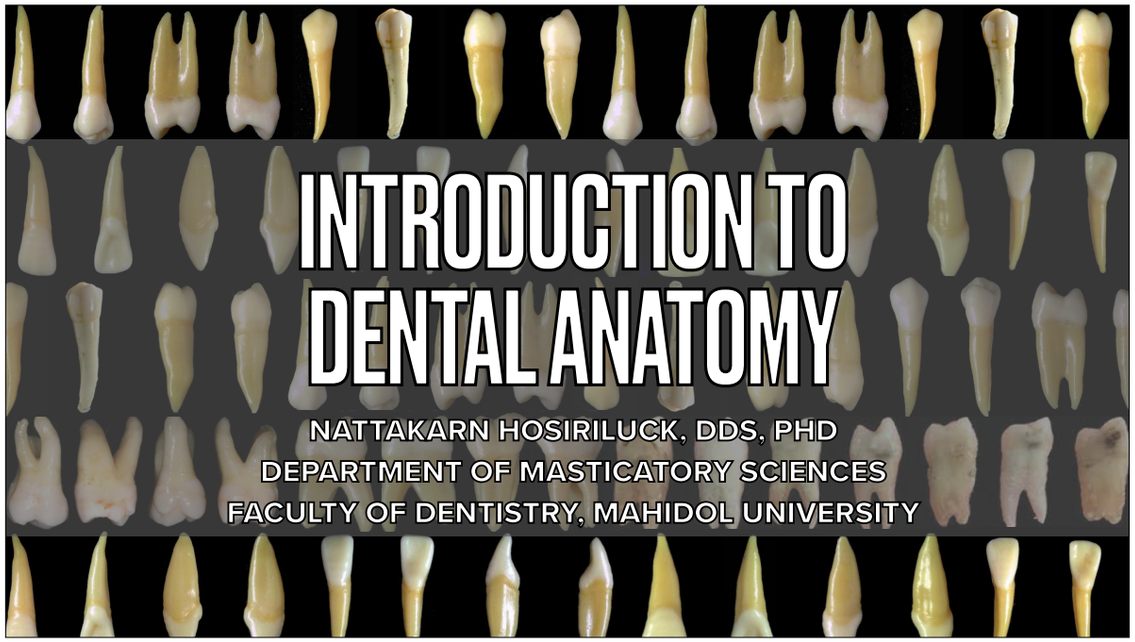
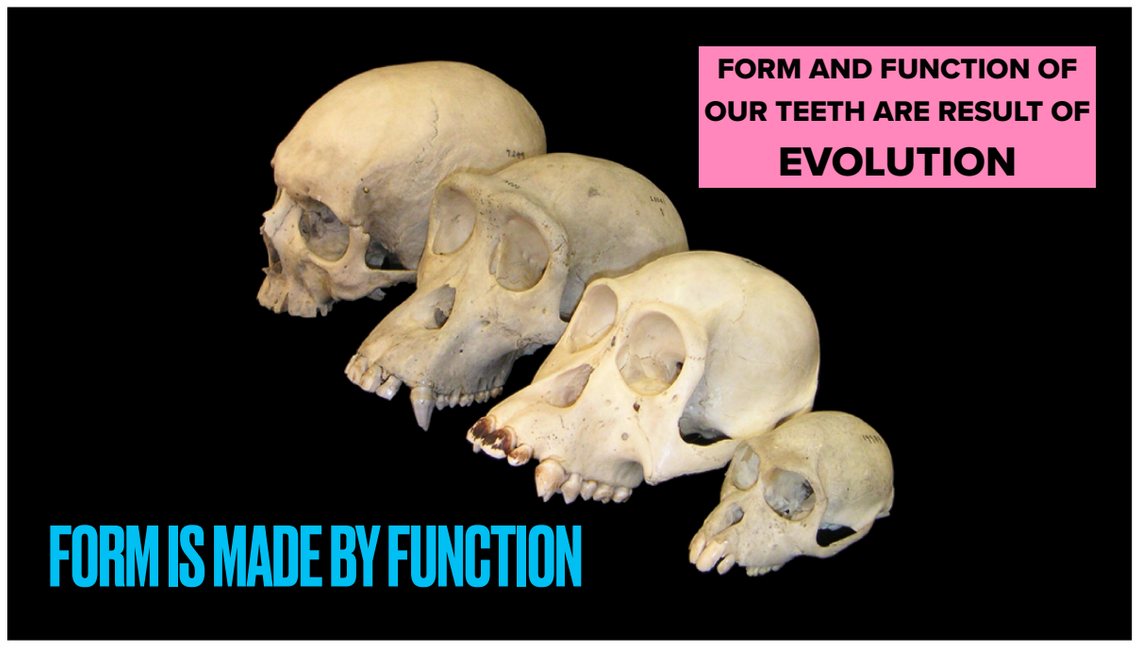

INTRODUCTION TO
DENTAL ANATOMY
NATTAKARN HOSIRILUCK, DDS, PHD
DEPARTMENT OF MASTICATORY SCIENCES
FACULTY OF DENTISTRY, MAHIDOL UNIVERSITY


The knowledge of DA is most important to the dentist
since without a complete understanding of the form of human teeth,
no dentist can operate on these tissues and restore them
to their correct contour and proper function.


FUNCTION OF
HUMAN TEETH
MASTICATION
PRONUNCIATION
FACIAL APPEARANCE


FORM AND FUNCTION OF
OUR TEETH ARE RESULT OF
EVOLUTION
FORM IS MADE BY FUNCTION

EVOLUTIONARY PATTERN OF TOOTH

IN SHAPE
1. HOMODONT
2. HETERODONT

IN SET
1. MONOPHYODONT
2. DIPHYODONT
3. POLYPHYODONT

IN ITS ATTACHMENT TO JAW
1. PLEURODONT
2. ACRODONT
3. THECODONT

HOMODONT

SHAPE

ALL THE TEETH ARE THE SAME IN FORM AND TYPE
EX. AMPHIBIAN, REPTILE







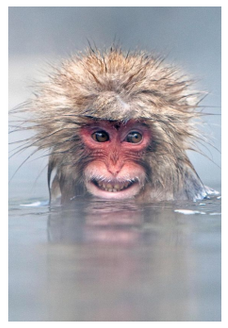


HETERODONT

SHAPE

COMPRISED OF DIFFERENT TYPES OR CLASSES OF TEETH TO PERFORM DIFFERENT FUNCTIONS IN THE MASTICATION PROCESS
EX. MAMMAL









MONOPHYODONT

SET

ONE SINGLE SET OF TEETH
EX. SHEEP AND GOAT









DIPHYODONT

SET

TWO SETS OF TEETH
USUALLY MAMMAL





POLYPHYODONT

SET

THE DENTITIONS THAT HAVE AN ENDLESS SUCCESSION OF TEETH
EX. SHARK, ALLIGATOR





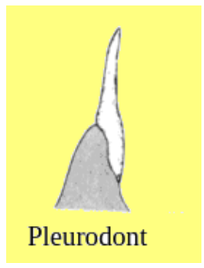


PLEURODONT

ATTACHMENT TO JAW

HAVING THE TEETH ATTACHED BY THEIR SIDES TO
THE INNER SIDE OF THE JAW







ACRODONT

ATTACHMENT TO JAW

ATTACHED ON THE TOP OF THE JAW BONE WITHOUT SOCKET



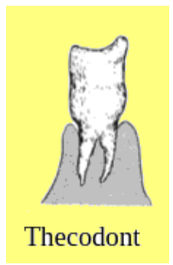


THECODONT

ATTACHMENT TO JAW

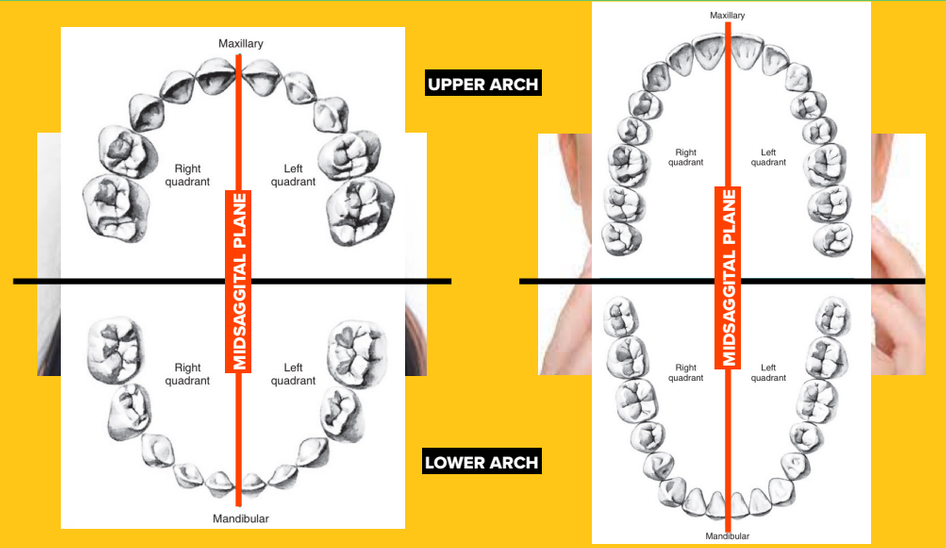
TOOTH ATTACHMENT WHERE THE TOOTH IS SET IN THE SOCKET IN THE BONE
EX. SOME REPTILE AND MAMMAL



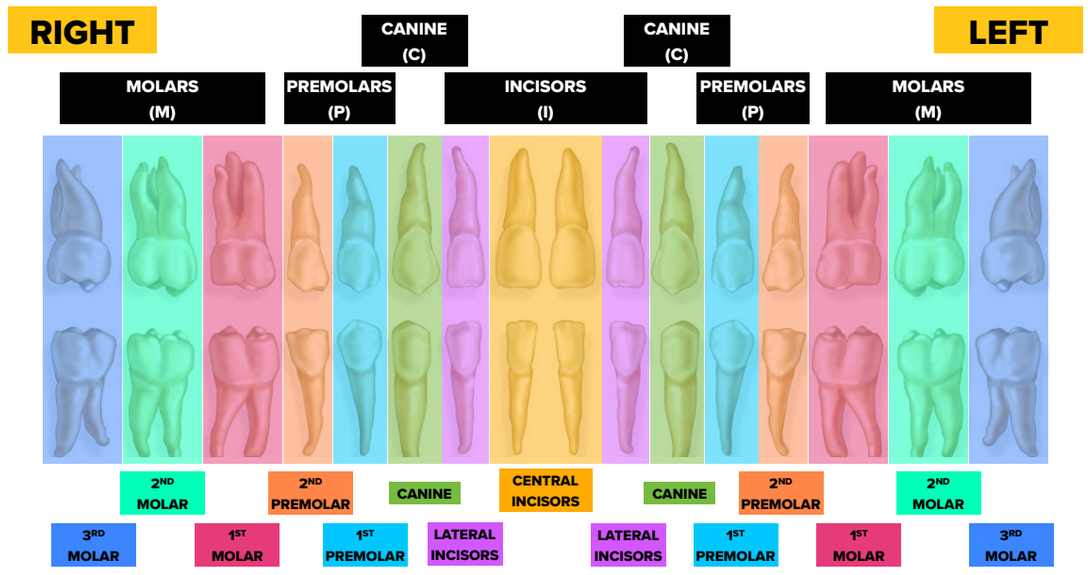




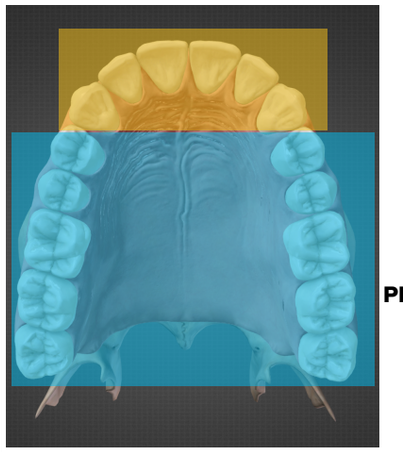
DENTISTS DIVIDE THE MOUTH INTO 4 QUADRANTS



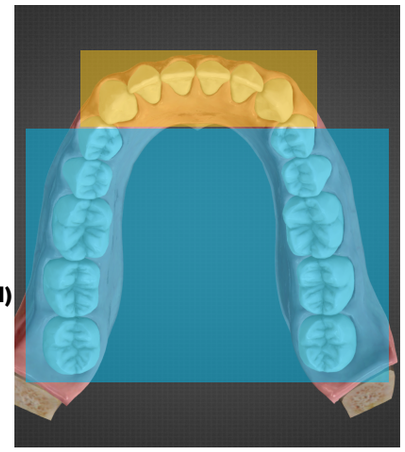




UPPER PERMANENT TEETH



LOWER PERMANENT TEETH



ANTERIOR TEETH

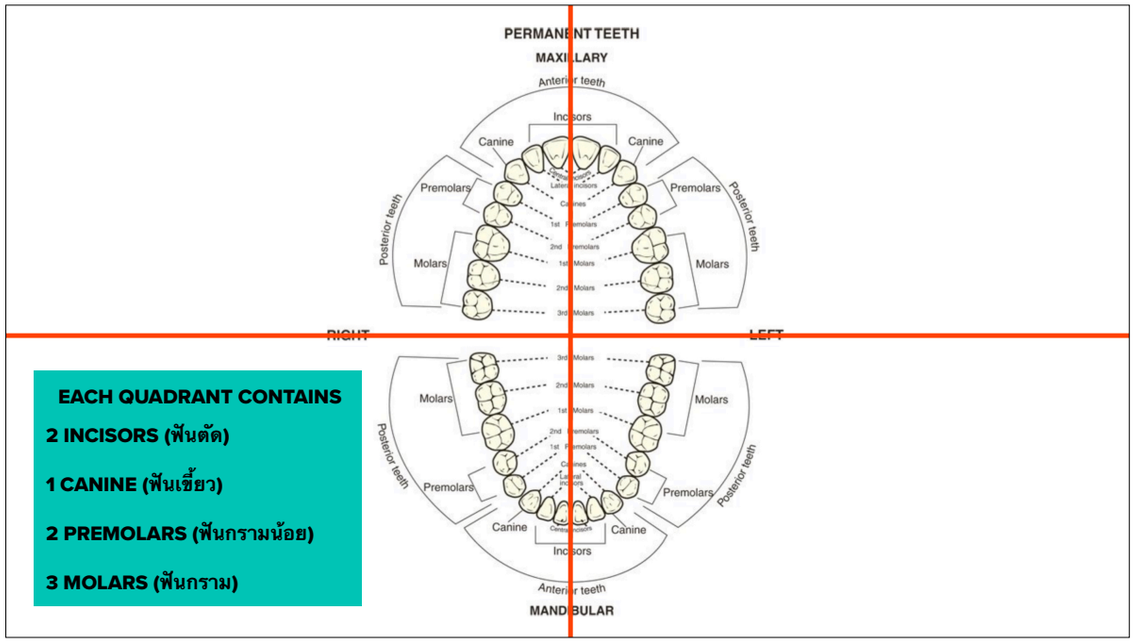
INCISOR

CANINE (CUSPID TOOTH)

POSTERIOR TEETH

PREMOLAR (BICUSPID TOOTH)

MOLAR (MOLAR TOOTH)



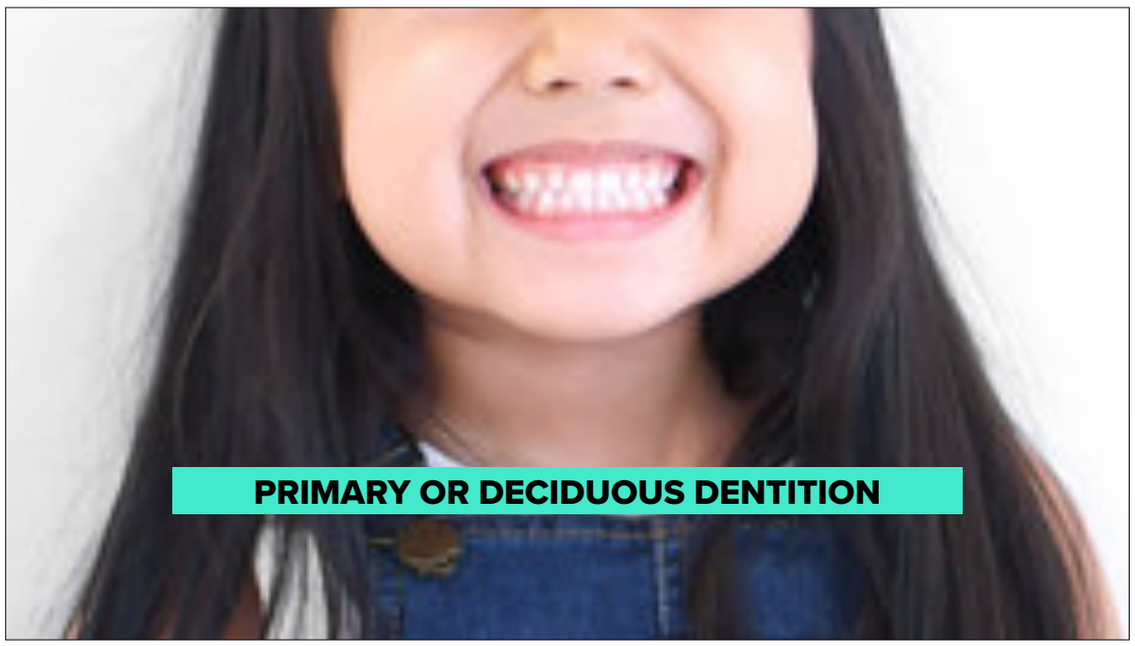
EACH QUADRANT CONTAINS

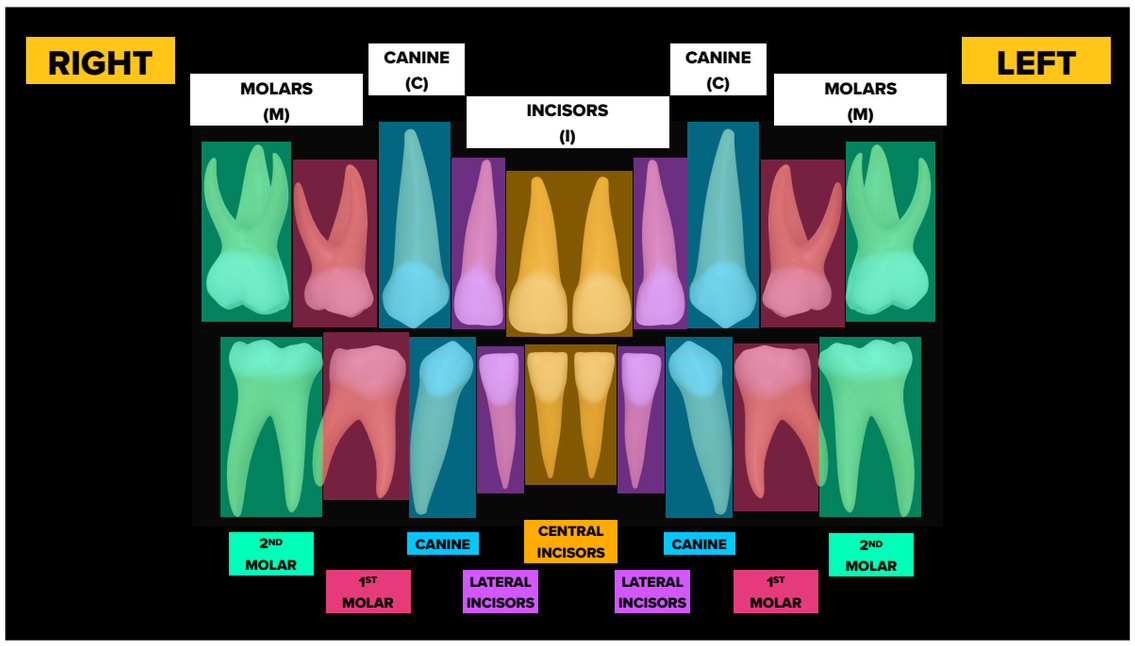
2 INCISORS (ฟันตัด)

1 CANINE (ฟันเขี้ยว)

2 PREMOLARS (ฟันกรามน้อย)

3 MOLARS (ฟันกราม)





DENTAL FORMULA

2 1 2	2 1 2
2 1 2	2 1 2

PRIMARY DENTITION
ICM = 2-1-2

3 2 1 2	2 1 2 3
3 2 1 2	2 1 2 3

PERMANENT DENTITION
ICPM = 2-1-2-3

DENTAL FORMULA

M M C I I	I I C M M
M M C I I	I I C M M

$$I\frac{2}{2}C\frac{1}{1}M\frac{2}{2} = 10$$

M M M P P C I I	I I C P P M M M
M M M P P C I I	I I C P P M M M

$$I\frac{2}{2}C\frac{1}{1}P\frac{2}{2}M\frac{3}{3} = 16$$

DENTITION

PRIMARY OR DECIDUOUS DENTITION

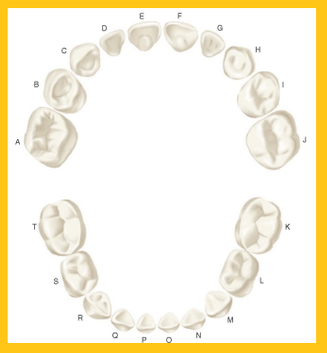
↘

TRANSITION OR MIXED DENTITION

↘

SUCCEDANEOUS OR PERMANENT DENTITION





PRIMARY OR DECIDUOUS DENTITION

ERUPTION AGE : 6 MO - 2YRS 6MO

PERIOD WHICH ONLY DECIDUOUS TEETH ARE PRESENT : 6 MO - 6YRS OF AGE

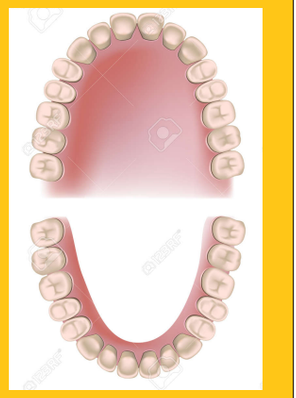




TRANSITION OR MIXED DENTITION PERIOD

SHEDDING AGE : 6-12 YRS





SUCCEDANEOUS OR PERMANENT DENTITION

ERUPTION AGE : 6-18 YRS

PERIOD WHICH ONLY PERMANENT TEETH ARE PRESENT (APPROX. 12 YRS THROUGH THE REST OF LIFE)

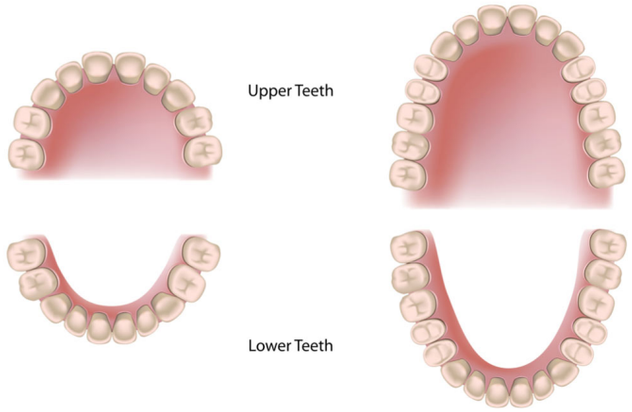



FOR A PERMANENT TOOTH TO ERUPT IN TO A SPACE WHERE A DECIDUOUS TOOTH IS LOCATED, THE DECIDUOUS TOOTH MUST FIRST BE SHED OR EXFOLIATED.

THE NATURAL PROCESS BY WHICH DECIDUOUS ROOTS ARE ”MELTED AWAY” TO ALLOW FOR EXFOLIATION, IS TERMED RESORPTION

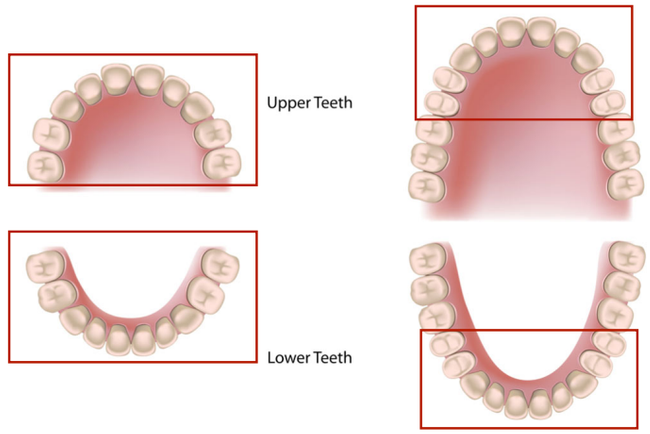
THE PERMANENT TEETH THAT REPLACED EXFOLIATED DECIDUOUS TEETH IN THE MOUTH ARE CALLED SUCCEDANEOUS TEETH (MEANS”SUCCEEDING” DECIDUOUS TEETH)

DECIDUOUS DENTITION **PERMANENT DENTITION**



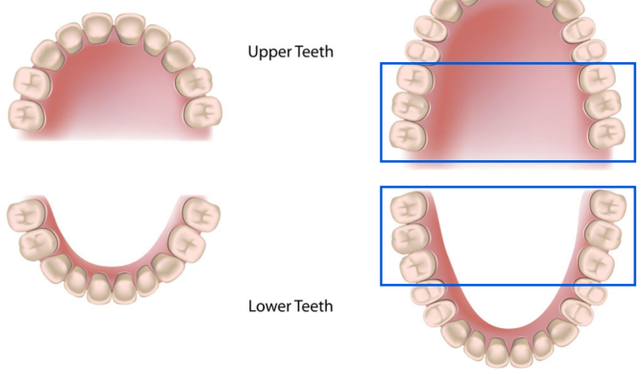
HOW MANY "SUCCEDANEOUS" TEETH ARE THERE IN YOUR MOUTH ???

DECIDUOUS DENTITION **PERMANENT DENTITION**



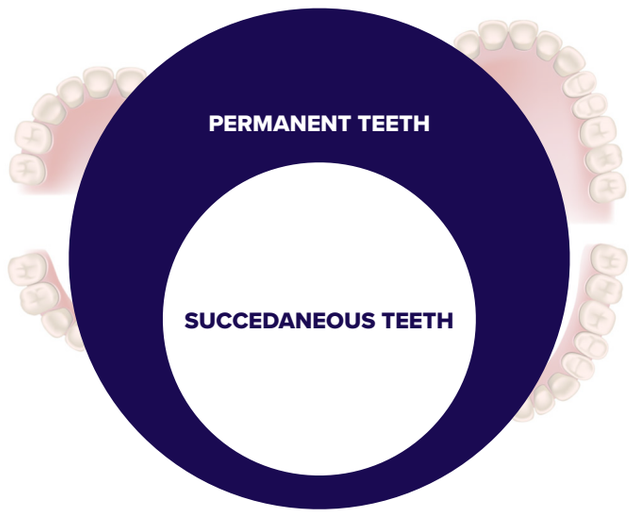
THE PERMANENT TEETH WHICH ARE ALSO SUCCEDANEOUS TEETH INCLUDE
INCISORS AND CANINES **(REPLACE THEIR DECIDUOUS COUNTERPARTS) AND**
PREMOLARS **WHICH REPLACE DECIDUOUS MOLARS**

DECIDUOUS DENTITION **PERMANENT DENTITION**



THE ONLY PERMANENT TEETH WHICH ARE NOT SUCCEDANEOUS ARE
MOLARS

DECIDUOUS DENTITION **PERMANENT DENTITION**



ALL SUCCEDANEOUS TEETH ARE PERMANENT TEETH

ALL THE PERMANENT TEETH ARE NOT SUCCEDANEOUS TEETH

TOOTH NAMING & TOOTH CODING

HOW TO NAME TEETH

?



Step to identify a tooth:

1. Set trait (Primary or Permanent)
2. Class trait (I,C,P,M)
3. Arch trait (Max or Mand)
4. Type trait (1st,2nd or 3rd)
5. Right or Left?

TOOTH NAMING

ENGLISH

ARCH
MAXILLARY OR MANDIBULAR

QUADRANT
LEFT OR RIGHT

DENTITION
PERMANENT OR DECIDUOUS

TOOTH TYPE
CENTRAL/LATERAL (INCISOR)
1ST,2ND,3RD (PREMOLAR,MOLAR)

INDIVIDUAL TRAIT
INCISOR, CANINE, PREMOLAR, MOLAR

TOOTH NAMING

THAI

ชื่อ/ชนิดฟัน

ฟันตัด, ฟันเขี้ยว, ฟันกรามน้อย, ฟันกราม

ชุดฟัน

แท้ หรือ น้ำนม

ขากรรไกร

บน หรือ ล่าง

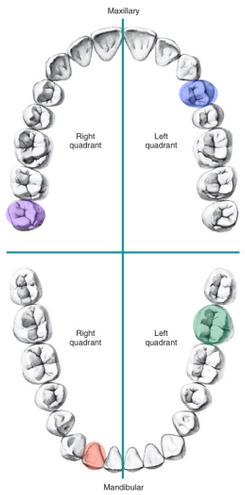
QUADRANT

ซ้าย หรือ ขวา

ลำดับของฟัน

ซี่กลาง ซี่ข้าง

ซี่ที่ 1, 2 หรือ 3



ฟันกรามน้อยบนซ้ายซี่ที่หนึ่ง

(Maxillary left permanent 1st premolar)

ฟันตัดแท้ล่างขวาซี่ข้าง

Mandibular right permanent lateral incisor

ฟันกรามแท้ล่างซ้ายซี่ที่สอง

(Mandibular left permanent second molar)

ฟันกรามแท้บนขวาซี่ที่สาม

(Maxillary right permanent third molar)

ฟันกรามน้ำนมบนขวาซี่ที่สอง

(Maxillary right deciduous 2nd molar)

ฟันเขี้ยวน้ำนมบนซ้าย

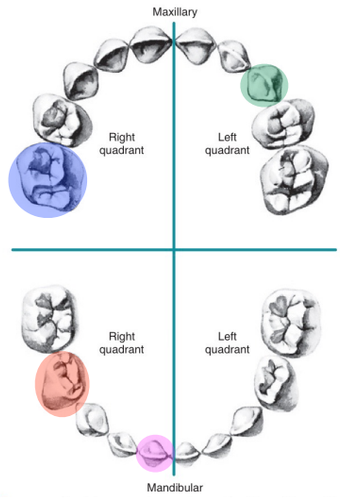
Maxillary left deciduous canine

ฟันกรามน้ำนมล่างขวาซี่ที่หนึ่ง

Mandibular right deciduous 1st molar

ฟันตัดน้ำนมล่างขวาซี่กลาง

(Mandibular right deciduous central incisor)

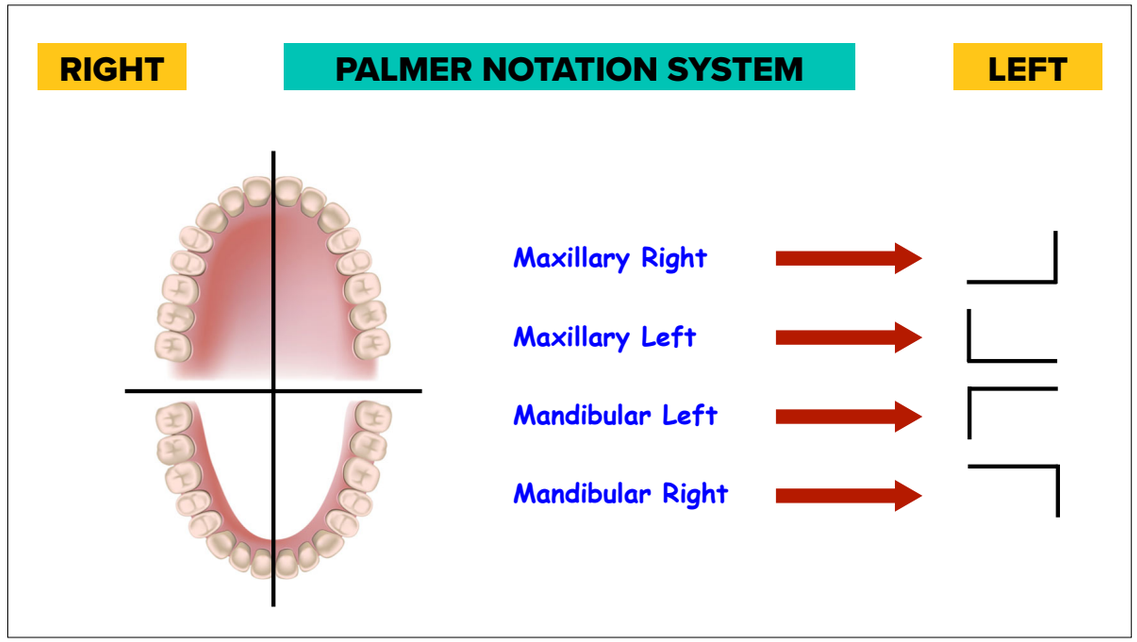


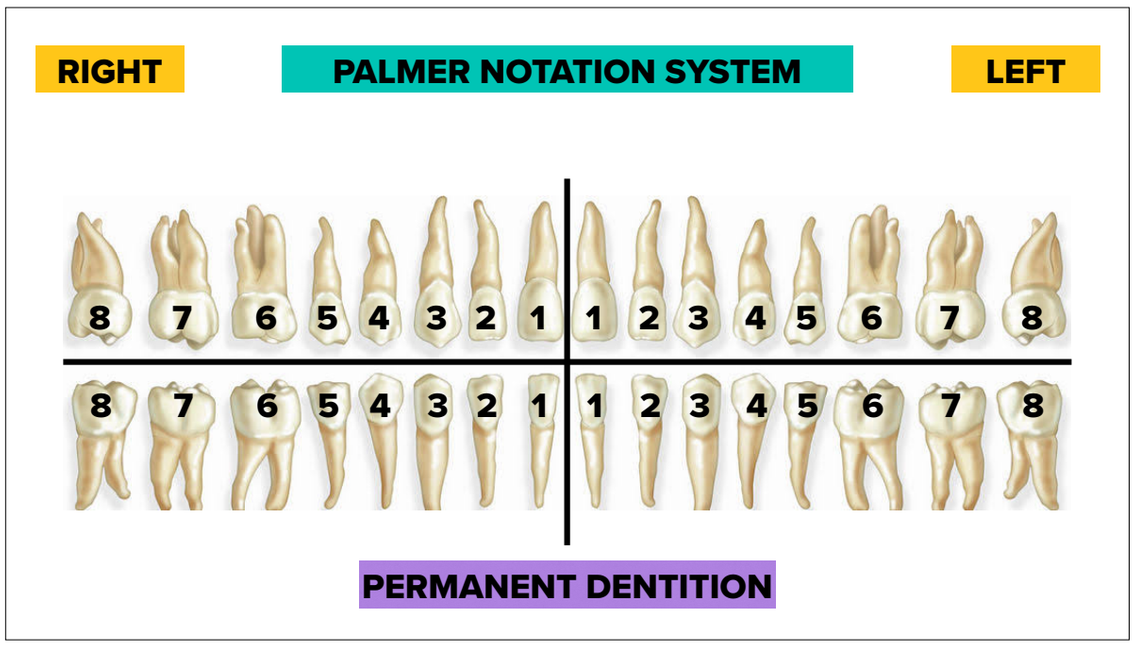
TOOTH CODING SYSTEMS

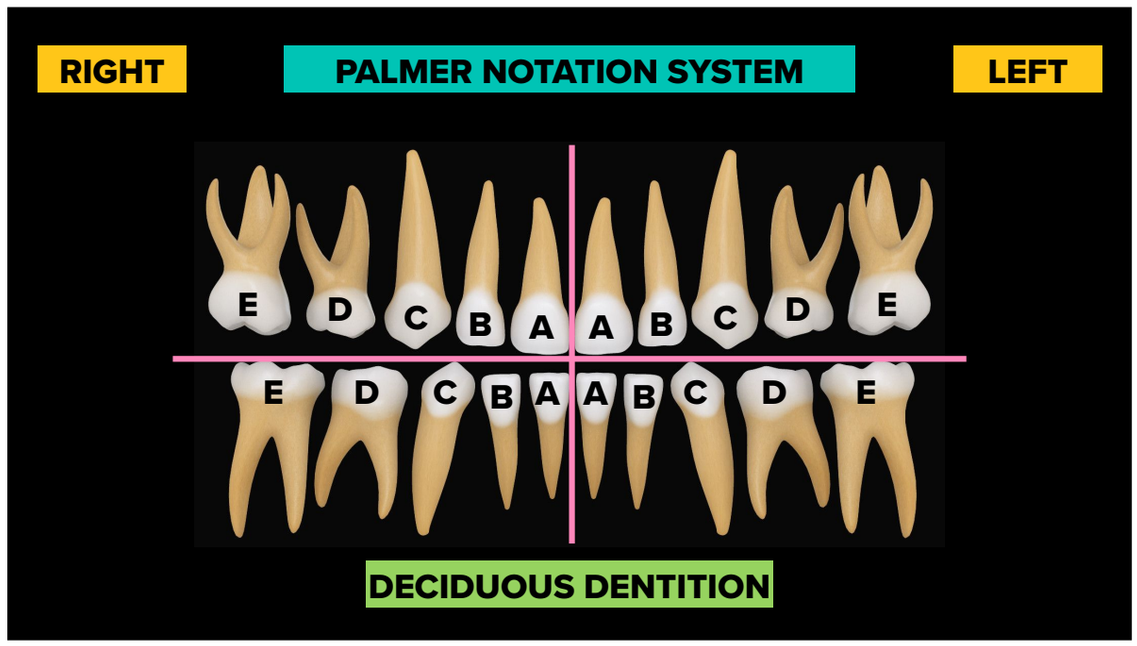
IN CLINICAL PRACTICE, SOME **"SHORTHAND"** OF TOOTH NOTATION IS NECESSARY FOR RECORDING DATA.
SEVERAL SYSTEMS ARE IN USE AROUND THE WORLD, BUT ONLY A FEW ARE CONSIDERED HERE.

TOOTH CODING SYSTEMS

- PALMER NOTATION SYSTEM
- UNIVERSAL NUMBERING SYSTEM
- TWO-DIGIT SYSTEM (INTERNATIONAL NUMBERING SYSTEM) (FDI SYSTEM)

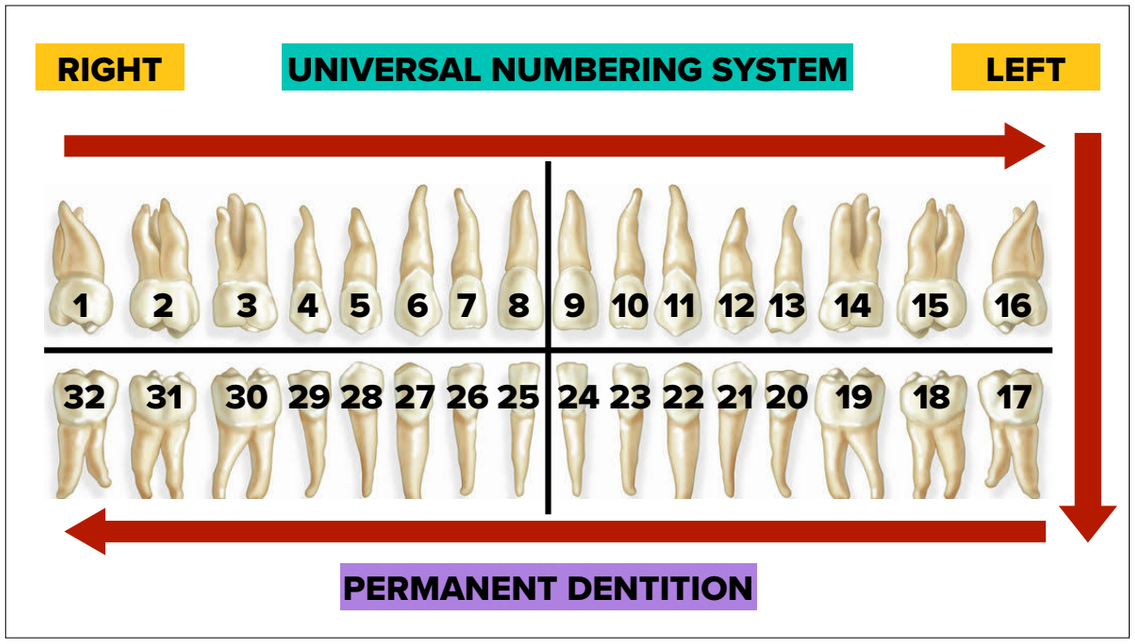


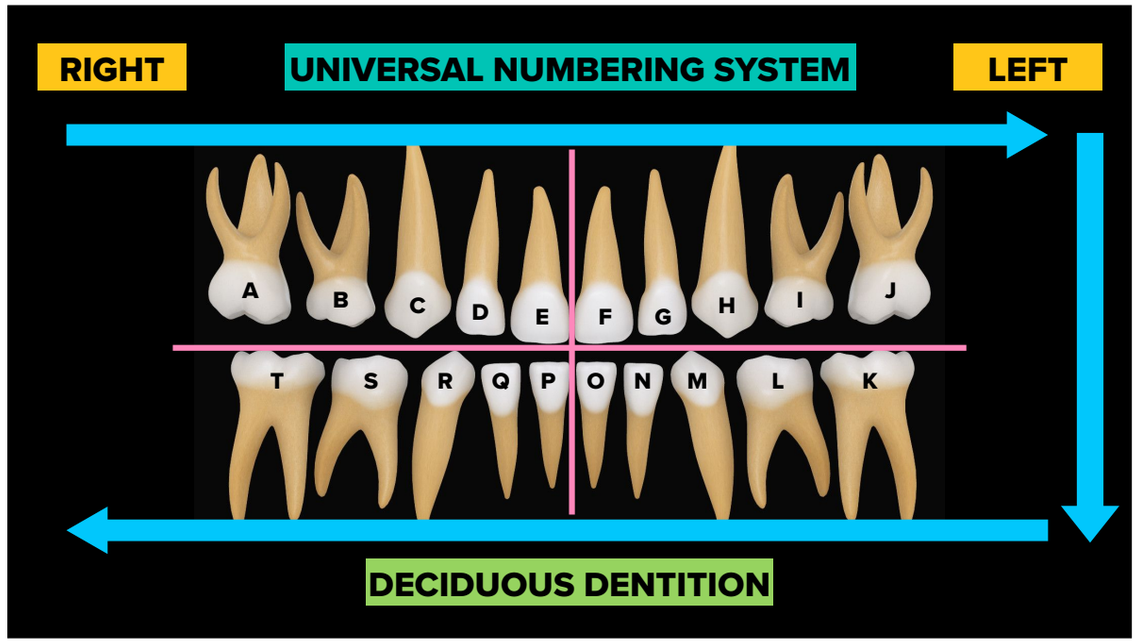


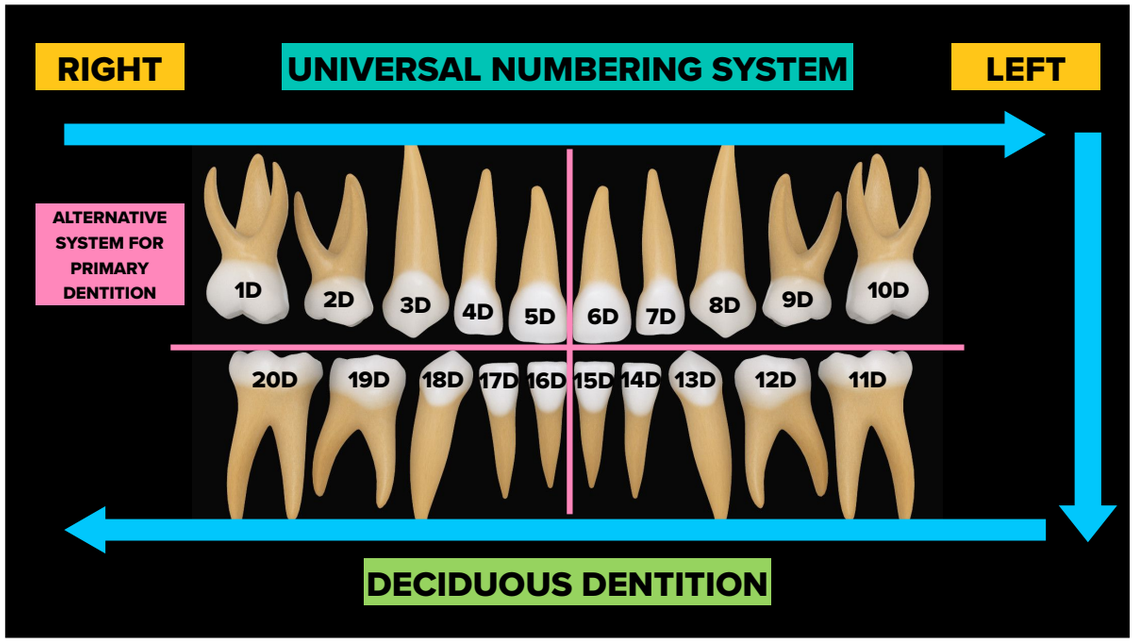


1	Maxillary left permanent central incisor
4	Maxillary right permanent 1st premolar
2	Maxillary left permanent lateral incisor
3	Mandibular right permanent canine
E	Maxillary left deciduous second molar
D	Mandibular right deciduous first molar

HOWEVER, BECAUSE OF DIFFICULTIES **WITH KEYBOARD NOTATION OF THE SYMBOLIC NOTATION SYSTEM,**
the ADA in 1968 officially recommended the **"Universal" Numbering System.**







The **universal numberring system** is **acceptable** to computer language, whereas the Palmer notation is generally **incompatible with** computers and word processing systems.

Each tooth **in the universal system is designated with** a unique number, **which leads to less confusion than with the Palmer notation.**

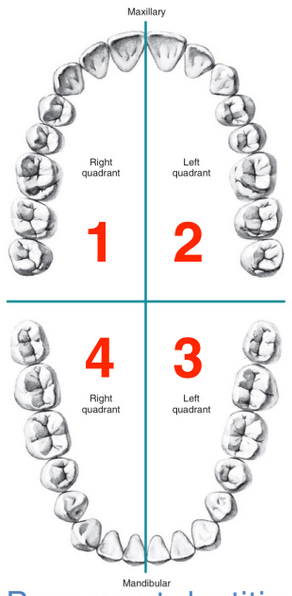
TWO-DIGIT SYSTEM

Proposed by Federation Dentaire Internationale (**FDI**) has been adopted by the **WHO** and accepted by other organizations

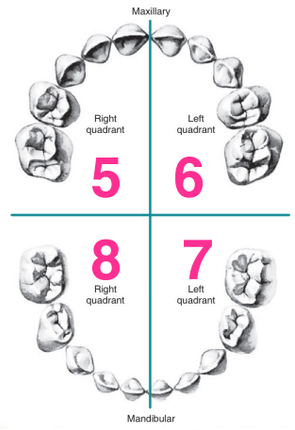
QUADRANT

ORDER FROM MIDLINE

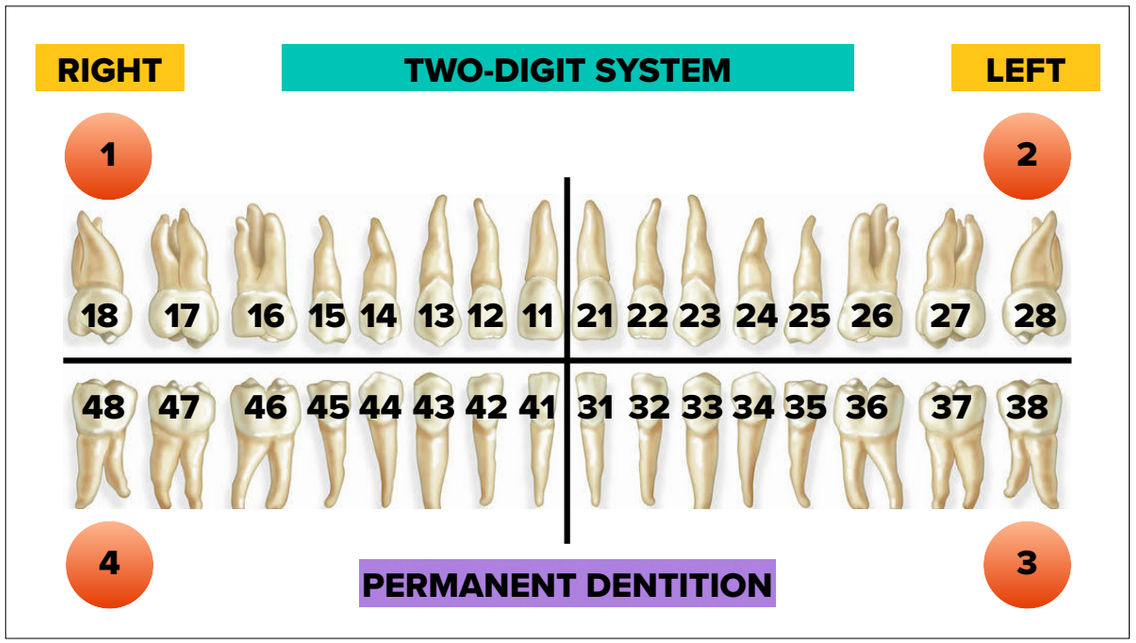
The 1st digit indicates the **Q (1-4 for permanent),**
The 2nd digit indicates **the tooth** within a Q.
(**1-8** for permanent teeth,**1-5** for primary teeth)

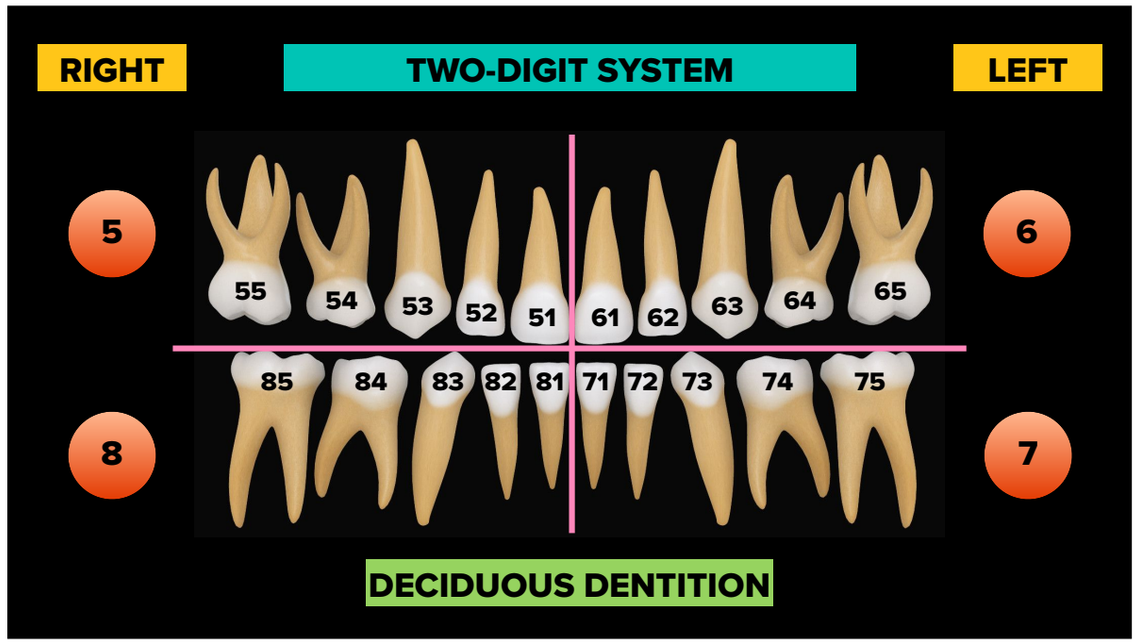


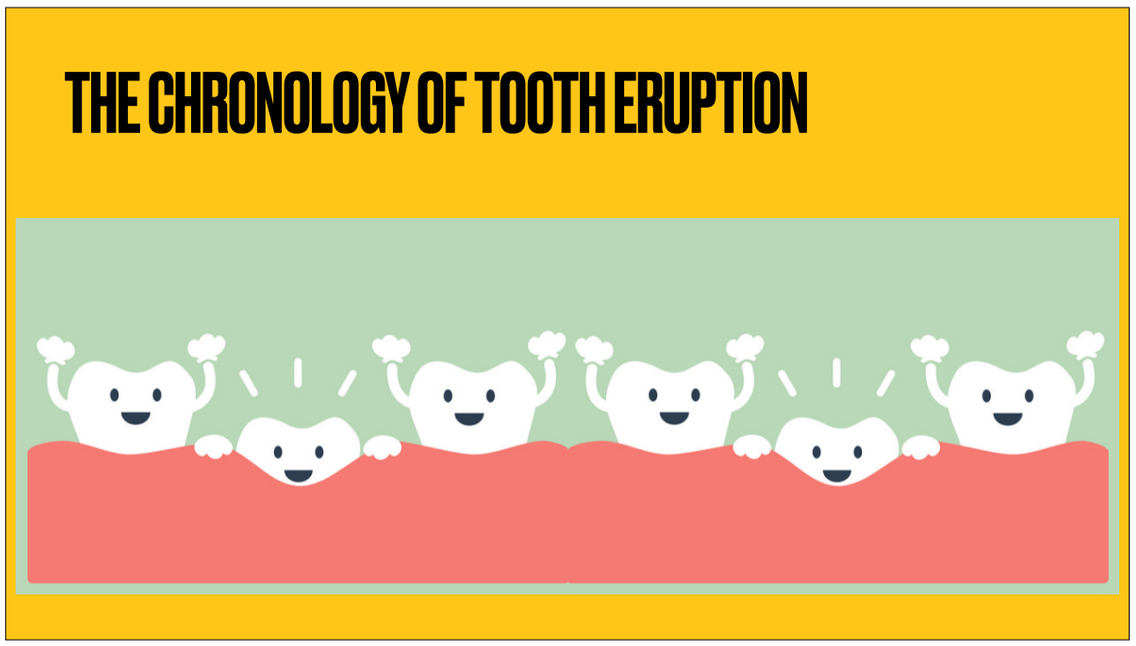
Permanent dentition



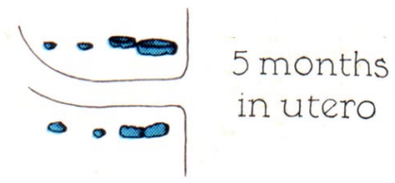
Primary dentition

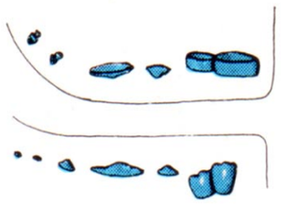




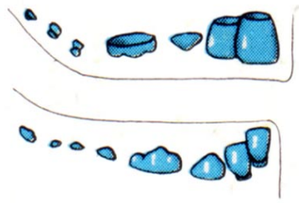


The Chronology of Tooth Eruption

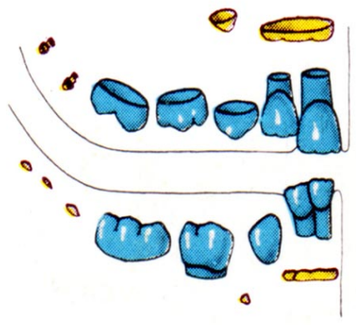




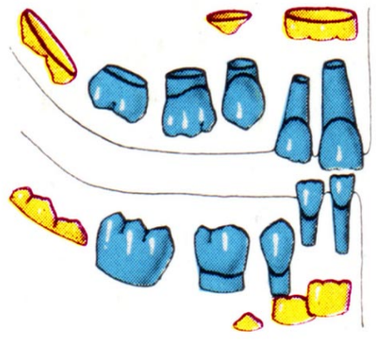
7 months
in utero



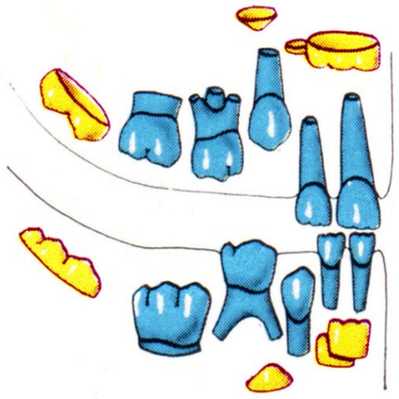
Birth



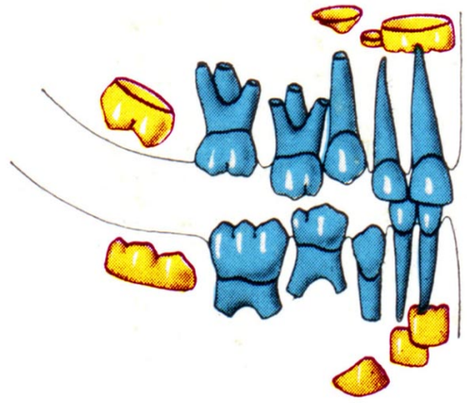
6 mos.
(±2 mos.)



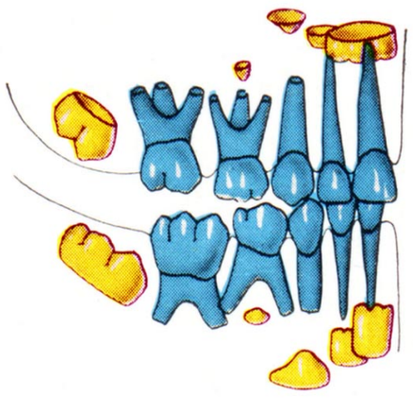
9 mos.
(±2 mos.)



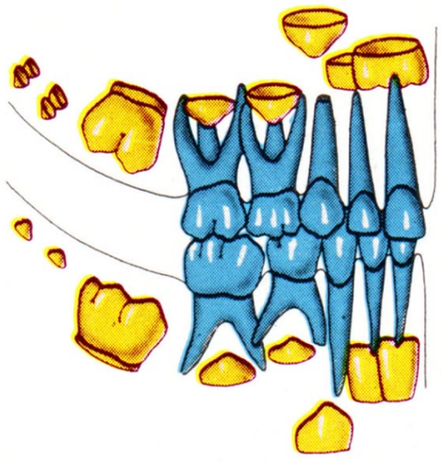
1 year
(± 3 mos.)



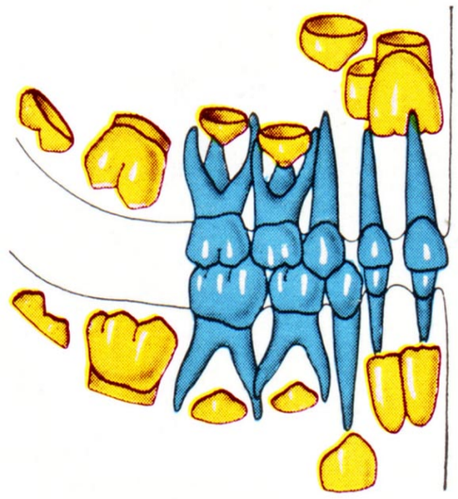
18 mos.
(± 3 mos.)



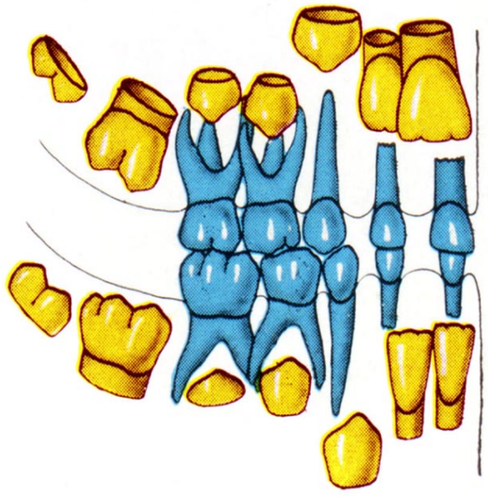
2 years
(± 6 mos.)



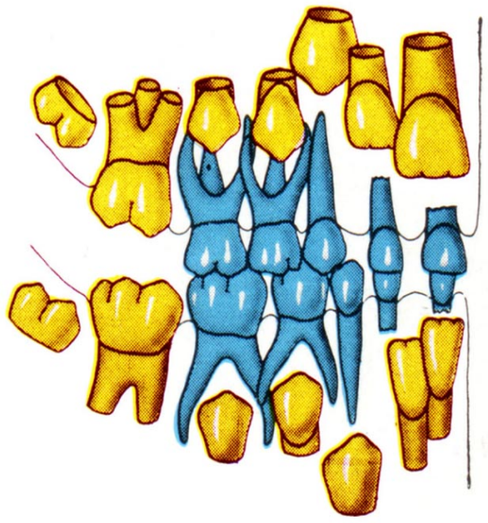
3 years
(± 6 mos.)



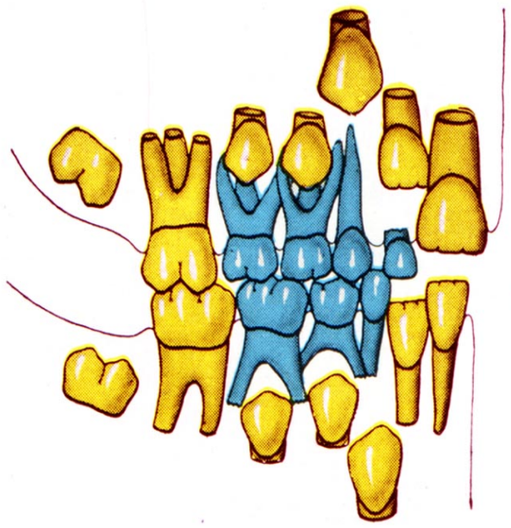
4 years
(± 9 mos.)



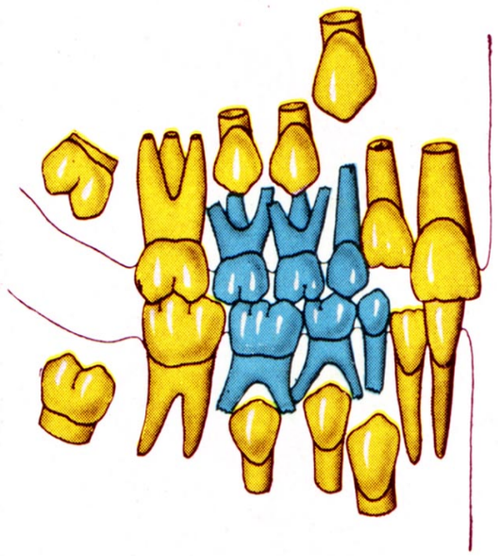
5 years
(± 9 mos.)



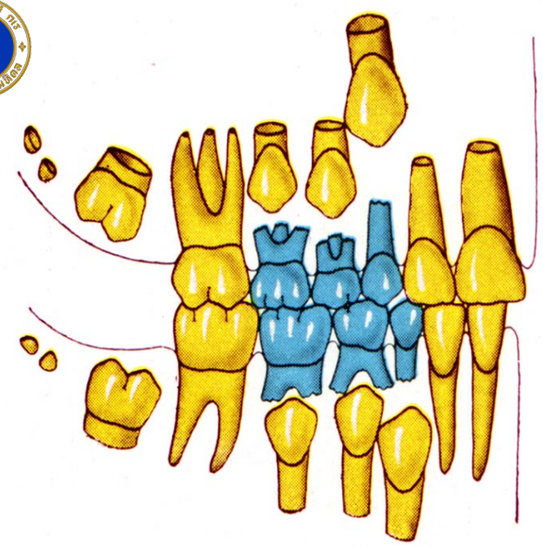
6 years
(± 9 mos.)



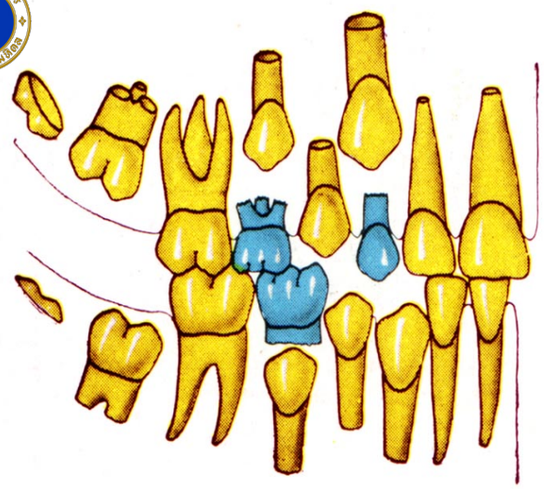
7 years
(± 9 mos.)



8 years
(± 9 mos.)



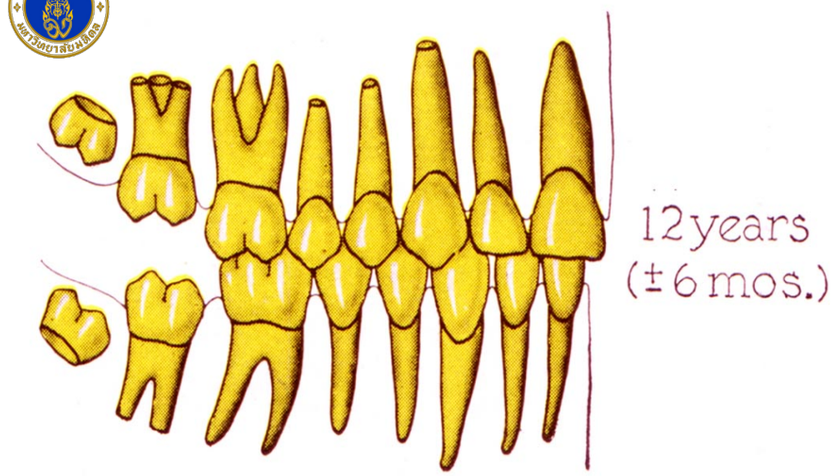
9 years
(± 9 mos.)



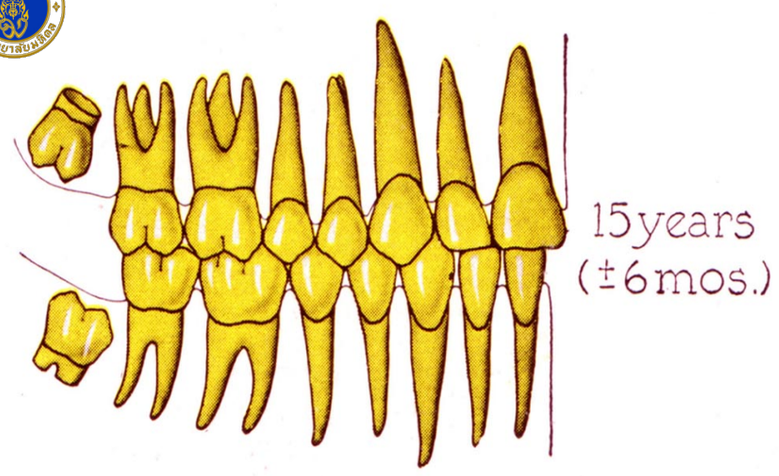
10 years
(± 9 mos.)



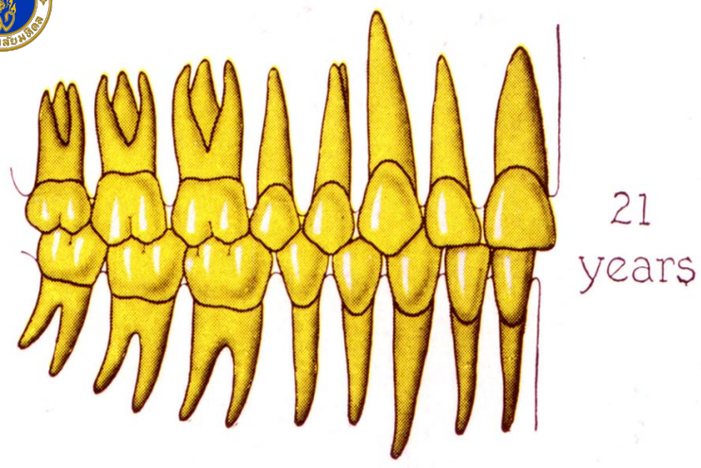
11 years
(± 9 mos.)



12 years
(± 6 mos.)

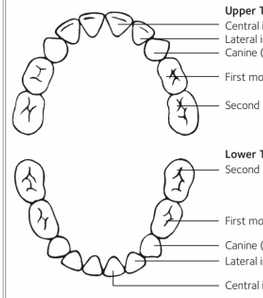


15 years
(± 6 mos.)



21
years

Primary Tooth Development

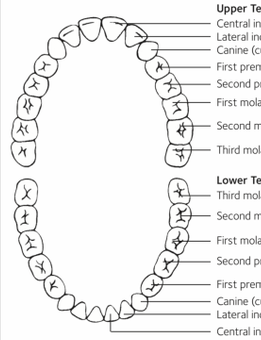


Upper Teeth	Erupt	Shed
Central incisor	8–12 mos.	6–7 yrs.
Lateral incisor	9–13 mos.	7–8 yrs.
Canine (cuspid)	16–22 mos.	10–12 yrs.
First molar	13–19 mos.	9–11 yrs.
Second molar	25–33 mos.	10–12 yrs.

Lower Teeth	Erupt	Shed
Second molar	23–31 mos.	10–12 yrs.
First molar	14–18 mos.	9–11 yrs.
Canine (cuspid)	17–23 mos.	9–12 yrs.
Lateral incisor	10–16 mos.	7–8 yrs.
Central incisor	6–10 mos.	6–7 yrs.

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Permanent Tooth Development



Upper Teeth	Erupt
Central incisor	7–8 yrs.
Lateral incisor	8–9 yrs.
Canine (cuspid)	11–12 yrs.
First premolar (first bicuspid)	10–11 yrs.
Second premolar (second bicuspid)	10–12 yrs.
First molar	6–7 yrs.
Second molar	12–13 yrs.
Third molar (wisdom tooth)	17–21 yrs.

Lower Teeth	Erupt
Third molar (wisdom tooth)	17–21 yrs.
Second molar	11–13 yrs.
First molar	6–7 yrs.
Second premolar (second bicuspid)	11–12 yrs.
First premolar (first bicuspid)	10–12 yrs.
Canine (cuspid)	9–10 yrs.
Lateral incisor	7–8 yrs.
Central incisor	6–7 yrs.

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ANY
QUESTION ?