Anatomy of tooth structure

Surfaces of anterior teeth have four surfaces and a ridge.:

Labial surfaces: The surfaces of incisors and canines that are facing toward the lips.

Lingual surfaces: The surfaces which are facing toward the tongue.

Mesial surfaces:
Those surfaces which are facing toward the midline.

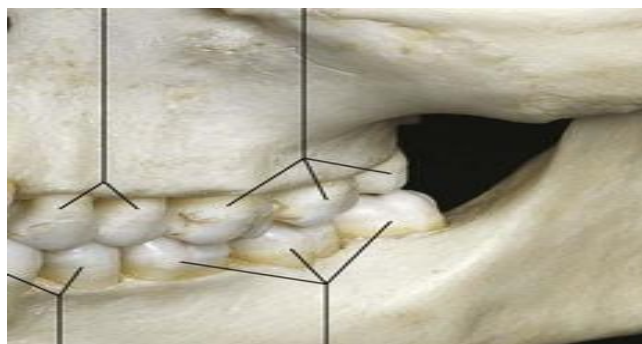*Distal surfaces*: Those surfaces which are away from the midline.

Incisal surface: The surfaces of the teeth which come in contact with those of opposite jaw during the act of closure cutting the food.

Surfaces of posterior teeth(The crowns of premolars and molars (posterior teeth) have five surfaces and the surfaces are named according to their positions and uses:

Buccal surfaces: Those surfaces of the premolars and molars which are facing toward the cheek.

Lingual surfaces: Those surfaces which are facing the tongue.

Mesial surfaces: Those surfaces which are facing the midline.

*Distal surfaces***:** Those surfaces which are away from the midline.

*Occlusal surfaces*: The surfaces of the teeth which come in contact with those in the opposite.

Proximal surface: surface (mesial, distal) which faces or lies adjacent to teeth in the same dental arch.

The Crown will be divided into three thirds:

*1-***Incisal third: -** Is that part of the tooth which is located between the incisal edge and middle third.

*2-***Middle third: -** that part of the tooth located between the incisal third and cervical third.

*3-***Cervical third**: -That part is located between the middle third and cervical line.
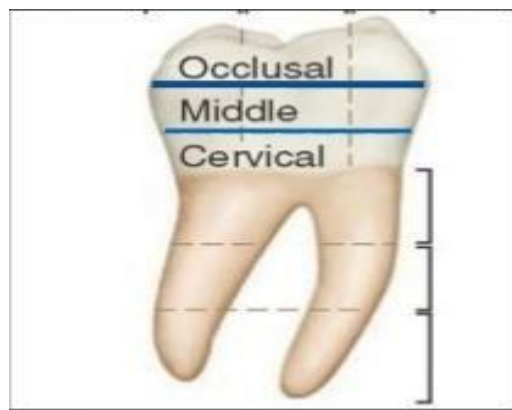
Contact area: area that formed when the mesial surface of the tooth contacts the distal surface of its neighbor by the same token, a distal surface of one tooth contact t mesial surface of another except for the distal surface of the last molar in both arches.

In posterior teeth are called the contact area while in anterior teeth arecalled the contact point
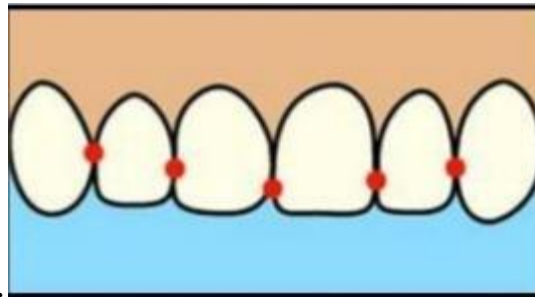
Functions of contact are:-

1-Prevent food force from going into the gum.

2- prevent trauma and pressure against the gingival.

TOOTH IDENTIFICATION SYSTEMS

(Tooth Numbering System)

Teeth are arranged in the jaws forming two dental arches:

- ➢ **Maxillary Arch (Upper Arch)**
- ➢ **Mandibular Arch (Lower Arch)**

Two arches together constitute the dentition

Each arch is divided by an imaginary midline into

- ➢ **A right and left half called – *QUADRANTS***
- ➢ **Maxillary right/left quadrants**
- ➢ **Mandibular right/left quadrants**

Humans have two sets of teeth in their lifetime

- *Deciduous teeth - 20*
- *Permanent teeth-32*

Denomination and number of all mammalian teeth expressed by a formula called dental formula. Each tooth is represented by the initial letter of its: E.g.:
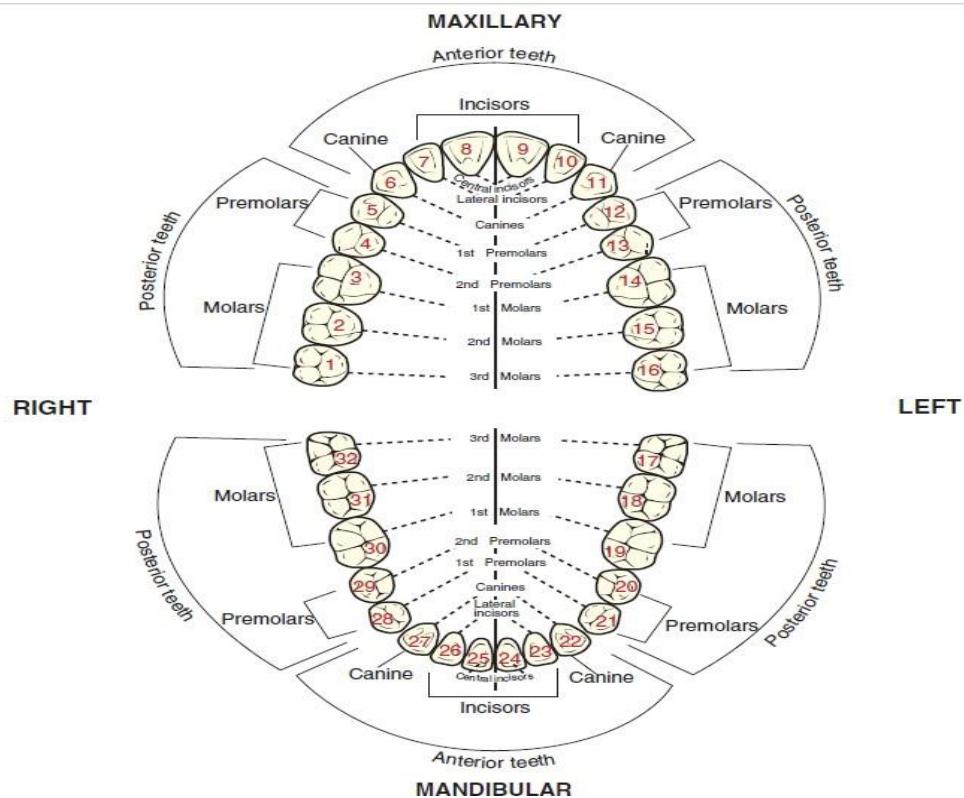
- **Incisor---------I**
- **Canine --------C**
- **Premolar ---- P**
- **Molar---------M**

Midline

Right maxillary quadrant

Left maxillary quadrant

Right mandibular quadrant

Left mandibular quadrant

Anterior teeth—not shaded
Posterior teeth—shaded

<center>**THREE MAIN types of numbering systems are commonly used**</center>
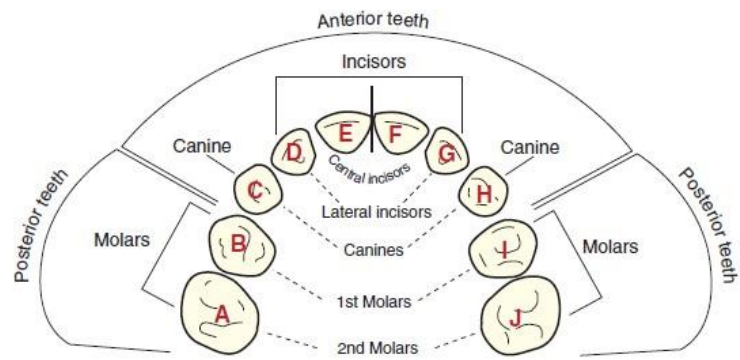
1-Universal Tooth Numbering System(UTNS)

- **The universal numbering system [Parreidt,1882; Cunningham, 1883] is the official tooth designation system in the USA.**

- **It includes a sequence of numbers (1-32) for Permanent and the alphabet system (A-T) for Deciduous teeth, moving clockwise around the dentition.**
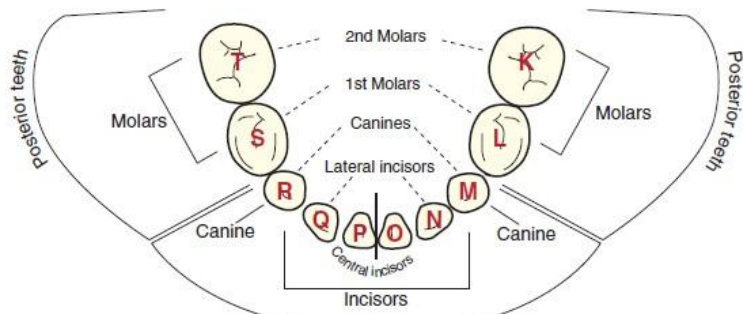
PRIMARY TEETH

MAXILLARY

Anterior teeth

Incisors

Canine

Canine

Posterior teeth

Posterior teeth

Molars

Molars

Central incisors

Lateral incisors

Canines

1st Molars

2nd Molars

RIGHT

LEFT

2nd Molars

1st Molars

Posterior teeth

Posterior teeth

Molars

Molars

Canines

Lateral incisors

Canine
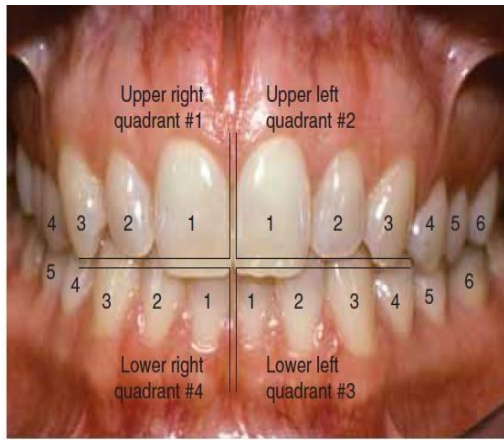
Canine

Central incisors

Incisors

Anterior teeth

MANDIBULAR

2- Zsigmondy and Palmar Tooth Numbering System

- **The Zsigmondy-Palmer system [Zsigmondy,1861; Palmer,1891],] called the "eight numerical quadrant system "1 through 8,) is meant for permanent dentition only).**

- **The Palmer notation consists of a symbol) ⌐¬ ∟⌐ (designating in which quadrant the tooth is found and a number indicates the position from the midline.**

Palmar System for Primary Teeth

Advantages

▪ **The system is simple to use.**

▪ **Easier for beginners due to less confusion as permanent teeth and deciduous teeth are indicated differently.**

3-FDI Tooth Numbering System

- **The Federation Dentaire Internationale (FDI system).**
- **It is a two-digit system.**

- **The first digit indicates the quadrant (5 through 8) and the second digit indicates the tooth type (1 through 5) (for primary teeth).**
- **The first digit indicates the quadrant (1 through 4) and the second digit indicates the tooth type (1 through8) (for permanent teeth)**

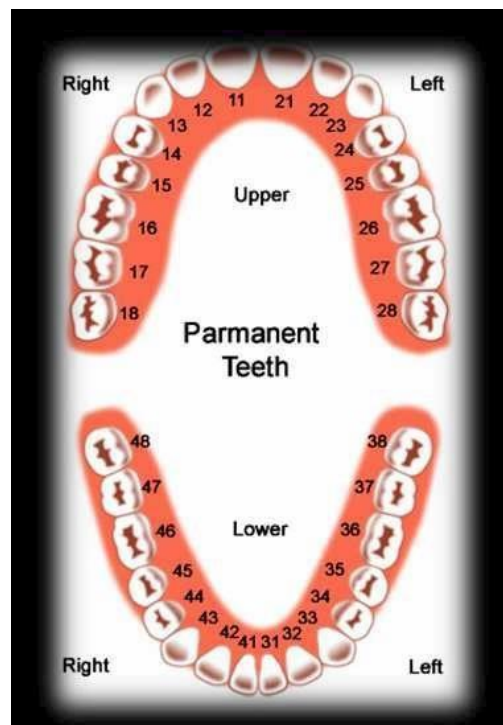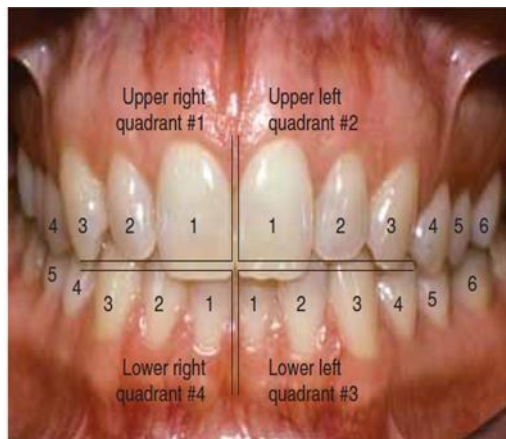**PERMANENT DENTITION**

1 = Permanent dentition, maxillary, right quadrant

2 = Permanent dentition, maxillary, left quadrant

3 = Permanent dentition, mandibular, left quadrant
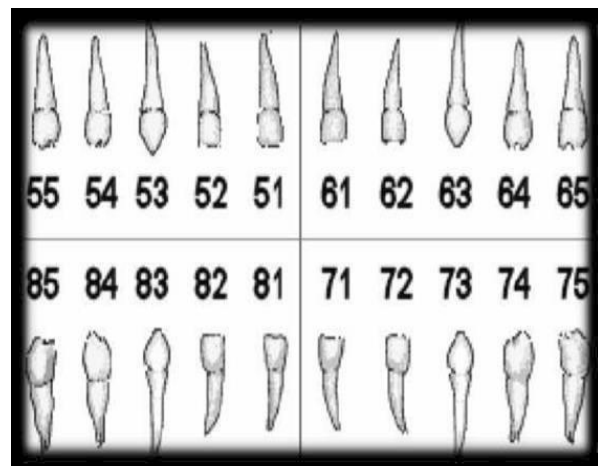
4 = Permanent dentition, mandibular, right quadrant

PRIMARY DENTITION

5 = Primary dentition, maxillary, right quadrant

6 = Primary dentition, maxillary, left quadrant

7 = Primary dentition, mandibular, left quadrant

8 = Primary dentition, mandibular, right quadrant
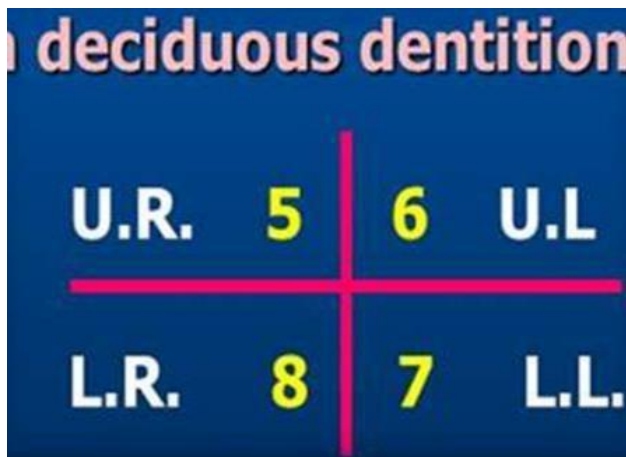
Advantages
- **It is very simple, accurate, and easy to memorize.**
- **It is user-friendly and prevents errors in differentiating left and right, upper and lower arches, and tooth type.**
- **Simple to teach and easy to understand.**
- **Simple to translate into computer input.**
- **Simple in conversation and direction.**
- **Readily communicable in print.**

Disadvantages

- **In the case of deciduous teeth, there can be confusion and it is difficult to memorize.**

- **For specialists other than pedodontists, it can be difficult to understand or define teeth.**

- **For an example of 64,85 ……. It is the combined use of the Palmer and the FDI systems that may be accurate and create no confusion, but it is time- consuming and needs much concentration.**

- **It is difficult to enter multiple teeth in different arches and it would be too long to use routinely.**

Table 1-1	MAJOR TOOTH IDENTIFICATION SYSTEMS					
		UNIVERSAL		PALMER NOTATION		INTERNATIONAL (FDI)	
TOOTH	Right	Left	Right	Left	Right	Left
PRIMARY DENTITION — MAXILLARY TEETH						
Central incisor	E	F	A⌋	⌊A	51	61
Lateral incisor	D	G	B⌋	⌊B	52	62
Canine	C	H	C⌋	⌊C	53	63
First molar	B	I	D⌋	⌊D	54	64
Second molar	A	J	E⌋	⌊E	55	65
PRIMARY DENTITION — MANDIBULAR TEETH						
Central incisor	P	O	A⌉	⌈A	81	71
Lateral incisor	Q	N	B⌉	⌈B	82	72
Canine	R	M	C⌉	⌈C	83	73
First molar	S	L	D⌉	⌈D	84	74
Second molar	T	K	E⌉	⌈E	85	75
PERMANENT DENTITION — MAXILLARY TEETH						
Central incisor	8	9	1⌋	⌊1	11	21
Lateral incisor	7	10	2⌋	⌊2	12	22
Canine	6	11	3⌋	⌊3	13	23
First premolar	5	12	4⌋	⌊4	14	24
Second premolar	4	13	5⌋	⌊5	15	25
First molar	3	14	6⌋	⌊6	16	26
Second molar	2	15	7⌋	⌊7	17	27
Third molar	1	16	8⌋	⌊8	18	28
PERMANENT DENTITION — MANDIBULAR TEETH						
Central incisor	25	24	1⌉	⌈1	41	31
Lateral incisor	26	23	2⌉	⌈2	42	32
Canine	27	22	3⌉	⌈3	43	33
First premolar	28	21	4⌉	⌈4	44	34
Second premolar	29	20	5⌉	⌈5	45	35
First molar	30	19	6⌉	⌈6	46	36
Second molar	31	18	7⌉	⌈7	47	37
Third molar	32	17	8⌉	⌈8	48	38