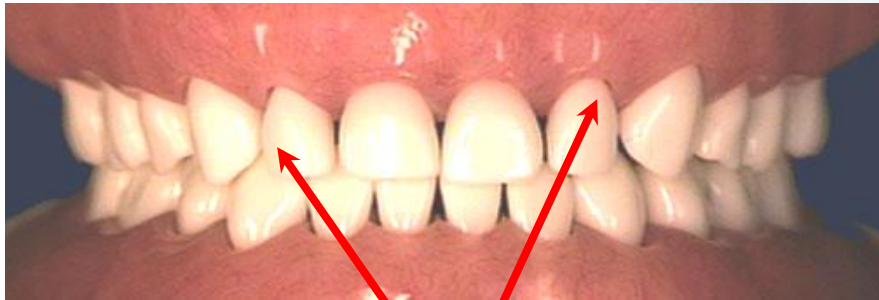
Half of a dental arch (primary or permanent) is called a quadrant. The permanent teeth that replace deciduous teeth are called **succedaneous teeth**. (Succedaneous means literally, to replace). In dental science, permanent teeth that replace deciduous teeth are called **successional teeth**. Permanent molars, which replace nothing are called **accessional teeth**.)



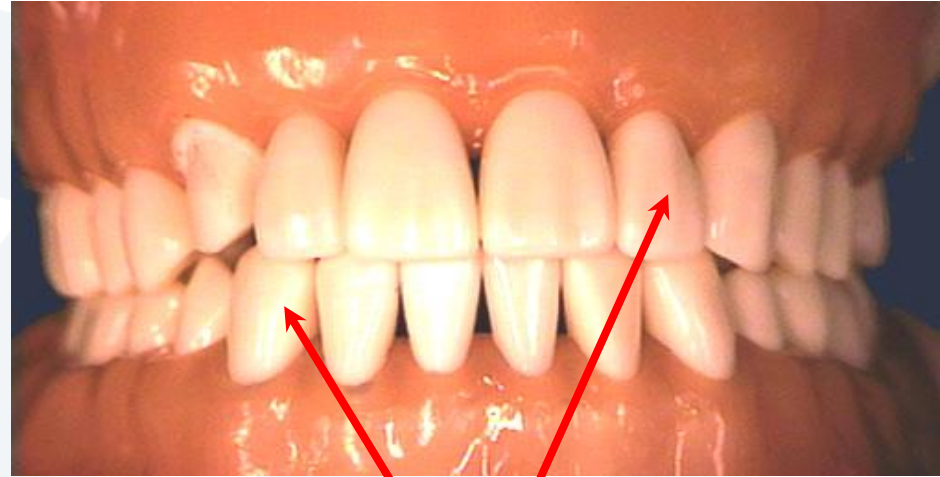
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- Premolars - which replace deciduous molars
- Molars are not considered as succedaneous teeth





Primary



Permanent

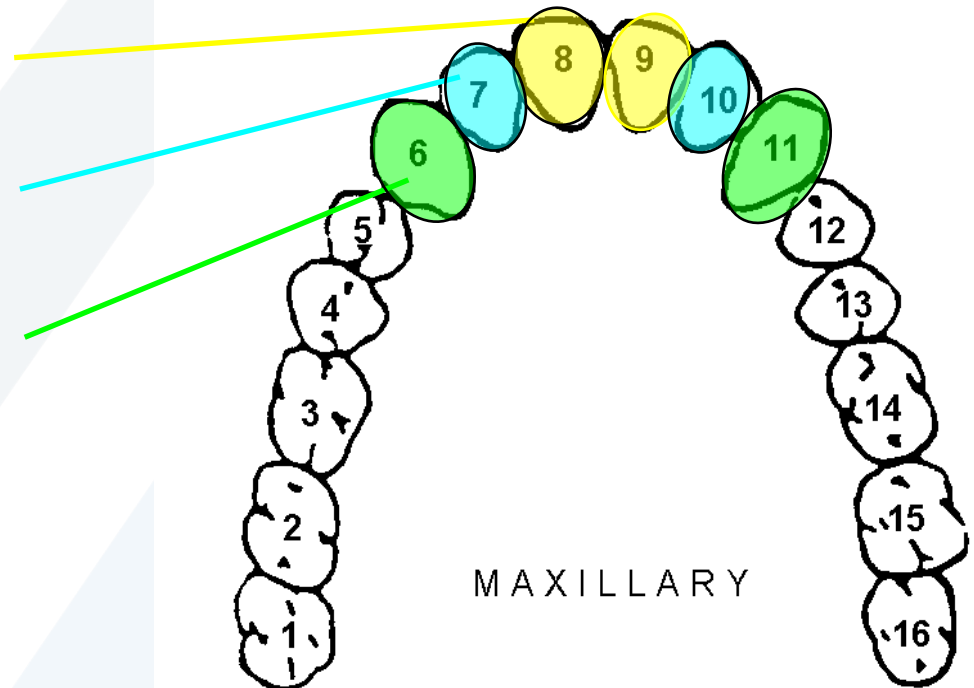


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Permanent Teeth

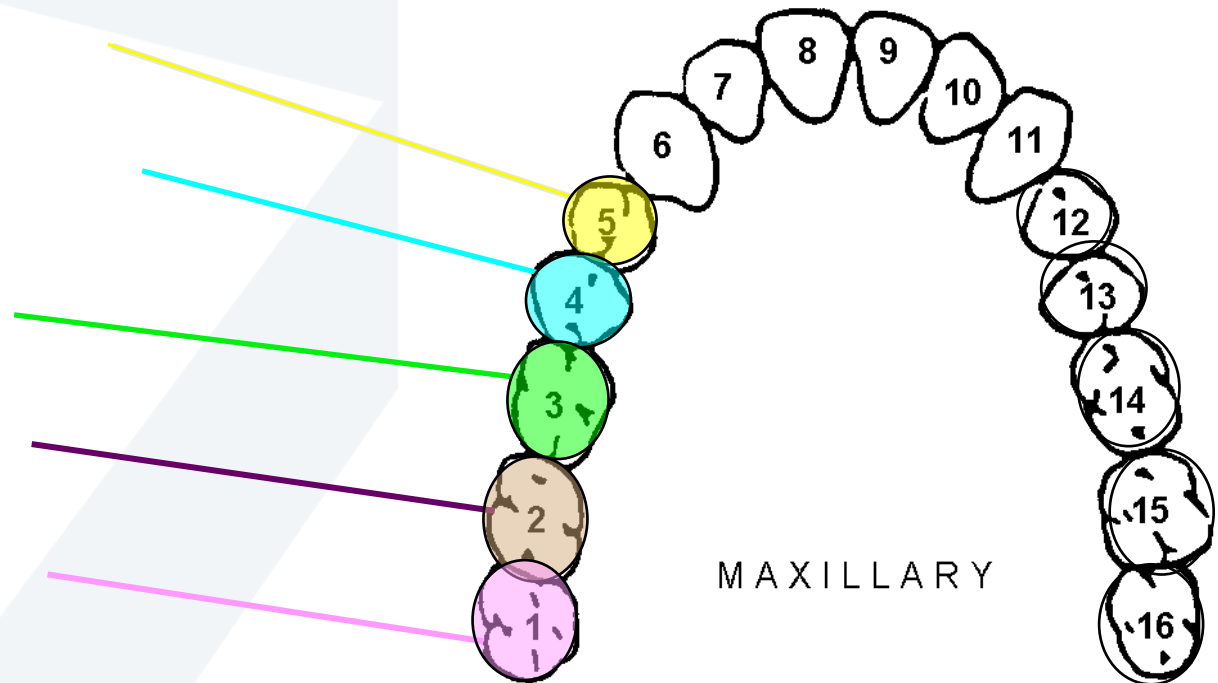
Teeth in each quadrant

- (1) Central incisor.
- (2) Lateral incisor.
- (3) Cuspid (canine).



Permanent Teeth

- (4) 1st bicuspid
- (5) 2nd bicuspid
- (6) 1st molar
- (7) 2nd molar
- (8) 3rd molar
(wisdom tooth)



The mixed dentition

The mixed dentition is composed of both **primary and permanent teeth**.

It's begin with the eruption of the first of the permanent teeth at about age six, and ends with the loss of the last of the deciduous teeth at about the age of 12-13 years.

The mixed dentition



It is often the difficult time for the young children because of habits, missing teeth, teeth of different colors and hues, crowding of the teeth and malposed teeth



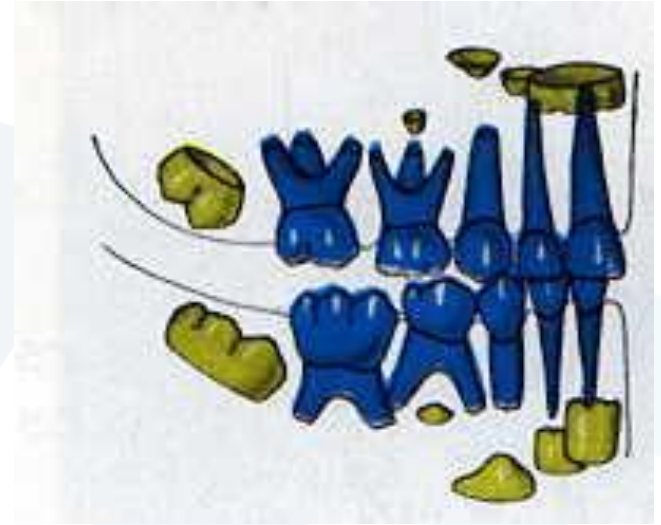
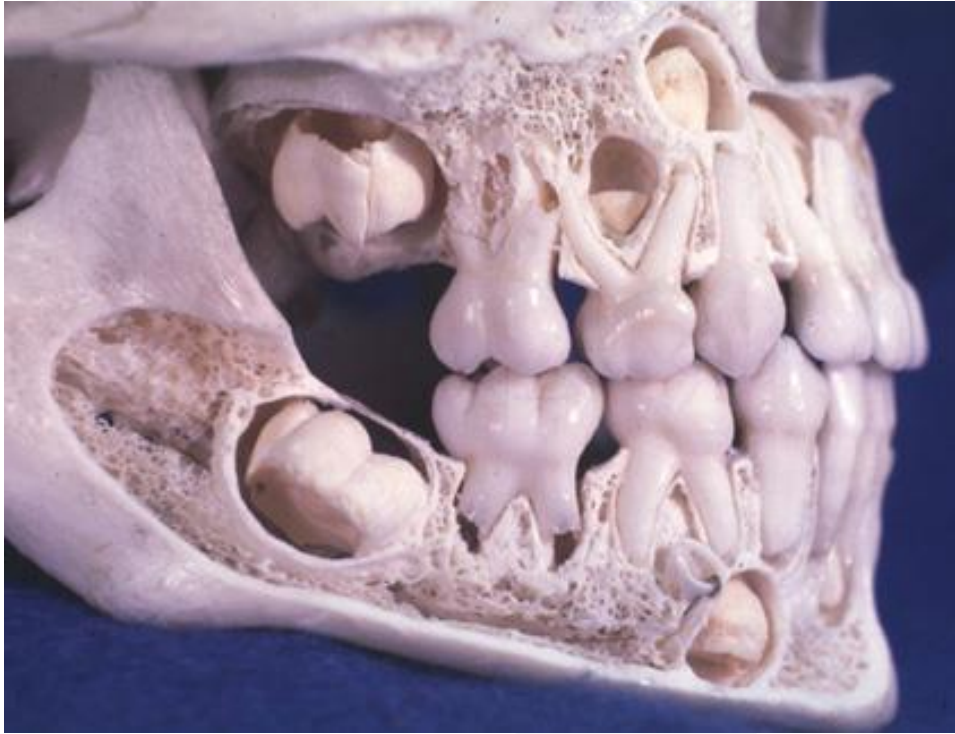
Primary Dentition



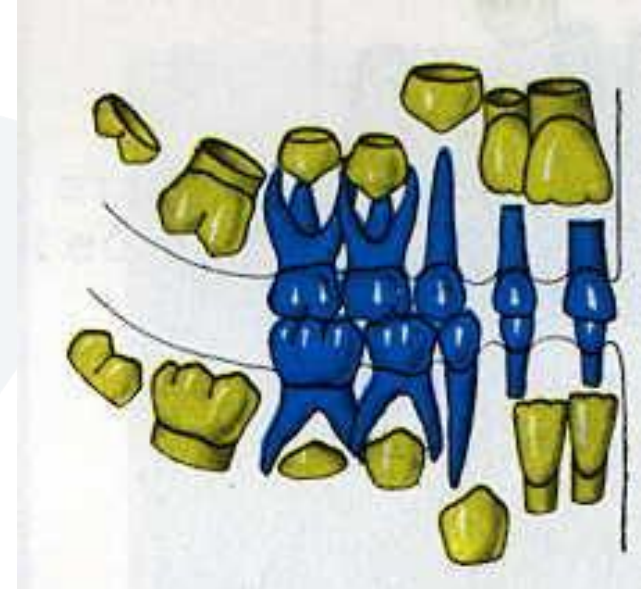
There are 20 teeth in the primary dentition

10 maxillary - 10 mandibular

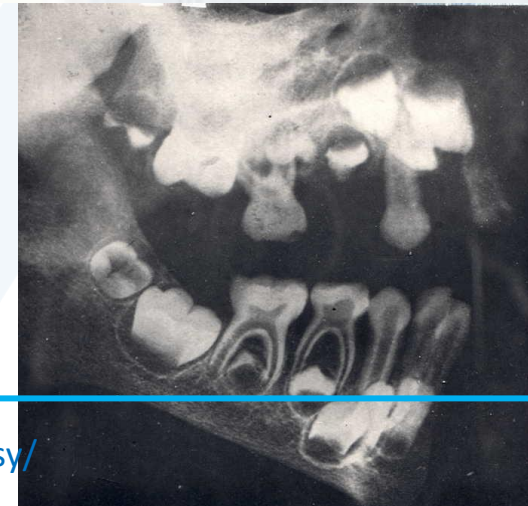
This dentition is also termed the deciduous dentition



Age 2 Years



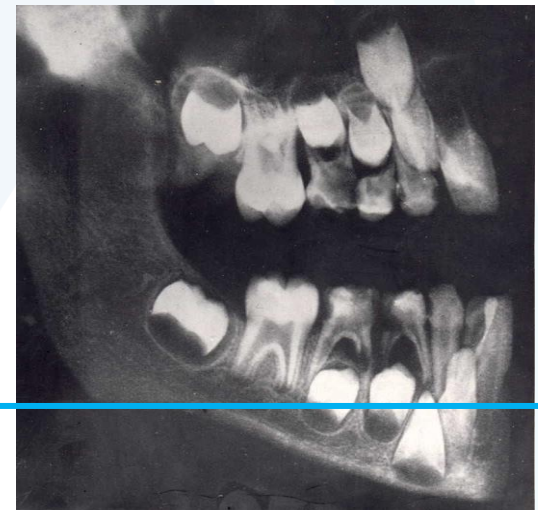
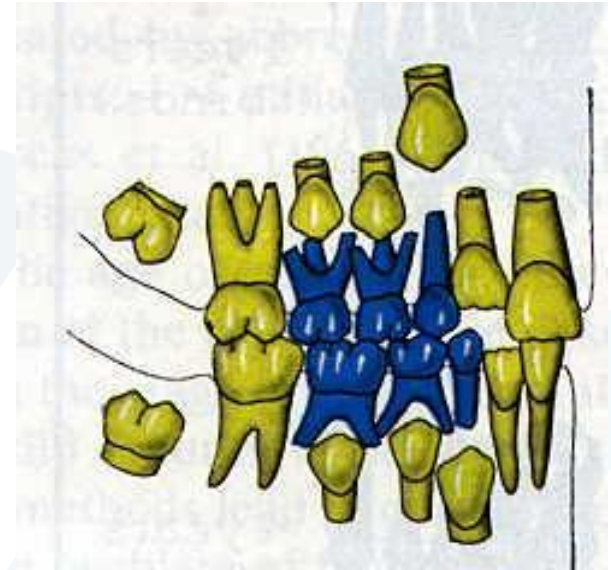
Age 5 Years



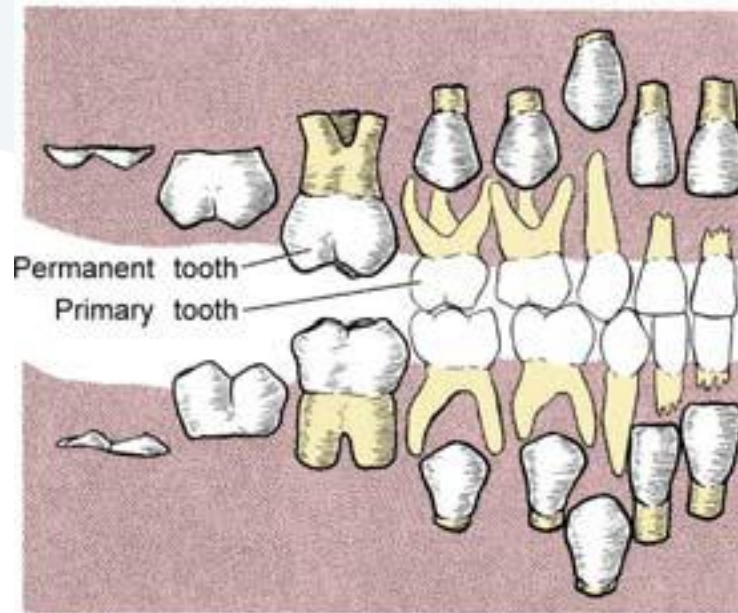
The mixed dentition



**Human jaws at 8 to 9 years of age
during the mixed dentition period.**

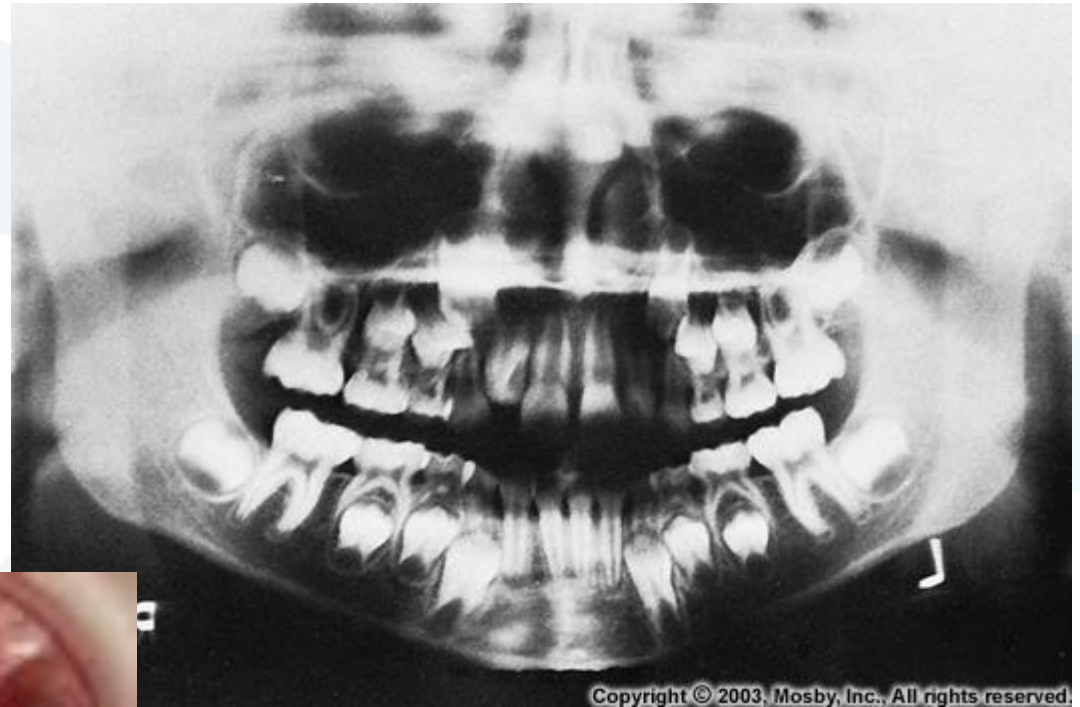


The mixed dentition



The relationship between primary and permanent teeth during the mixed dentition period.

mixed dentition



Dental Formula

Expresses the type and number of teeth per side.

•

Dental Formula

Primary teeth. It is said as: incisors, two upper and two lower; canines, one upper and one lower; molars two upper and two lower equals ten per side.

$$\begin{array}{ccc} 2 & 1 & 2 \\ | \text{---} C \text{---} M \text{---} & = & 10 \\ 2 & 1 & 2 \end{array}$$

Primary Dentition



Dental Formula



Permanent teeth. It is said as: incisors, two upper and two lower; canines, one upper and one lower; premolars, two upper and two lower; and molars, three upper and three lower.

Comment: You won't use it clinically, but you should be aware of it.

$$\begin{array}{ccccccc} 2 & 1 & 2 & 3 & & & \\ | & \text{---} & \text{C} & \text{---} & \text{Pm} & \text{---} & \text{M} & \text{---} & = 16 \\ 2 & 1 & 2 & 3 & & & \end{array}$$



Dental Notation

Tooth Identification Systems

is the name for the way we identify teeth when we are writing them down

It is necessary for recording data.

Tooth Numbering Systems



Universal/National Numbering System

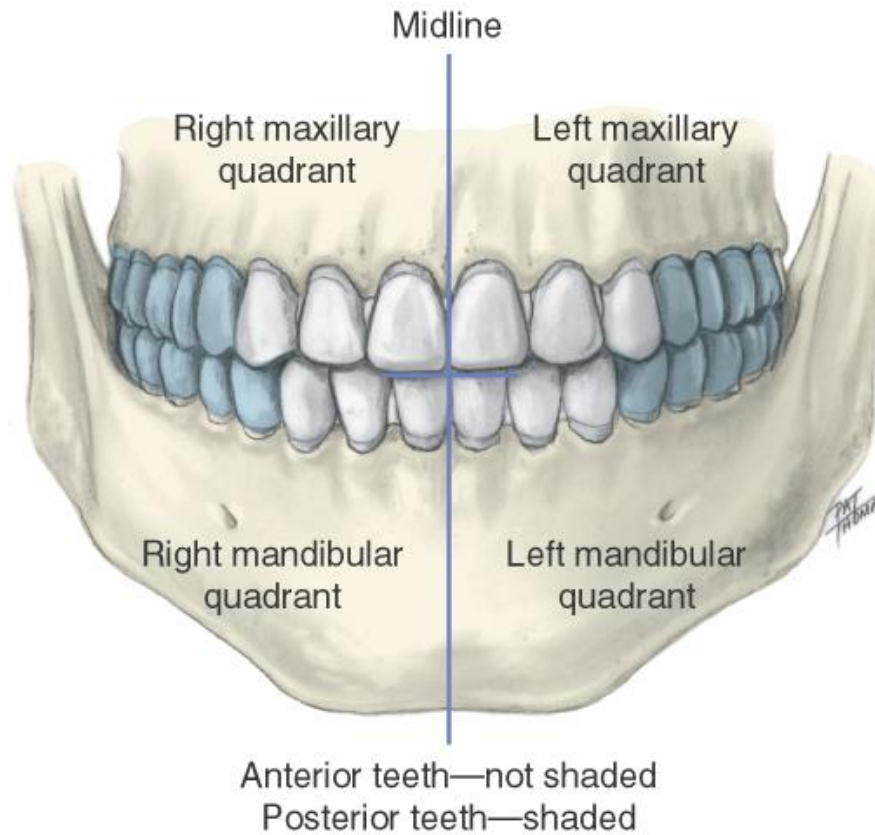


Federal Dental International (FDI)



Palmer Notation System

Classes of Teeth



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Tooth Numbering Systems



Universal/National Numbering System

-The Universal numbering system: first suggested by Parreidt 1882.

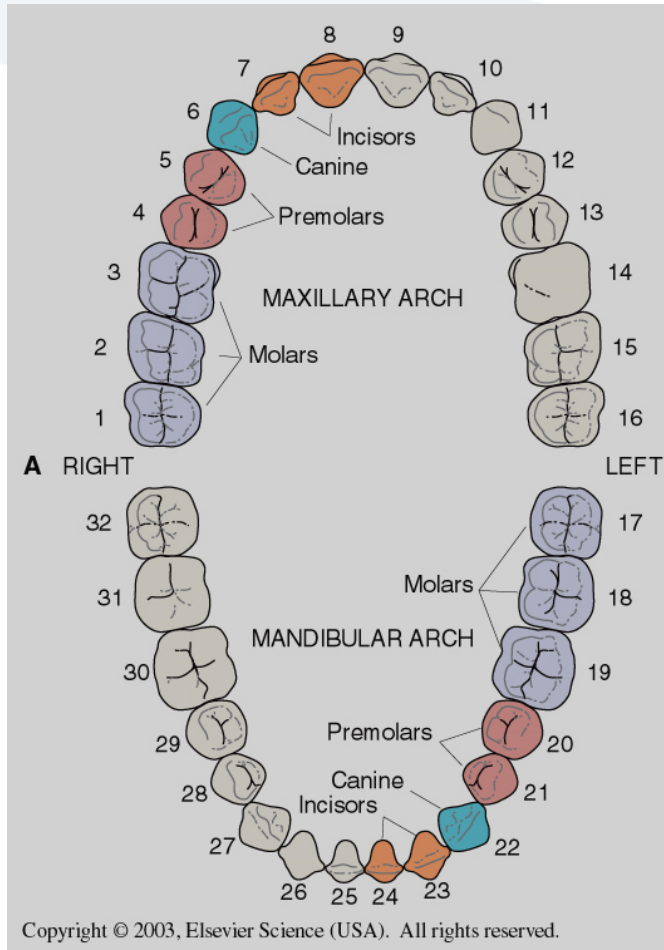
Approved by the American Dental Association in 1968.

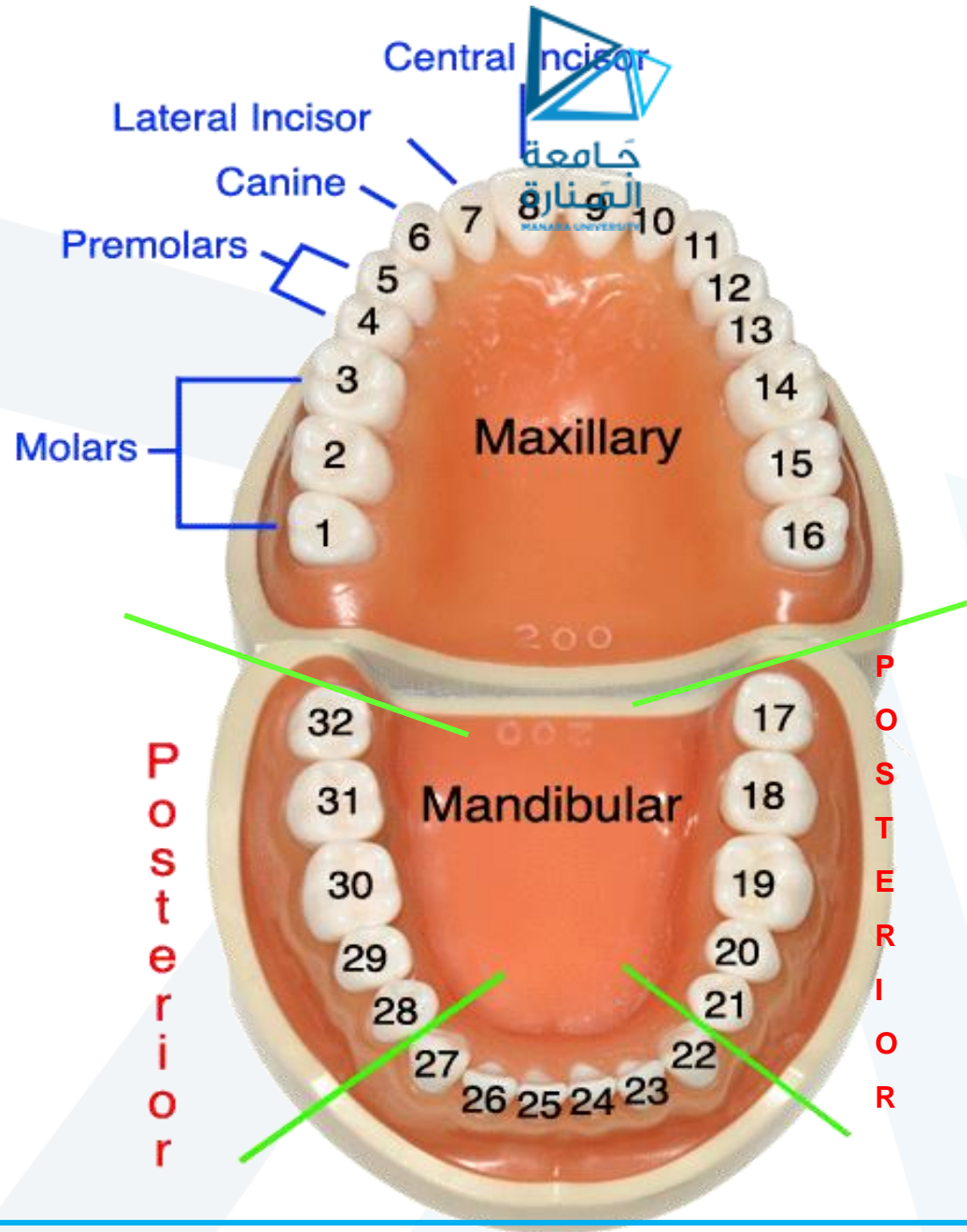
Most commonly used throughout the United States.

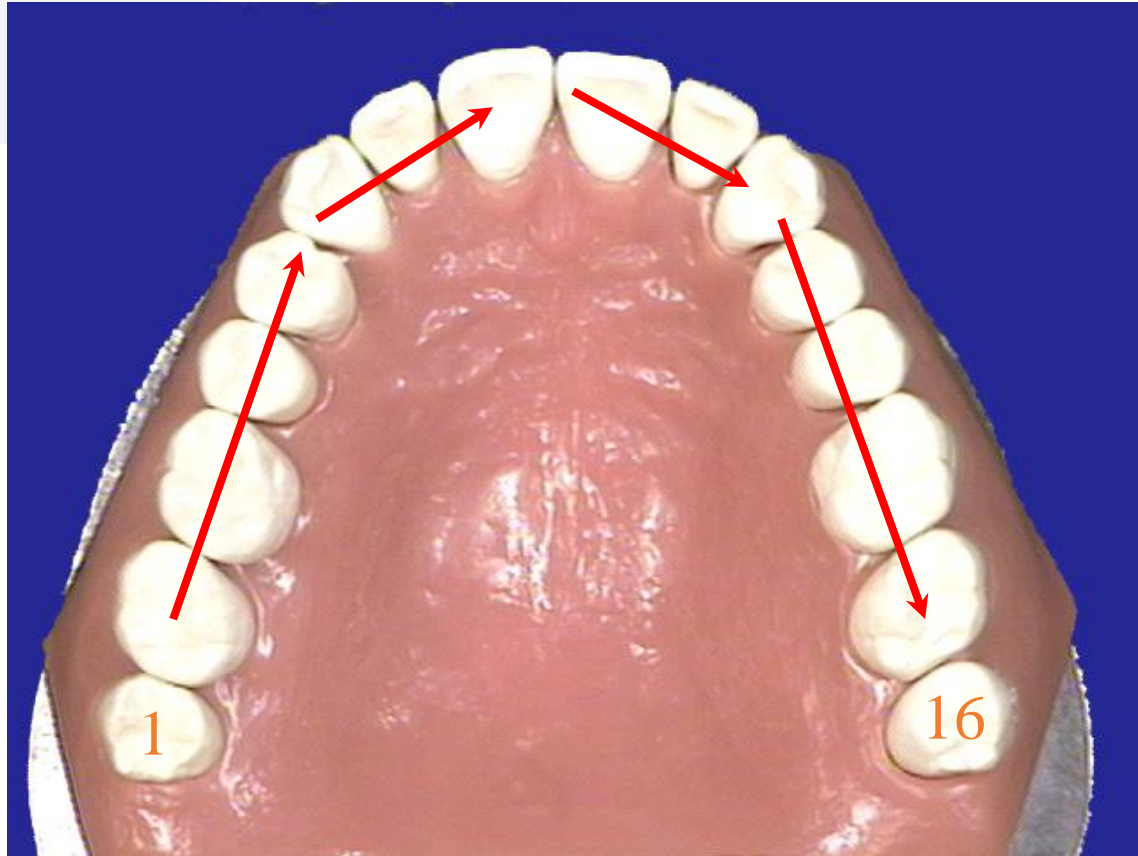
The permanent teeth are numbered from 1 to 32.

Numbering begins with the upper right third molar, works around to the upper left third molar, drops to the lower left third molar, and works around to the lower right third molar.

Universal/National Numbering System

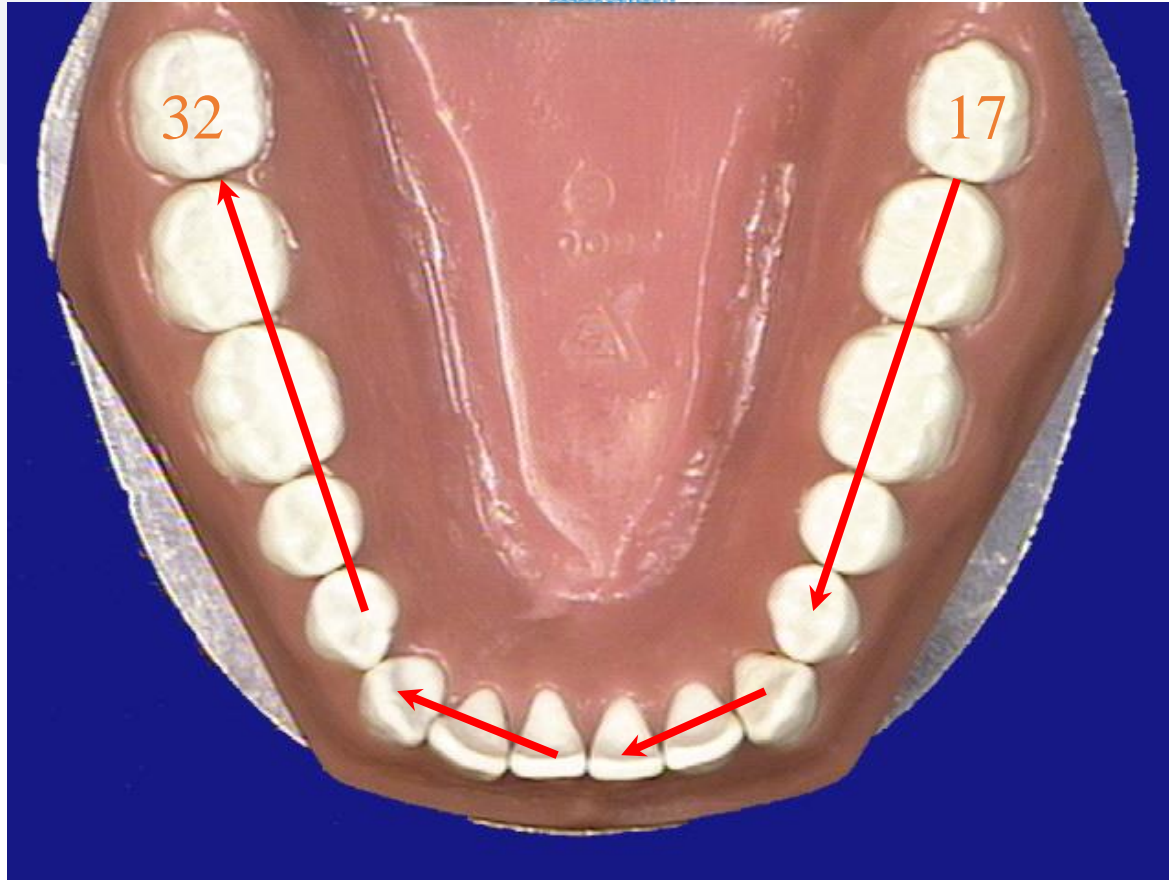






1 for upper right third molar around to 16
upper left third molar

Universal Numbering System



Dropping down same side to 17 lower left third molar and around to 32

Universal numbering system

A B C D E

F G H I J

1 2 3 4 5 6 7 8

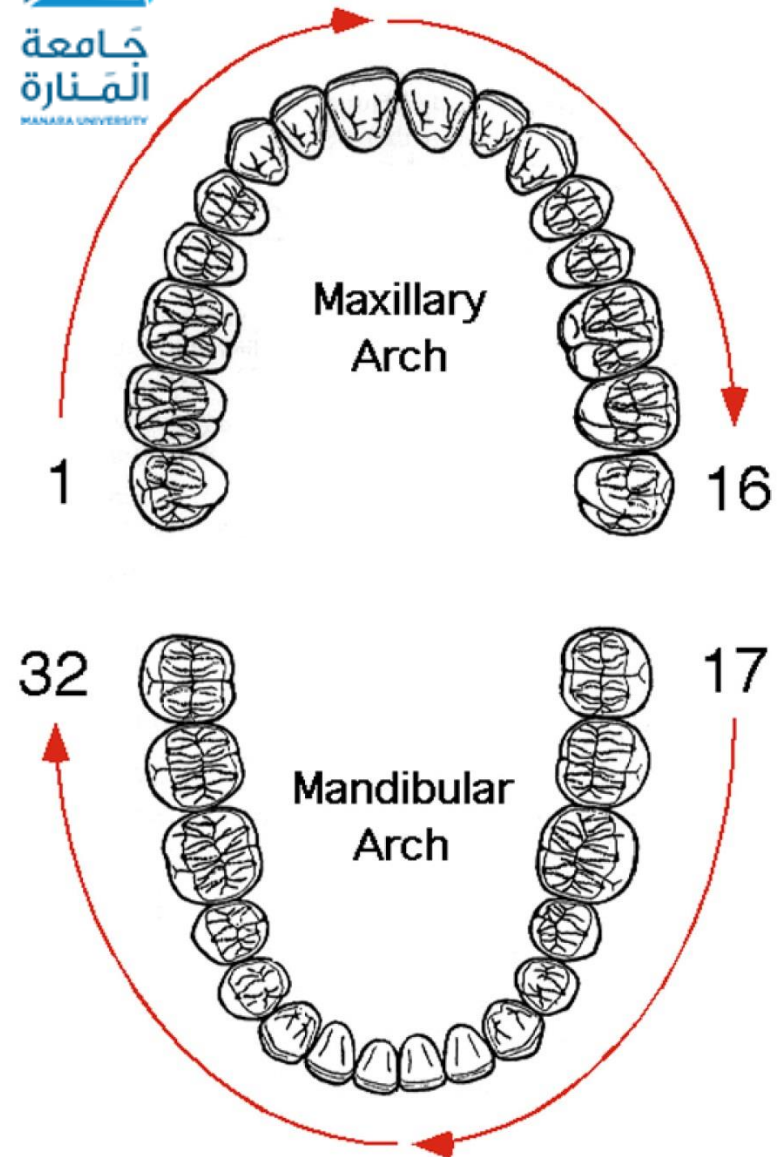
9 10 11 12 13 14 15 16

T S R Q P

O N M L K

32 31 30 29 28 27 26 25

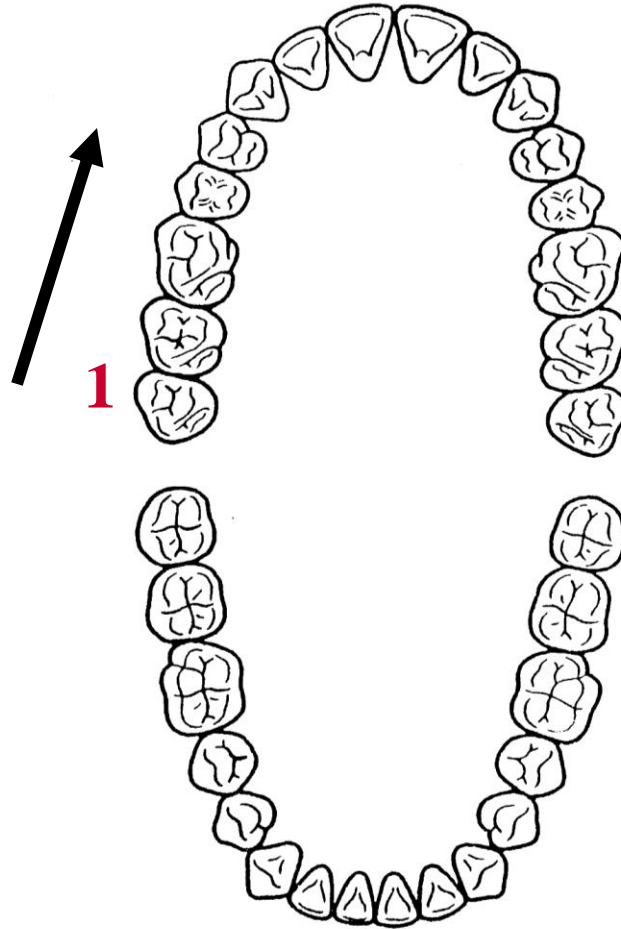
24 23 22 21 20 19 18 17



“Universal” Method of Tooth Numbering

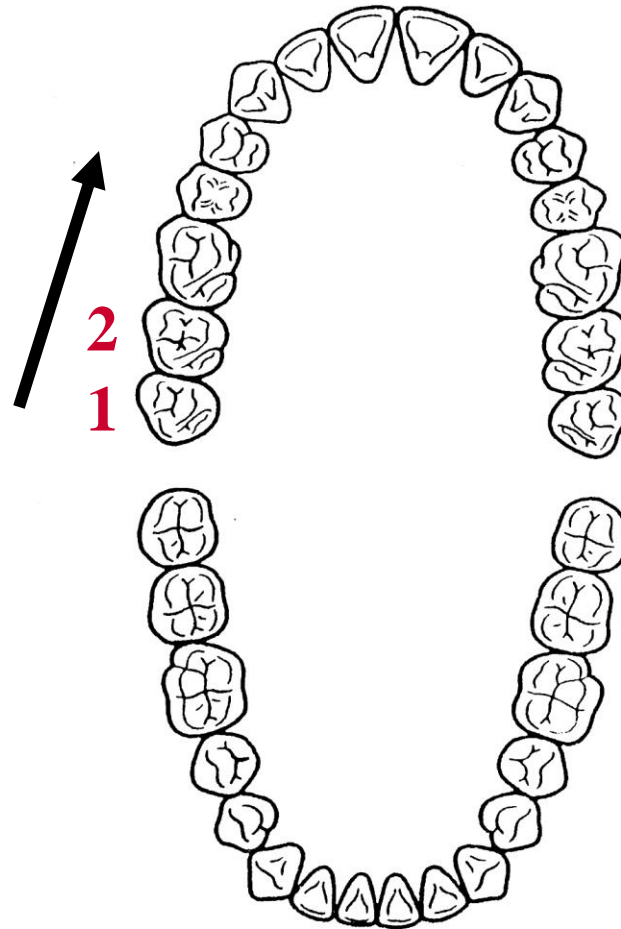
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Continue
around
the arch



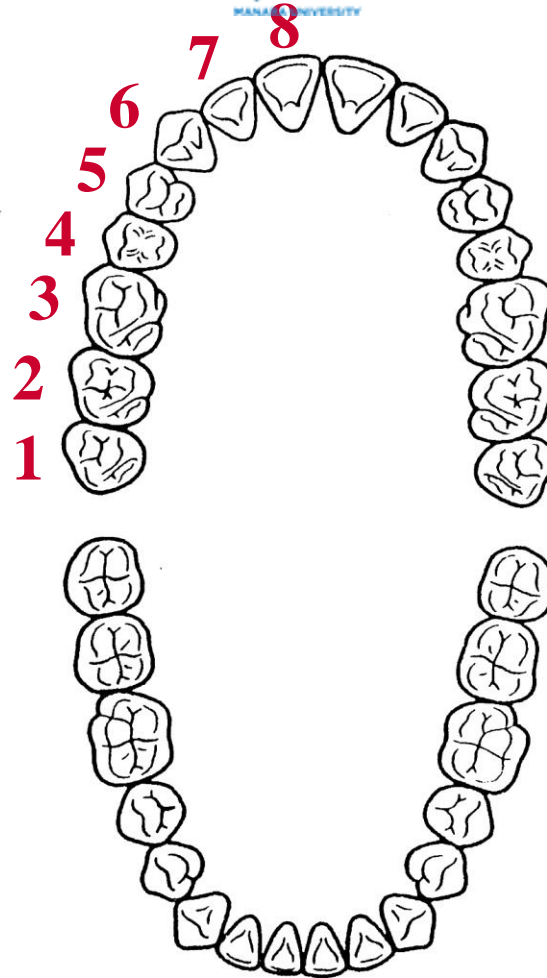
“Universal” Method of Tooth Numbering

Continue
around
the arch



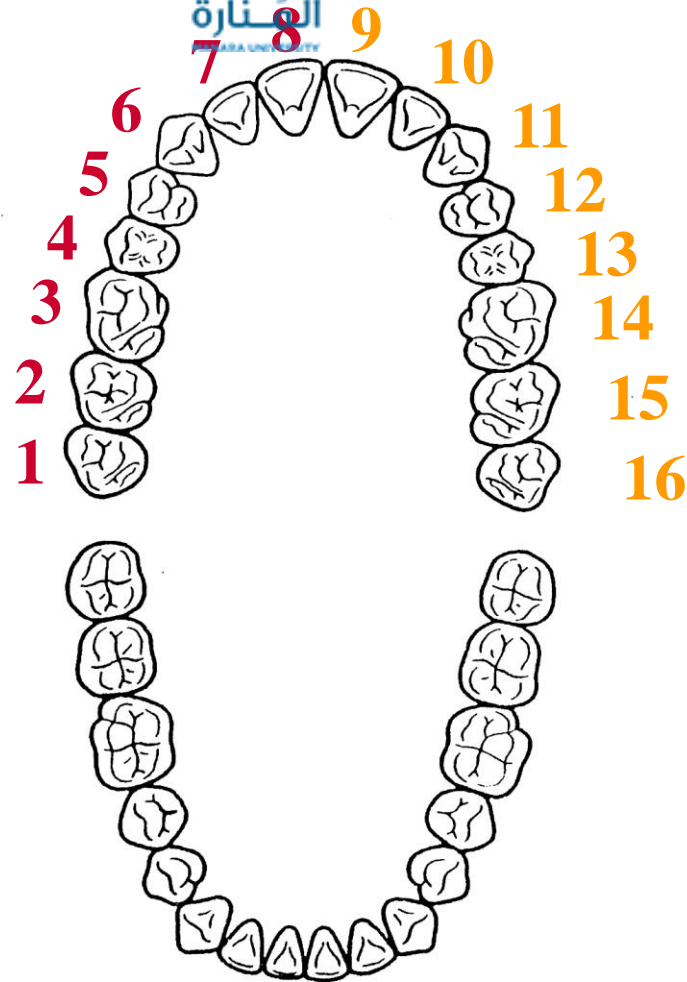
“Universal” Method of Tooth Numbering

Continue
around
the arch



“Universal” Method of Tooth Numbering

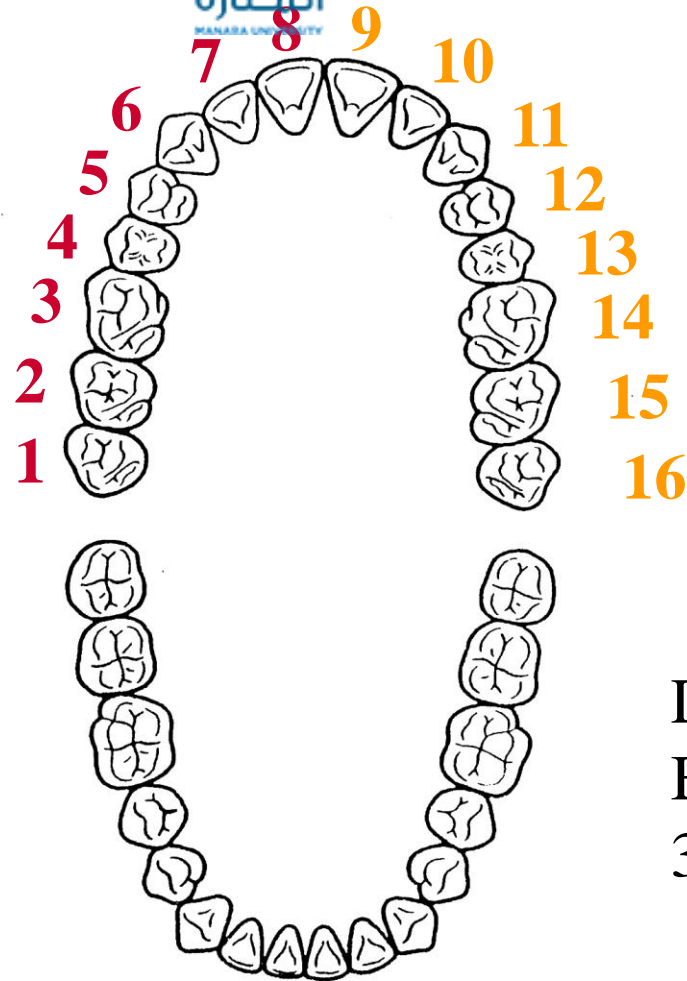
Continue
around
the arch





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“Universal” Method of Tooth Numbering

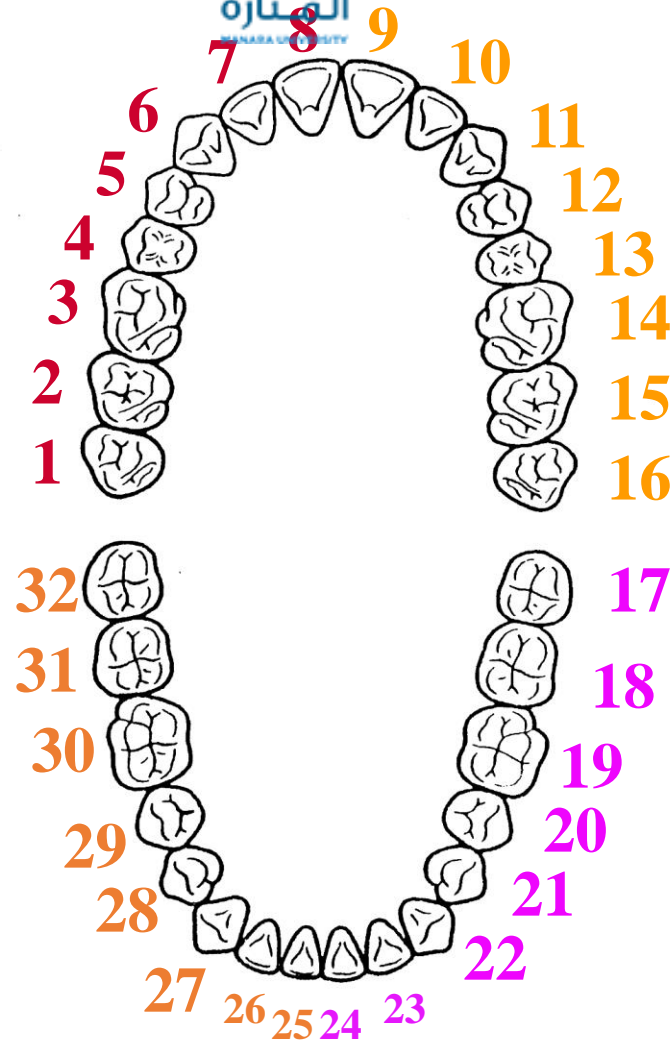


Drop directly
Below to the
3rd molar



“Universal” Method of Tooth Numbering

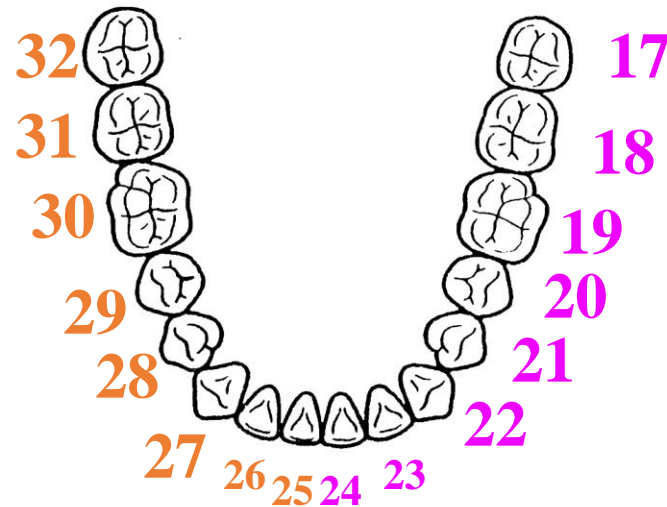
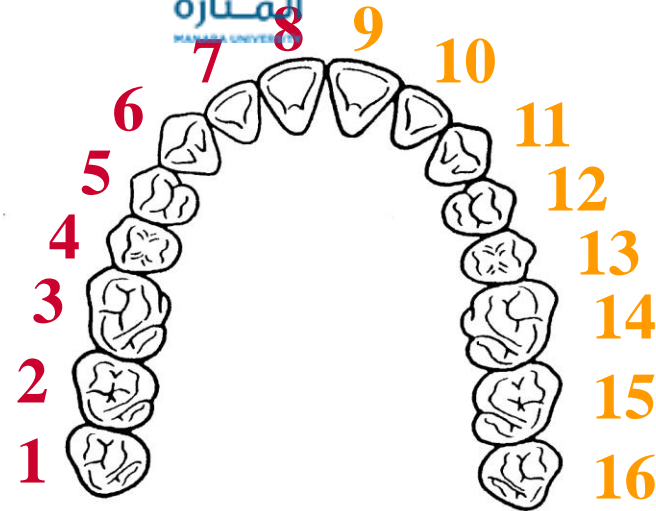
Continue
around
the arch



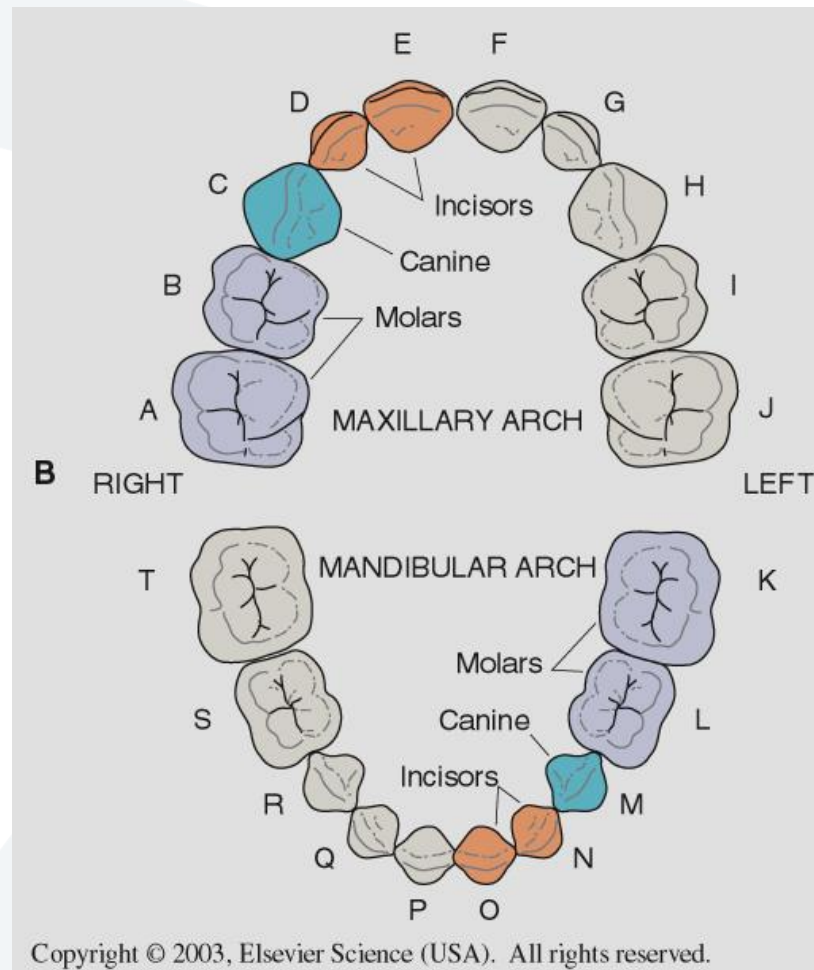


“Universal” Method of Tooth Numbering

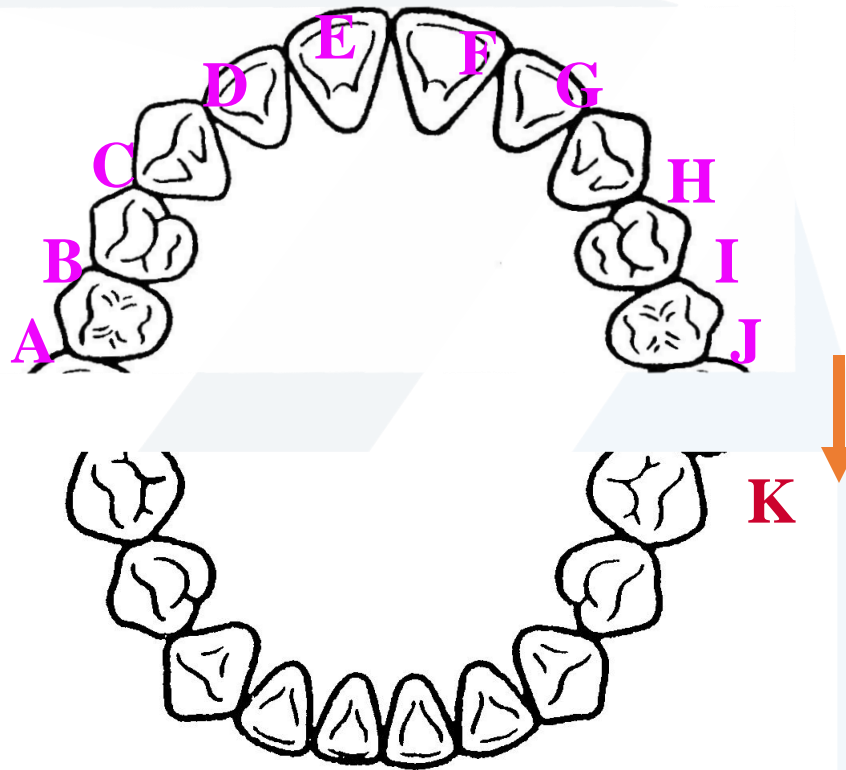
Hint:
16 teeth in each
arch



In the Universal Numbering System, the primary teeth are lettered with capital letters from A to T.



PRIMARY TEETH DECIDUOUS TEETH BABY TEETH

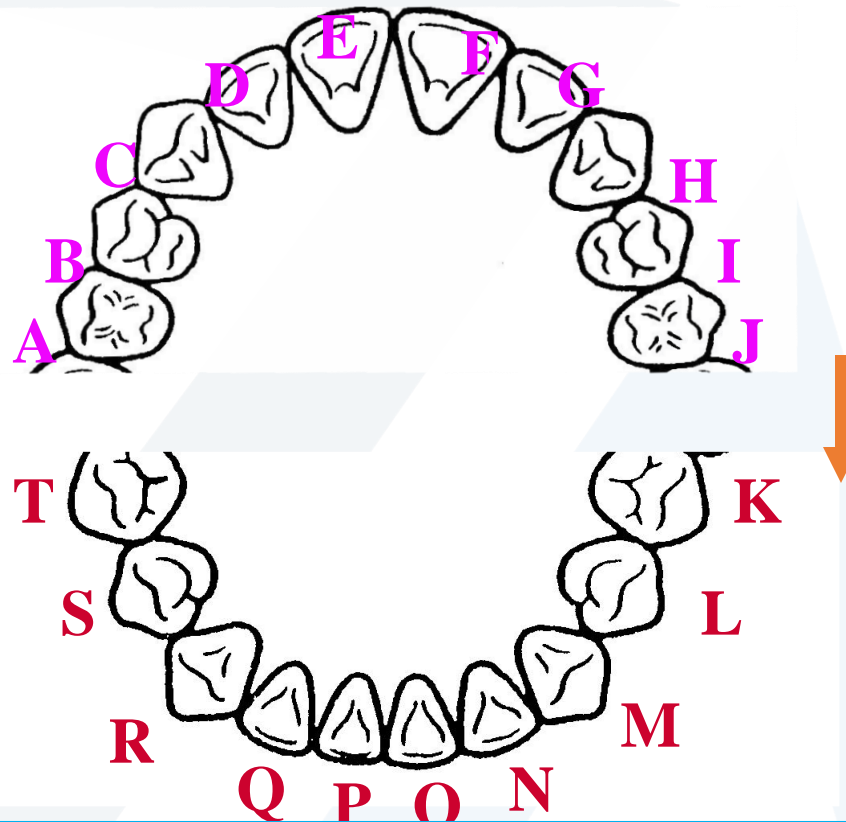


Universal Numbering System



For deciduous dentition, letters
A through T are used

PRIMARY TEETH DECIDUOUS TEETH BABY TEETH





International Dental Federation (FDI) Numbering System

Uses a *two digit tooth recording system*.

The first digit indicates the quadrant and the second indicates the tooth within the quadrant.

The numbering is from the midline toward the posterior.

The permanent teeth are numbered as follows:

- Maxillary right quadrant is #1

- Maxillary left quadrant is #2

- Mandibular left quadrant is #3

- Mandibular right quadrant is #4



International Numbering System

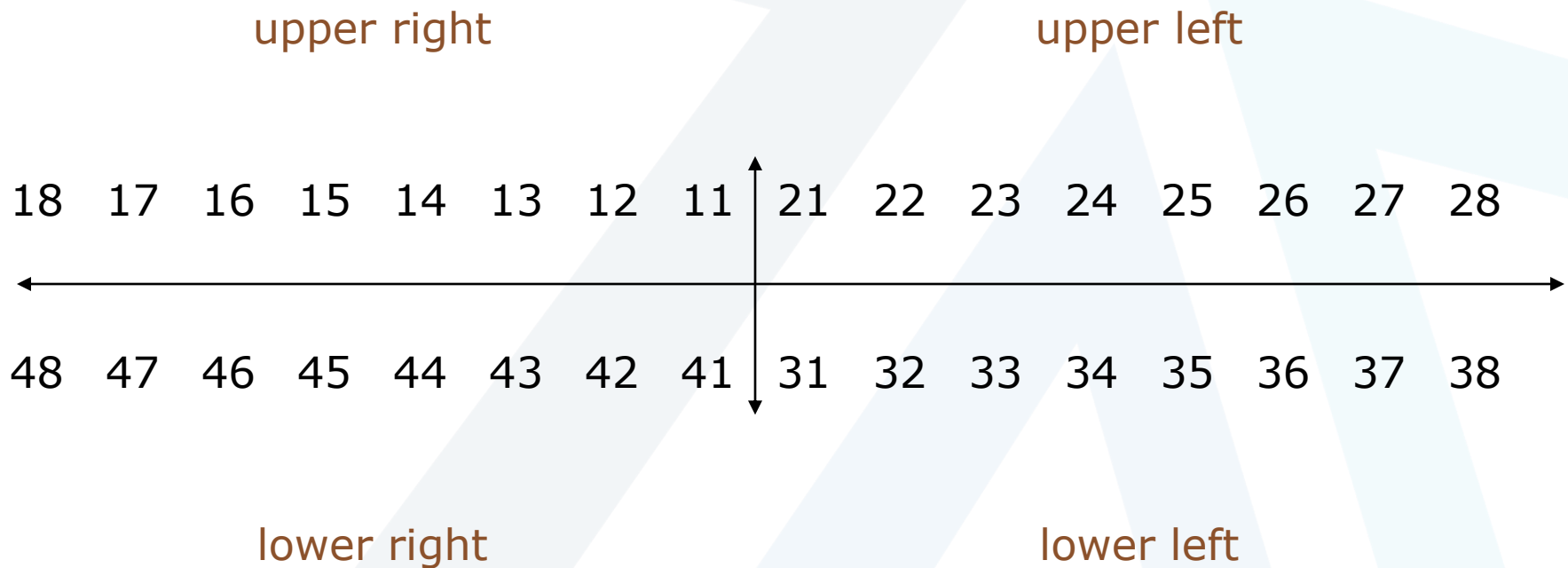
- 1 = permanent dentition, maxillary, right
- 2 = permanent dentition, maxillary, left
- 3 = permanent dentition, mandibular, left
- 4 = permanent dentition, mandibular, right
- 5 = primary dentition, maxillary, right
- 6 = primary dentition, maxillary, left
- 7 = primary dentition, mandibular, left
- 8 = primary dentition, mandibular, right

The international system

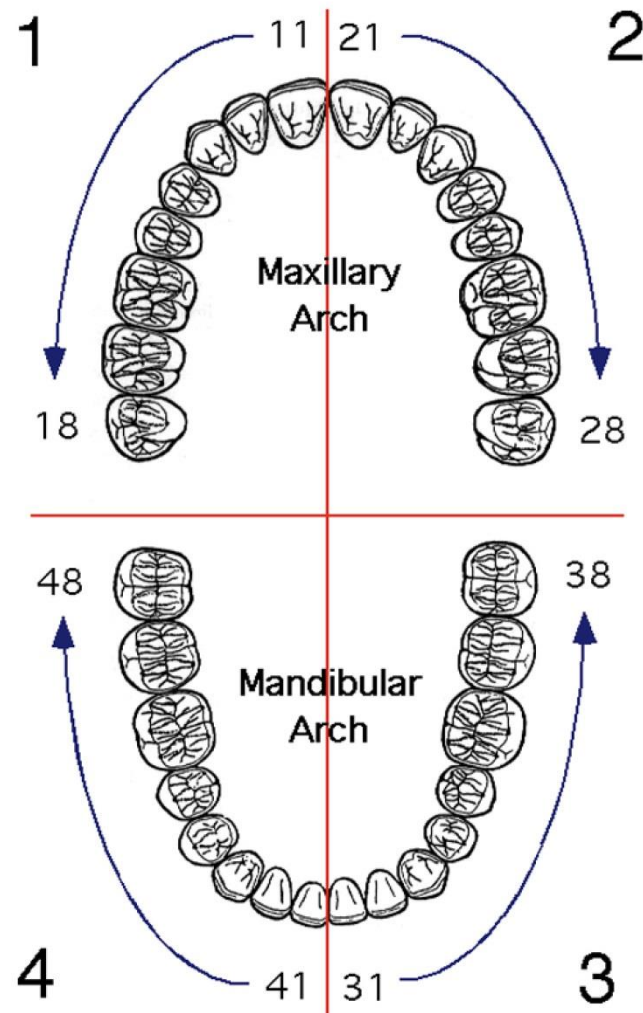
- All numbers within the range 11 through 48 represent permanent teeth , for example 48 is a permanent mandibular right third molar .Numbers within the range 51 through 85 represent primary teeth , for example 51 is a primary maxillary right central incisor .

Permanent Teeth

FDI Two-Digit Notation



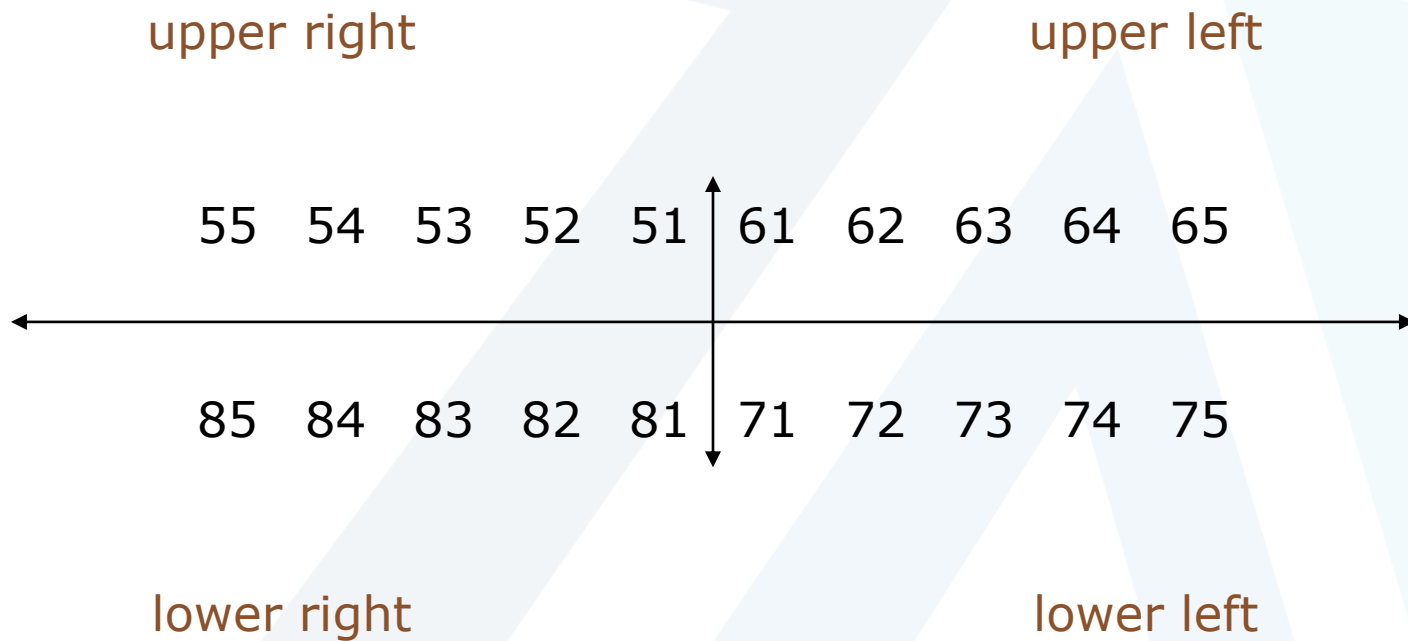
International Numbering System





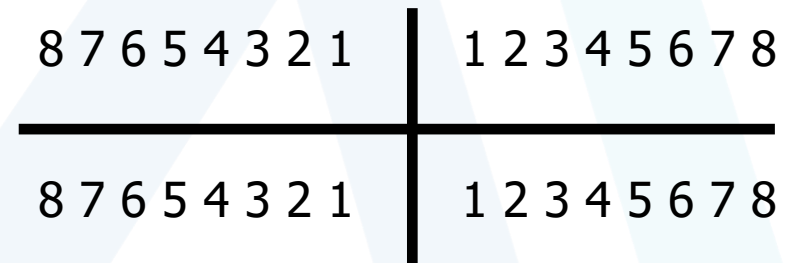
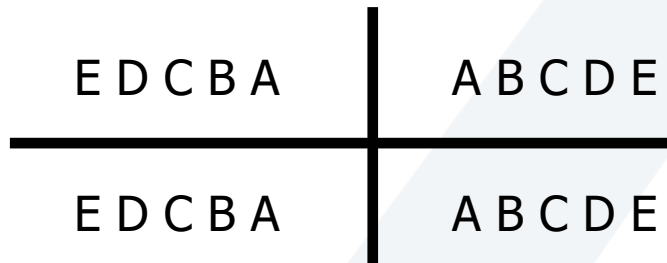
primary Teeth

FDI Two-Digit Notation



Teeth order

Each tooth in a quadrant takes a letter (A – E for deciduous) or a number (1 – 8 for permanent) indicating its order when counting from the midline



Palmer/ notation system

American Dental Association in 1947

Tooth is represented by a number 1 – 8 (permanent) or a letter A – E (deciduous)

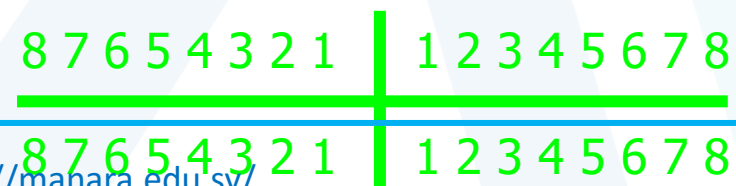
Two lines; indicates which quadrant the tooth belongs to
a horizontal representing the occlusal plane and
a vertical representing the midline

Examples:

Maxillary right central incisor



Mandibular left second deciduous molar



Palmer Notation System

Upper Right



Upper Left



Lower Right

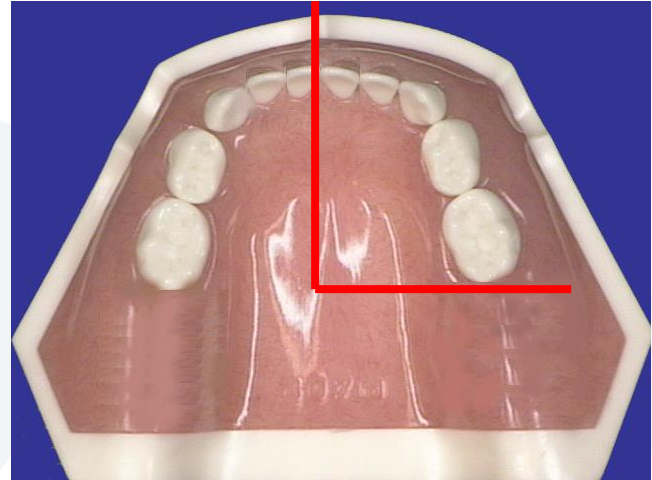
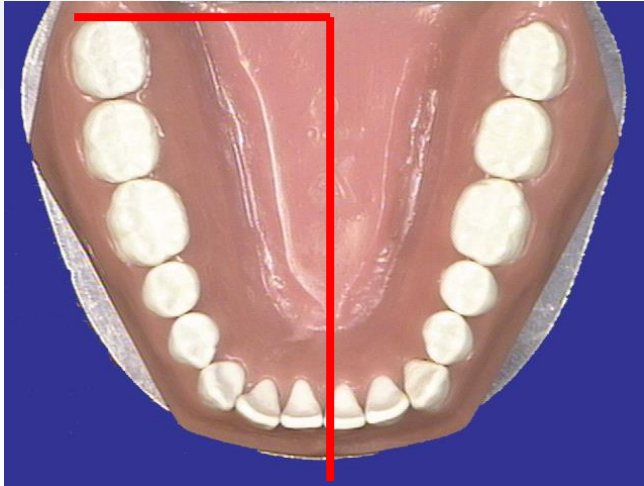


Lower Left



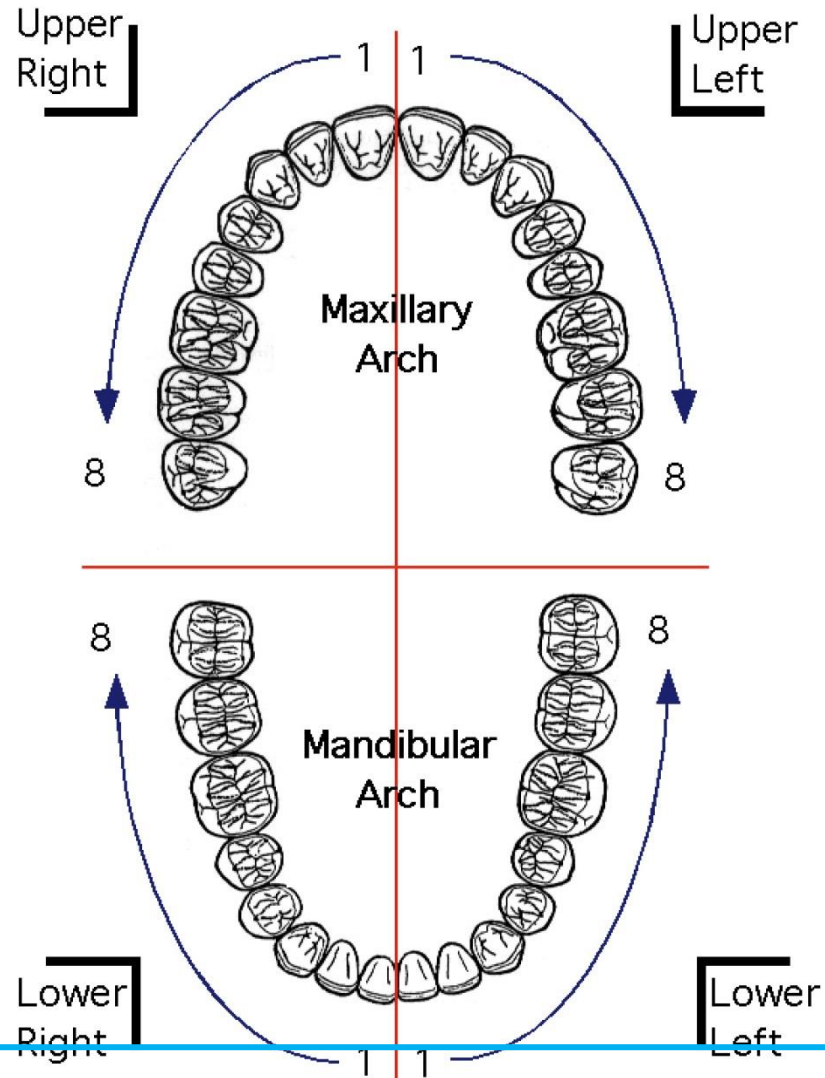
Uses brackets to represent the four quadrants

Palmer Notation System



Permanent teeth are labeled 1 to 8 on each side of the midline
On deciduous teeth same brackets with letters A through E

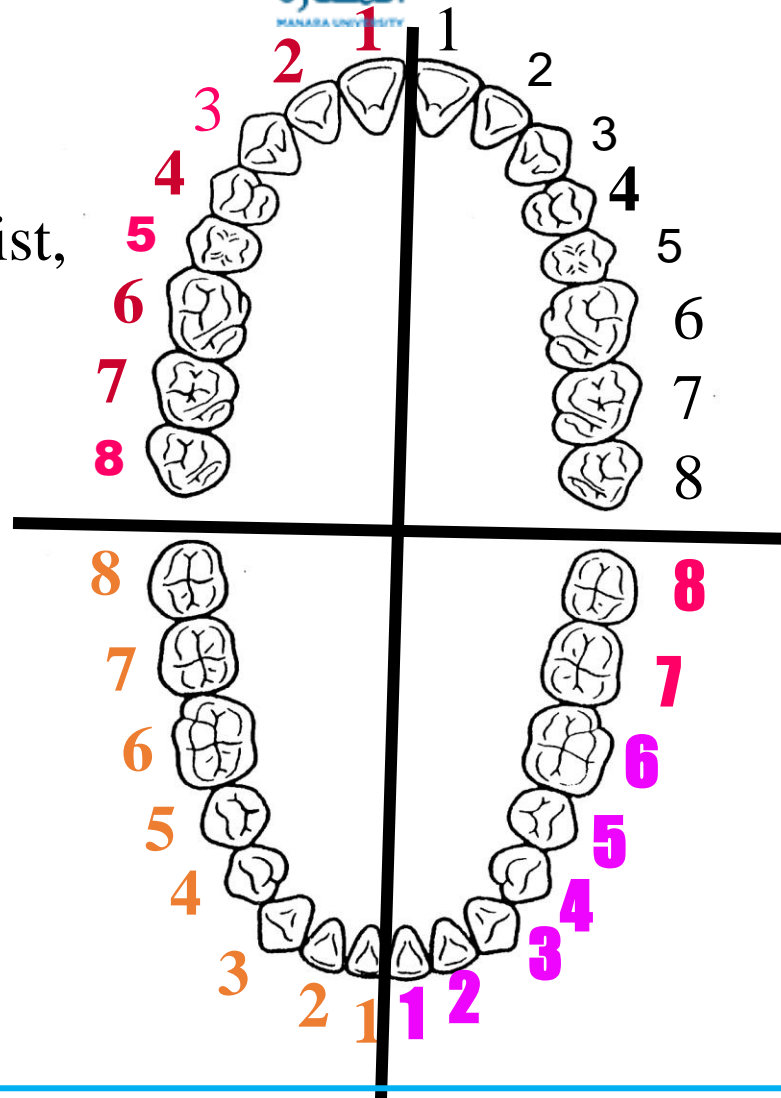
Palmer System





"PALMER" Method of Tooth Numbering

Used by Orthodontist,
But not much by
General Dentists



Palmer Notation

Permanent Teeth



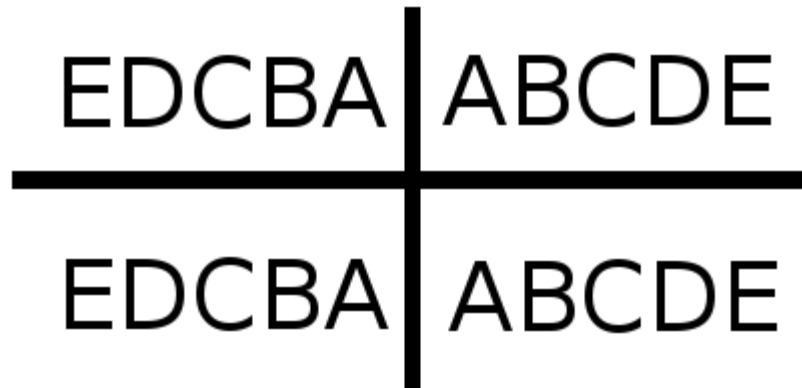
87654321	12345678
87654321	12345678

- **For Primary teeth ,the same four brackets are used to denote the quadrants ,but letters of alphabet A through E represent the primary teeth (with A being a central incisor , B a lateral incisor , C a canine , etc .**

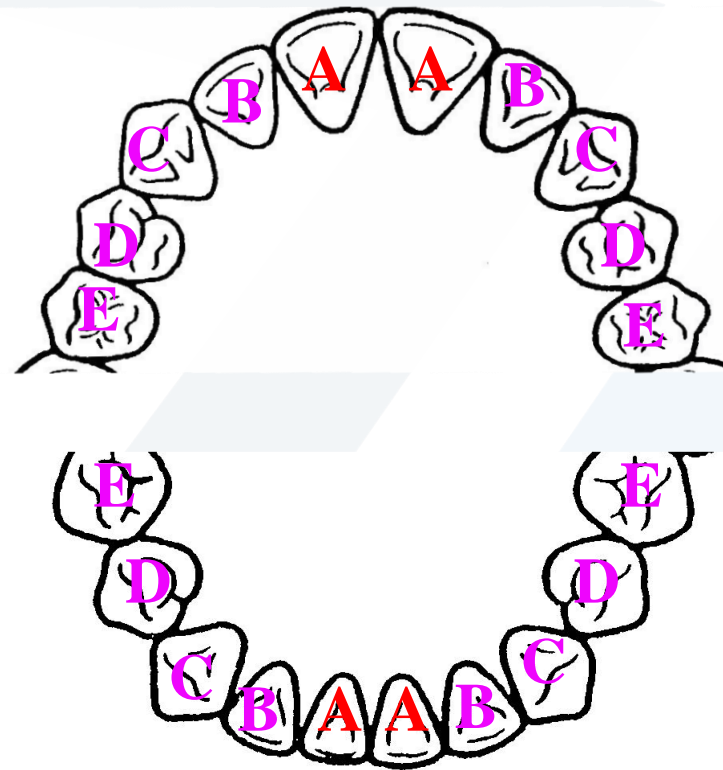


Palmer Notation

Primary Teeth



PRIMARY TEETH DECIDUOUS TEETH BABY TEETH



The Palmer Notation.



The Palmer Notation System for Permanent Teeth			
Maxillary Right	8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8	Maxillary Left
	8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8	
Mandibular Right			Mandibular Left
Tooth Numbers			
Central incisors	#1		
Lateral incisors	#2		
Canines	#3		
1st premolar	#4		
2nd premolar	#5		
1st Molar	#6		
2nd Molar	#7		
3rd Molar	#8		
Examples of Charting			
1	Maxillary right central incisor		
2	Mandibular right lateral incisor		
4	Maxillary left first premolar		
8	Mandibular third molar		
The Palmer Notation for Primary Teeth			
Maxillary Right	E D C B A	A B C D E	Maxillary Left
	E D C B A	A B C D E	
Mandibular Right			Mandibular Left
Examples of Charting			
A	Maxillary right central incisor		
B	Mandibular right lateral incisor		
C	Maxillary left incisor		
D	Mandibular left first primary molar		
Tooth Letters			
Central incisors	A		
Lateral incisors	B		
Canines	C		
1st primary molar	D		
2nd primary molar	E		

Primary Teeth



Zsigmondy system

Roman numerals

V	IV	III	II	I		I	II	III	IV	V
V	IV	III	II	I		I	II	III	IV	V

Tooth Development: Permanent Teeth

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Erupt

7-8 yrs.

8-9 yrs.

11-12 yrs.

10-11 yrs.

10-12 yrs.

6-7 yrs.

12-13 yrs.

17-21 yrs.

Erupt

17-21 yrs.

11-13 yrs.

6-7 yrs.

11-12 yrs.

10-12 yrs.

9-10 yrs.

7-8 yrs.

6-7 yrs.

Upper Teeth

Central Incisor

Lateral Incisor

Canine (cuspid)

First Premolar

Second Premolar

First Molar

Second Molar

Third Molar

Lower Teeth

Third Molar

Second Molar

First Molar

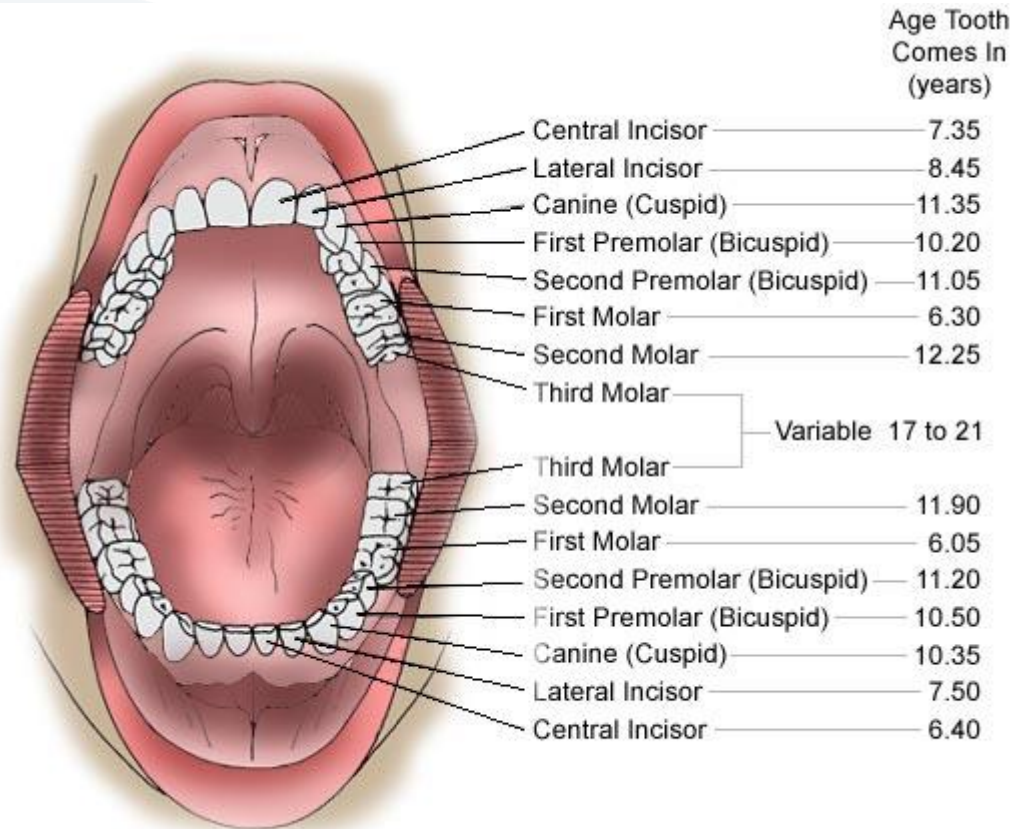
Second Premolar

First Premolar

Canine (cuspid)

Lateral Incisor

Central Incisor



Central incisor.....Lower 6 ½ months, Upper 7 ½ months

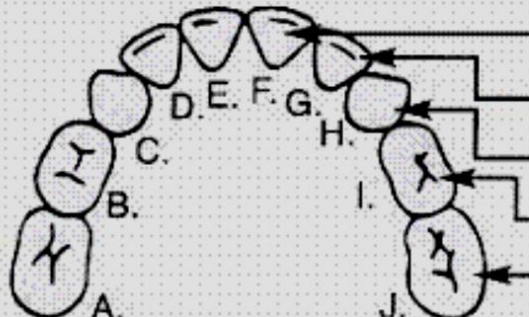
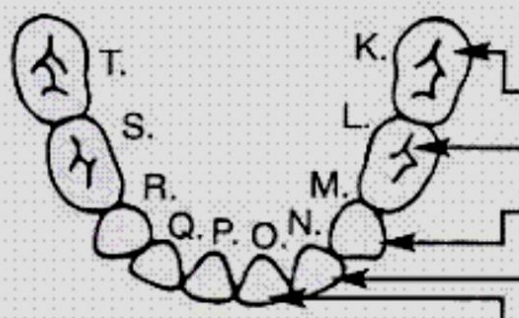
Lateral incisor.....Lower 7 months, Upper 8 months

First deciduous molar...Lower 12-16 months, Upper 12-16 months

Deciduous canine.....Lower 16-20 months, Upper 16-20 months

Second deciduous molar..Lower 20-30 months, Upper 20-30

PRIMARY DENTITION

Upper Teeth		Erupt	Exfoliate
	Central incisor	8-12 months	6-7 years
	Lateral incisor	9-13 months	7-8 years
	Canine (cuspid)	16-22 months	10-12 years
	First molar	13-19 months	9-11 years
	Second molar	25-33 months	10-12 years
Lower Teeth		Erupt	Exfoliate
	Second molar	23-31 months	10-12 years
	First molar	14-18 months	9-11 years
	Canine (cuspid)	17-23 months	9-12 years
	Lateral incisor	10-16 months	7-8 years
	Central incisor	6-10 months	6-7 years

DECIDUOUS DENTITION

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5 months
in utero

7 months
in utero

PRENATAL

Birth

6 mos.
(± 2 mos.)

9 mos.
(± 2 mos.)

1 year
(± 3 mos.)

18 mos.
(± 3 mos.)

INFANCY

2 years
(± 6 mos.)

3 years
(± 6 mos.)

4 years
(± 9 mos.)

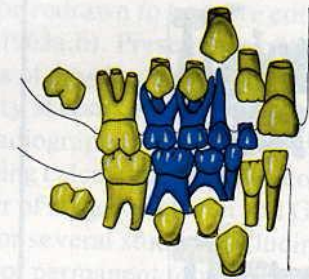
5 years
(± 9 mos.)

6 years
(± 9 mos.)

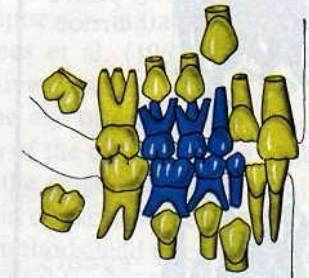
EARLY CHILDHOOD
(PRE-SCHOOL AGE)

<https://manara.edu.sy/>

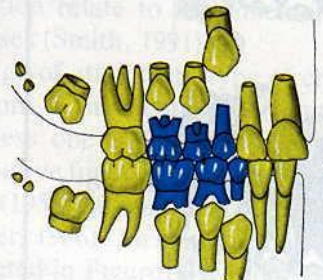
MIXED DENTITION



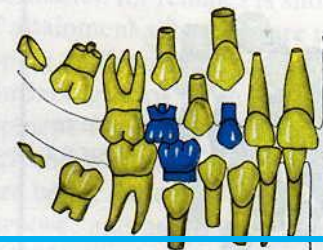
7 years
(±9 mos.)



8 years
(±9 mos.)



9 years
(±9 mos.)

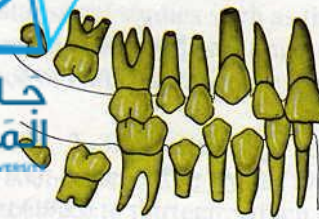


10 years
(±9 mos.)

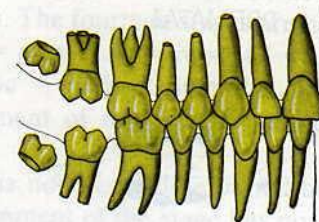
LATE CHILDHOOD
(SCHOOL AGE)

PERMANENT DENTITION

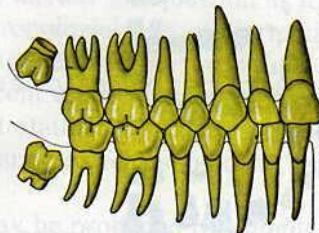
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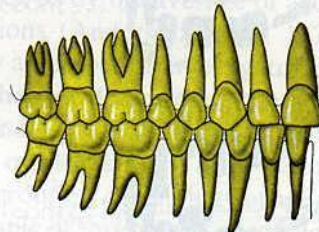
11 years
(±9 mos.)



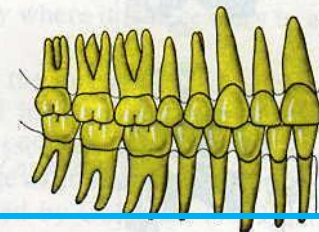
12 years
(±6 mos.)



15 years
(±6 mos.)



21
years



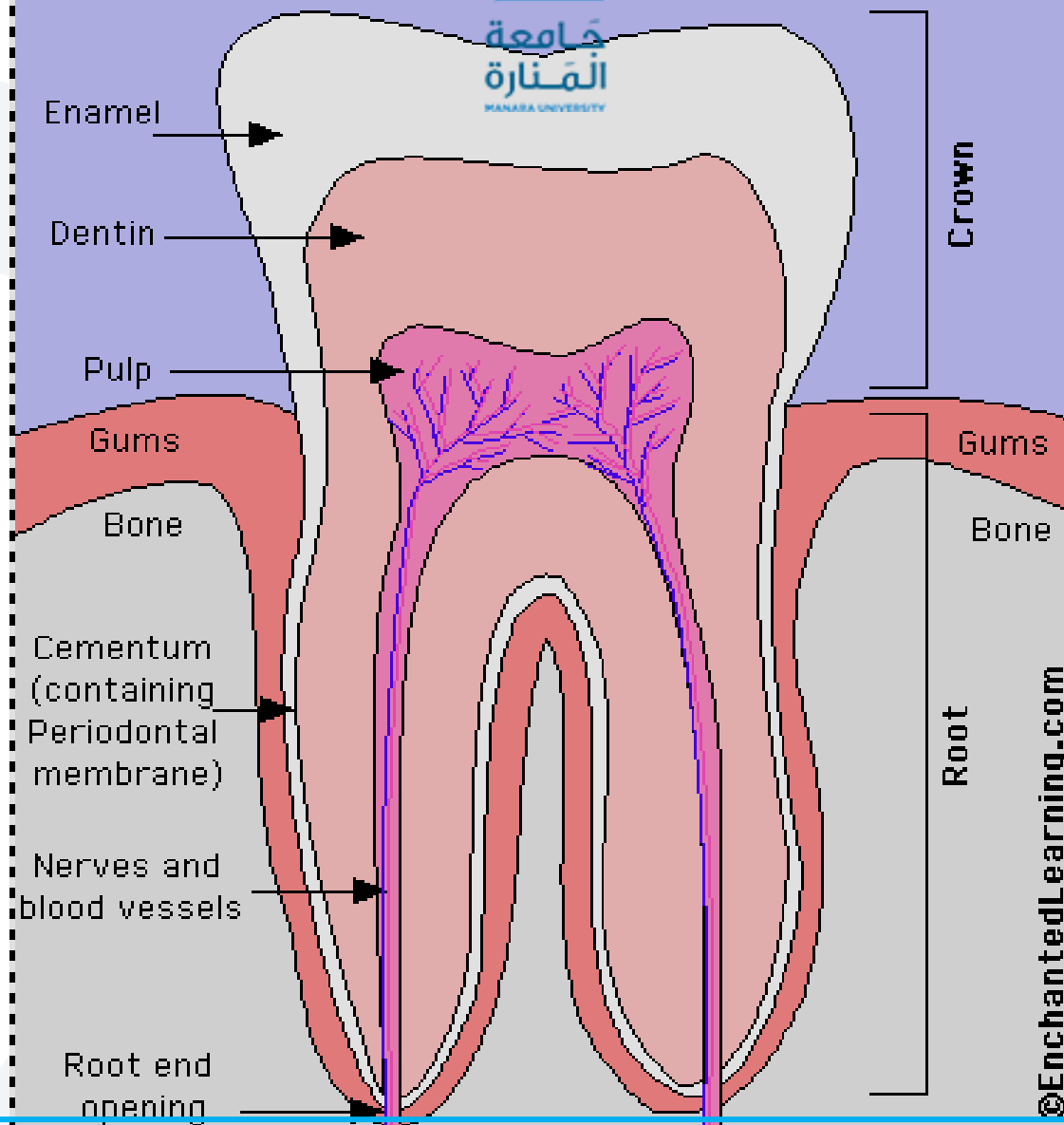
35
years

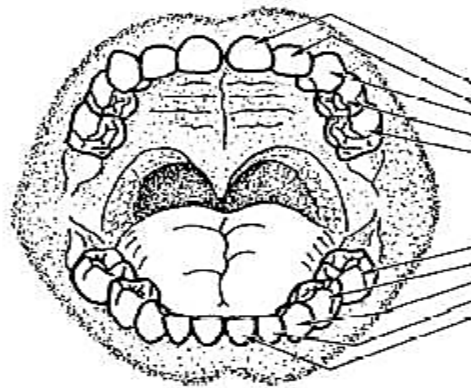
ADOLESCENCE
and ADULTHOOD

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Tooth Anatomy

جامعة
المنارة
MANARA UNIVERSITY





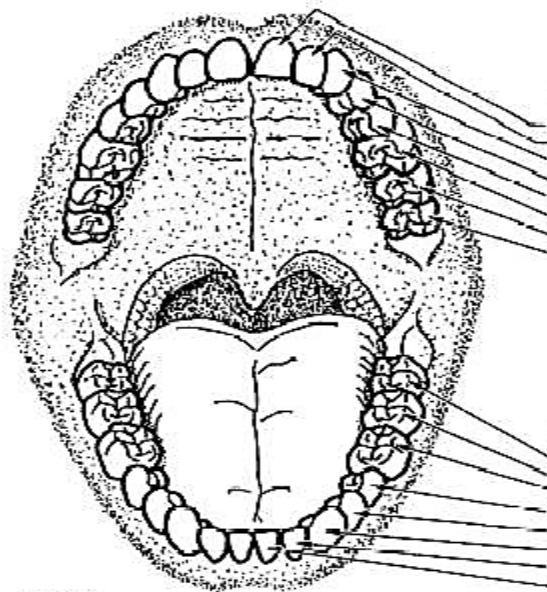
UPPER TEETH
CENTRAL INCISOR
LATERAL INCISOR
CANINE
FIRST MOLAR
SECOND MOLAR

LOWER TEETH
SECOND MOLAR
FIRST MOLAR
CANINE
LATERAL INCISOR
CENTRAL INCISOR

EMERGE DATE
8-12 MONTHS
9-13 MONTHS
16-22 MONTHS
13-19 MONTHS
25-33 MONTHS

SHEDDING DATE
6-7 YEARS
7-8 YEARS
10-12 YEARS
9-11 YEARS
10-12 YEARS

المنارة



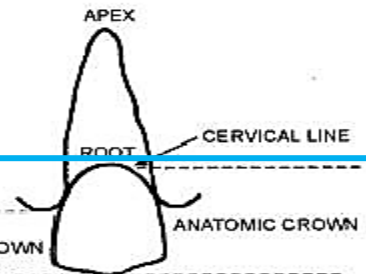
UPPER TEETH
CENTRAL INCISOR
LATERAL INCISOR
CANINE
FIRST PREMOLAR
SECOND PREMOLAR
FIRST MOLAR
SECOND MOLAR
THIRD MOLAR

LOWER TEETH
THIRD MOLAR
SECOND MOLAR
FIRST MOLAR
SECOND PREMOLAR
FIRST PREMOLAR
CANINE
LATERAL INCISOR
CENTRAL INCISOR

EMERGE DATE
7-8 YEARS
6-9 YEARS
11-12 YEARS
10-11 YEARS
10-12 YEARS
6-7 YEARS
12-13 YEARS
17-21 YEARS

EMERGE DATE
17-21 YEARS
11-13 YEARS
6-7 YEARS
11-12 YEARS
10-12 YEARS
9-10 YEARS
7-8 YEARS
6-7 YEARS

DTBF0403



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CLINICAL CROWN

DTBF0404

