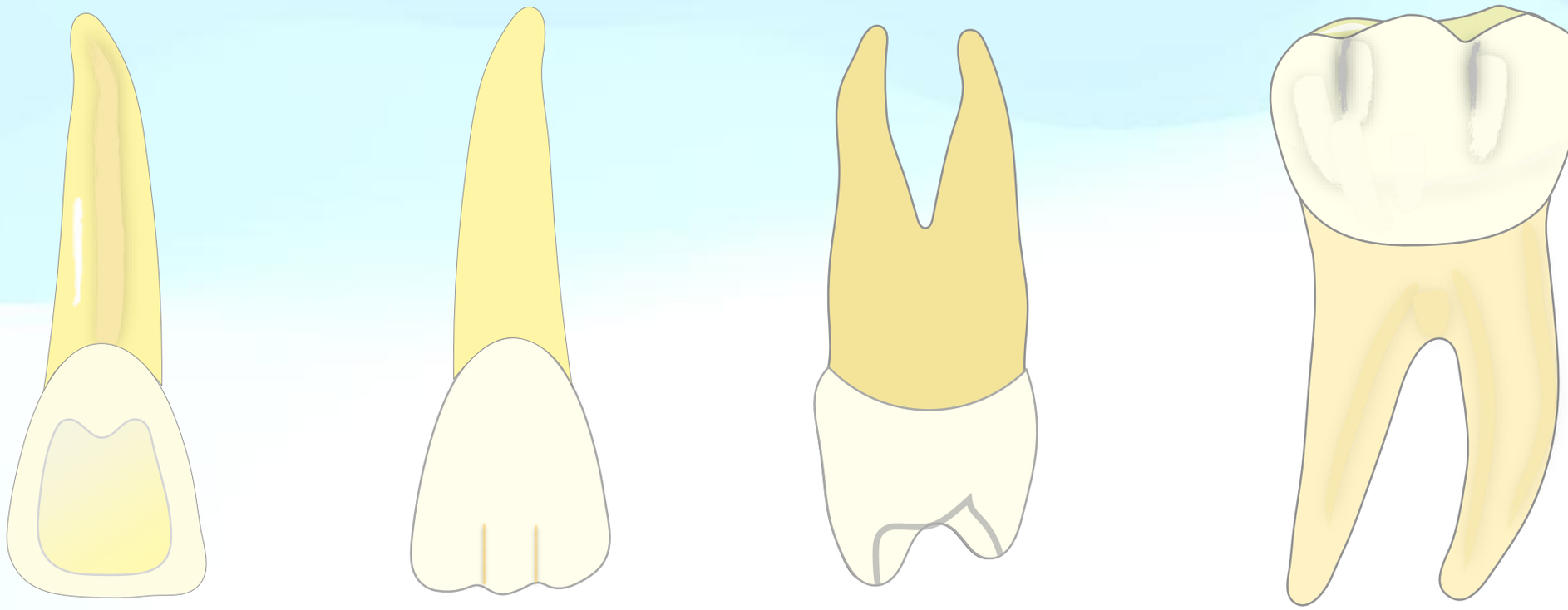
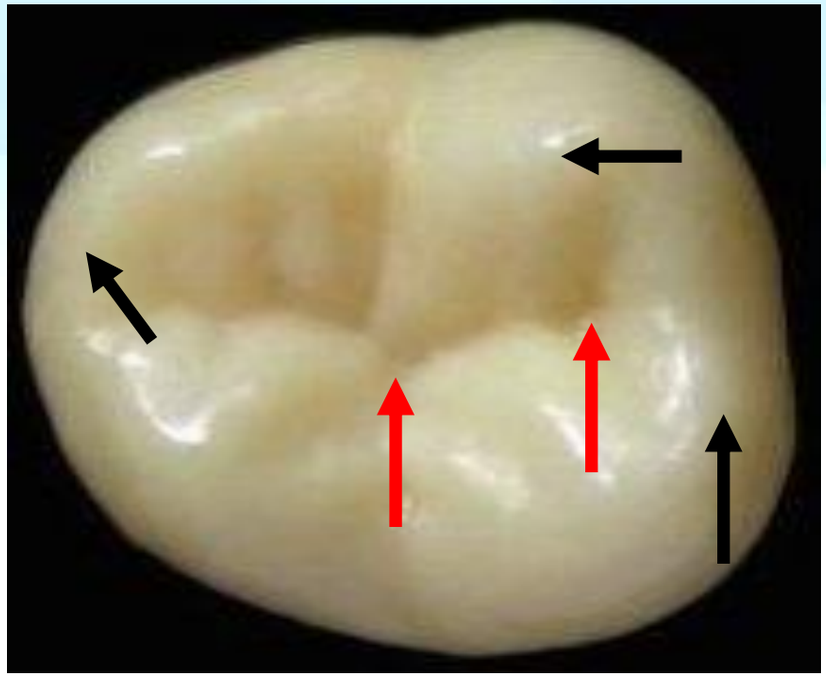
Anatomical landmarks of teeth



Anatomical Landmarks Of Crown

I- Elevated Landmarks

II- Depressed Landmarks



I- Elevated Landmarks

1. Lobe

Lobe is one of the primary centers of development and growth formed during development of the crown.

Mature form of lobes are cusps, mamelons and cingulum.

Number of lobes:

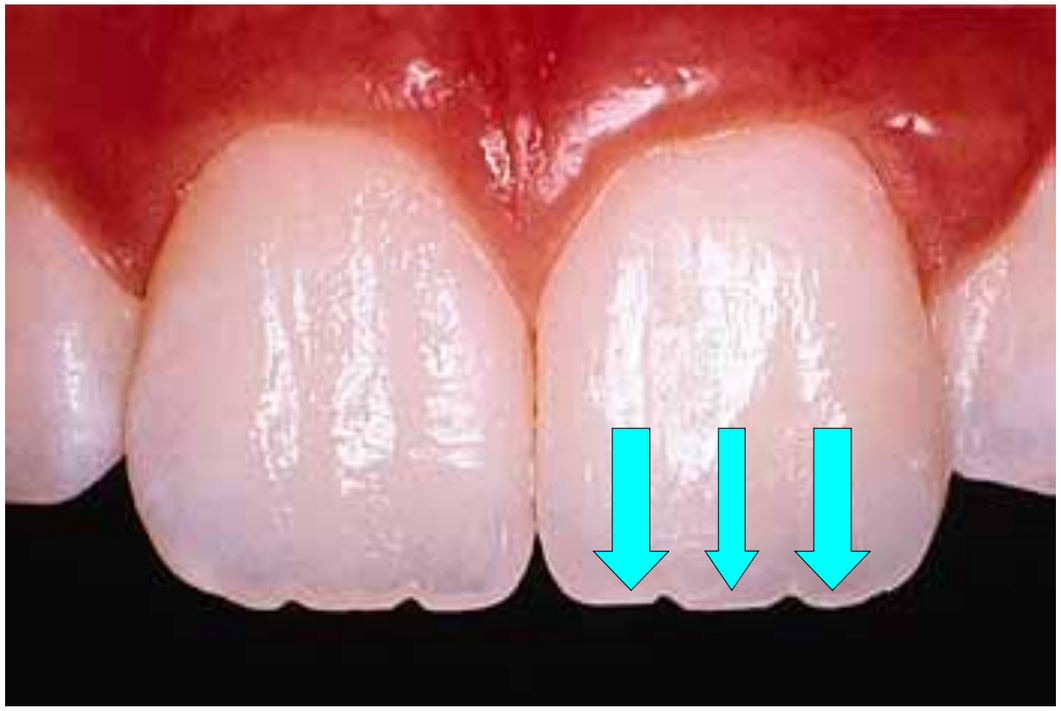
1. **Teeth formed from 4 lobes:** All teeth **except:**
2. **Teeth formed from 5 lobes:**

- Maxillary and mandibular 1st permanent molars.
- Maxillary and mandibular 2nd deciduous molars
- Mandibular 2nd premolar.

2. Mamelons

Mamelon is any one of three small rounded elevations located on the incisal ridge of **newly erupted** permanent incisors only.

By time due to friction of eating: Attrition occurred to mamelons and become incisal edge (ridge).



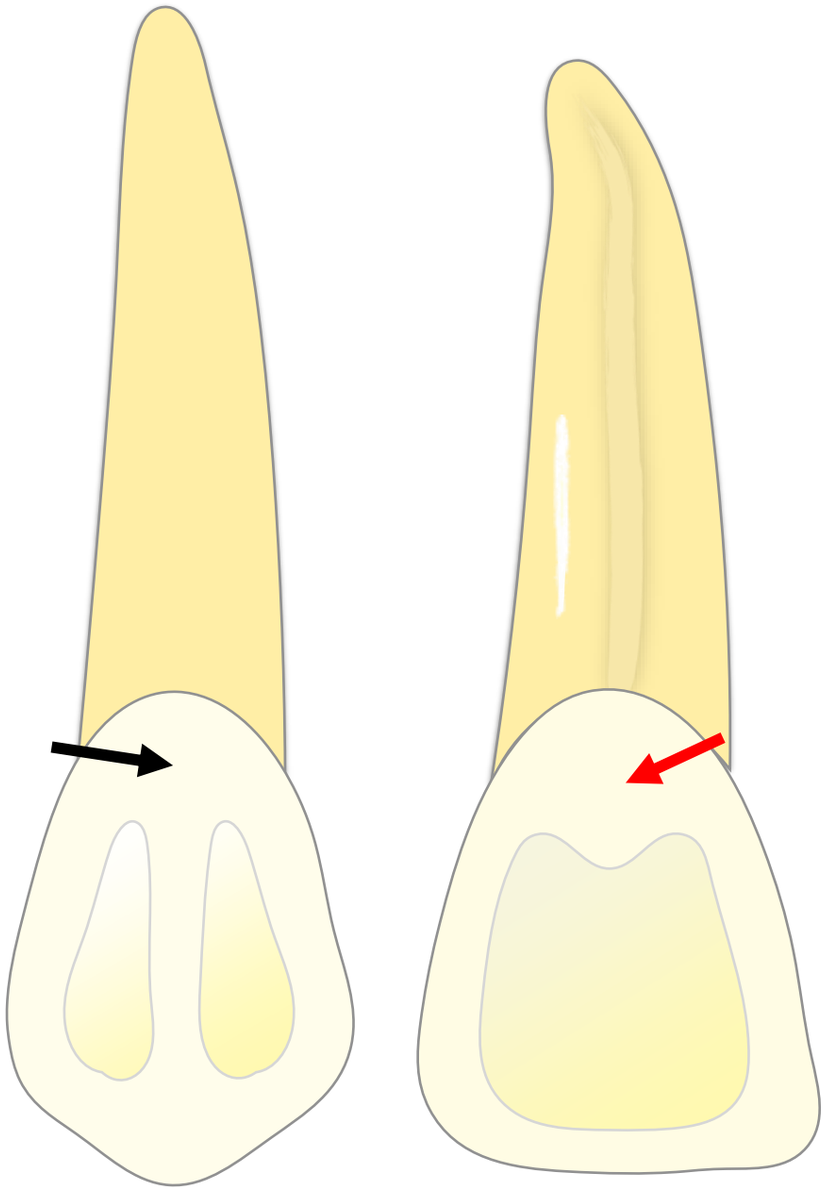
3. Cingulum

Definition:

Large rounded elevation fill the cervical third of lingual surface of anterior teeth.

Site:

- Permanent and deciduous incisors.
- Permanent and deciduous canines.



4. Cusp

Definition:

➢Cusp is an elevation of various size and shape.

➢Cusp denote a mature form of lobe.

Site:

1.Occlusal surface of posterior teeth.

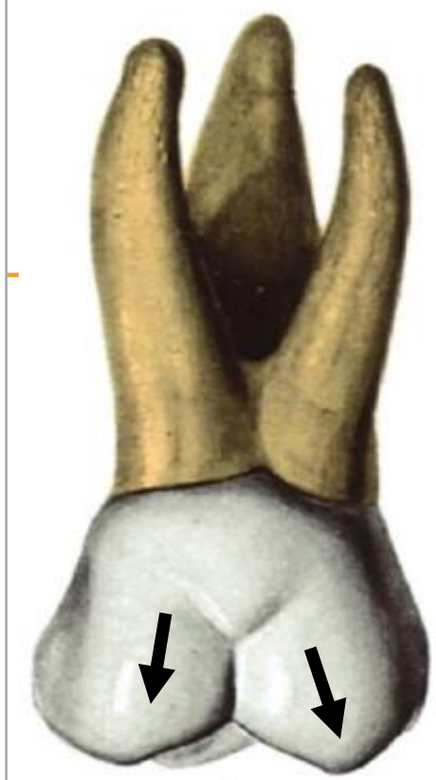
2. incisal third of canine.

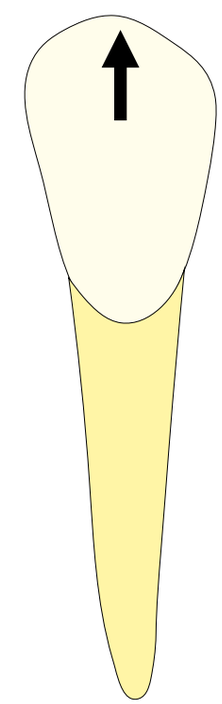
Shape:

Cusp is pyramidal structure has four surfaces and four ridges.

Structure:

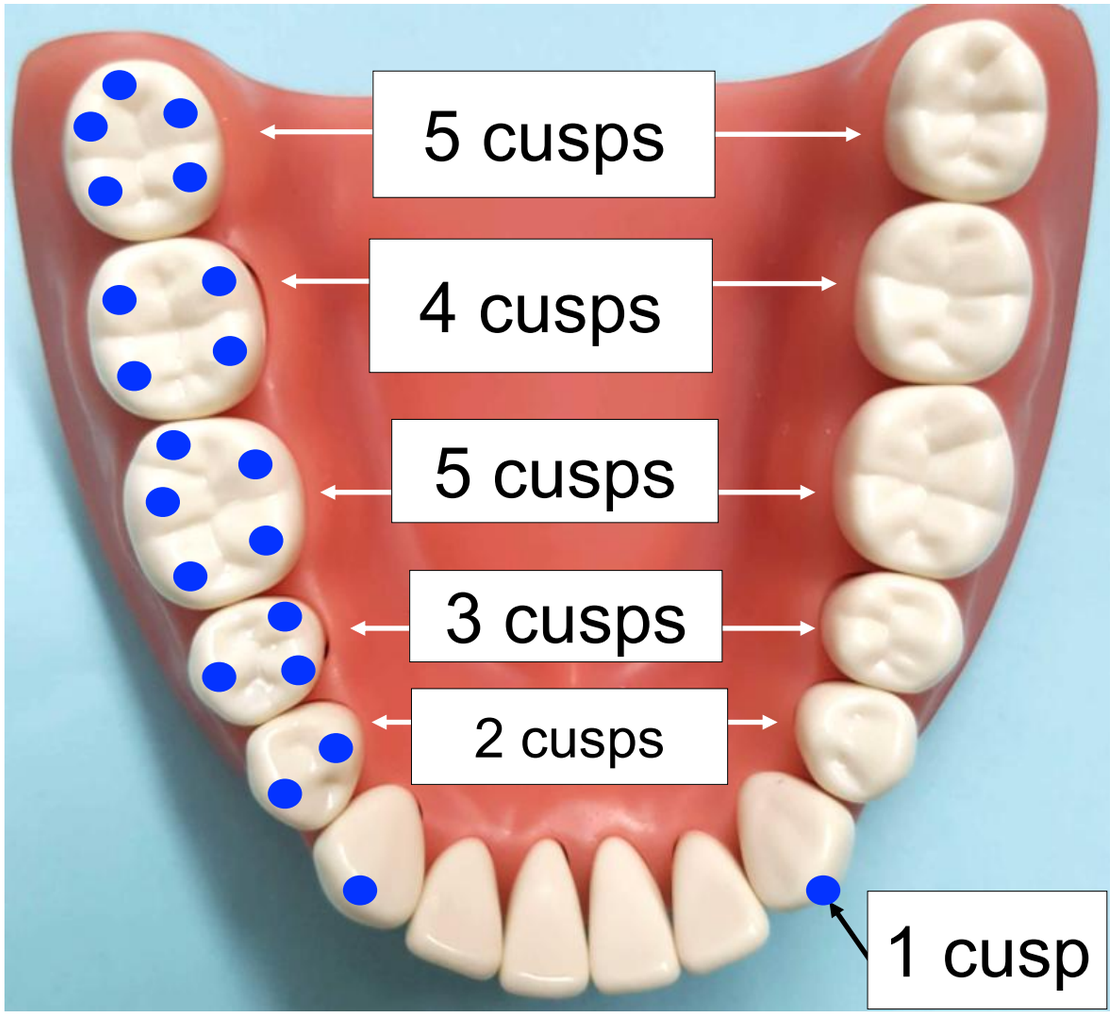
Cusp is composed of enamel, dentin and pulp horn.





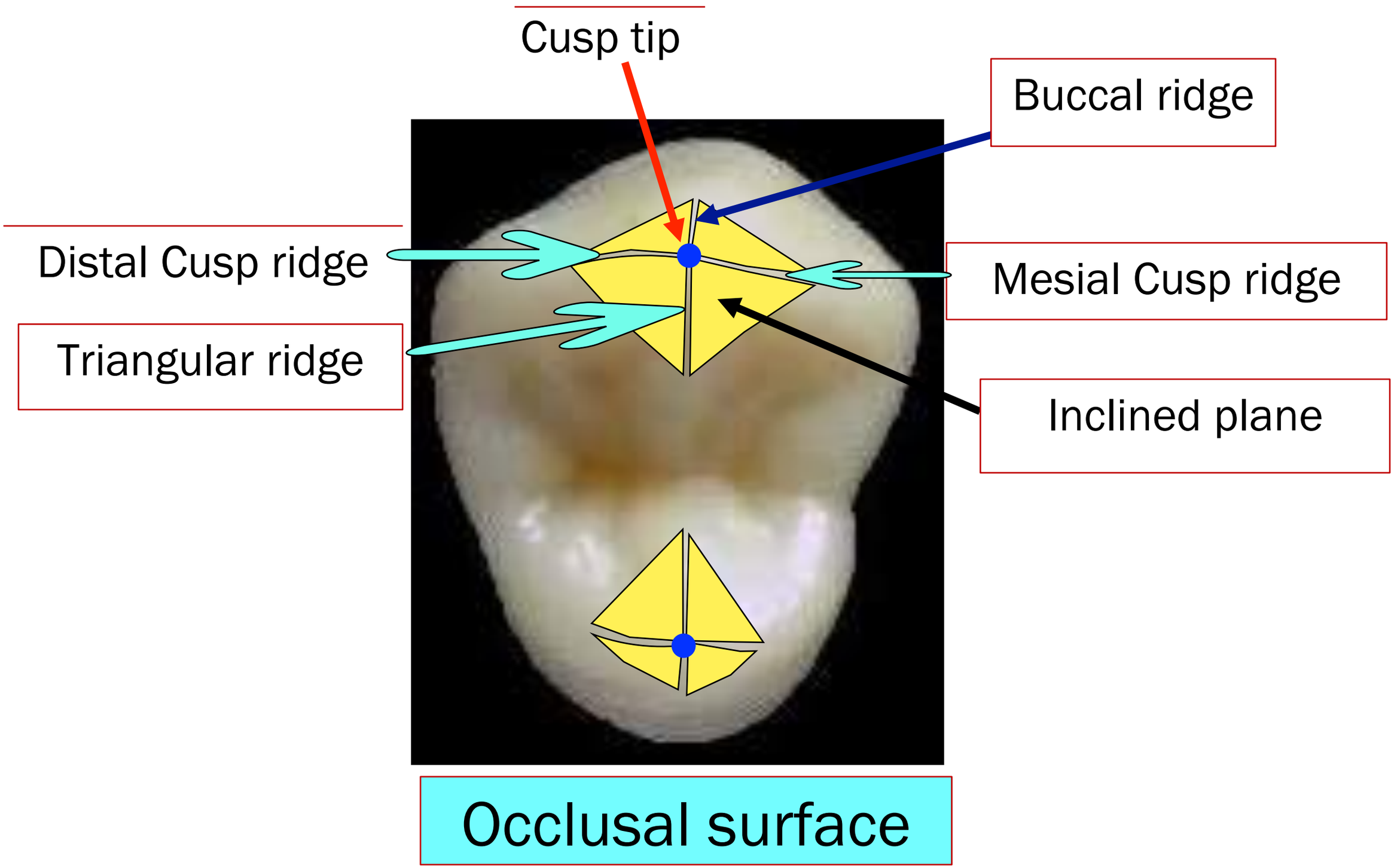
Cusp number:

1. One cusp in canine.
2. Two cusps in premolars except mandibular second premolars.
3. Three cusps in mandibular second premolars.
4. Four cusps in maxillary molars and mandibular 2nd and 3rd molars.
5. Five cusps in mandibular first permanent molar and may be 3rd molar



Shape of the cusp:

Cusp is pyramidal structure has four surfaces and four ridges.



5. Tubercle

Definition:

Tubercle is a small elevation on the crown surface result from excessive formation of enamel.

Sites:

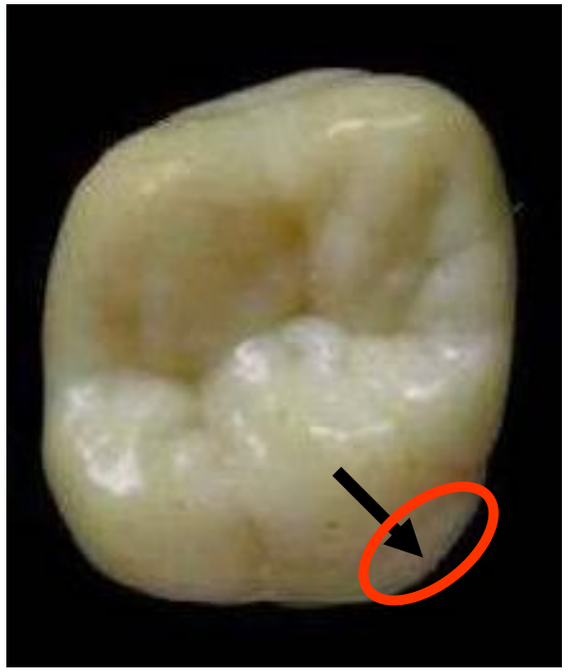
Lingual surface on mesiolingual cusp of maxillary first permanent molar and maxillary second deciduous molar.

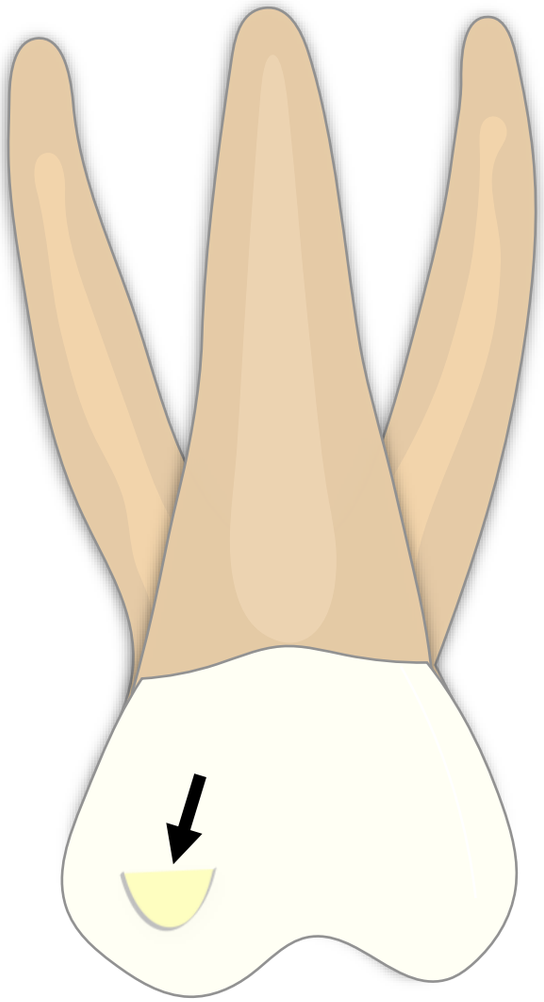
Terminology:

Cusp Of Carabelli

Difference between tubercle and cusp:

The tubercle is composed of enamel only .





6. Ridges

Definition:

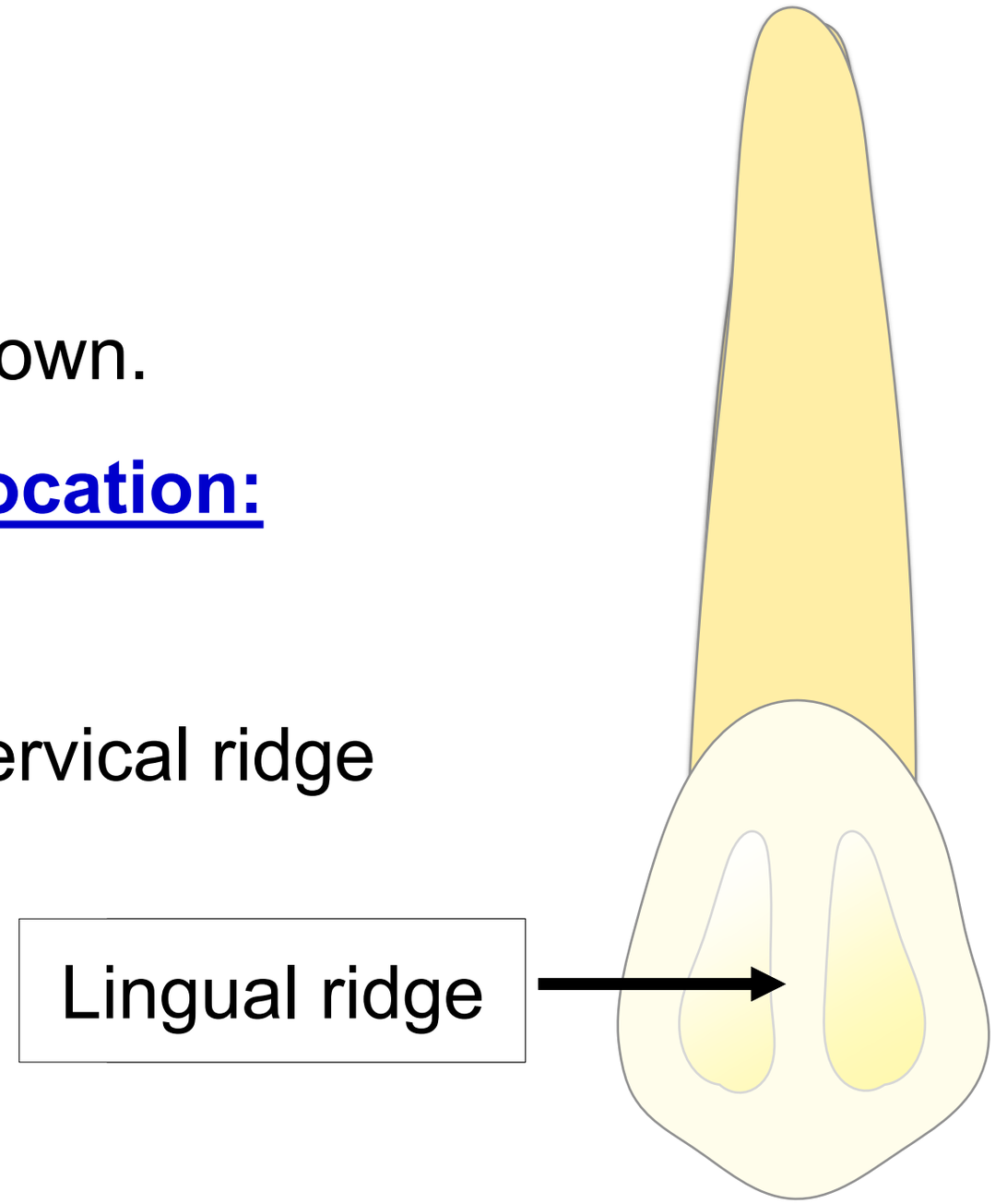
Ridge is a linear elevation on the crown.

I. Types of Ridges according to location:

1. Labial ridge:

It is a ridge extend vertically from cervical ridge to cusp tip of canine.

Site: Labial surface of canine.



2. Lingual ridge:

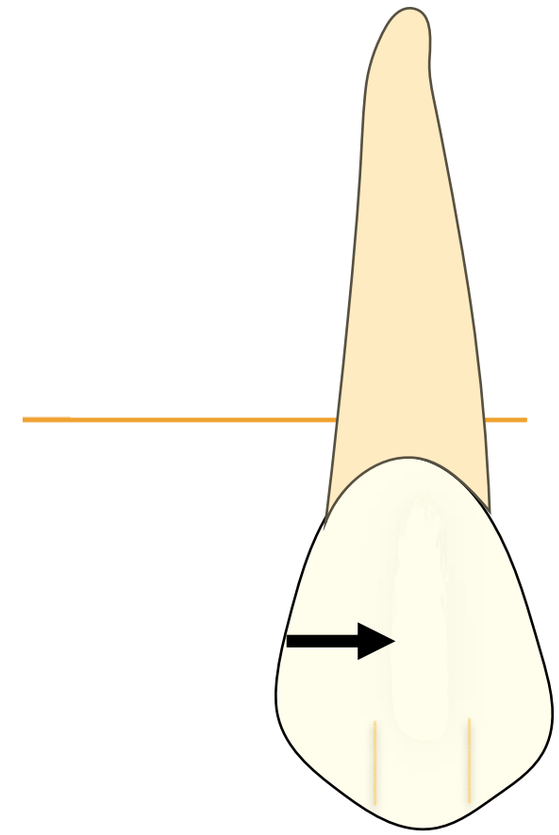
It is a ridge extend vertically from cingulum to cusp tip of canine.

Site: Lingual surface of canine.

3. Buccal ridge:

It is a ridge extend vertically from cervical ridge to cusp tip of premolars.

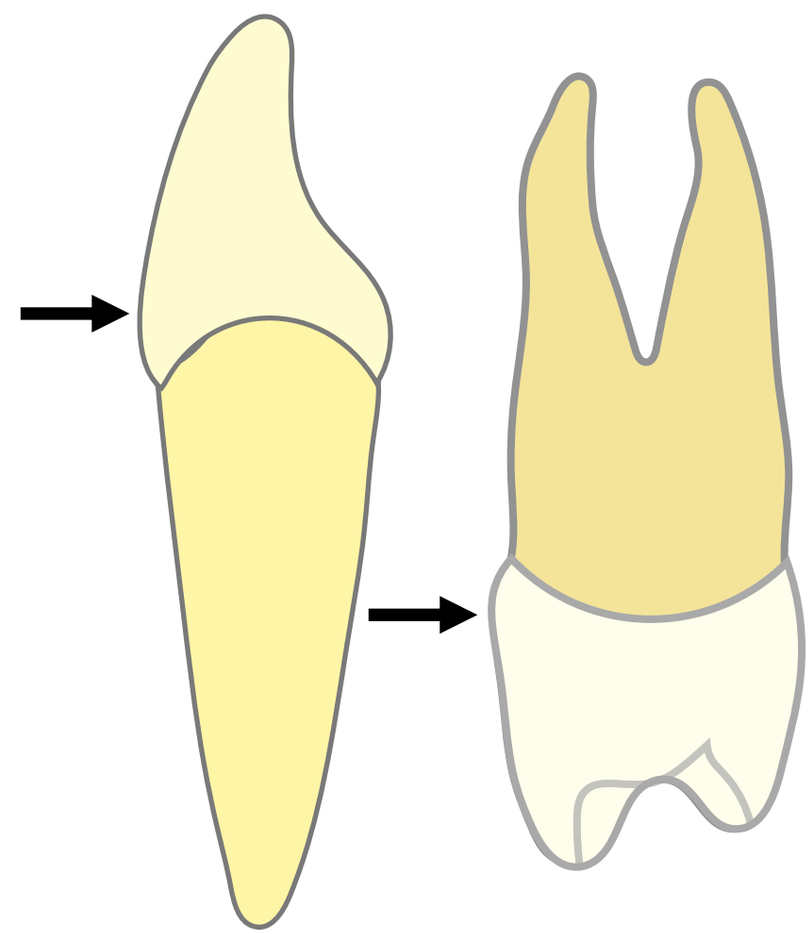
Site: Buccal surface of premolars.



4. Cervical ridge:

It is a ridge that form the Cervical third of facial surface of all teeth.

Note: Cervical ridge is more elevated in **deciduous teeth**.



5. Proximal marginal ridges:

(Mesial marginal ridge and distal marginal ridges).

A. In anterior teeth :

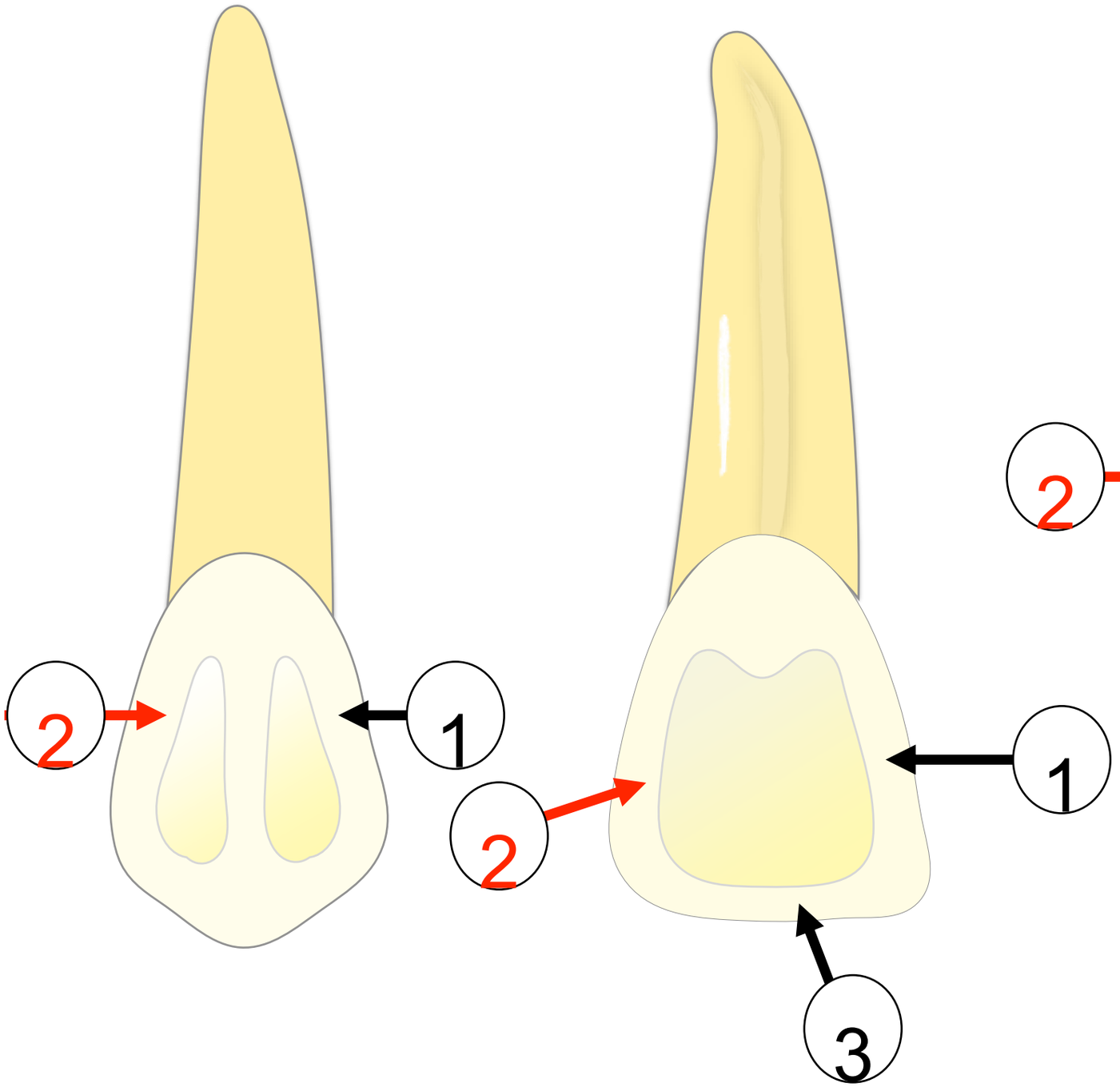
The marginal ridge form the mesial and distal margins of the lingual surface.

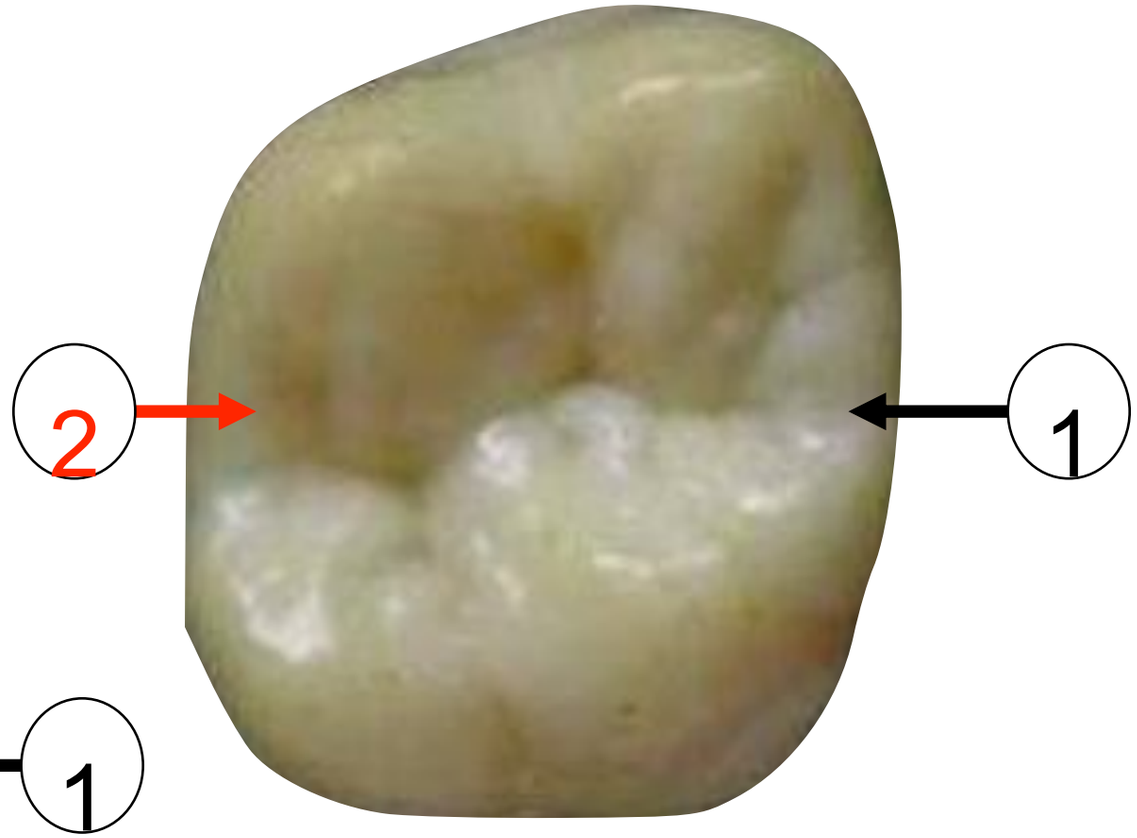
B. In posterior teeth:

The marginal ridge form the mesial and distal margins of the occlusal surface.

6. Incisal ridge:

- It is a ridge found at the incisal margin of anterior teeth.
- by time and attrition it become incisal edge.

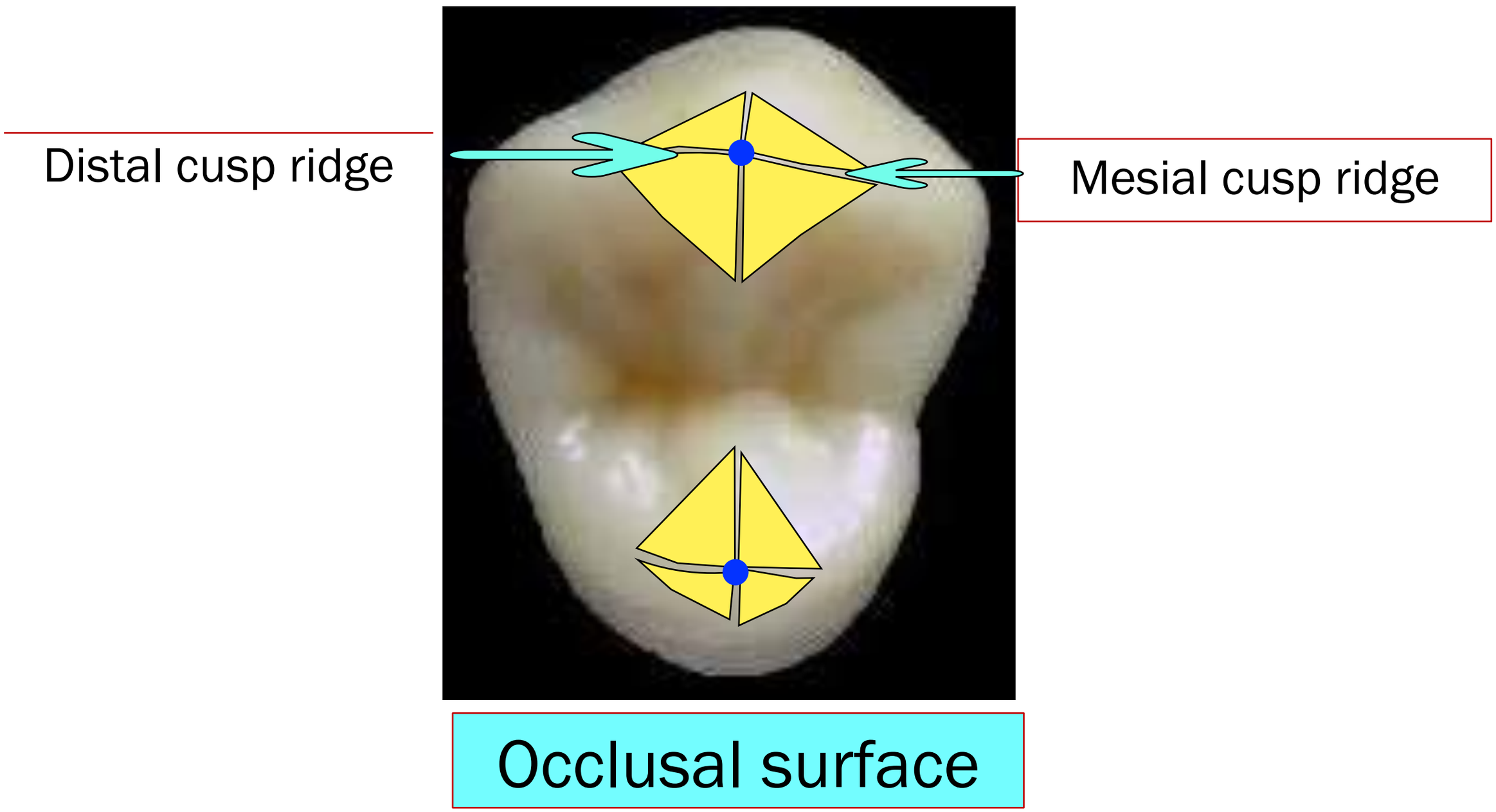




1. Mesial marginal ridge.
2. Distal marginal ridge.
3. Incisal ridge.

7. Cusp ridge:

It is a ridge extend from cusp tip and descend toward mesial or distal surface .



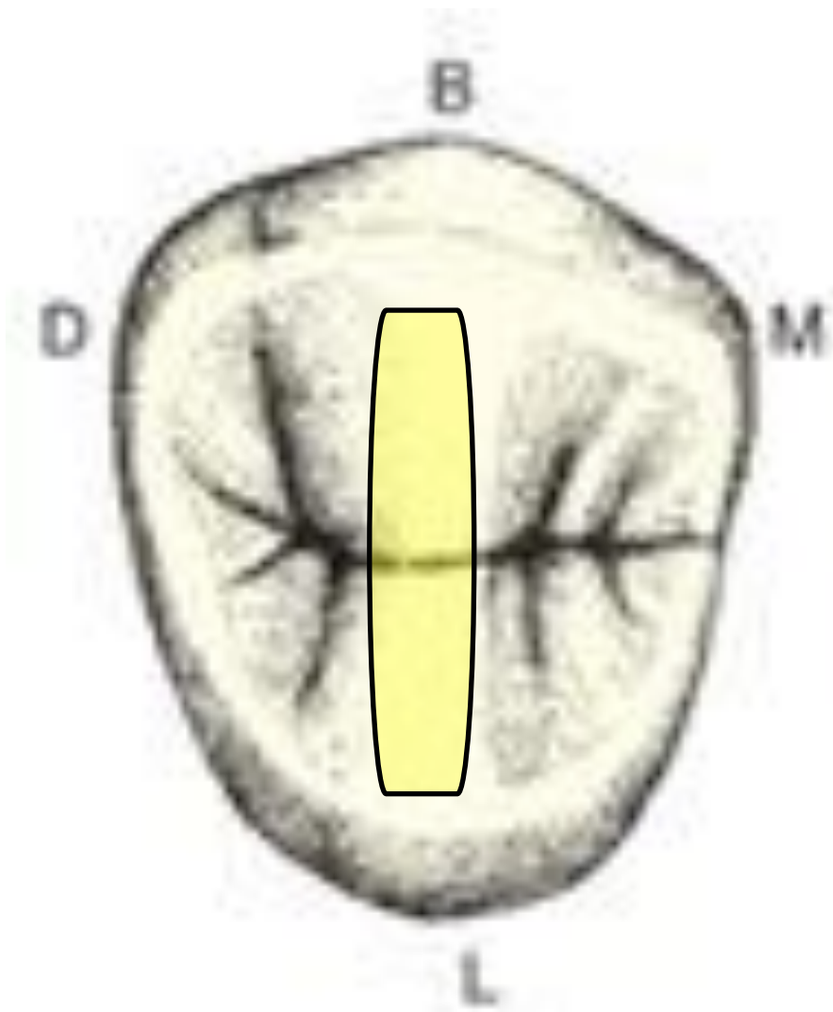
II. Types of Ridges according to shape:

8. Triangular ridge:

- It is a ridge begin from the cusp tip toward the center of occlusal surface.
- It named triangular ridge because the slope of each side of the ridge are inclined to resemble a two sides of triangle.
- Also, it is named **occlusal ridge.**

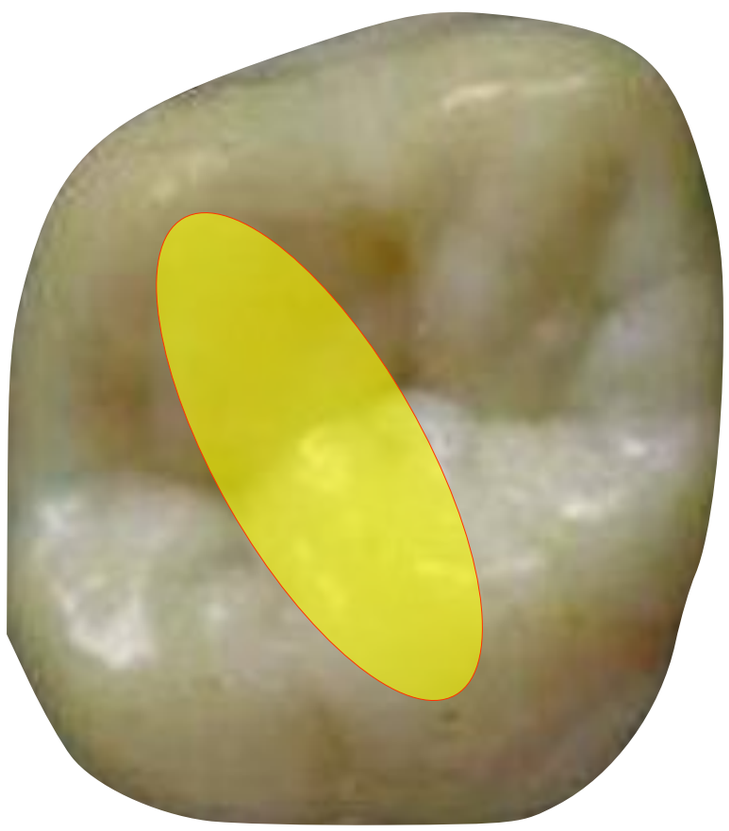
9. Transverse ridge:

- **Site→** Mainly, occlusal surface of lower first premolar.
- **Shape→** This ridge will cross the occlusal surface transversely.
- **Result from→** Union of triangular ridges of buccal and lingual cusps.

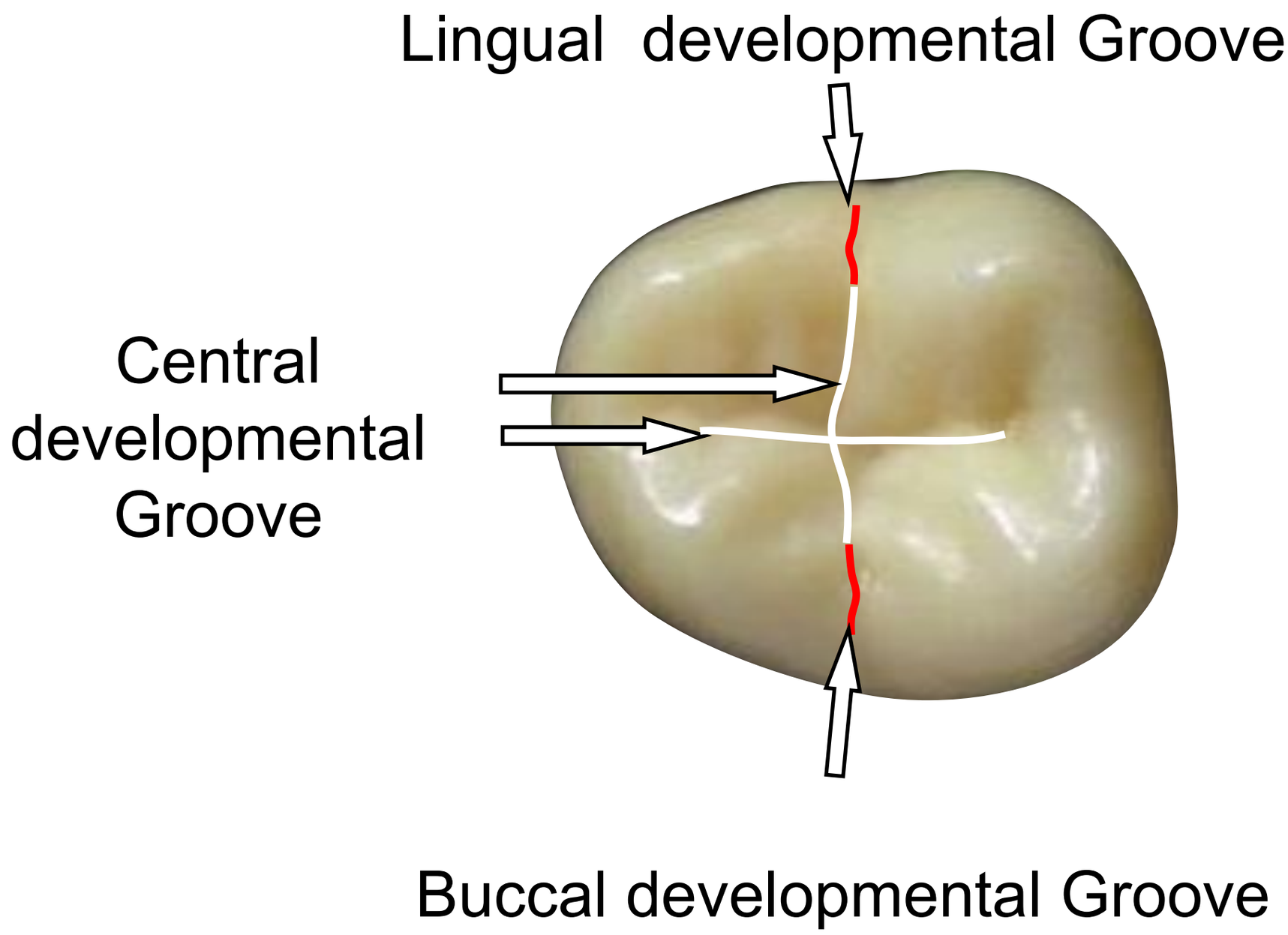


10. Oblique ridge:

- **Site→** Occlusal surface of maxillary molars.
- **Shape→** This ridge will cross the occlusal surface obliquely.
- **Result from→** Union of two triangular ridges of mesiolingual cusp and distobuccal cusp.



II- Depressed Landmarks



II- Depressed Landmarks

1. Developmental Groove:

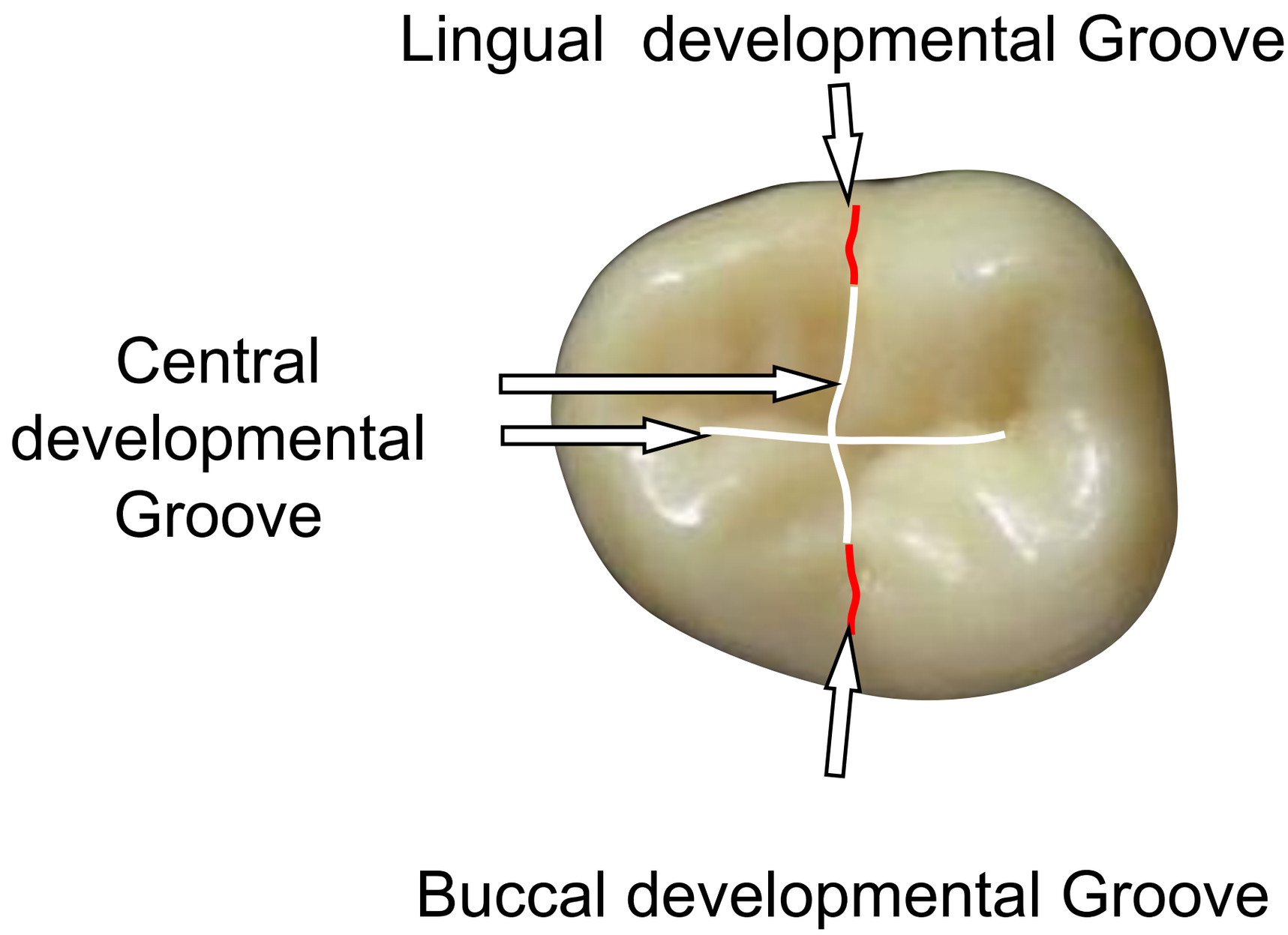
Linear depressions found on occlusal surface and may extend labially, buccally, lingually or mesially.

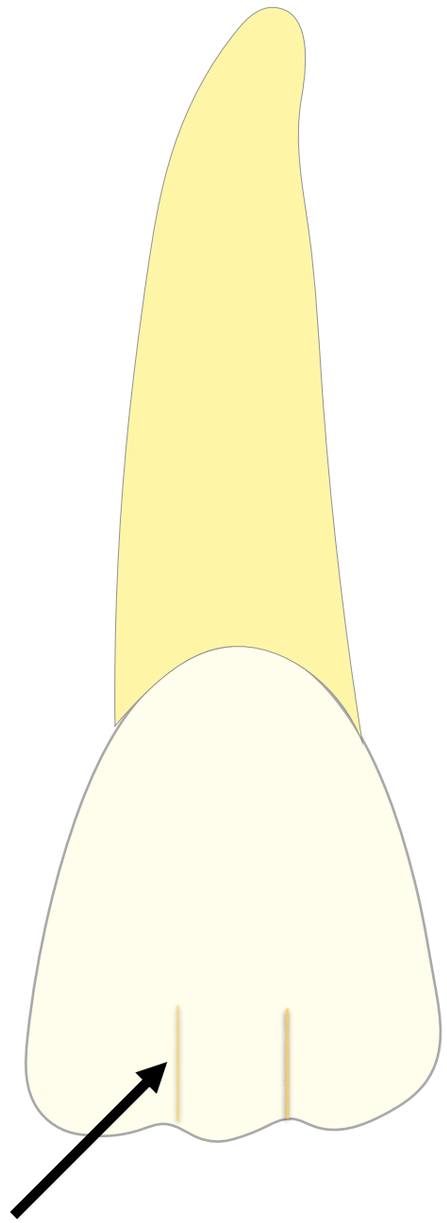
Origin:

❑Line of fusion of primary lobes.

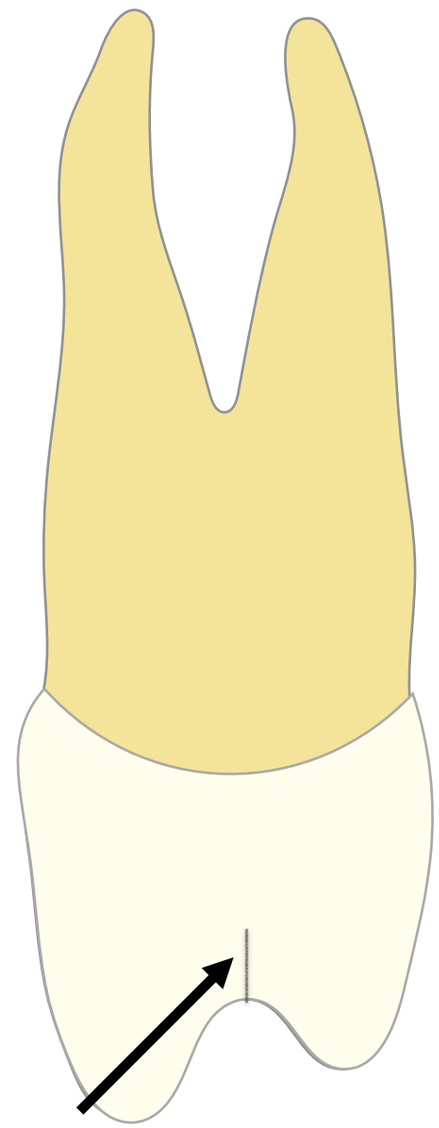
Types:

1. Central developmental groove on the occlusal surface of teeth.
2. Buccal developmental groove: Comes from occlusal to the buccal surface.
3. Lingual developmental groove: Comes from occlusal to lingual surface.
4. Mesial developmental groove: Comes from occlusal to mesial surface of **maxillary first premolar.**
5. Labial developmental groove: Comes from incisal to labial surface.


Lingual developmental Groove
Central developmental Groove
Buccal developmental Groove



Labial developmental groove



Mesial developmental groove

2. Supplemental groove:

Definition:

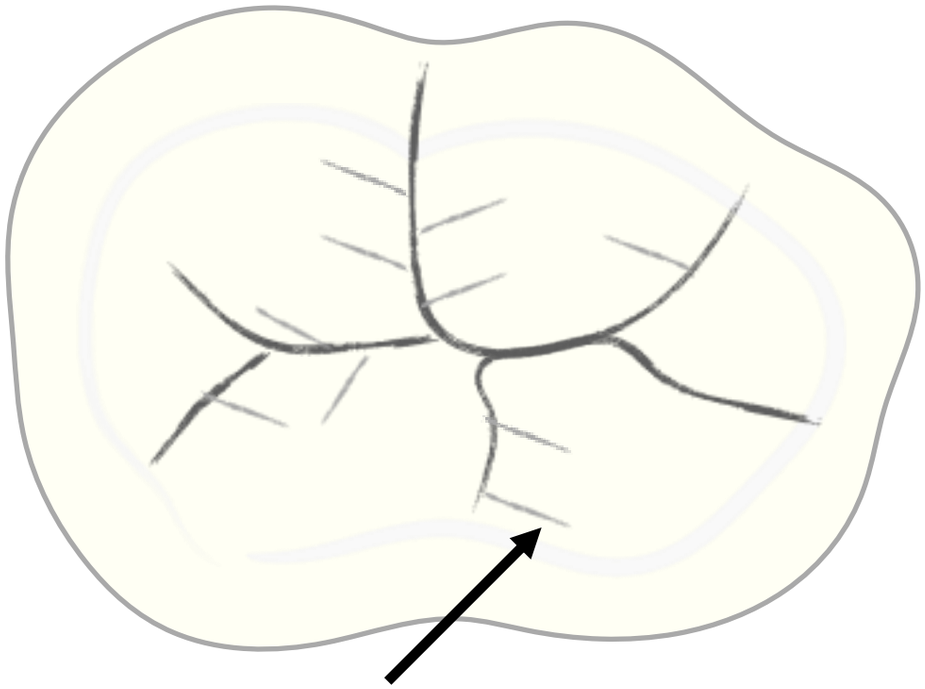
- Supplemental groove is a shallow linear depression on the occlusal surface branched from the developmental groove.

Origin:

- They are auxiliary grooves radiating from developmental groove.
- They are do not represent union between lobes.

Site:

- Third molar and maxillary second premolars are the common sites.



Supplemental Grooves

3. Fissure:

Definition:

Fissure is a deep linear cleft on the occlusal or buccal surfaces found in the bottom of the developmental groove.

Origin:

Fissure result from incomplete union of enamel between lobes.

Clinical significance:

Fissure is the most common site for development of dental caries.

Complete union of enamel.

Fissure Incomplete union of enamel.

4. Sulcus:

Sulcus is a long tent shaped depression passing between the cusp tips of the occlusal surface of posterior teeth.

5. Fossa:

Fossa is a round or triangular shallow depression.

Types and Site:

A. Central fossa:

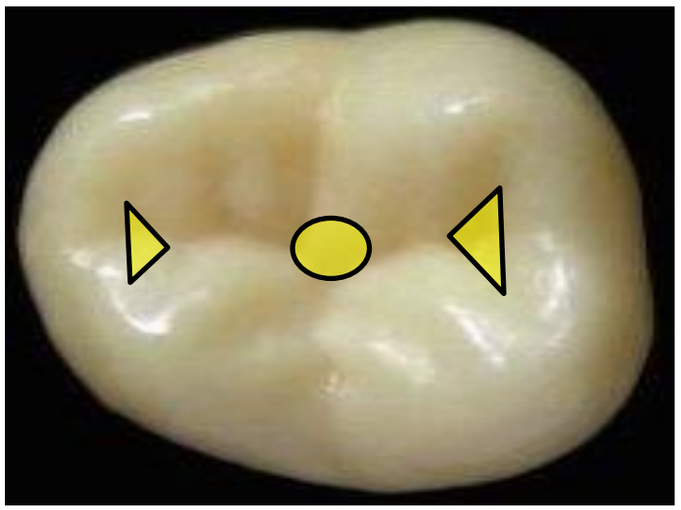
- Union between three or four lobes.
- **On** the central part of occlusal surface of both molars and second mandibular pr

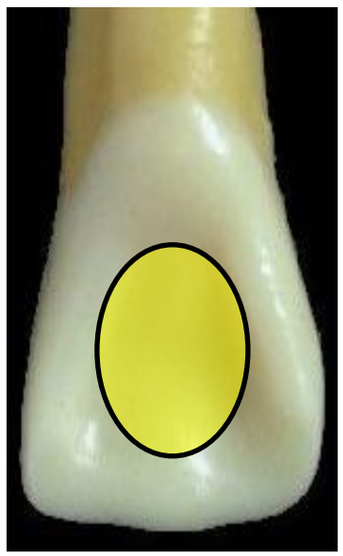
B. Mesial and distal triangular fossa:

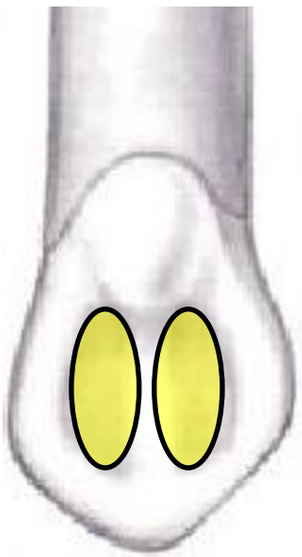
On the occlusal surface of posterior teeth beside marginal ridges.

C. Lingual fossa:

- **On** the lingual surface of anterior teeth.
- Lingual fossa of canine is divided into two lingual fossae by lingual ridge.







5. Pits:

Pit is a pin point depression found in the bottom of fossa.

Origin:

Pits result from incomplete union of enamel between lobes.

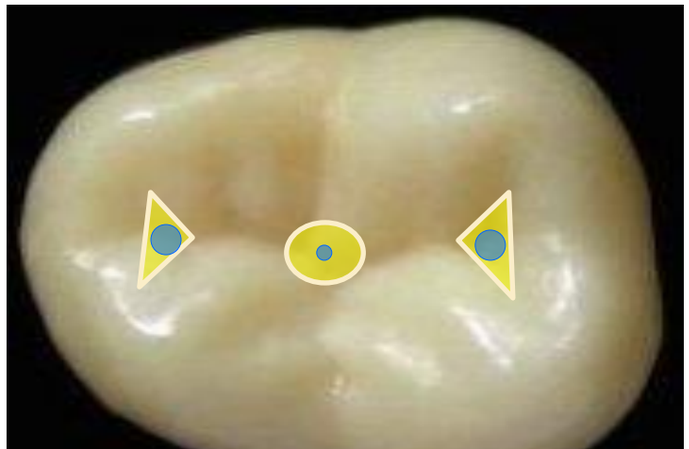
Site:

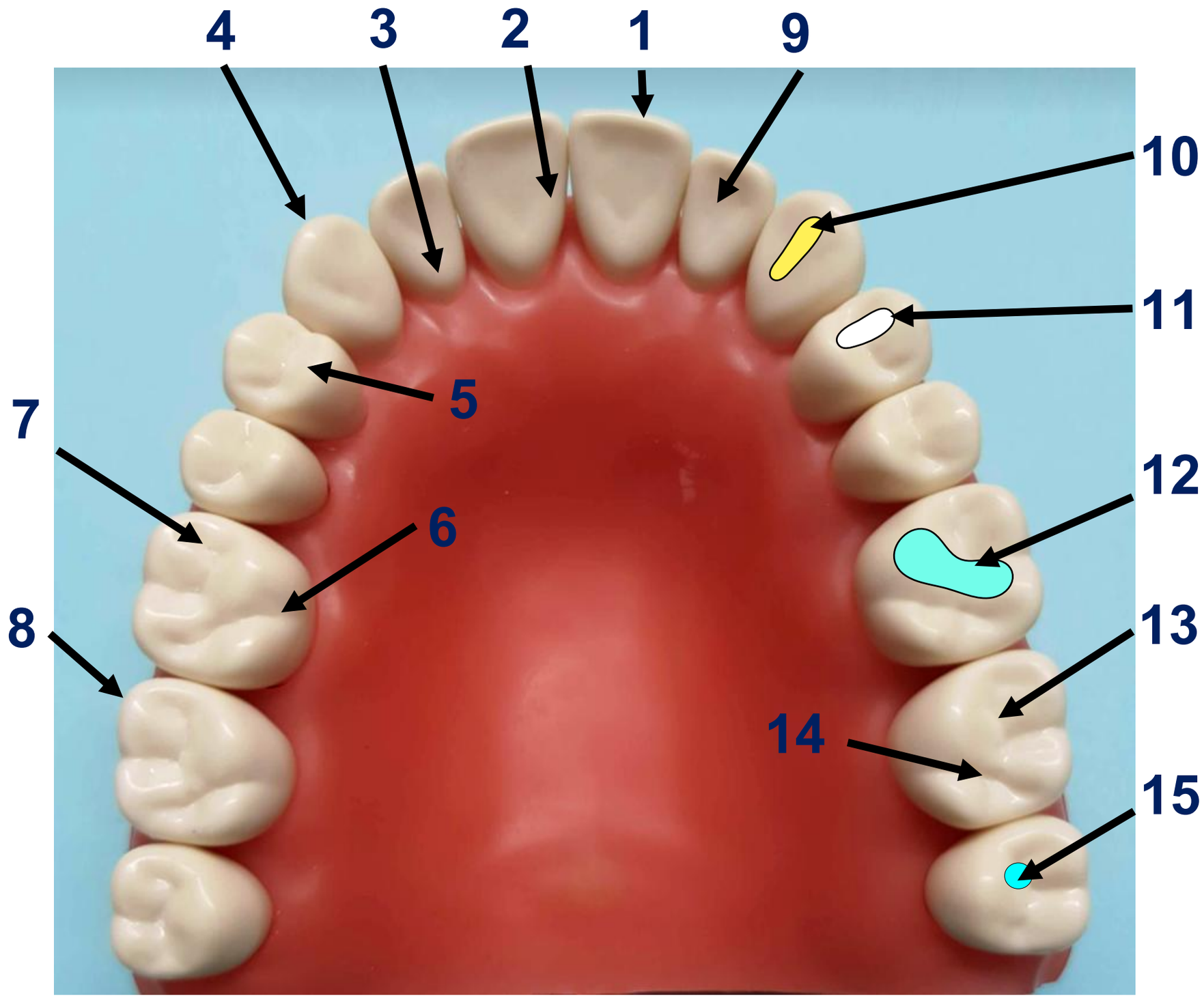
A. Occlusal surface of posterior teeth.

B. Lingual surface of anterior teeth commonly in maxillary permanent lateral incisor.

C. Buccal and lingual surface at the end of buccal and lingual developmental groove (termed faulty pit).

Common caries in the oral cavity are termed Pit and fissure caries.

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