**DENT 111: ORAL ANATOMY**

**STUDY GUIDE FOR THE PERMANENT MOLARS**

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**Let’s Begin**

This is the last lecture for the topic Individual Morphology of the Permanent Teeth. In this module, we will study the mighty molars, the biggest of our teeth and very important for proper mastication of our food. They crush and grind the food that we eat so that our digestion will be more efficient.

In this module you will learn about the importance of the molars which goes beyond crushing and grinding of food. They even have a direct effect on esthetics and occlusion. You will learn how to differentiate a 1st, 2nd and 3rd molars through their individual traits, no matter how subtle these differences are. At the end of this module, you will be able to appreciate the anatomy of these teeth and how important it is for us and for our future patients to preserve their molars at all cost.

**Read/Watch**

**Read** Chapters 11 & 12 “Permanent Maxillary Molars” and “Permanent Mandibular Molars” of your textbook “Wheeler’s Dental Anatomy Physiology and Occlusion” 10th edition by Stanley J. Nelson pp. 165-199.

\*You can also opt to read these additional references:

Concise Dental Anatomy by Fuller, Denehy and Schulein 4th edition; Units 7 and 8: pp 100 – 135

Woelfel’s Dental Anatomy by Scheid and Weiss 8th edition; Chapter 5 pp: 120-163

**For the Drawing and Carving Exercises (lab),** refer to Assignment Guide for Tooth Drawing and Assignment Guide for Tooth Carving.

**Attend** Synchronous Online Discussion with Dr. M. Segarra via Zoom

**Observe and Think**

It is best to have your molar tooth models with you when you answer these questions. We will discuss your answers during the synchronous discussion.

**Maxillary Molars Guide Questions**

1. Give the functions of the molars.
2. At what age does the molars erupt? 1st molar? 2nd molar?
3. What are the functions of the molars? Give 3.
4. How many primary cusps does a maxillary molar have? Name them.
5. Arrange the cusps (all cusps) of a maxillary molar according the size.
6. How many roots does a maxillary molar have? Name them.
7. Which is the largest root? Which is the smallest?
8. Which cusps make up the primary cusp triangle?
9. Which structures make up the talon or heel of the occlusal table?
10. How many cusps are seen from the buccal aspect? Name them.
11. How many roots can be seen from the buccal aspect? Name them.
12. How many roots can be seen from the lingual aspect?
13. How many cusps can be seen from the lingual aspect? Name them.
14. How many grooves are seen from the buccal aspect? Name.
15. How many grooves are seen from the lingual aspect? Name.
16. How many roots can be seen from the mesial aspect. Why? Name.
17. Is the maxillary 1st molar the broadest tooth mesiodistally or buccolingually?
18. Which root is banana shaped and flares out of the crown confines in a maxillary 1st molar?
19. How many roots can be seen from the distal aspect? Why? Name them.
20. How many root canals does a maxillary 1st molar have? In which root is the accessory canal found?
21. What geometric figure best describes the shape of the maxillary crowns? 1st molar? 2nd molar? 3rd molar?
22. If you divide the occlusal surface of the crown of the maxillary 1st molar into a buccal half and a lingual half, which half will be broader mesiodistally (buccal or lingual)? What does this mean about crown tapers?
23. If you divide the occlusal surface of the crown of the maxillary 1st molar into a mesial and distal half, which half is wider buccolingually? What does this say about crown tapers?
24. Name the ridges found in the maxillary 1st and 2nd molars.
25. Name the 2 major fossae found in the maxillary 1st and 2nd molars.
26. Name the 2 minor fossae found in the maxillary 1st and 2nd molars.
27. Name the 4 major grooves found in the maxillary 1st molar.
28. Give 5 differences between the maxillary 1st and 2nd molars in tabular form: (as to 1) oblique ridge 2) distolingual cusp 3) roots 4) size 5) shape.
29. Which structure coincides with the apex of the lingual root in a maxillary 1st molar?
30. Which structure coincides with the apex of the lingual root in a maxillary 2nd molar?
31. What does your answer in 29 and 30 show regarding the inclination of the roots of the maxillary molars?
32. Which cusps are usually present in a maxillary 3rd molar?
33. What is the most prominent feature of the crown of a maxillary 3rd molar?
34. Which ridge is usually absent in a maxillary 3rd molar?
35. Why are the 1st molars called "keys to occlusion"?

**Mandibular Molars Guide Questions**

1. Give 8 general characteristics of mandibular molars.
2. How many cusps is seen from the buccal aspect of a mandibular 1st molar? Name them.
3. How many developmental grooves can be seen from the buccal aspect of a mandibular 1st molar? Name them.
4. How many cusps are seen from the lingual aspect of a mandibular 1st molar? Name them.
5. Which cusps of the mandibular molars are taller and sharper?
6. Which cusps of the mandibular molars are broader and flatter?
7. How many grooves are found in the lingual surface of the mandibular 1st molar? Name.
8. How many roots are there in a mandibular molar? Name them.
9. How many major cusps are there in a mandibular molar? Name them.
10. How many roots can be seen from the mesial aspect of a mandibular molar? Name them.
11. How many roots can be seen from the distal aspect of a mandibular molar. Name.
12. Arrange the cusps of the mandibular 1st molar from largest to smallest.
13. Name the major grooves that are seen from the occlusal surface of the mandibular 1st molar.
14. Name the 3 fossae (major and minor) that are seen from the occlusal surface of the mandibular 1st molar.
15. Give 4 differences between the mandibular 1st and 2nd molar.
16. What groove pattern is exhibited by the mandibular 2nd molar.
17. Which tooth does the mandibular 3rd molar closely resembles?
18. Which molar has the shallowest central fossa? What it makes it so?
19. Describe the crown and root of the mandibular 3rd molar.
20. From an occlusal view, the crown of a mandibular 2nd molar tapers buccolingually in which direction, buccal or lingual? The crown tapers mesiodistally in which direction, mesial or distal?

**Dig Deeper**

Read the article in the link provided: <https://www.scielo.br/scielo.php?script=sci_arttext&pid=S1677-32252012000400009>

“Clinical status of permanent first molars in children aged seven to ten years in a Brazilian rural community” by Motta et al.

Do the activity in the Activity Guide for Permanent Molars.