



ORAL BIOLOGY PRACTICAL MANUAL 2

(Dental Anatomy/Morphology)

Name:

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ORAL BIOLOGY PRACTICAL MANUAL 2

(Dental Anatomy)

Objectives

The objectives of this manual are for students to:

1. Understand and describe the nomenclature of both the human primary and permanent dentitions.
2. Describe the structural and morphological similarities and differences of each tooth comprising the dentitions.
3. Draw the morphological features characteristic of each tooth of the human permanent dentition.

The exercises in this manual must be completed periodically as to coincide with the relevant lectures and submit to the lecturer concern. The marks will contribute to the Oral Biology continuous assessment.

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1. DENTAL TERMINOLOGY

This part is concerned with the explanation and illustration of dental terminology. It deals with two groups of terms, the first relating to the **anatomical and supporting structures** of the tooth, and second consisting of **terms of orientation**.

OBJECTIVES

Upon completing this unit, you should be able to:

- a. Demonstrate your understanding of all the terms.
- b. Identify all basic and supporting structures of the tooth listed in the glossary.
- c. Identify and locate the teeth in the dentition by name, number, arch, and quadrant.
- d. Identify the areas indicated by terms of orientation.
- e. Combine terms of orientation according to the guidelines given.

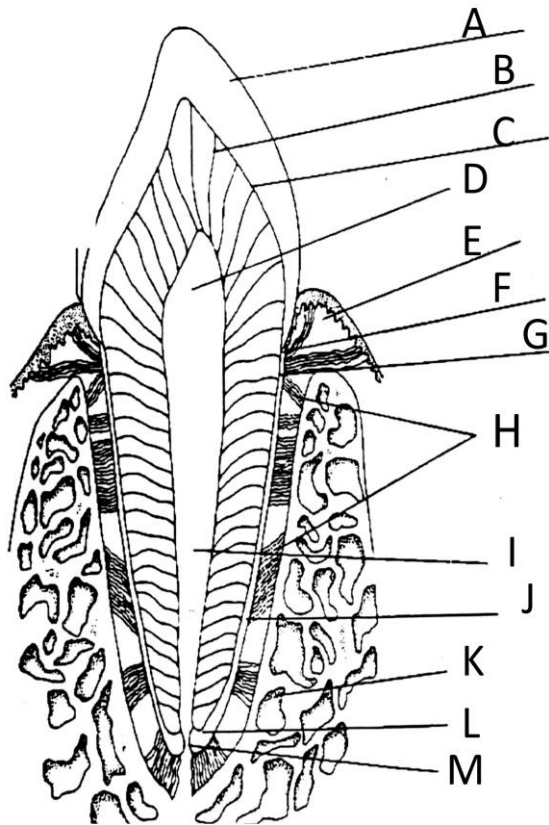
GLOSSARY. Know the following terms.

Alveolar Bone	Alveolus (of the jaw bone)	Anterior
Apical Foramen	Cementoenamel Junction (CEJ)	Buccal
Arch (Dental)	Cementodentinal Junction (CDJ)	Cementum
Crown (Tooth)	Dentinoenamel Junction (DEJ)	Dentin
Distal	Enamel	Facial
Gingiva	Labial	Lingual
Mesial	Midline	Occlusal
Perikymata	Periodontal Ligament	Periodontium
Posterior	Pulp (Tooth)	Pulp Chamber
Pulp Canal	Root (Tooth)	Vestibule

LABELING AND IDENTIFICATION: Basic and supporting structures

A. **Locate and label** the following on Figure 1.

- | | | |
|-------------------|-------------------------|-------------------------------------|
| 1. enamel | 6. pulp canal | 11. dentinoenamel junction or DEJ |
| 2. dentin | 7. periodontal ligament | 12. cementodentinal junction or CDJ |
| 3. root apex | 8. cementum | 13. cementoenamel junction or CEJ |
| 4. apical foramen | 9. alveolar bone | |
| 5. pulp chamber | 10. gingiva | |



- A
- B
- C
- D
- E
- F
- G
- H
- I
- J
- K
- L
- M

Fig 1

B. TOOTH NUMBERING SYSTEMS

Three systems are available:

1. The American Dental Association (ADA) System.
2. Zsigmondy / Palmer System.
3. Two-Digit System “Federation Dental International” (FDI) System.

1. The American Dental Association System: Universal System

Primary Dentition

The alphabets “A through T” are assigned to identify the primary dentition.

R	<table style="border-collapse: collapse; width: 100%;"> <tr> <td style="padding: 2px 5px;">A</td> <td style="padding: 2px 5px;">B</td> <td style="padding: 2px 5px;">C</td> <td style="padding: 2px 5px;">D</td> <td style="padding: 2px 5px;">E</td> </tr> <tr> <td style="padding: 2px 5px;">T</td> <td style="padding: 2px 5px;">S</td> <td style="padding: 2px 5px;">R</td> <td style="padding: 2px 5px;">Q</td> <td style="padding: 2px 5px;">P</td> </tr> </table>	A	B	C	D	E	T	S	R	Q	P	<table style="border-collapse: collapse; width: 100%;"> <tr> <td style="padding: 2px 5px;">F</td> <td style="padding: 2px 5px;">G</td> <td style="padding: 2px 5px;">H</td> <td style="padding: 2px 5px;">I</td> <td style="padding: 2px 5px;">J</td> </tr> <tr> <td style="padding: 2px 5px;">O</td> <td style="padding: 2px 5px;">N</td> <td style="padding: 2px 5px;">M</td> <td style="padding: 2px 5px;">L</td> <td style="padding: 2px 5px;">K</td> </tr> </table>	F	G	H	I	J	O	N	M	L	K	L
A	B	C	D	E																			
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F	G	H	I	J																			
O	N	M	L	K																			

Letter **A** is assigned to the maxillary **right** second molar and the maxillary **left** second molar is **J**.

The mandibular **left** second molar is **K** while the mandibular **right** second molar is **T**.

Permanent Dentition:

R	<table style="border-collapse: collapse; width: 100%;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> </tr> <tr> <td style="padding: 2px 5px;">32</td> <td style="padding: 2px 5px;">31</td> <td style="padding: 2px 5px;">30</td> <td style="padding: 2px 5px;">29</td> <td style="padding: 2px 5px;">28</td> <td style="padding: 2px 5px;">27</td> <td style="padding: 2px 5px;">26</td> <td style="padding: 2px 5px;">25</td> </tr> </table>	1	2	3	4	5	6	7	8	32	31	30	29	28	27	26	25	<table style="border-collapse: collapse; width: 100%;"> <tr> <td style="padding: 2px 5px;">9</td> <td style="padding: 2px 5px;">10</td> <td style="padding: 2px 5px;">11</td> <td style="padding: 2px 5px;">12</td> <td style="padding: 2px 5px;">13</td> <td style="padding: 2px 5px;">14</td> <td style="padding: 2px 5px;">15</td> <td style="padding: 2px 5px;">16</td> </tr> <tr> <td style="padding: 2px 5px;">24</td> <td style="padding: 2px 5px;">23</td> <td style="padding: 2px 5px;">22</td> <td style="padding: 2px 5px;">21</td> <td style="padding: 2px 5px;">20</td> <td style="padding: 2px 5px;">19</td> <td style="padding: 2px 5px;">18</td> <td style="padding: 2px 5px;">17</td> </tr> </table>	9	10	11	12	13	14	15	16	24	23	22	21	20	19	18	17	L
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Numbers (1) through (32) are assigned to identify the permanent dentition. The same sequential order of primary dentition is followed with the permanent dentition.

The advantage of this system is that each tooth has a separate unique Letter or Number

2. Zsigmondy / Palmer System:

Permanent Dentition

Each contralateral or opposing tooth pair of the permanent teeth has a specific number.

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Primary Dentition

The primary dentition has an alphabet designation.

R	<table style="border-collapse: collapse; margin: 0 auto;"> <tr><td style="padding: 0 5px;">E</td><td style="padding: 0 5px;">D</td><td style="padding: 0 5px;">C</td><td style="padding: 0 5px;">B</td><td style="padding: 0 5px;">A</td></tr> <tr><td style="padding: 0 5px;">A</td><td style="padding: 0 5px;">B</td><td style="padding: 0 5px;">C</td><td style="padding: 0 5px;">D</td><td style="padding: 0 5px;">E</td></tr> </table>	E	D	C	B	A	A	B	C	D	E	L
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E	D	C	B	A								
A	B	C	D	E								

This numbering system starts from the midline posteriorly in both maxillary and mandibular arches. Each permanent central incisor is designated (1) and each third molar is (8).

Specific quadrants are designated by grids.

Identifying the tooth by this system combines the quadrant grid with the tooth number in reference to midline. For example,

6 = Permanent Maxillary left first molar.

3. Two-Digit System “Federation Dental International System” F.D.I. System:

Each tooth permanent or deciduous is given a two- digit numbers. The first digit indicate the quadrant and the second digit indicate the specific tooth within the quadrant.

The two digits should be pronounced separately for example One-One for upper right central incisor or Three-Four for lower left first premolar.

Permanent Dentition

R	<table style="border-collapse: collapse; margin: 0 auto;"> <tr><td style="padding: 0 5px;">18</td><td style="padding: 0 5px;">17</td><td style="padding: 0 5px;">16</td><td style="padding: 0 5px;">15</td><td style="padding: 0 5px;">14</td><td style="padding: 0 5px;">13</td><td style="padding: 0 5px;">12</td><td style="padding: 0 5px;">11</td></tr> <tr><td style="padding: 0 5px;">48</td><td style="padding: 0 5px;">47</td><td style="padding: 0 5px;">46</td><td style="padding: 0 5px;">45</td><td style="padding: 0 5px;">44</td><td style="padding: 0 5px;">43</td><td style="padding: 0 5px;">42</td><td style="padding: 0 5px;">41</td></tr> </table>	18	17	16	15	14	13	12	11	48	47	46	45	44	43	42	41	L
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21	22	23	24	25	26	27	28											
31	32	33	34	35	36	37	38											

Quadrant allotted the digit (1) through (4) for permanent dentition and (5) through (8) for primary teeth in a clockwise sequence and starting at the patient’s upper right.

Permanent teeth within the same quadrant are allotted the digits (1) through (8) and the primary teeth (1) through (5) from the midline.

Primary Dentition

R	<table style="border-collapse: collapse; margin: 0 auto;"> <tr><td style="padding: 0 5px;">55</td><td style="padding: 0 5px;">54</td><td style="padding: 0 5px;">53</td><td style="padding: 0 5px;">52</td><td style="padding: 0 5px;">51</td></tr> <tr><td style="padding: 0 5px;">85</td><td style="padding: 0 5px;">84</td><td style="padding: 0 5px;">83</td><td style="padding: 0 5px;">82</td><td style="padding: 0 5px;">81</td></tr> </table>	55	54	53	52	51	85	84	83	82	81	L
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61	62	63	64	65								
71	72	73	74	75								

LABELLING EXERCISE

1. **Label** Figure 2 **according** to the instructions below.
 - a. Number ALL teeth on the **lingual/palatal side** of the arch. (FDI numbering).
 - b. Each tooth in the **maxillary left quadrant** by name.
 - c. All **maxillary right anterior** teeth by name.
 - d. All **mandibular right posterior** teeth by name.

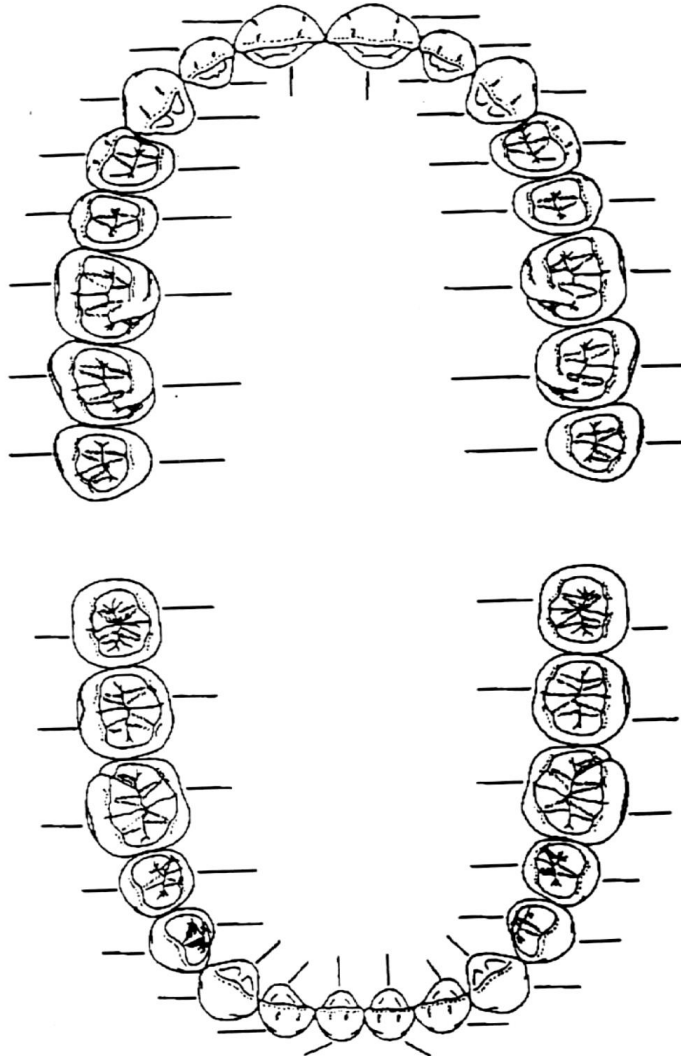


Fig 2

Write the tooth designation according to the assigned Tooth Numbering system

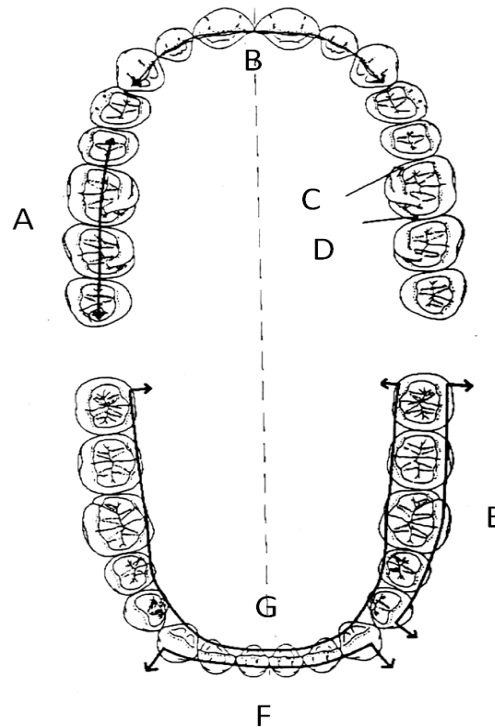
Tooth	Universal	Palmers	FDI
Permanent maxillary left lateral incisor			
Permanent mandibular right second premolar			
Permanent mandibular left first molar			
Primary maxillary right second molar			
Primary mandibular left canine			
Primary mandibular right central incisor			

C. Terms of Orientation

Terms of orientation originate from anatomical terms, for example, alveolar (alveolus), apical (apex), cervical (cervix), coronal (crown), pulpal (pulp), and radicular (root). Terms of orientation is use to describe **tooth surfaces**, line and point angles, and in designating related anatomical areas.

Identify the **surfaces** indicated by arrows on Figure 3 by name. Incisal, Occlusal, Mesial, Distal, Lingual, Buccal, Labial

- A = _____
- B = _____
- C = _____
- D = _____
- E = _____
- F = _____
- G = _____



COMBINING TERMS OF ORIENTATION

Terms of orientation are usually combined to indicate an area which is formed by two or more surfaces. An area of the tooth that is usually described by combined terms of orientation is the tooth angle. Tooth angles are formed by the meeting of two or three surfaces. These angles are identified by the surfaces that form them. There are two types of tooth angles: **line angles** and **point angles**. **Two** surfaces make up a line angle; **three** surfaces make up a point angle.

In cases where a tooth angle is not specified as either a line or a point angle, the number of surfaces combined indicates the type of tooth angle. In order to show how the surfaces of the tooth meet, the tooth is usually compared to a box with its edges and corners representing line and point angles respectively as illustrated below.

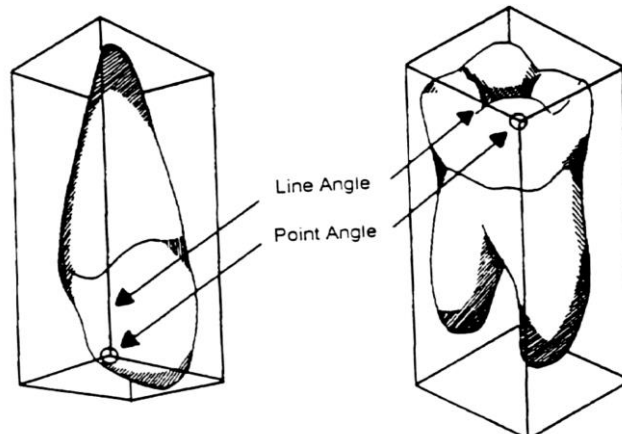


Fig 4

PROCEDURES FOR COMBINING TERMS OF ORIENTATION

1. The procedures for combining the names of the surfaces constituting either a **line angle** or a **point angle** are the result of general practice and long usage. They are as follows:

a. **Mesial and distal precede all other terms.**

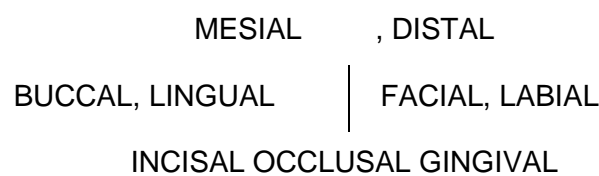
For example, mesiobuccal line; distolinguoincisor point angle

b. **Labial, buccal, facial, and lingual** follow mesial or distal and precede incisal or occlusal in any combination.

For example, distolabial line angle; labioincisor line angle; mesiobucco-occlusal point angle

c. **Incisal and occlusal occur last in any combination.**

For example, linguoincisor line angle; disto-occlusal line angle; mesiolinguo-occlusal point angle



d. To achieve a pleasant sound and a degree of uniformity, certain letters in the combined terms are dropped and substituted. In a two-term combination, the final letters '**al**' are dropped from the first term and replaced by '**o**'. The second term remains unchanged. In a three-term combination, the final letters **S** or **L** are dropped from each of the first two terms and replaced by **O**. The third or last term remains unchanged. For example,

mesial-lingual angle = mesiolingual line angle

distal-labial-incisor point angle = distolabioincisor point angle

e. A hyphen separates the term occlusal from the preceding term in any combination in which it occurs, such as mesio-occlusal line angle; distobucco-occlusal point angle

2. In other circumstances, procedures for combining terms of orientation are more flexible.

For example, in designating a direction on, or a section of an anterior tooth extending from the incisal surface to the root apex, it is acceptable to describe the direction or section either as **incisoapical** or **apicoincisal**. Note that, as in tooth angles, the final letters **AL** are dropped from the first term and replaced by **O**.

NOTE: Combined terms of orientation are usually abbreviated by using the first letters of the indicated surface. For example, mesiodistal -> MD; buccolingual -> BL

EXERCISES

a. Combine the terms of orientation in the following exercise:

1. A line angle formed by a distal and labial surface would be called a

_____ line angle.

2. The junction of the labial surface and the incisal surface is the

_____ line angle.

3. The meeting of the buccal and occlusal surfaces would form what type of an angle?

4. The line angle formed by the occlusal and mesial surfaces is called the

_____ line angle.

5. What do you call the point angle formed by the mesial, lingual, and incisal surfaces?

_____.

6. The point angle formed by the junction of the distal, buccal, and occlusal surfaces is called

the _____ point angle.

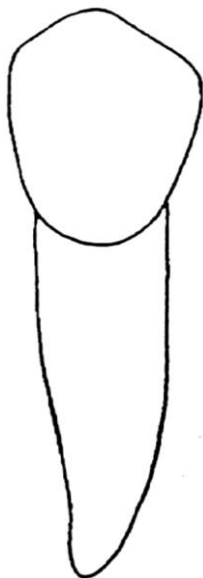
7. The junction formed by the occlusal, lingual, and distal surfaces is called the

_____ point angle.

8. A line extending from the **neck** (cervical) to the root end (apex) of the tooth indicates a

_____ or _____ direction.

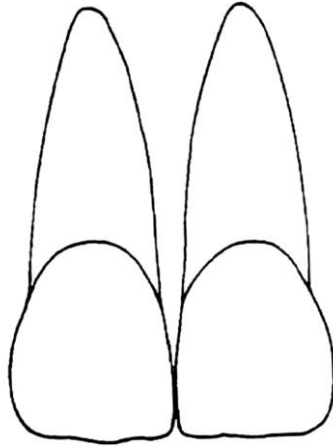
9. Draw a **double-headed** arrow indicating the mesiodistal width of the crown.



Mandibular Left Canine,
Labial (Facial) View

b. Dividing Into Anatomical Thirds

1. Divide the **crown** of the incisors into: cervical, middle, and incisal thirds.
2. Divide the **root** of the right central incisor into: apical, middle, and cervical thirds.



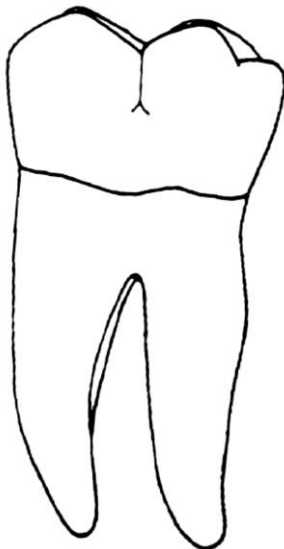
Maxillary Right and Left Central Incisors,
Labial View

Divide the **crown and root** into lingual, middle, and labial thirds.



Maxillary Right Central Incisor, Distal View

1. Divide the **Crown** of the molar below into:
 - a. distal, middle, and mesial thirds
 - b. occlusal, middle, and cervical thirds
2. Divide the **roots** into cervical, middle, and apical thirds.



Mandibular Left First Molar, Buccal View

Divide the **crown** of the premolar below into buccal, middle, and lingual thirds.



Mandibular Left Second Premolar,
Mesial View

2. MAXILLARY INCISORS

OBJECTIVES

Upon completion of this unit, you should be able to:

- a. Demonstrate your understanding of all the terms.
- b. Identify all areas of maxillary central and lateral incisors that have names.
- c. Differentiate maxillary right and left central and lateral incisors including normal variations.
- d. Draw maxillary central and lateral incisors.

GLOSSARY. Know the following terms.

Cervix (cervical line)

Cingulum

***Developmental Groove**

Fossa

Height of Contour

Incisal Ridge

Lobe

Mamelon

***Marginal Ridge**

Pit

Proximal Contact Area

Pulp Horn

Draw maxillary central incisor 11 according to the view

Labial view		Lingual view
	Incisal view	
Mesial view		Distal view

Draw maxillary lateral incisor 12 according to the view

Labial view	Incisal view	Lingual view
Mesial view		Distal view

COMPARE AND CONTRAST EXERCISE

1. In Table form, compare and contrast between the maxillary central and lateral incisors.

	Central Incisor	Lateral Incisor
Dimension		
Labial surface		
Contact areas		
Incisal		
Mesial		
Lingual		

3. MANDIBULAR INCISORS

OBJECTIVES

Upon completion of this unit, you should be able to do the following:

- A. Demonstrate your knowledge of all terms.
- B. Identify all areas of mandibular central and lateral incisors that have names.
- C. Differentiate between mandibular central and lateral incisors including normal variations.
- D. Identify the maxillary teeth occluding with mandibular central and lateral incisors.
- E. Draw the mandibular central and lateral incisors:

GLOSSARY What are the following terms mean?

Embrasure	
Occlusion	
Proximal	
Proximal Height of Contour (proximal contact)	
Root Groove	
Interproximal Space	

Draw to demonstrate the following terms.

<p>Overbite (Vertical Overlap))</p>	<p>Overjet (Horizontal Overlap)</p>
---	--

Terminology that needs to be familiarise

- | | | |
|--------------------------|-------------------------|-----------------------------|
| 1. Cervical line | 8. Distolabial groove | 15. Mesial marginal ridge |
| 2. Cingulum | 9. Height of contour | 16. Mesioincisal angle |
| 3. Distal contact area | 10. Incisal ridge | 17. Mesiolabial groove |
| 4. Distal lobe | 11. Lingual fossa | 18. Middle lobe |
| 5. Distal mamelon | 12. Mesial contact area | 19. Middle mamelon |
| 6. Distal marginal ridge | 13. Mesial lobe | 20. Proximal root concavity |
| 7. Distoincisal angle | 14. Mesial mamelon | 21. Root apex |

DRAWING EXERCISES

Draw mandibular central incisor 41 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw mandibular lateral incisor 42 according to the view

Labial view	Incisal view	Lingual view
Mesial view		Distal view

4. MAXILLARY AND MANDIBULAR CANINES

OBJECTIVES

Upon completing this unit, you should be able to:

- A. Demonstrate your comprehension of the terms
- B. Identify all areas of maxillary and mandibular cuspids that have names.
- C. Identify and distinguish between right and left maxillary and mandibular cuspids including normal variations.
- D. Draw the maxillary and mandibular canines:
- E. Identify the teeth opposing maxillary and mandibular cuspids in normal occlusion.

GLOSSARY Know the following terms.

- | | | |
|------------------------|--------------------------|-----------------------------|
| 1. Cervical line | 7. Distal marginal ridge | 13. Mesial lobe |
| 2. Cingulum | 8. Distolingual fossa | 14. Mesial marginal ridge |
| 3. Cusp apex | 9. Height of contour | 15. Mesiolingual fossa |
| 4. Distal contact area | 10. Lingual ridge | 16. Middle lobe |
| 5. Distal cusp ridge | 11. Mesial contact area | 17. Proximal root concavity |
| 6. Distal lobe | 12. Mesial cusp ridge | 18. Root apex |

DRAWING EXERCISES

Draw maxillary Canine 23 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw mandibular canine 43 according to the view

Labial view	Incisal view	Lingual view
Mesial view		Distal view

5 MAXILLARY PREMOLARS

OBJECTIVES

Upon completing this unit, you should be able to do the following:

- A. Demonstrate your understanding of all the terms.
- B. Identify all areas of first and second premolars including normal variations.
- C. Differentiate maxillary right and left first and second premolars including normal variations.
- D. Identify the mandibular teeth occluding with maxillary first and second premolars.
- E. Draw the maxillary first and second premolars:

GLOSSARY What are the following terms mean in relation to premolar tooth?

- | | | |
|----------------------------|------------------------------|--------------------------------|
| 1. Bifurcation | 11. Distobuccal cusp ridge | 21. Mesial marginal groove |
| 2. Buccal cusp | 12. Distobuccal groove | 22. Mesial marginal ridge |
| 3. Buccal cusp apex | 13. Distolingual cusp ridge | 23. Mesial / distal pit |
| 4. Buccal triangular ridge | 14. Distolingual groove | 24. Mesial triangular fossa |
| 5. Buccal root | 15. Height of contour | 25. Mesiobuccal cusp ridge |
| 6. Central groove | 16. Lingual cusp | 26. Mesiobuccal groove |
| 7. Cervical line | 17. Lingual cusp apex | 27. Mesiolingual cusp ridge |
| 8. Distal fossa | 18. Lingual triangular ridge | 28. Mesiolingual groove |
| 9. Distal marginal ridge | 19. Lingual root | 29. Proximal root concavity |
| 10. Root apex | 20. Mesial concavity | 30. Distal/mesial contact area |

DRAWING EXERCISES

Draw maxillary first premolar 14 according to the view

Labial view		Lingual view
	Incisal view	
Mesial view		Distal view

Draw maxillary second premolar 15 according to the view

Labial view	Incisal view	Lingual view
Mesial view		Distal view

COMPARE AND CONTRAST EXERCISE

1. In table form, compare and contrast between the 1st and 2nd maxillary premolars.

Tooth / Characteristics	14	15
Crown – Buccal		
Crown – Palatal		
Crown – Mesial		
Crown - Distal		
Crown – Occlusal		
Root		

6 MANDIBULAR PREMOLARS

OBJECTIVES

Upon completion of this unit, be able to do the following:

- Demonstrate your understanding of all terms listed.
- Identify all areas of mandibular first and second premolars that have names.
- Differentiate mandibular right first and second premolars including normal variations.
- Identify the maxillary teeth occluding with mandibular first and second premolars.
- Draw the first and second premolars:

GLOSSARY Know the following terms in relation to premolar tooth.

- | | | |
|----------------------------|------------------------------|----------------------------|
| 1. Buccal cusp | 9. Distal marginal ridge | 17. Mesial contact area |
| 2. Buccal triangular ridge | 10. Distal pit | 18. Mesiobuccal cusp ridge |
| 3. Central groove | 11. Distolingual cusp | 19. Mesial marginal ridge |
| 4. Central pit | 12. Distolingual ridge | 20. Mesial groove |
| 5. Cervical line | 13. Height of contour | 21. Mesial pit |
| 6. Distal contact area | 14. Lingual cusp | 22. Mesiolingual cusp |
| 7. Distobuccal cusp ridge | 15. Lingual groove | 23. Mesiolingual ridge |
| 8. Distal groove | 16. Lingual triangular ridge | 24. Root apex |

DRAWING EXERCISES

Draw mandibular first premolar 44 according to the view

Labial view		Lingual view
	Incisal view	
Mesial view		Distal view

Draw mandibular second premolar 45 according to the view

Labial view	'Y' shaped Occlusal view	Lingual view
Mesial view	'H' shaped Occlusal view	Distal view
	'U' shaped Occlusal view	

COMPARE AND CONTRAST EXERCISE

You need to answer this in a different sheet of paper and submit.

1. In table form, compare and contrast between:
 - a. The first and second **mandibular** premolars.
 - b. **The maxillary and mandibular premolars** in general.

7 MAXILLARY MOLARS

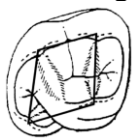
OBJECTIVES

Upon completion of this unit, you should be able to:

- a. Demonstrate your understanding of all terms.
- b. Identify all areas of maxillary molars that have names.
- c. Identify and distinguish between right and left first, second, and third maxillary molars including normal variations.
- d. Identify the mandibular teeth occluding with maxillary first, second, and third molars.
- e. Draw the maxillary first and second molars
- f. Identify and distinguish given sectional views of the pulp in maxillary first and second molars.

GLOSSARY What are the following terms mean?

Cusp of Carabelli Parallelogram



Rhomboidal



Trigon



- | | | |
|------------------------|-----------------------------------|-----------------------------------|
| 1. Buccal groove | 12. Distobuccal root | 23. Mesial triangular fossa |
| 2. Central fossa | 13. Distolingual cusp | 24. Mesiobuccal cusp |
| 3. Central groove | 14. Distolingual triangular ridge | 25. Mesiobuccal triangular ridge |
| 4. Central pit | 15. Distolingual groove | 26. Mesiobuccal root |
| 5. Cervical line | 16. Distal triangular fossa | 27. Mesiolingual cusp |
| 6. Distal contact area | 17. Distal marginal ridge | 28. Mesiolingual triangular ridge |
| 7. Cusp of Carabelli | 18. Lingual root | 29. Oblique ridge |
| 8. Height of contour | 19. Lingual groove | 30. Root trunk |
| 9. Distal pit | 20. Mesial contact area | 31. Trifurcation |
| 10. Distobuccal cusp | 21. Mesial marginal ridge | 32. Mesiolingual groove |
| 11. Distobuccal ridge | 22. Mesial pit | |

Draw maxillary first molar 16 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw maxillary second molar 17 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

COMPARE AND CONTRAST EXERCISE

You may need to answer this in a different sheet of paper and submit.

1. In table form, compare and contrast between:
 - a. The first and second maxillary molars.

Characteristics	16	17
Crown – Buccal		
Crown – Palatal		
Crown – Mesial		
Crown - Distal		
Crown – Occlusal		
Root		

- b. The maxillary and mandibular molars in general.

8 MANDIBULAR MOLARS

OBJECTIVES

Upon completing this unit, you should be able to:

- a. Demonstrate your understanding of all the terms.
- b. Identify all areas of mandibular molars.
- c. Identify and distinguish between right and left mandibular first, second, and third molars including normal variations.
- d. Draw the mandibular first and second molars.

GLOSSARY Know the following terms.

- | | | |
|--------------------------|-----------------------------------|-----------------------------------|
| 1. Bifurcation | 12. Distal root apex | 23. Mesial marginal ridge |
| 2. Buccal pit | 13. Distal fossa | 24. Mesial pit; 25. Mesial root |
| 3. Central fossa | 14. Distal triangular ridge | 26. Mesial root apex |
| 4. Central groove | 15. Distobuccal cusp | 27. Mesial fossa |
| 5. Central pit | 16. Distobuccal groove | 28. Mesiobuccal cusp |
| 6. Cervical line | 17. Distobuccal triangular ridge | 29. Mesiobuccal groove |
| 7. Distal contact area | 18. Distolingual cusp | 30. Mesiobuccal triangular ridge |
| 8. Distal cusp | 19. Distolingual triangular ridge | 31. Mesiolingual cusp |
| 9. Distal marginal ridge | 20. Height of contour | 32. Mesiolingual triangular ridge |
| 10. Distal pit | 21. Lingual groove | 33. Proximal root concavity |
| 11. Distal root | 22. Mesial contact area | 34. Root trunk |

Draw mandibular first molar 46 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw mandibular second molar 47 according to the view

Labial view		Lingual view
	Incisal view	
Mesial view		Distal view

COMPARE AND CONTRAST EXERCISE

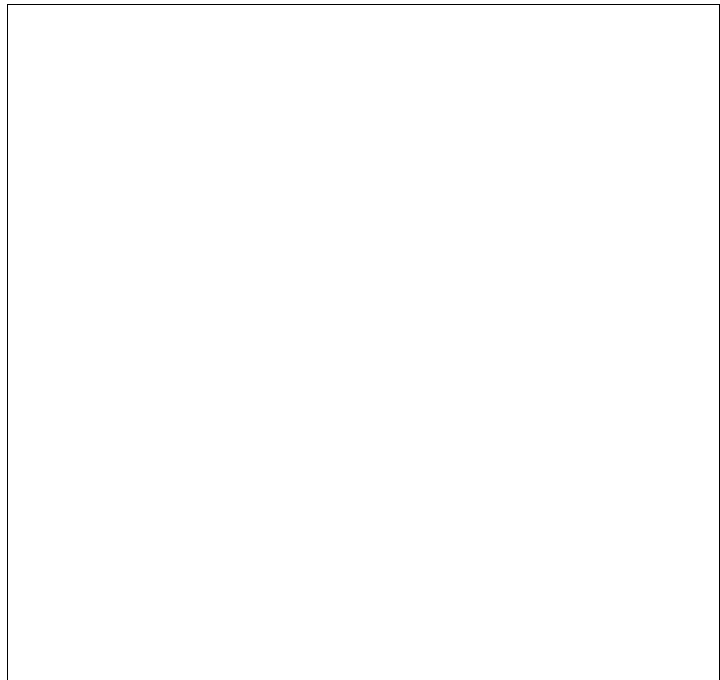
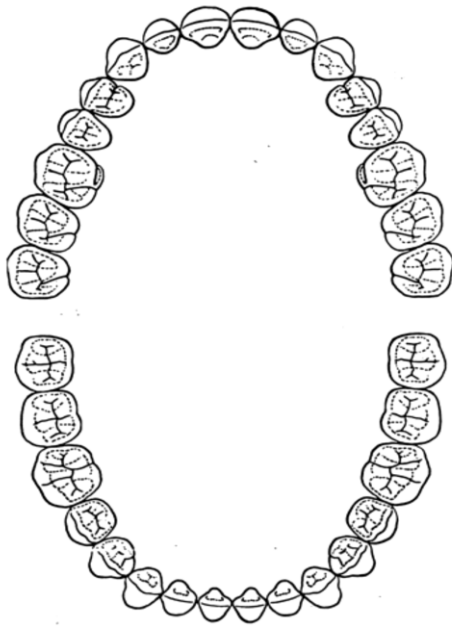
1. Compare and contrast between the 1st and 2nd mandibular molars.

Characteristics	46	47
Crown – Buccal		
Crown – Palatal		
Crown – Mesial		
Crown - Distal		
Crown – Occlusal		
Root		

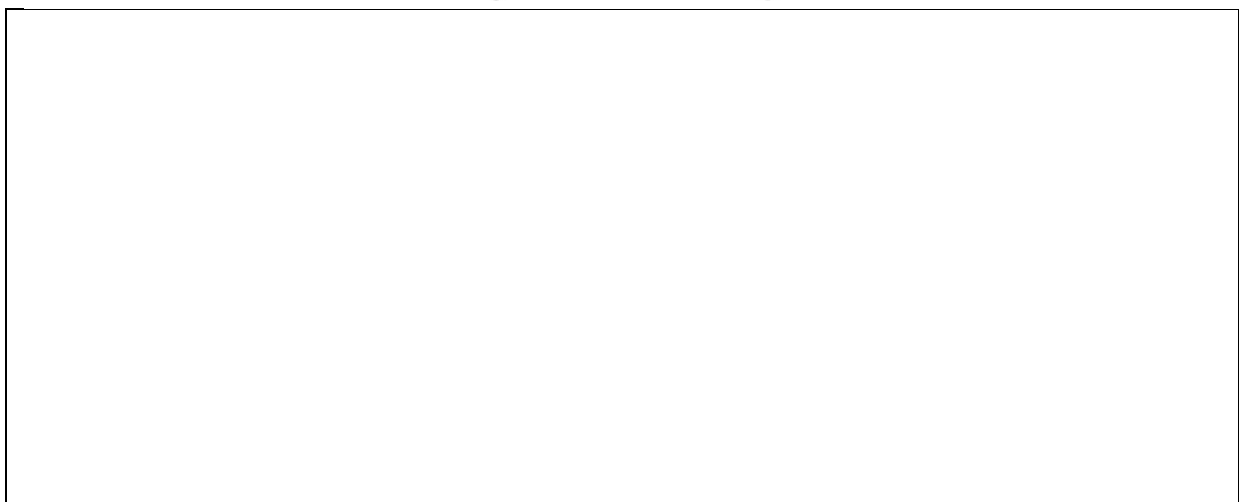
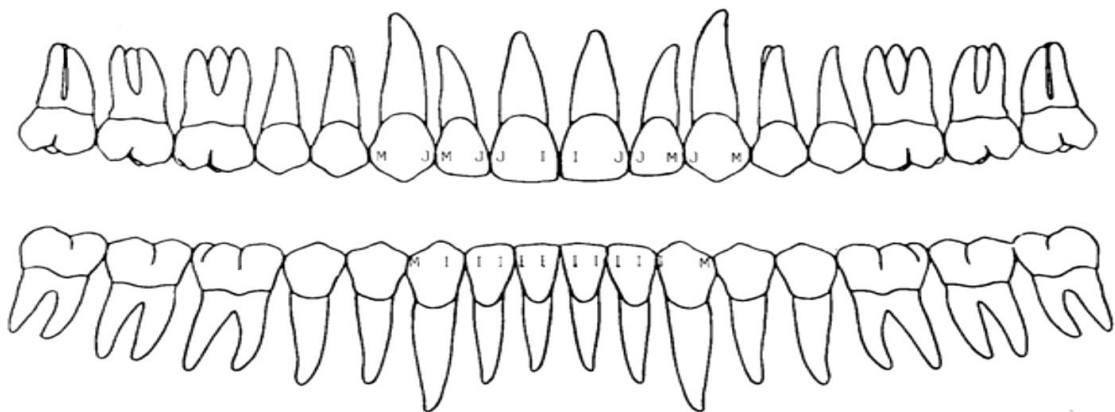
Drawing Exercise

This is to familiarise students with the permanent dentition in relation to each other from two view; the occlusal view and facial/buccal view

1. Occlusal View



2. Facial/buccal view



9 DECIDUOUS TEETH

Upon completing this unit, you should be able to:

- Demonstrate your understanding of all the terms.
- Identify and distinguish all the deciduous teeth including normal variations.
- Identify and distinguish between deciduous and permanent teeth.
- Draw the deciduous teeth

Draw deciduous mandibular central incisor 81 according to the view

Labial view		Lingual view
	Incisal view	
Mesial view		Distal view

Draw deciduous mandibular lateral incisor 82 according to the view

Labial view		Lingual view
	Incisal view	
Mesial view		Distal view

Draw deciduous mandibular canine 83 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw deciduous mandibular first molar 84 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw deciduous mandibular second molar 85 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw deciduous maxillary central incisor 51 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw deciduous maxillary lateral incisor 52 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw deciduous maxillary canine 53 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw deciduous maxillary first molar 54 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

Draw deciduous maxillary second molar 55 according to the view

Labial view		Lingual view
Mesial view	Incisal view	Distal view

COMPARE AND CONTRAST EXERCISE

1. Compare and contrast the following:
 - a. Morphological differences between deciduous and permanent teeth as in the table below.

Features	Deciduous dentition	Permanent dentition
Number		
Type		
Colour		
Interdental spacing		
Shape		
Size		
Contact areas		
Mamelons		
Cusp (molars)		
Cervical constrictions		
Cingulum		
Root length		
Root crown ratio		
Root flare		
Root trunk		
Apical foramen		
Pulp chamber		
Pulp horns		
Pulp canals		

b. Compare and contrast between deciduous mandibular second molar and permanent mandibular first molar.

	Deciduous mandibular second molar	Permanent mandibular first molar.
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

10 TOOTH DEVELOPMENT AND AGE IDENTIFICATION

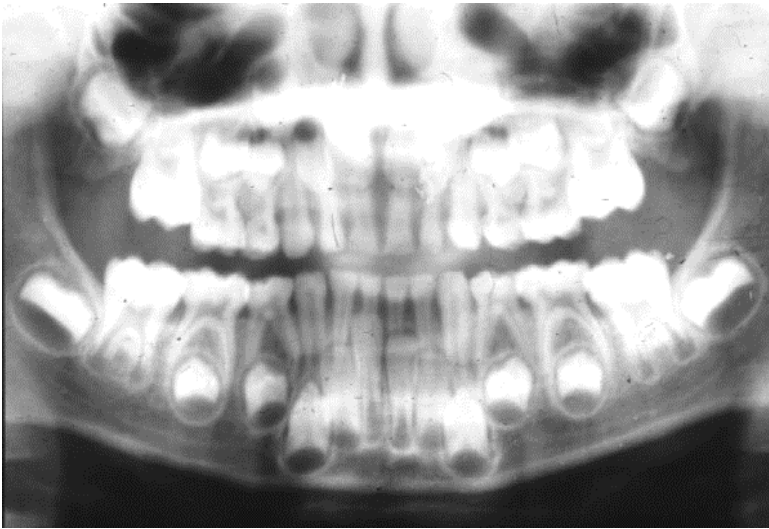
1. Fill the Table of Chronology of Human Dentition appropriately.

Primary Tooth		Crown completed (mo)	Eruptions (mo)	Root completed (yrs)
Upper	I1			
	I2			
	C			
	M1			
	M2			
Lower	I1			
	I2			
	C			
	M1			
	M2			

Permanent Tooth		Crown completed (yrs)	Eruptions (yrs)	Root completed (yrs)
Upper	I1			
	I2			
	C			
	PM1			
	PM2			
	M1			
	M2			
	M3			
Lower	I1			
	I2			
	C			
	PM1			
	PM2			
	M1			
	M2			
	M3			

2. Age Prediction Exercise.

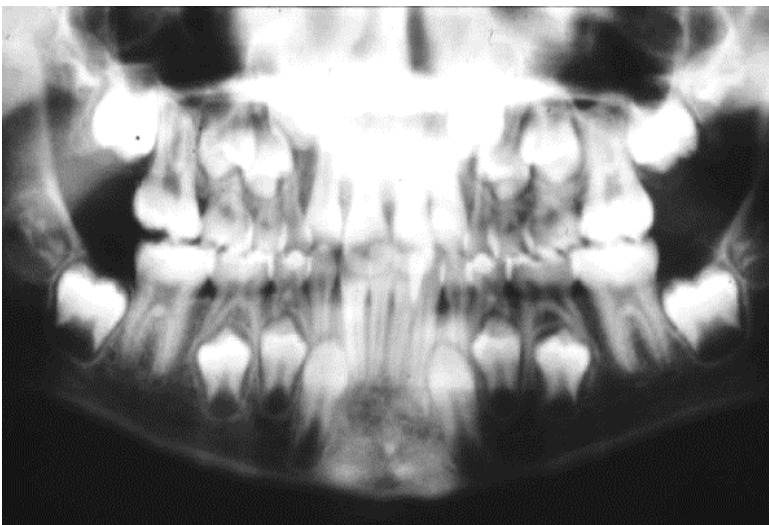
Study the X-Rays on the next page, predict the ages of the subject based on the development of the dentition present/absent. Give your reasons.



Approximate Age is: ____ Years:

Based on

.....
.....
.....
.....
.....



Approximate Age is: ____ Years:

Based on

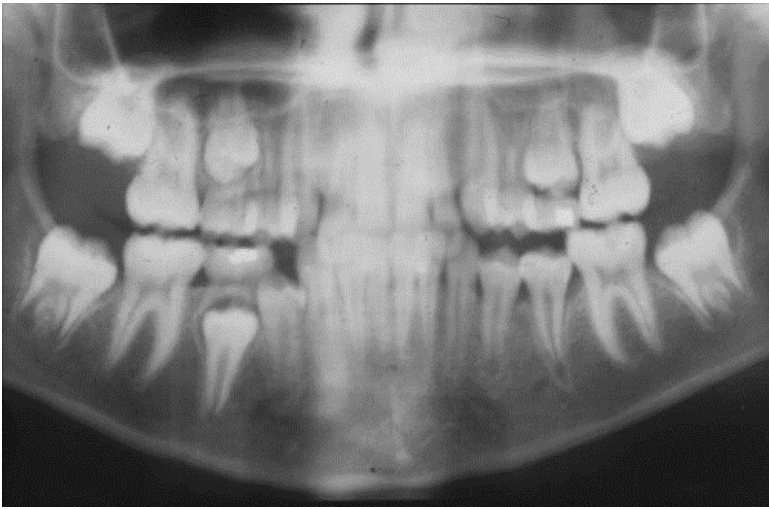
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Approximate Age is: ____ Years:

Based on

.....
.....
.....
.....
.....



Approximate Age is: ____ Years:

Based on

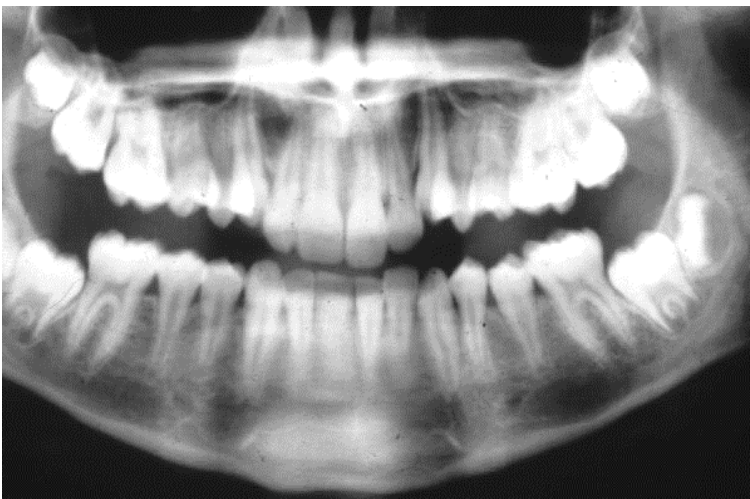
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Approximate Age is: ____ Years:

Based on

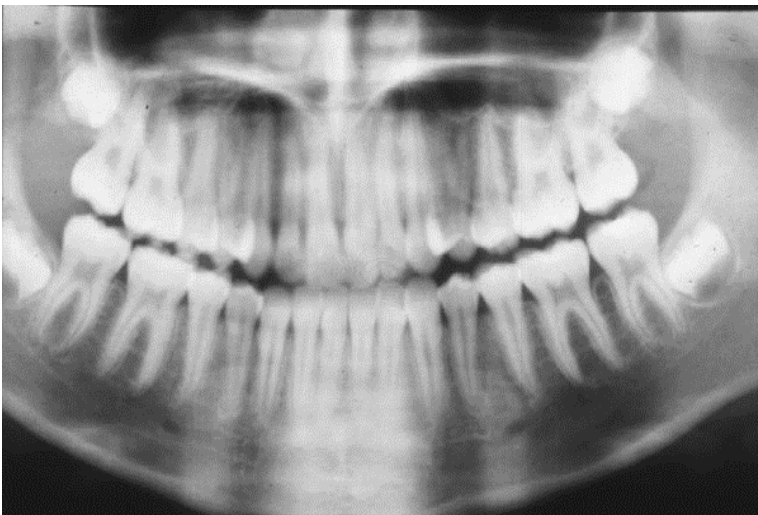
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Approximate Age is: ____ Years:

Based on

.....

.....

.....

.....

.....

11 TOOTH VARIATIONS / ANOMALIES

INTRODUCTION

Variations and anomalies can happen during the development of the human dentition. These happen due to various factors such as trauma, genetics, racial differences, environmental and others.

Objectives





At the end of exercise, you should be able to:

- a. Identify the various variations and developmental anomalies in the dentition.
- b. Relate the variations and anomalies of teeth to its clinical implication.

1. **Tooth Variations.** Draw the following tooth conditions.

<p>a. Taurodontism. What is its characteristics?</p>	
<p>b. Shovel shaped tooth. What is its characteristics?</p>	
<p>c. Leong's premolar What is its characteristics and its clinical implication?</p>	
<p>d. Talon cusp tooth What is its characteristics and its clinical implication?</p>	

2. Identify the following anomalies. Describe its clinical implication.

<p>a. Type of anomaly:</p> <p>b. Clinical implication:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>a. Type of anomaly:</p> <p>b. Clinical implication:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>a. Type of anomaly:</p> <p>b. Clinical implication:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>a. Type of anomaly:</p> <p>b. Clinical implication:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	

a. Type of anomaly:

b. Clinical implication:

.....
.....
.....



a. Type of anomaly:

b. Clinical implication:

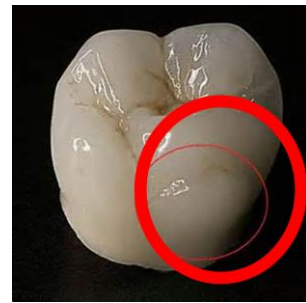
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a. Type of anomaly:

b. Clinical implication:

.....
.....
.....



12 DENTAL OCCLUSION

INTRODUCTION

Occlusion is the contact of masticating and incising surfaces of the opposing maxillary and mandibular teeth in function or parafunction.

Objectives

At the end of exercise, you should be able to:

- a. Identify the various compensating curves in the occlusion.
 - b. Distinguish the various types of occlusal relationships of the dentition.
1. Draw the occlusal relationship of teeth according to **Angle's classification**.

Class I

Class II Division 1

Class II Division 2

Class III