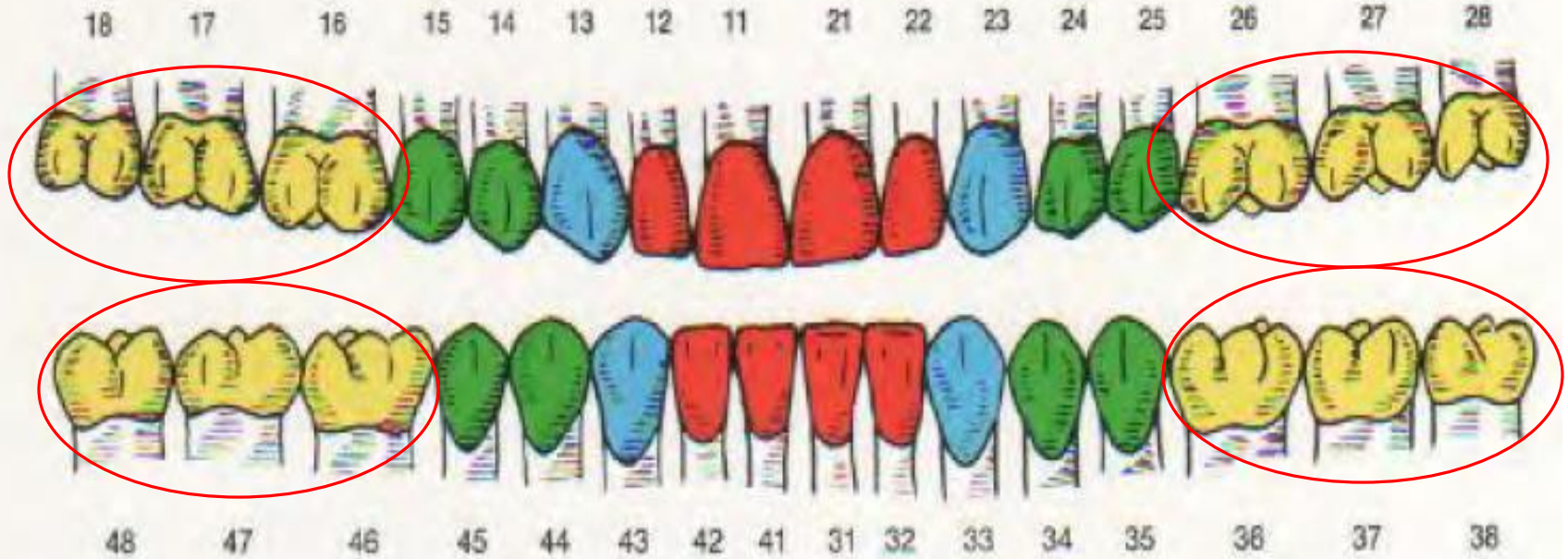


MOLARS

DR.ASHUTOSH
AGRAWAL

Molars

Maxilla



Mandible

FUNCTIONS OF MOLARS

1. Play a major role in the mastication of food (chewing and grinding)
2. Most important in maintaining the vertical dimension of the face (resulting in a protruding chin and a prematurely aged appearance)

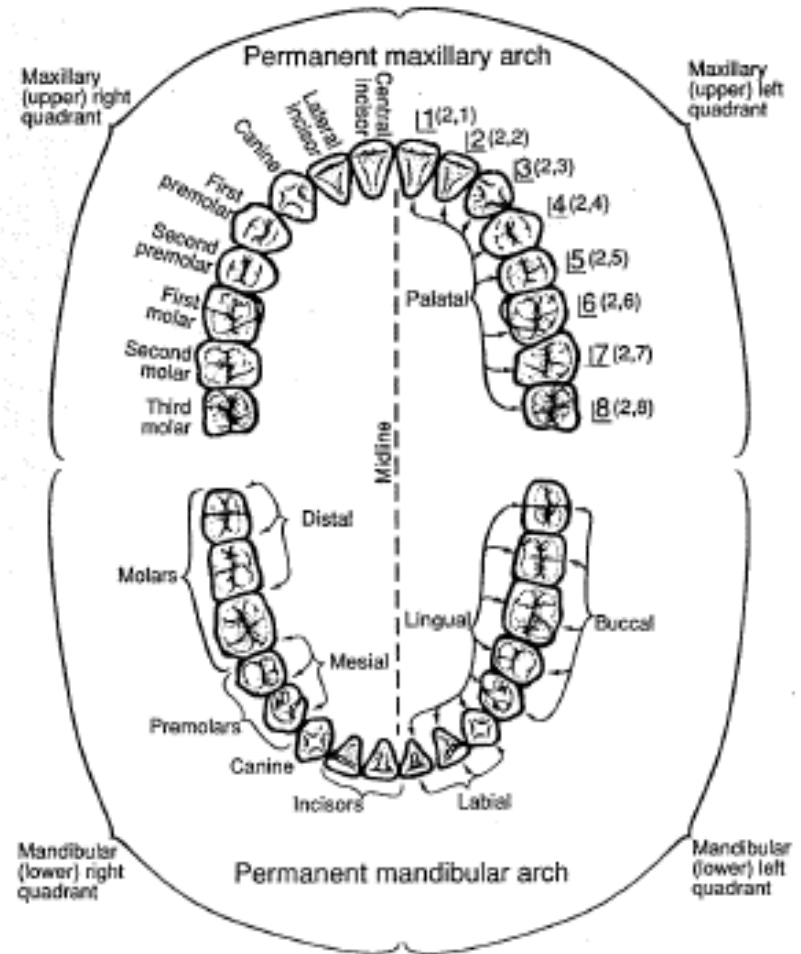
Molars

3. Important in maintaining continuity within the dental arches, thus keeping other teeth in proper alignment.
4. A minor role in aesthetics or keeping the cheeks normally full or supported.

You may have seen someone who has lost all 12 molars (six upper and six lower) and has sunken cheeks.

Molars

NUMBERING OF MOLARS

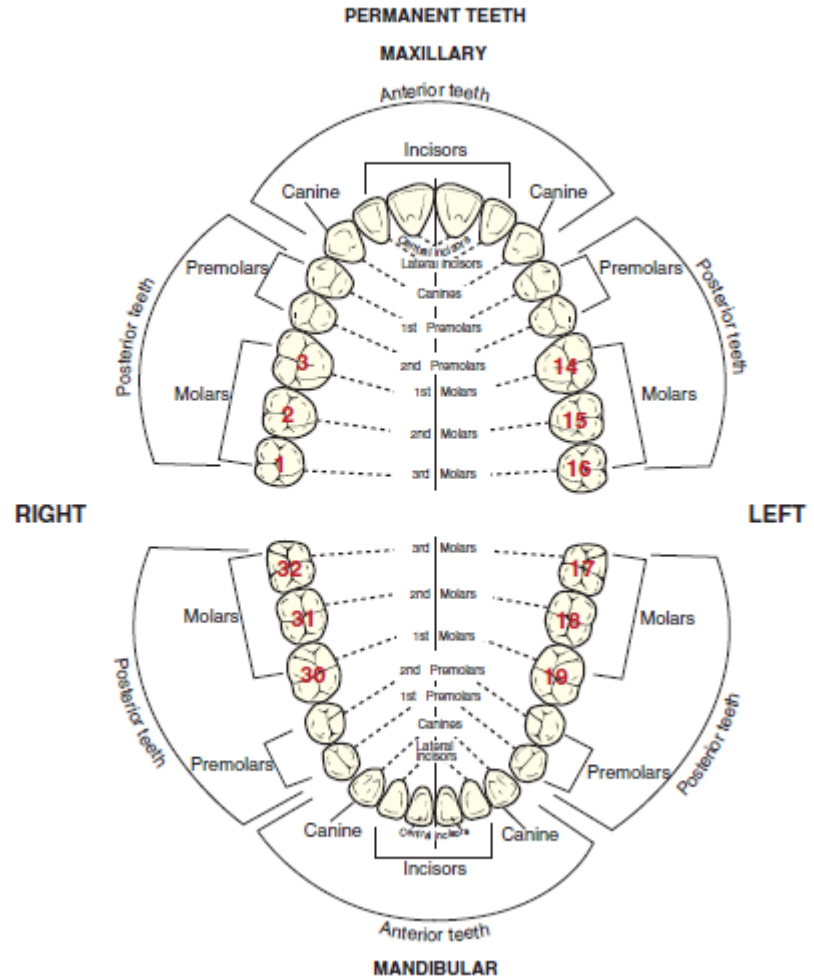


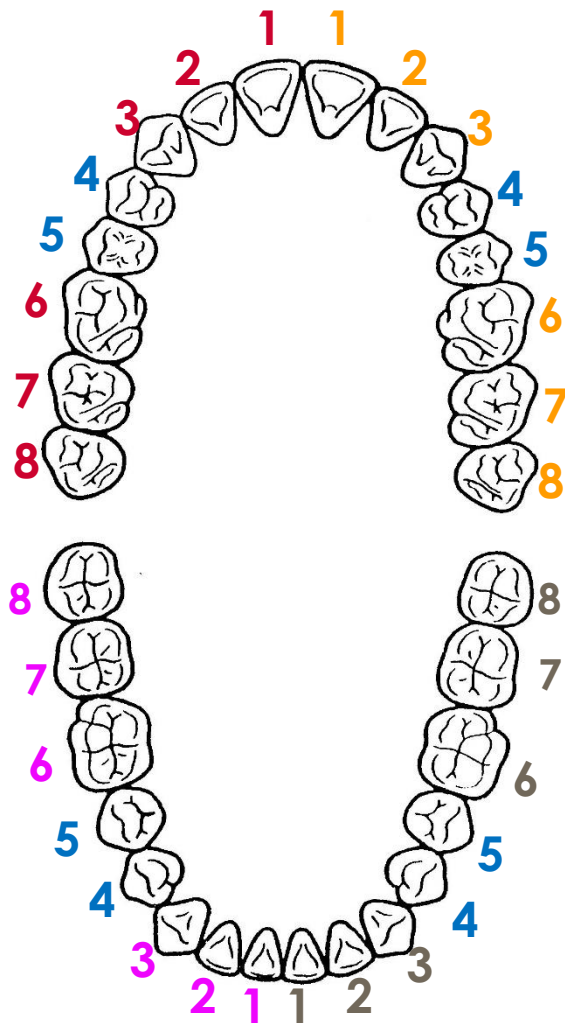
upper right = | | = upper left

lower right = | | = lower left

Molars

Universal Numbering System





“PALMER” Method of Tooth Numbering

6 permanent mandibular right 1st molar

FDI (Federation Dentaire Internationale)

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

16 Permanent maxillary
right 1st Molar

Patient's Right

Patient's Left

8,7,6,5,4,3,2,1

1,2,3,4,5,6,7,8

7

8,7,6,5,4,3,2,1

1,2,3,4,5,6,7,8

Permanent Maxillary
Left 2nd Molar

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

#19 Permanent Mandibular
Left 1st Molar

18,17,16,15,14,13,12,11

21,22,23,24,25,26,27,28

48,47,46,45,44,43,42,41

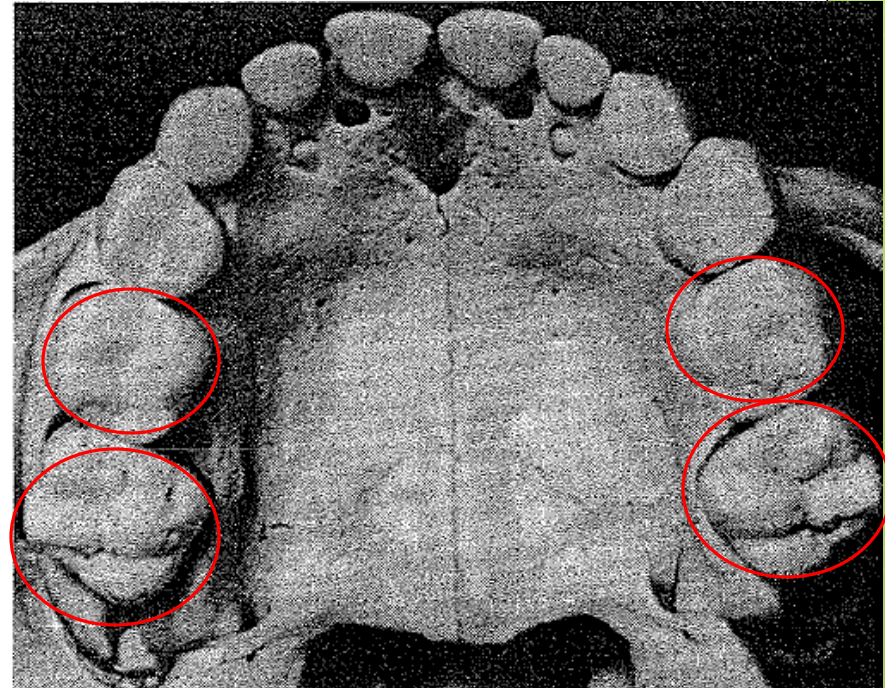
31,32,33,34,35,36,37,38

46 Permanent Mandibular
right 1st molar

Molars

Applicable to all first molars-

1. The permanent first molars usually appear in the oral cavity when the child is 6 years old. The mandibular molars precede the maxillary molars.



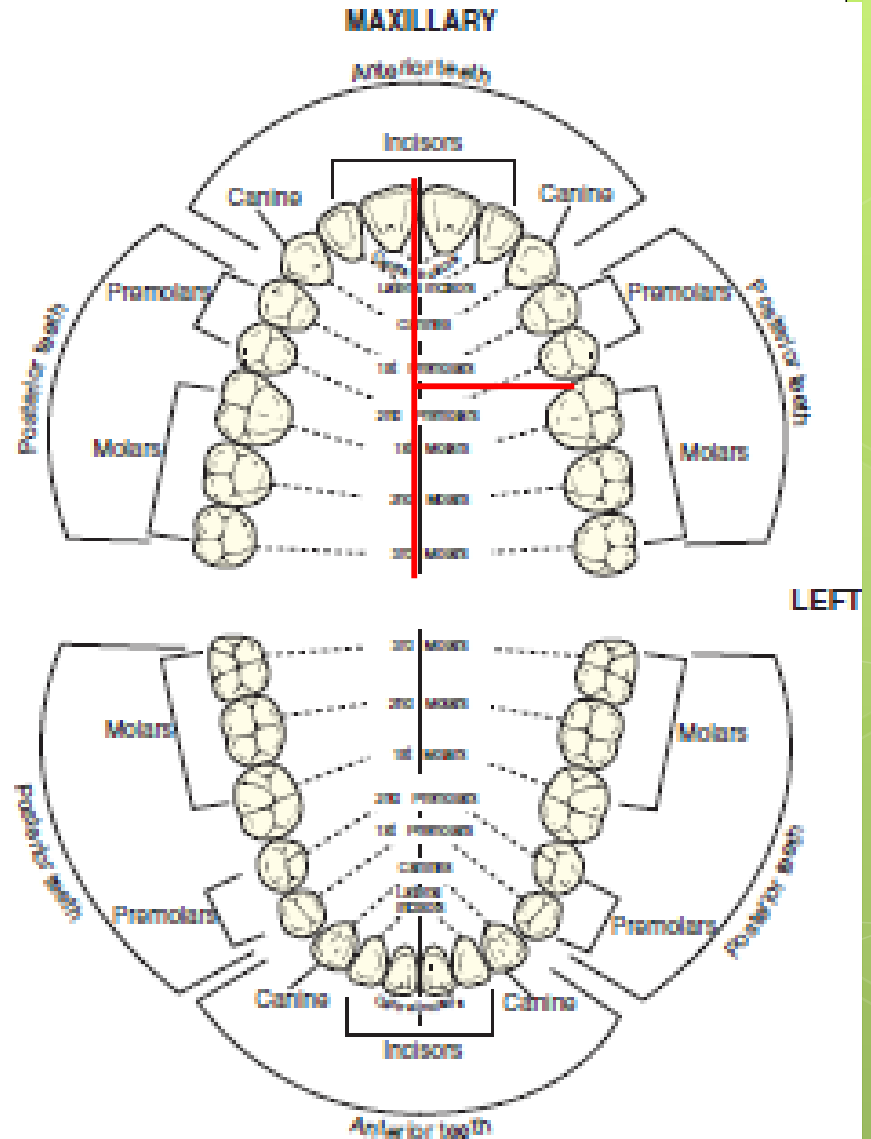
Molars

2. The first molar is not a succedaneous tooth, since it has no predecessor.



Molars

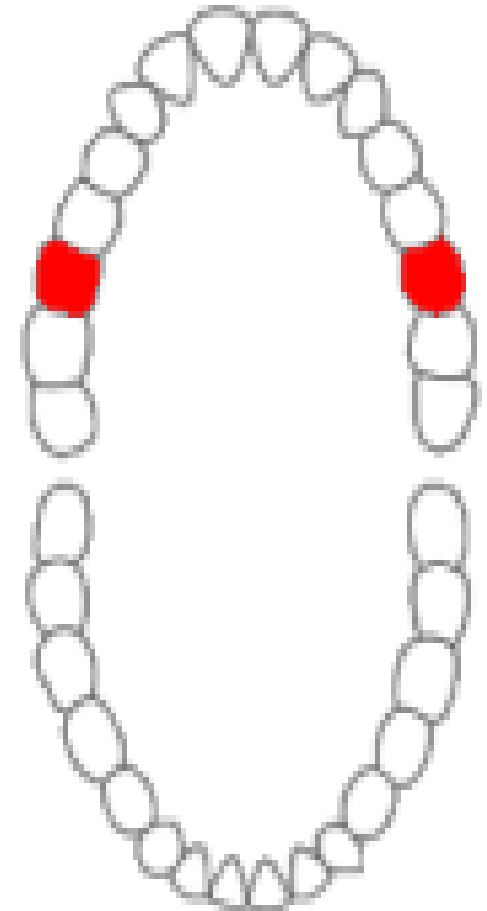
- The normal location of the first permanent molar is at the center of the fully developed adult jaw antero-posteriorly.
- The first molars are considered the "cornerstones" of the dental arches.



**MAXILLARY
MOLARS**

The Permanent Maxillary First Molar

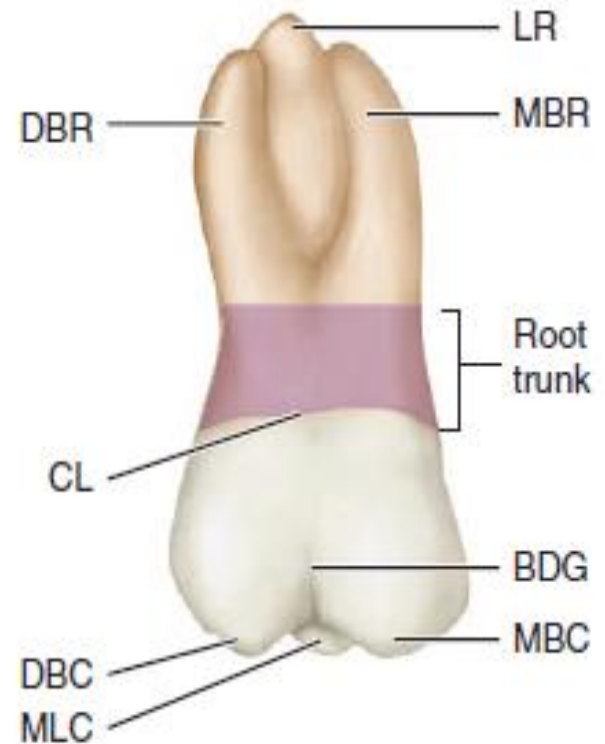
- The **maxillary first molar** is the tooth located **laterally** (away from the midline of the face)
- The **function** of this molar is similar to that of all molars in regard to **grinding** being the principal action **during mastication**, commonly known as chewing.



Molars

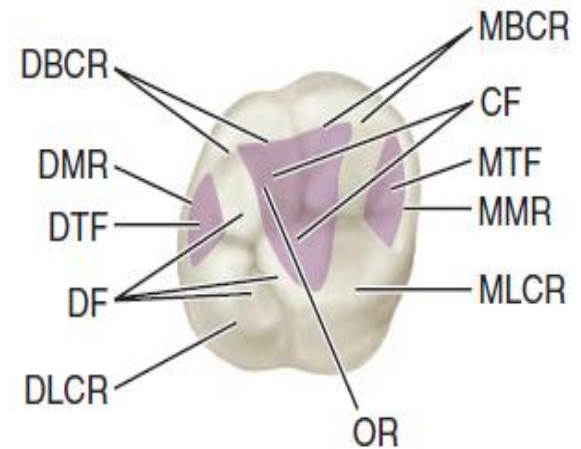
Generally speaking-

- The maxillary molars have four well-formed cusps.
- They have three roots—two buccal and one lingual.
- The lingual root is the largest.
- The crowns have two buccal cusps and two lingual cusps.



Molars

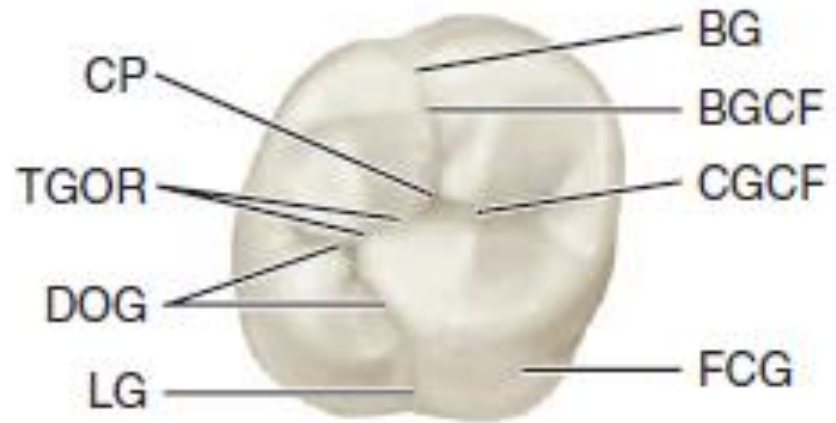
- The crown of this tooth is wider buccolingually than mesiodistally (1 mm).
- The maxillary first molar is normally the largest tooth in the maxillary arch.
- It has four well-developed functioning cusps and one supplemental cusp of little practical use.



Molars

Four large cusps:

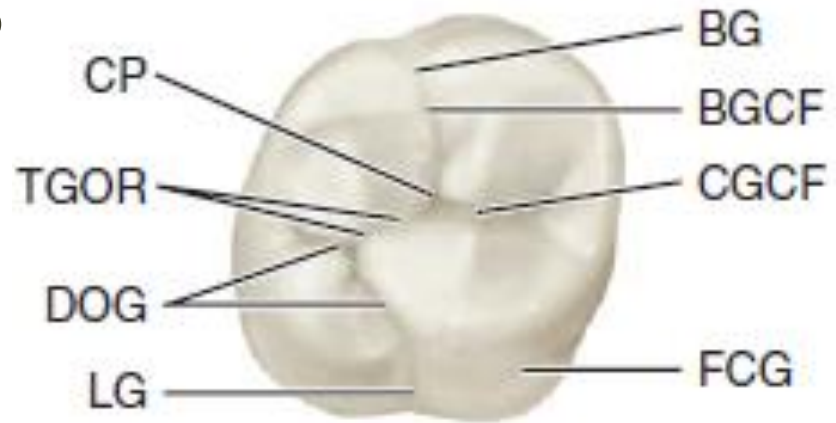
- Mesio Buccal,
- Distobuccal
- Mesiolingual
- Distolingual
- A supplemental cusp is called the **cusp or tubercle of Carabelli**.



Molars

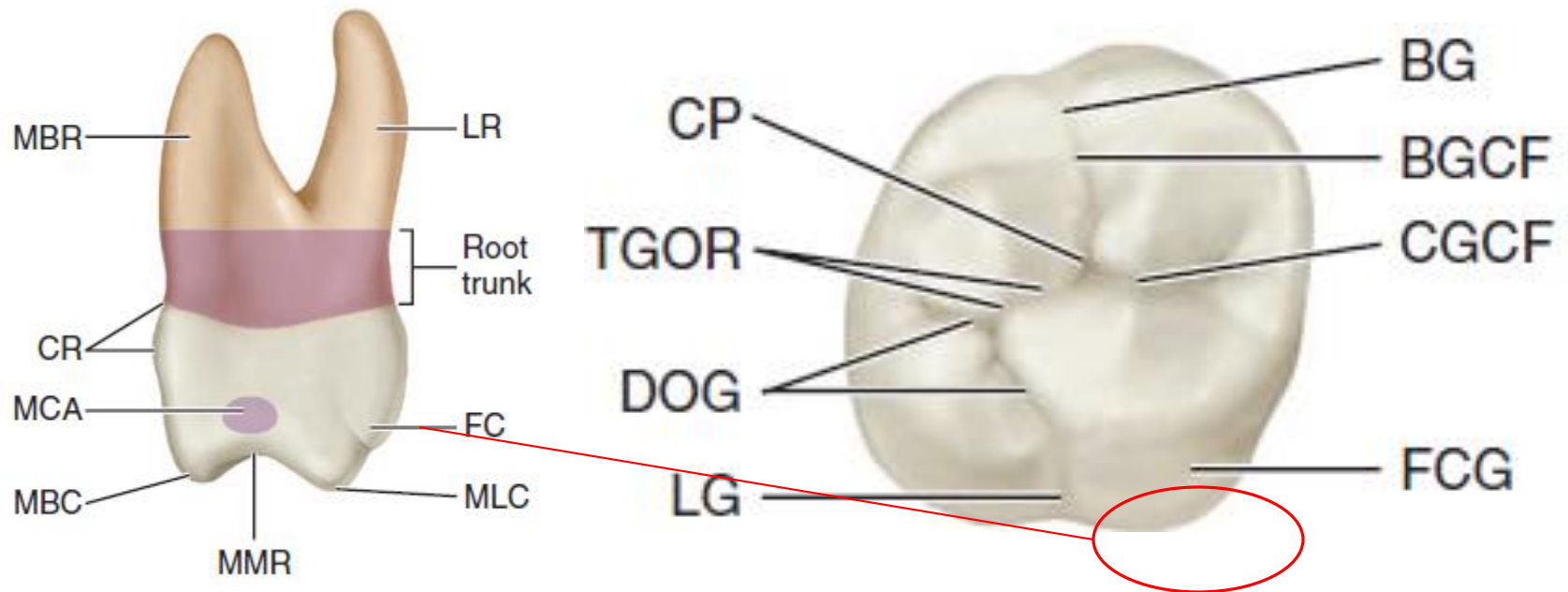
Four cusps: (largest to smallest)

- Mesiolingual
- Mesibuccal,
- Distobuccal
- Distolingual
- Cusp of Carabelli.



Molars

- This supplemental cusp is found on lingualside of the mesiolingual cusp, which is the largest of the well-developed cusps.



Molars

- Three roots
- The mesiobuccal,
 - The distobuccal,
 - The lingual.
 - These roots are well separated and well developed, and their placement gives this tooth maximum anchorage against forces that would tend to unseat it.



Molars

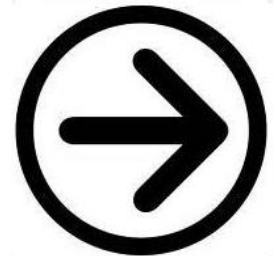
- The lingual root is the longest root.
- It is tapered and smoothly rounded.
- The mesiobuccal root is not as long, but it is broader buccolingually.
- The distobuccal root is the smallest of the three and smoothly rounded.



Chronology:

First evidence of calcification	At birth
Enamel completed	3–4 yr
Eruption	6 yr
Root completed	9–10 yr

Detailed Description

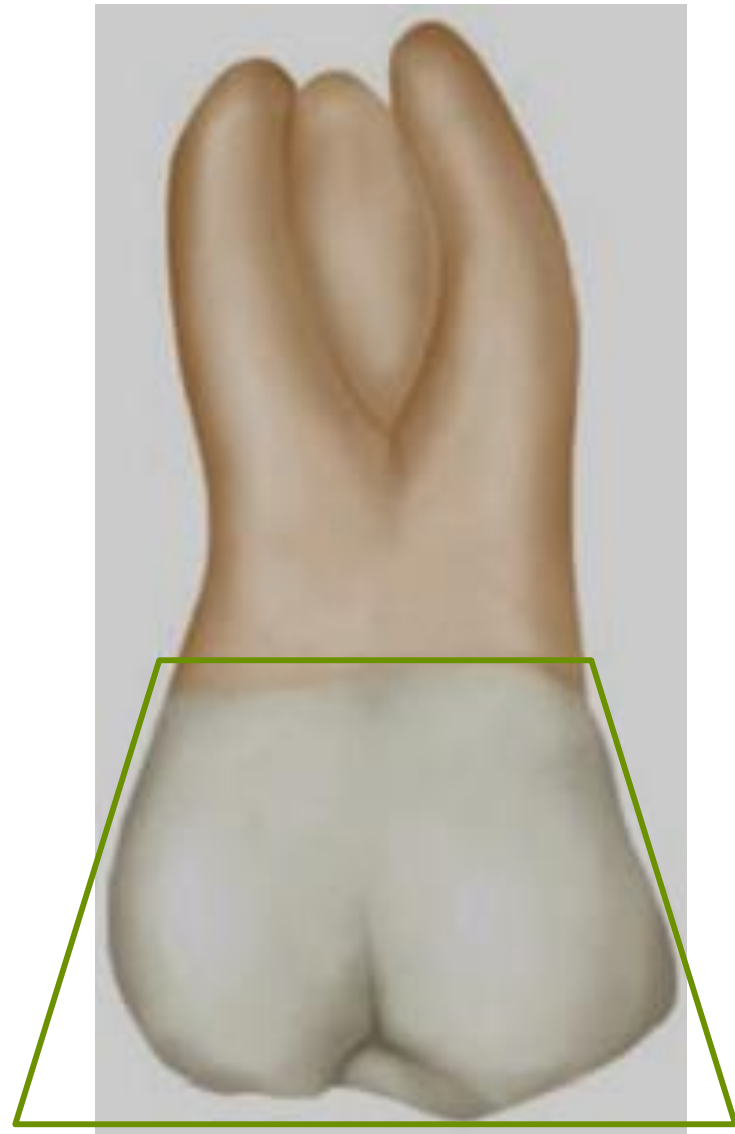




**BUCCAL
ASPECT**

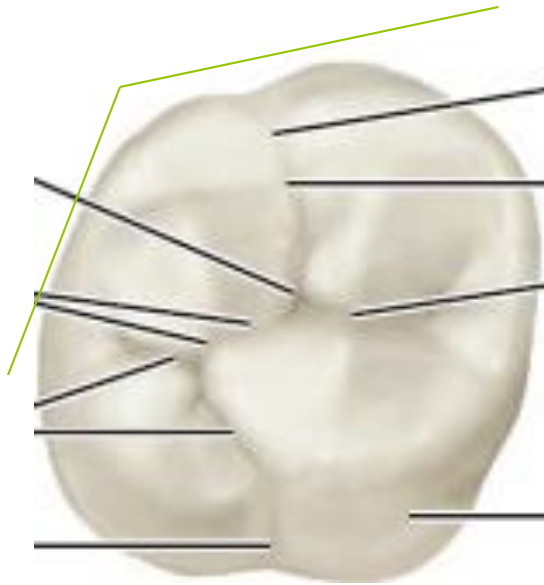
BUCCAL ASPECT

- The crown is roughly trapezoidal.



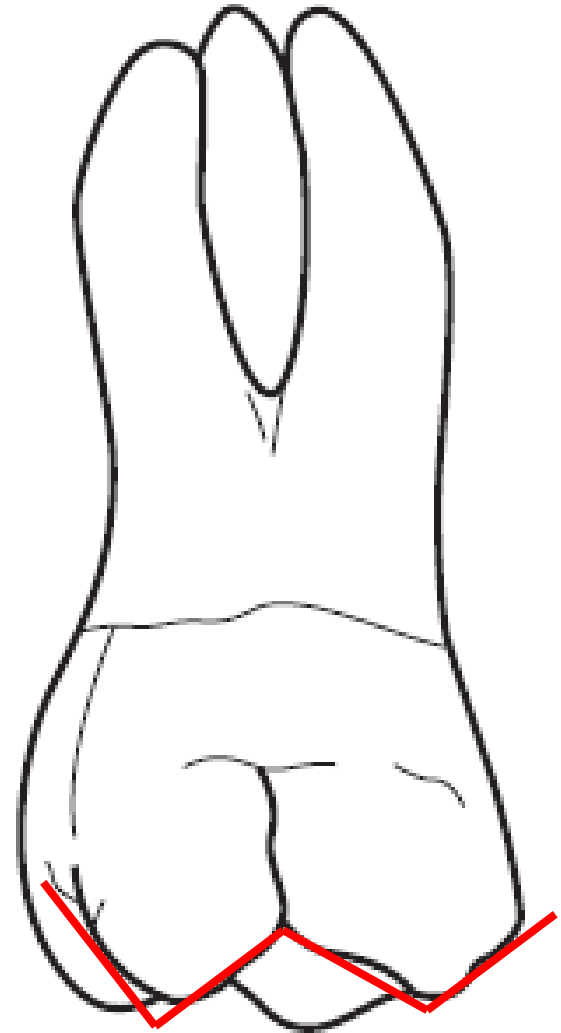
BUCCAL ASPECT

- Distobuccal line angle is of obtuse character so the distal side of the crown can be seen.
- Parts of four cusps are seen, the mesiobuccal, distobuccal, mesiolingual, and distolingual.



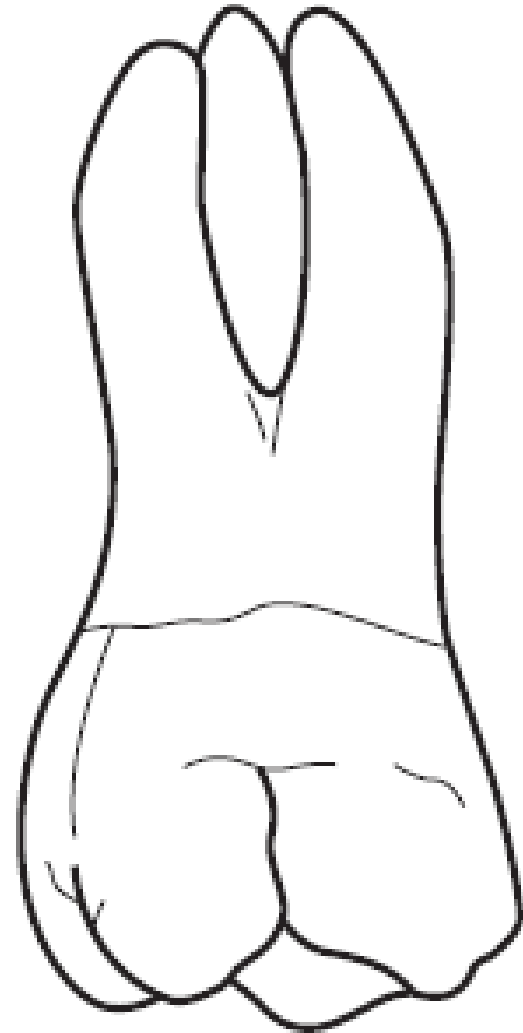
BUCCAL ASPECT

- The mesiobuccal cusp is broader than the distobuccal cusp, and its mesial slope meets its distal slope at an obtuse angle.
- The mesial slope of the distobuccal cusp meets its distal slope at approximately a right angle.



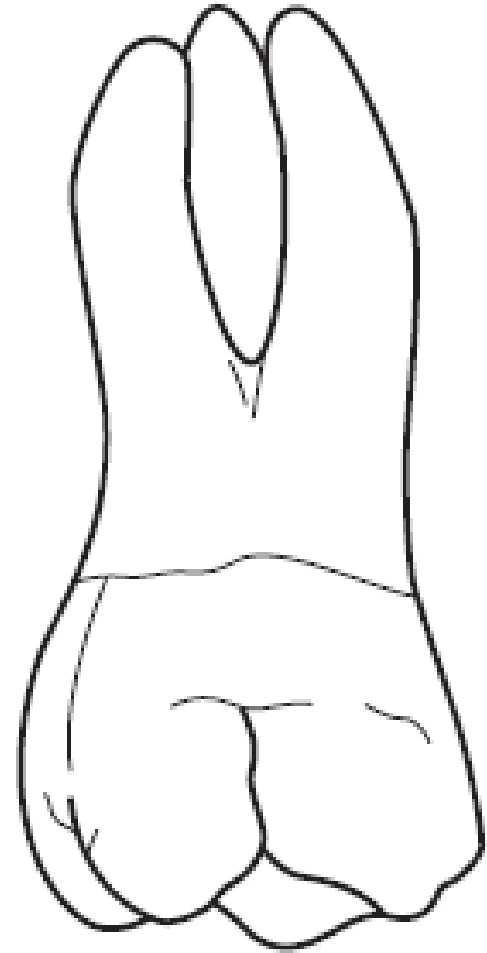
BUCCAL ASPECT

- The buccal developmental groove.
- The cervical line.



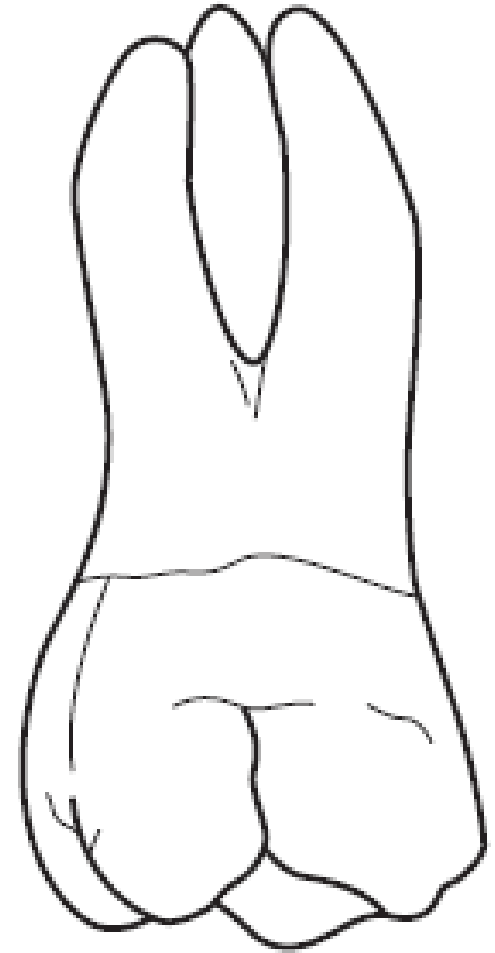
Mesial Outline

- The mesial outline of the crown from this aspect follows a nearly straight path downward and mesially, curving occlusally as it reaches the crest of contour of the mesial surface, which is the contact area.



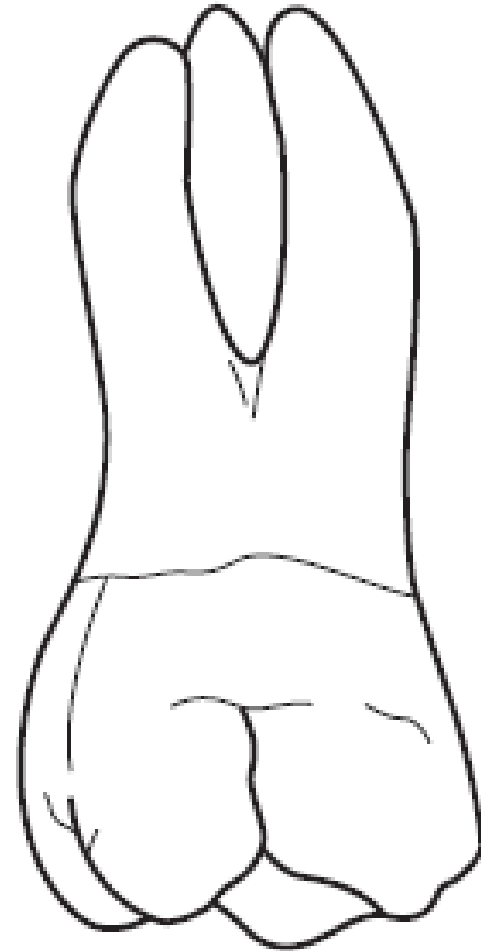
Mesial Outline

- This crest is approximately two thirds the distance from cervical line to tip of mesiobuccal cusp.
- The mesial outline continues downward and distally and becomes congruent with the outline of the mesial slope of the mesiobuccal cusp.



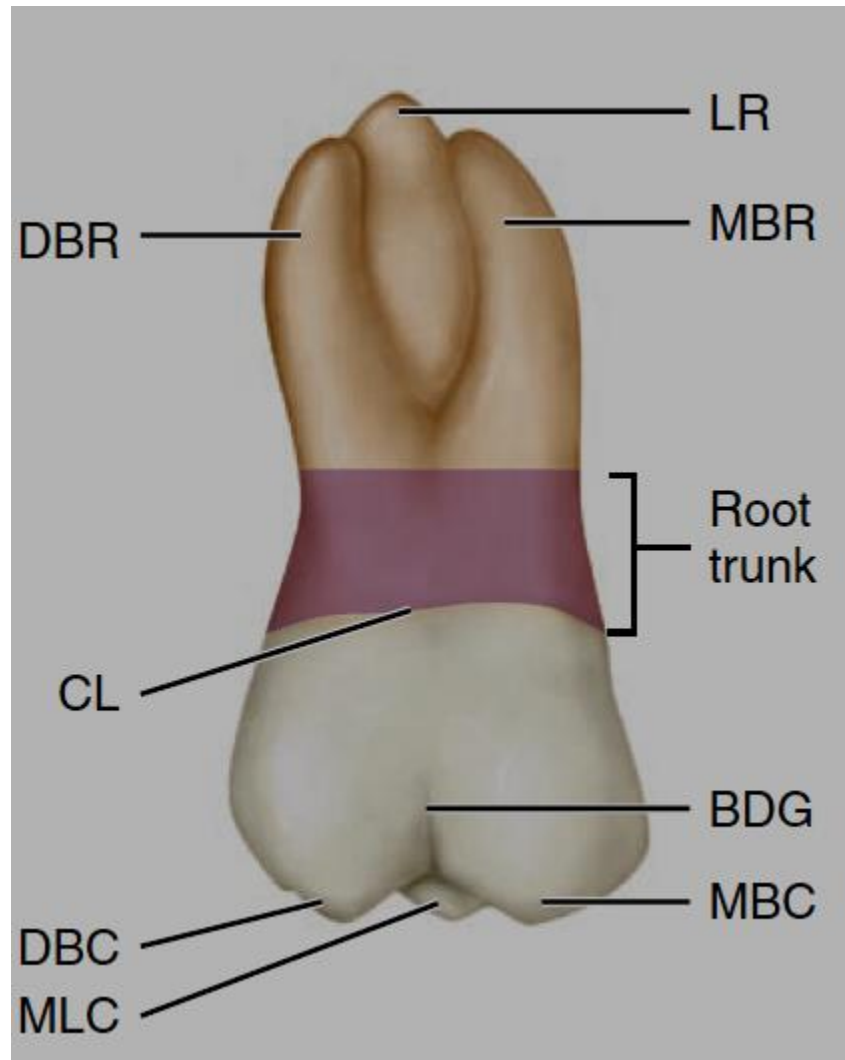
Distal Outline

- The distal outline of the crown is convex; the distal surface is spheroidal.
- The crest of curvature on the distal side of the crown is located at a level approximately half the distance from cervical line to tip of cusp.
- The distal contact area is in the middle of the middle third.



ROOTS

- All three of the roots are seen from the buccal aspect.
- The axes of the roots are inclined distally.
- The buccal roots show an inclination to curvature halfway between the point of bifurcation and the apices.
- The mesiobuccal root curves distally, starting at the middle third. Its axis usually is at right angles to the cervical line.
- The distal root is straighter, with its long axis at an acute angle distally with the cervical line. It has a tendency toward curvature mesially at its middle third.
- The point of bifurcation of the two buccal roots is located approximately 4 mm above the cervical line.



The Buccal Aspect

- Trapezoidal shape
- Parts of all 4 cusps visible
- Portion of distal surface can be seen
- Mesio Buccal cusp larger of the buccal cusps
- Has a prominent buccal groove that continues over from the occlusal surface
- All three roots are visible, palatal root centered between buccal roots

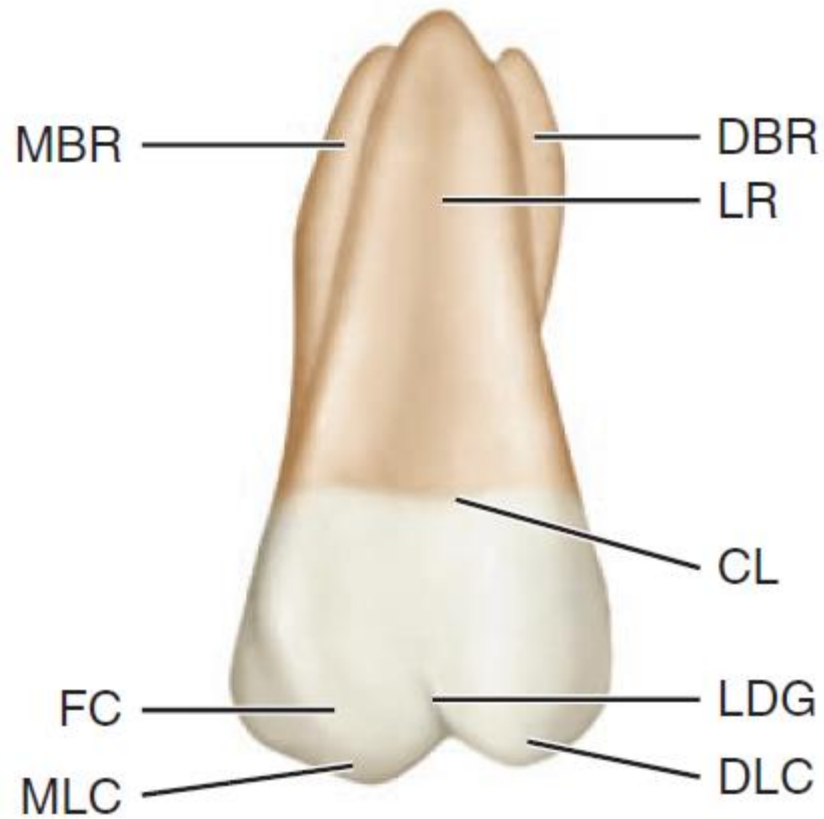


Palatal Aspect

- Outlines reversed from the buccal aspect, still trapezoidal.
- **Mesiopalatal largest** cusp
- **Distopalatal smallest** cusp, almost spheroidal
- Has a **palatal pit** at the end of the distopalatal groove
- There may be a **cusp on the palatal surface** of the **mesiopalatal cusp**.
- This is a **fifth cusp** called the **cusp of Carabelli**, which is **visible** in addition to the four cusps **on the occlusal surface**



Palatal Aspect



Mesial Aspect

- Mesio Buccal and mesio palatal and fifth cusps visible.
- Mesial marginal ridge confluent with the mesio buccal, mesio palatal cusp ridges and curved cervically
- The contact area at the junction of the middle and occlusal third, closer to the buccal aspect
- Shallow concavity just below the contact area
- Cervical line irregular and curves occlusally



Mesial Aspect



Distal Aspect

- Basic outlines reverse from mesial aspect
- Distobuccal and distopalatal cusps are seen
- Marginal ridge dips sharply cervically
- More of occlusal surface seen because of distal tilt of crown.
- Cervical line almost straight



Distal Aspect



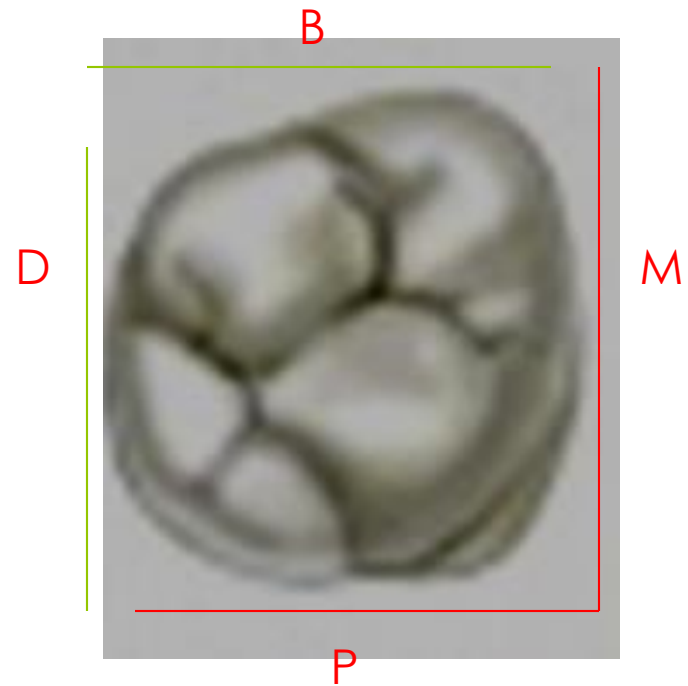
Occlusal Aspect

- Roughly rhomboidal shape



Occlusal Aspect

- Crown mesially and palatally wider than distally and buccally



Occlusal Aspect

- Intersection of mesial and buccal surfaces form acute angle



Occlusal Aspect

- Three largest cusps form a triangle



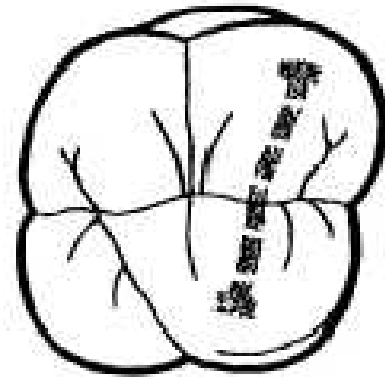
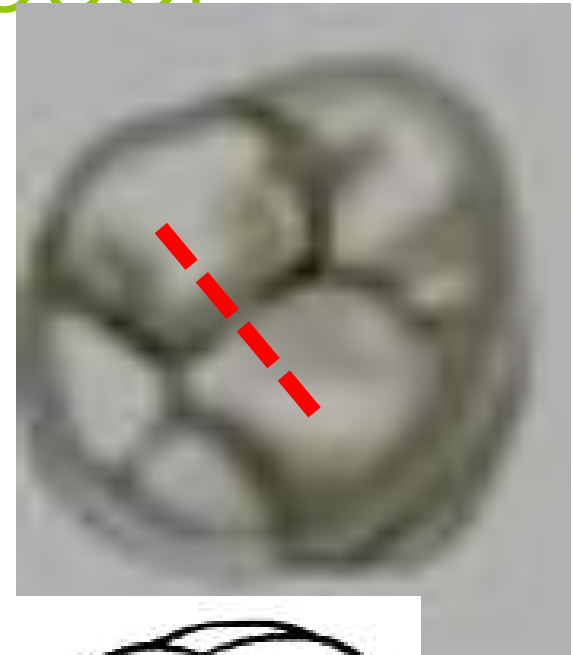
Occlusal Aspect

- Distopalatal least developed cusp



Occlusal Aspect

- Pronounced oblique ridge from the distobuccal to the mesiopalatal cusp
- Transverse Ridge

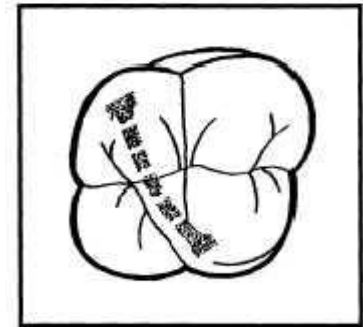


Occlusal Aspect

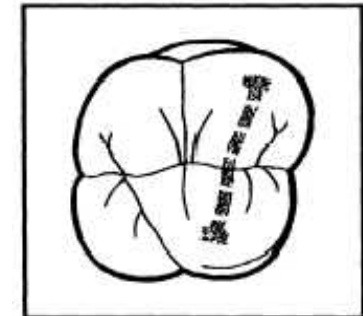
- Three occlusal fossae:
mesial, central, and
distal

Occlusal Aspect

- **Cusp size:**
 - Mesio palatal: largest
 - Mesio buccal
 - Distobuccal
 - Distopalatal: smallest
- **Ridges:**
 - Mesial and distal marginal ridges and oblique ridge
- **Fossae:**
 - **Major:** Central and Distal fossa
 - **Minor:** Mesial and distal triangular
- **Grooves:**
 - Central, buccal and palatal developmental groove
 - Distal oblique groove
 - Transverse groove
 - Fifth cusp groove
 - Supplemental grooves
- **Pit:**
 - Central Pit



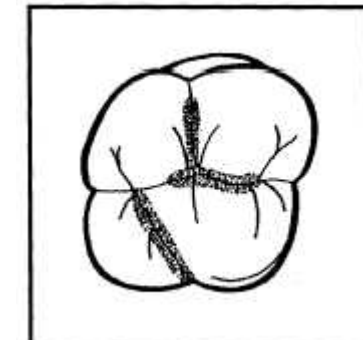
Oblique Ridge



Transverse Ridge



Fossae and Pits



Sulci and Depressions

