

## Dental anatomy

### Crown and root

Each tooth has a crown and root portion. The crown is covered with enamel, and the root portion is covered with cementum. The crown and root join at the cementoenamel junction (CEJ). This junction, also called the cervical line.

The enamel, cementum and dentin are the hard tissues of the tooth. The main bulk of the tooth is composed of dentin, which is clear in a cross section of the tooth. This cross section displays a pulp chamber and a pulp canal, which normally contain the pulp tissue.

**\*Dental pulp:** is the soft tissue of the tooth and present in pulp chamber and pulp canal.

**\*Pulp chamber:** is the part of dental pulp in the crown.

**\*Pulp canal:** is the part of dental pulp in the root.

**\*Anatomical crown:** is the portion of the tooth which is covered by enamel.

**\*Clinical crown:** is the portion of the tooth which is visible in the mouth.

(In healthy person, the anatomical crown is larger than the clinical crown).



## Surfaces and Ridges

The crowns of the incisors and canines have four surfaces and a ridge while the crowns of the premolars and molars have five surfaces. The surfaces are named according to their positions and uses.

**\*Labial surfaces:** are the surfaces which are toward the lips in the incisors and canines (in anterior teeth).

**\*Buccal surfaces:** are the surfaces which facing the cheeks in the premolars and molars (in posterior teeth).

**Note:** When labial and buccal surfaces are spoken of collectively, they are called facial surfaces).

**\*Lingual surfaces:** are the surfaces which facing toward the tongue.

**\*Occlusal surfaces:** are the surfaces of the premolars and molars that come in contact (occlusion) with those in the opposite jaw during the act of closure.

**Note:** In anterior teeth (incisors and Canines) these surfaces are called incisal ridge.

**\*Proximal or proximate surfaces:** are the surfaces of the teeth facing toward adjoining teeth in the same dental arch, the proximal surfaces may be called either mesial or distal.

**\*Median line of the face:** this line is drawn vertically through the center of the face, passing between the central incisors at their point of contact with each other in both the maxilla and the mandible.

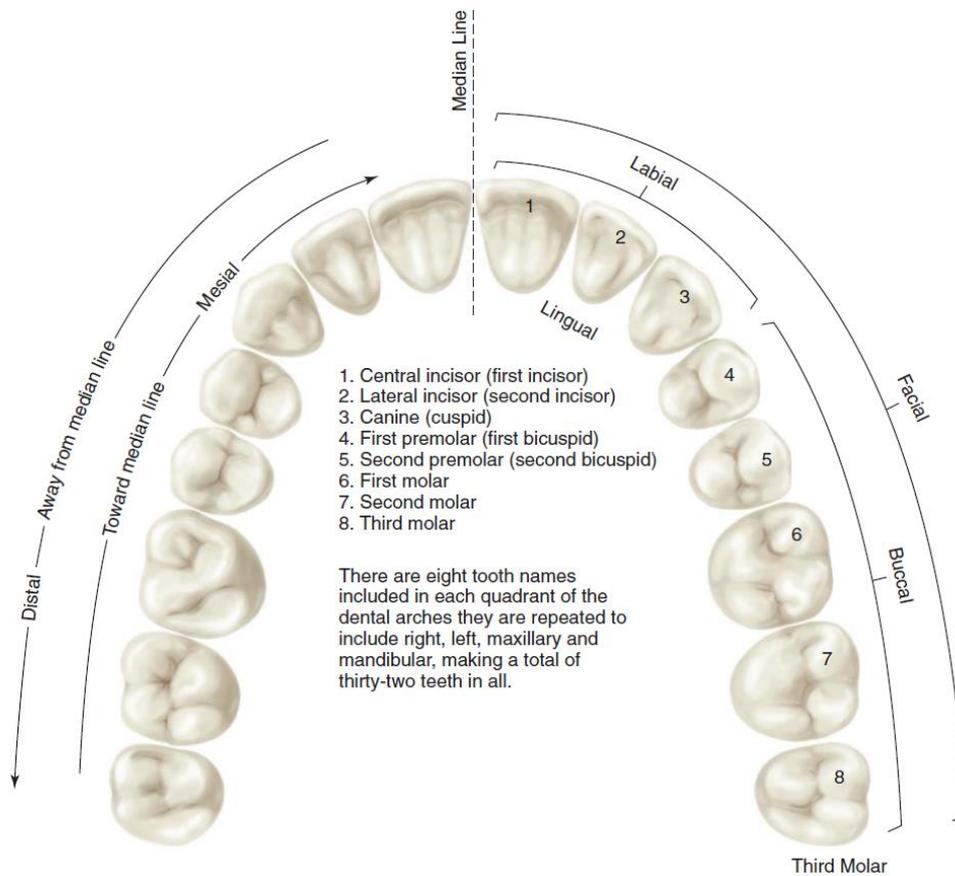
**\*Mesial surfaces:** those proximal surfaces that following the curve of the arch, are faced toward the median line

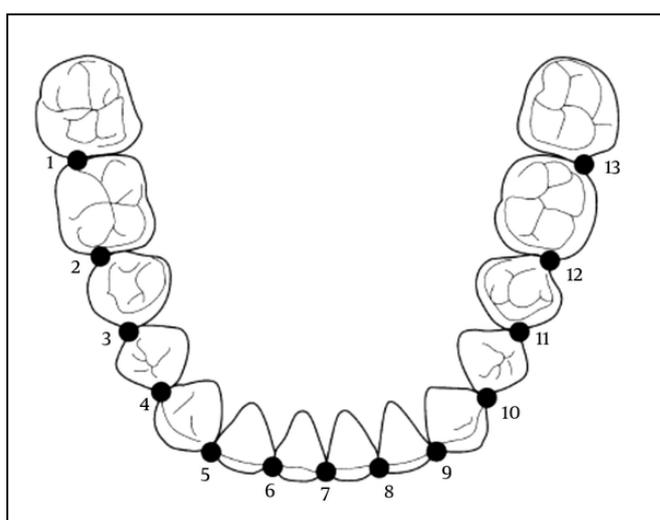
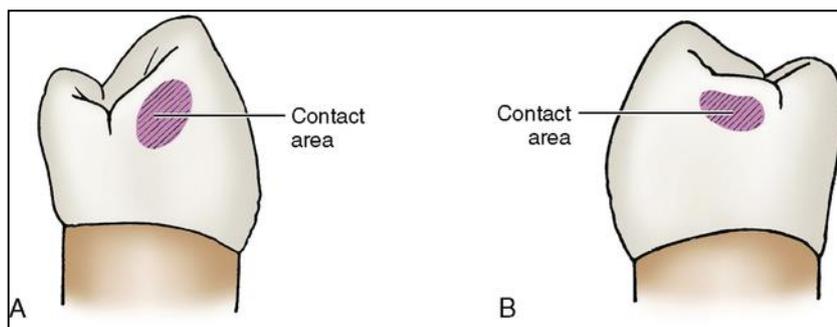
**\*Distal surfaces:** those most distant from the median line.

**\*Contact area:** the area of the mesial or distal surface of a tooth that touches its neighbor in the arch.

Four teeth have mesial surfaces that contact each other: the maxillary and mandibular central incisors. In all other instances, the mesial surface of one tooth contacts the distal surface of its neighbor, except for the distal surfaces of third molars of permanent teeth and distal surfaces of second molars in deciduous teeth, which have no teeth distal to them.

**Note:** Central and lateral incisors and canines as a group are called anterior teeth; premolars and molars as a group, posterior teeth).



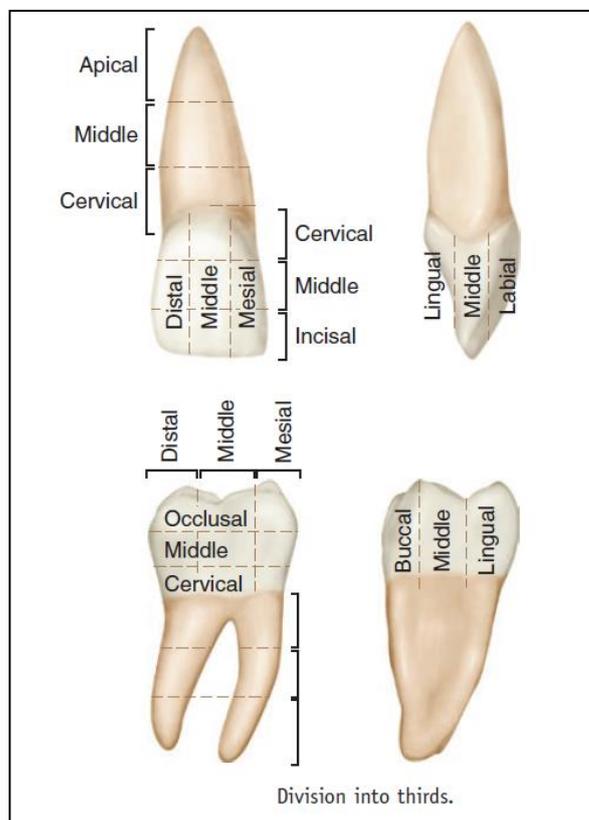


### Division into Thirds, Line Angles, and Point Angles

For purposes of description, the crowns and roots of teeth have been divided into thirds and junctions.

When the surfaces of the crown and root portions are divided into thirds, these thirds are named according to their location. Looking at the tooth from the labial or buccal aspect, we see that the crown and root may be divided into thirds from the incisal or occlusal surface of the crown to the apex of the root. The crown is divided into an incisal or occlusal third, a middle third and a cervical third. The root is divided into a cervical third, a middle third and an apical third.

The crown may be divided into thirds in three directions: inciso- or occlusocervically, mesiodistally, or labio- or buccolingually. Mesiodistally, it is divided into the mesial, middle and distal thirds. Labio- or buccolingually it is divided into labial or buccal, middle and lingual thirds.



**A line angle** is formed by the junction of two surfaces and derives its name from the combination of the two surfaces that join. For instance, on an anterior tooth, the junction of the mesial and labial surfaces is called the **mesiolabial line angle**.

\*The line angles of the **anterior teeth** are as follows:

- .Mesiolabial
- .Distolingual
- .Mesiolingual
- .Labioincisal
- .Distolabial
- .Linguoincisal

Because the mesial and distal incisal angles of anterior teeth are rounded, **mesioincisal line angles** and **distoincisal line angles** are usually considered nonexistent. They are spoken of as **mesial** and **distal incisal** angles only.

\*The *line angles* of the **posterior teeth** are as follows:

.Mesiobuccal      .Distolingual      .Bucco-Occlusal  
 .Distobuccal      .Mesio-Occlusal      .Linguo-Occlusal  
 .Mesiolingual      .Disto-Occlusal

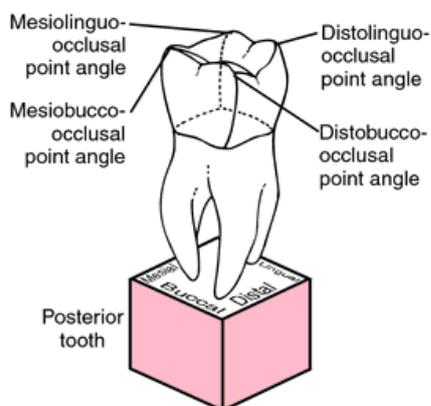
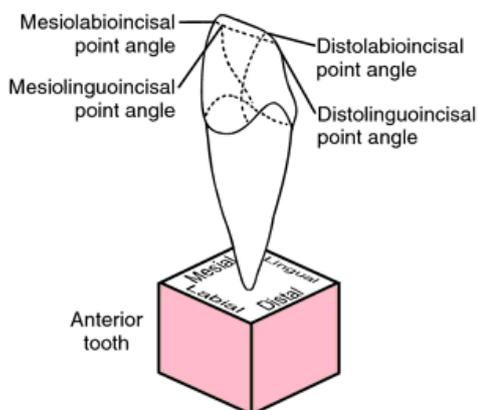
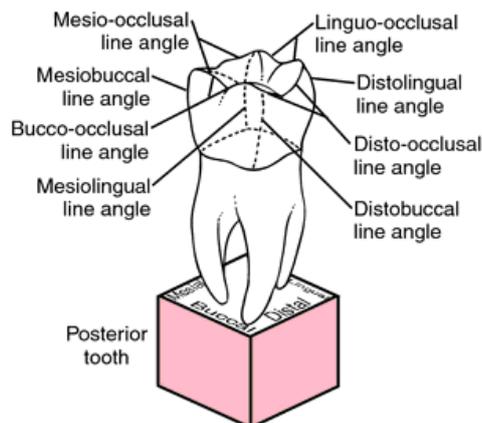
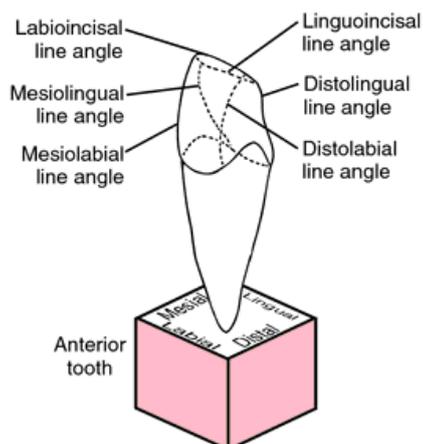
**A point angle** is formed by the junction of three surfaces. The point angle also derives its name from the combination of the names of the surfaces forming it. For example, the junction of the mesial, buccal, and occlusal surfaces of a molar is called the **mesiobucco-occlusal point angle**.

\*The *point angles* of the **anterior teeth** are:

.Mesiolabioincisal      .Mesiolinguoincisal  
 .Distolabioincisal      .Distolinguoincisal

\*The *point angles* of the **posterior teeth** are:

.Mesiobucco-Occlusal      .Mesiolinguo-Occlusal  
 .Distobucco-Occlusal      .Distolinguo-Occlusal



### The number of roots

1. Single root: in all anterior teeth, mandibular premolars and maxillary second premolar.
2. Two roots with bifurcation: in mandibular molars and maxillary first premolar.
3. Three roots with trifurcation: in maxillary molars.

