

# Dental Anatomy

## Lec. 1

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### Introduction:

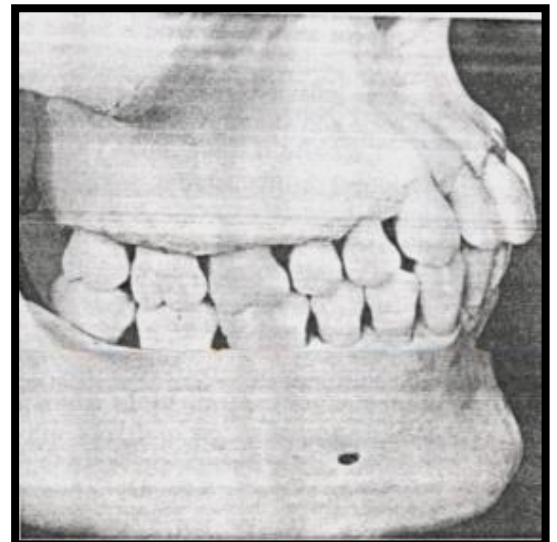
*Dental anatomy* is the science that studies the structure of teeth and their correlated parts; it includes *the surface form of the oral cavity*, the *external and internal form of the individual teeth*, and the *relationship of the teeth to each other*. It also includes the *relationship of the skull bones in which the teeth are set*, the *complex joints that enable and control movement of the lower jaw relative to the cranium*, the *muscles that bring about this movement*, and *nerves and blood vessels that supply these structures*.

When we enter into any new field of study, it is necessary to learn at once the particular language of that field. So the first step in understanding dental anatomy is to learn the definitions and explanations of dental terms used to describe or classify the material included in the subject.

### Nomenclature:

The word *dentition* refers to all of the teeth in the upper jaw (or *Maxilla*) and the lower jaw (or *Mandible*). Due to their location, the upper teeth are called *maxillary* teeth, and together form an arch shape known as the *maxillary arch*. In contrast, the lower teeth are called *mandibular* teeth and together form the *mandibular arch* of teeth.

Humans have two dentitions throughout life: one during childhood, called the *primary* dentition and one for most or all of adulthood, called the *permanent* dentition.



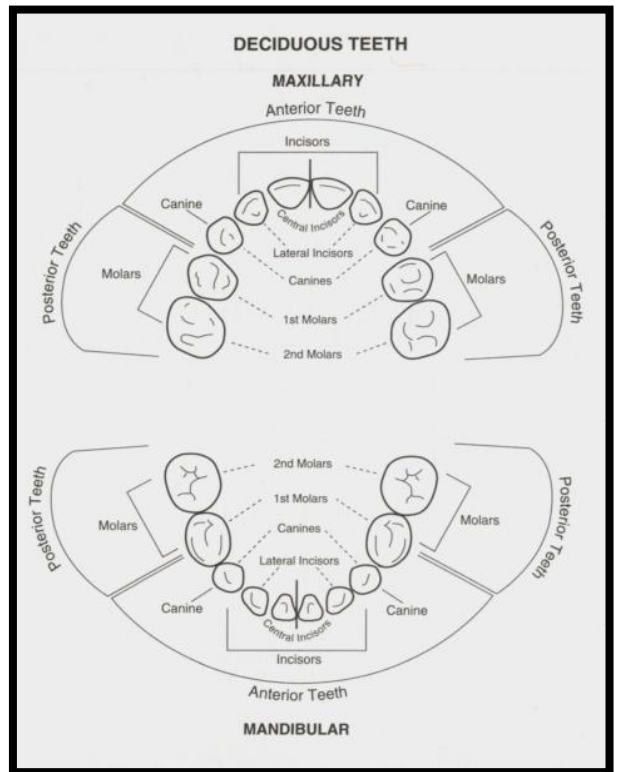
**Primary Dentition:**

This is also called the *deciduous* dentition, referring to the fact that these teeth are eventually shed or exfoliated by age 12 or 13 (the process of exfoliation takes place between the 6 - 7 and 12 - 13 years of age).

The deciduous teeth have been called temporary, milk, and baby teeth. These terms are improper because they foster the implication that these teeth are useful for a short period only. It should be emphasized that they are needed for many years of growth and physical development. *Premature loss of primary teeth is to be avoided.*

There are 20 (twenty) teeth in the primary dentition, 10 (ten) in each jaw, 5 (five) in each quadrant (half of each arch). Beginning from the median line, the deciduous teeth in each quadrant are named as follows: The *central* and *lateral incisors* ( I ), followed by the *canine* ( C ), then a *first* and *second primary molars* ( M ). These teeth are complete at about 2 ½ years of age.

A dental formula can be used to briefly indicate this information for the maxillary and mandibular teeth on one side of the mouth:



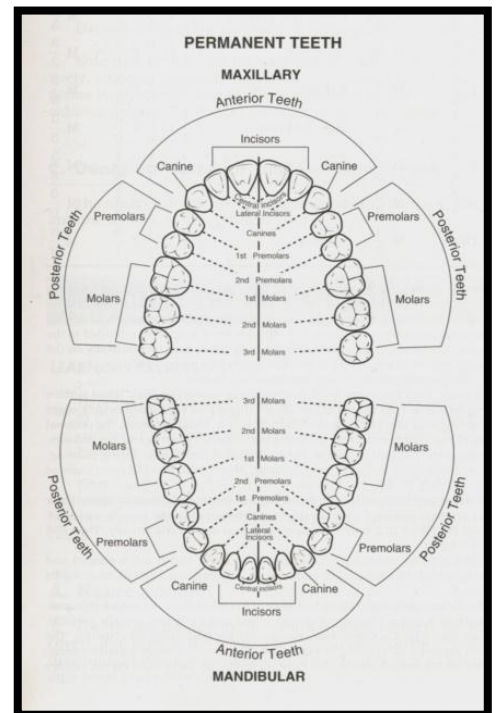
$$\begin{array}{ccccccc}
 2 & & 1 & & 2 & & \\
 I & \text{---} & C & \text{---} & M & \text{---} & = 10 \text{ teeth on each side} \\
 2 & & 1 & & 2 & & 
 \end{array}$$

( *The Deciduous Dental Formula in Humans* )

**Permanent Dentition:**

Permanent dentition is also called *succedaneous* dentition or that which succeeds the primary dentition. The emergence of these teeth begins the *transition* or *mixed dentition period* in which there is a mixture of deciduous and succedaneous teeth present. The transition period lasts from about 6 to 12 years of age and ends when all the deciduous teeth have been shed. At that time the permanent dentition period begins. The transition to the permanent dentition begins with : *\*emergence and eruption of the first molars, \* shedding of the deciduous incisors, \* and emergence and eruption of the permanent incisors. After that, \* shedding of the deciduous canines and molars, \* emergence and eruption of the permanent canines and premolars, \* and emergence and eruption of second permanent molars takes place.* At that time, the permanent dentition is completed except for the *third molars*. This process requires about 20 years to complete. The permanent teeth replace exfoliated deciduous teeth in a sequence of eruption that exhibits great variety.

The number of teeth in adults, including the third molars when present, is 32, sixteen in each jaw, eight in each quadrant. Beginning from the median line, the permanent teeth in each quadrant are named as follows: The two front teeth are the *central* and *lateral incisors* ( I ), followed by one *canine* ( C ), the *first* and *second premolars* ( P ) then the *first, second, and third* molars ( M ).



***The Permanent Dental Formula in Humans is:***

$$\begin{array}{cccccccc}
 2 & & 1 & & 2 & & & 3 \\
 I & \text{---} & C & \text{---} & P & \text{---} & M & \text{---} = 16 \text{ teeth on each side} \\
 2 & & 1 & & 2 & & & 3
 \end{array}$$

By comparing the formulas for deciduous and permanent teeth, we note that differences exist. In permanent formula *premolars* have now been added, two maxillary and two mandibular, and *third molar* has been added one maxillary and one mandibular.

*The deciduous molars are replaced by permanent premolars.* There are no premolars in the deciduous dentition.

The first permanent molar, commonly called *6-year molar*, makes its appearance in the mouth before any of the deciduous teeth are exfoliated. It comes just behind the deciduous second molars.

End

