Unit B: Diagnostic Procedures

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Orthodontic Seminar

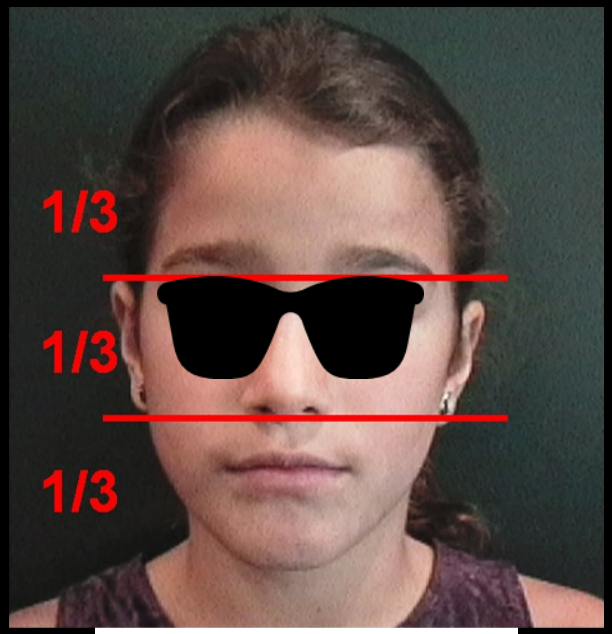
- Part 1. Dentofacial Proportions
- Part 2. Principles of Cephalometric Analysis
- Part 3. Space Analysis
- Part 4. Systematic Description of Malocclusion

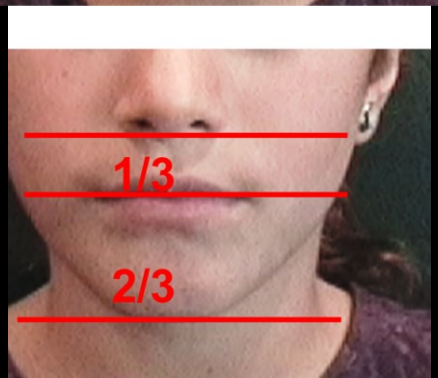
Part 1. Dentofacial Proportions

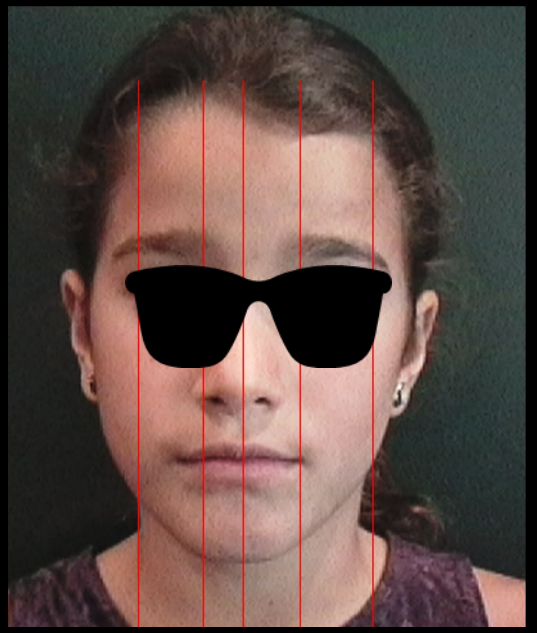
Be sure that you are able to:

1. Describe ideal dentofacial proportions from the full face aspect, indicating the role of symmetry and the relationship of the width of upper to lower face characteristics.
2. Describe ideal dentofacial proportions from the lateral aspect, indicating the a-p and vertical relationships of the upper, mid and lower face.
3. Describe the method and objectives of facial form analysis.
4. Discuss the limitations of facial form analysis.
5. Carry out a facial form analysis.

1. Describe ideal dentofacial proportions from the full face aspect, indicating the role of symmetry and the relationship of the width of upper to lower face characteristics.







2. Describe ideal dentofacial proportions from the lateral aspect, indicating the a-p and vertical relationships of the upper, mid and lower face.

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Long face height

Short face height

3. Describe the method and objectives of facial form analysis.

4. Discuss the limitations of facial form analysis.

- Soft tissue variation
- Ethnicity

5. Carry out a facial form analysis

Part 2. Principles of Cephalometric Analysis

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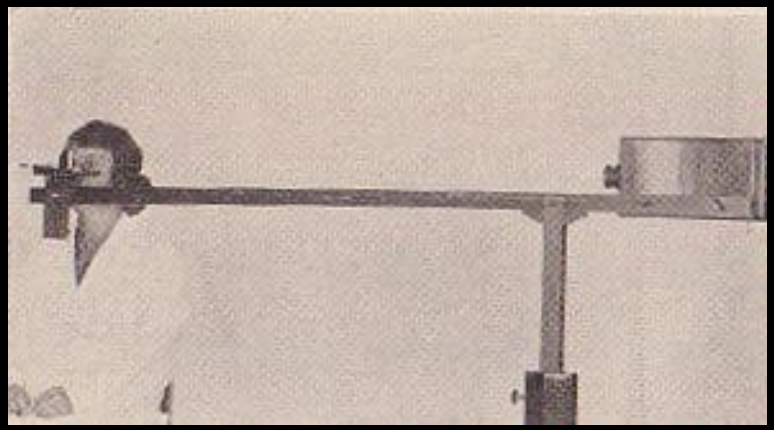
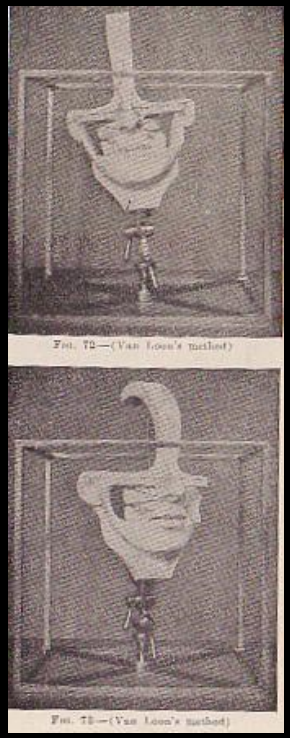
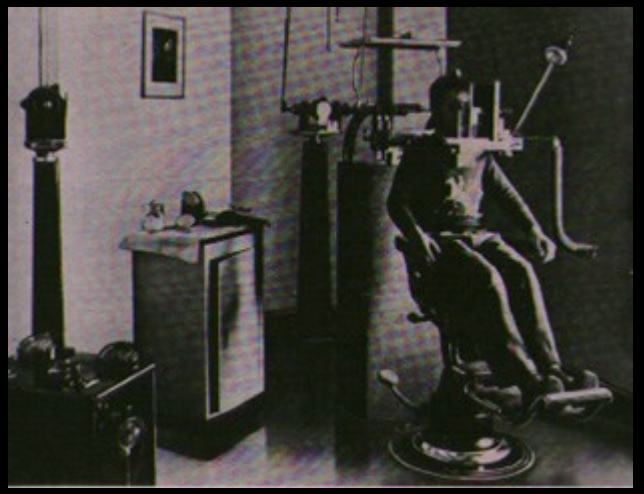
Be sure that you are able to:

1. Discuss the background for the development of cephalometric radiography in orthodontics.
2. Identify the two major uses of cephalometric radiographs in orthodontics.
3. Given a cephalometric radiograph, identify and trace landmarks necessary to properly outline and evaluate the position of (a) cranial base, (b) skeletal maxilla, (c) maxillary dentition, (d) skeletal mandible and (e) mandibular dentition.
4. Given a cephalometric tracing, evaluate whether the incisor teeth are retrusive, positioned properly or protrusive relative to their supporting bone.
5. Given a cephalometric tracing, evaluate the antero-posterior and vertical relationships of the jaws to the cranial base and to each other.
6. Compare and contrast the measurement analysis and template analysis methods of evaluating cephalometric radiographs.
7. Given an initial and progress or final cephalometric tracing, complete an overall superimposition and maxillary and mandibular superimpositions, producing a composite tracing.
8. Given a composite cephalometric tracing, describe the changes evident in the tracing and relate them to growth or treatment.

1. Discuss the background for the development of cephalometric radiography in orthodontics.



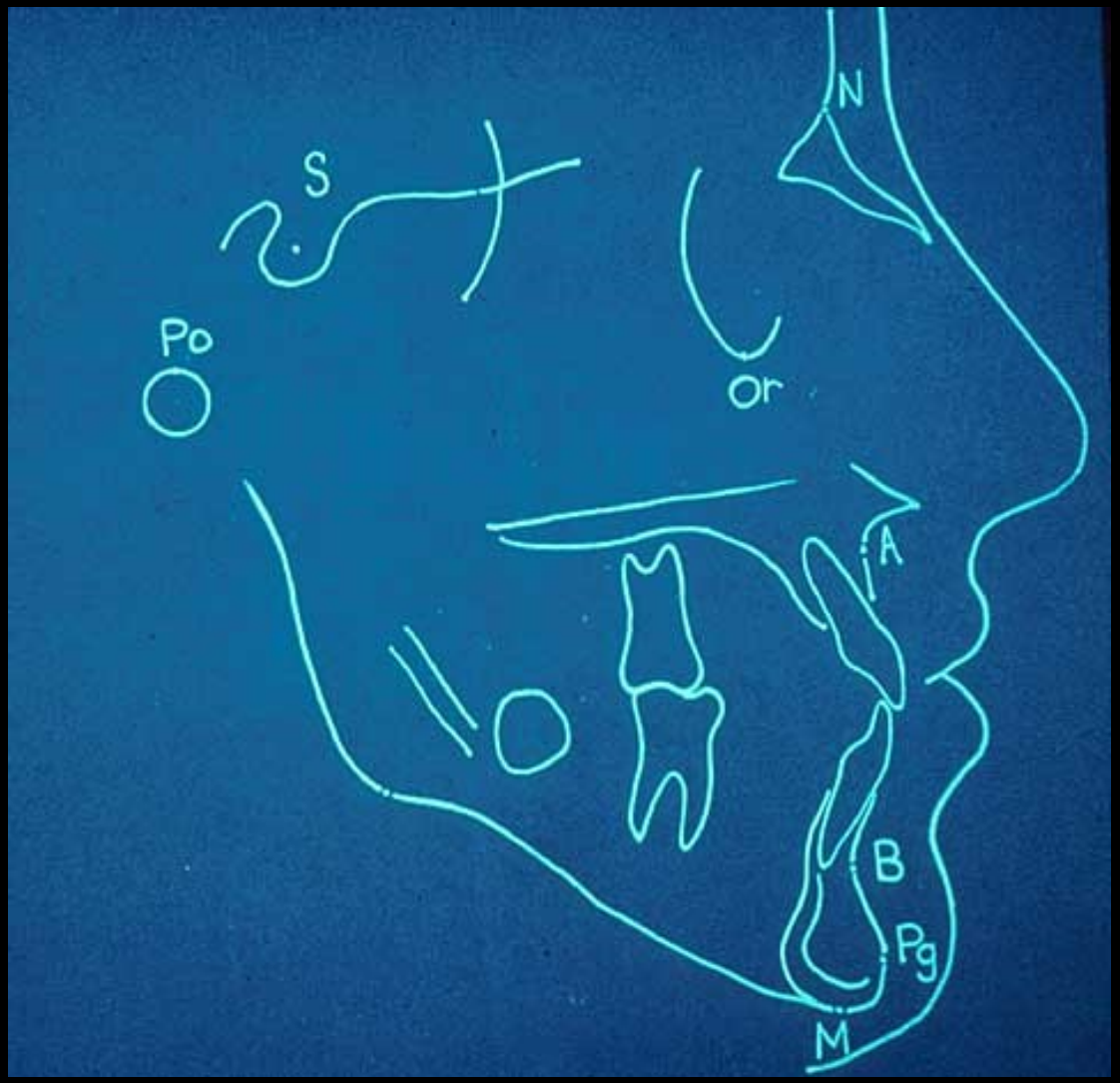




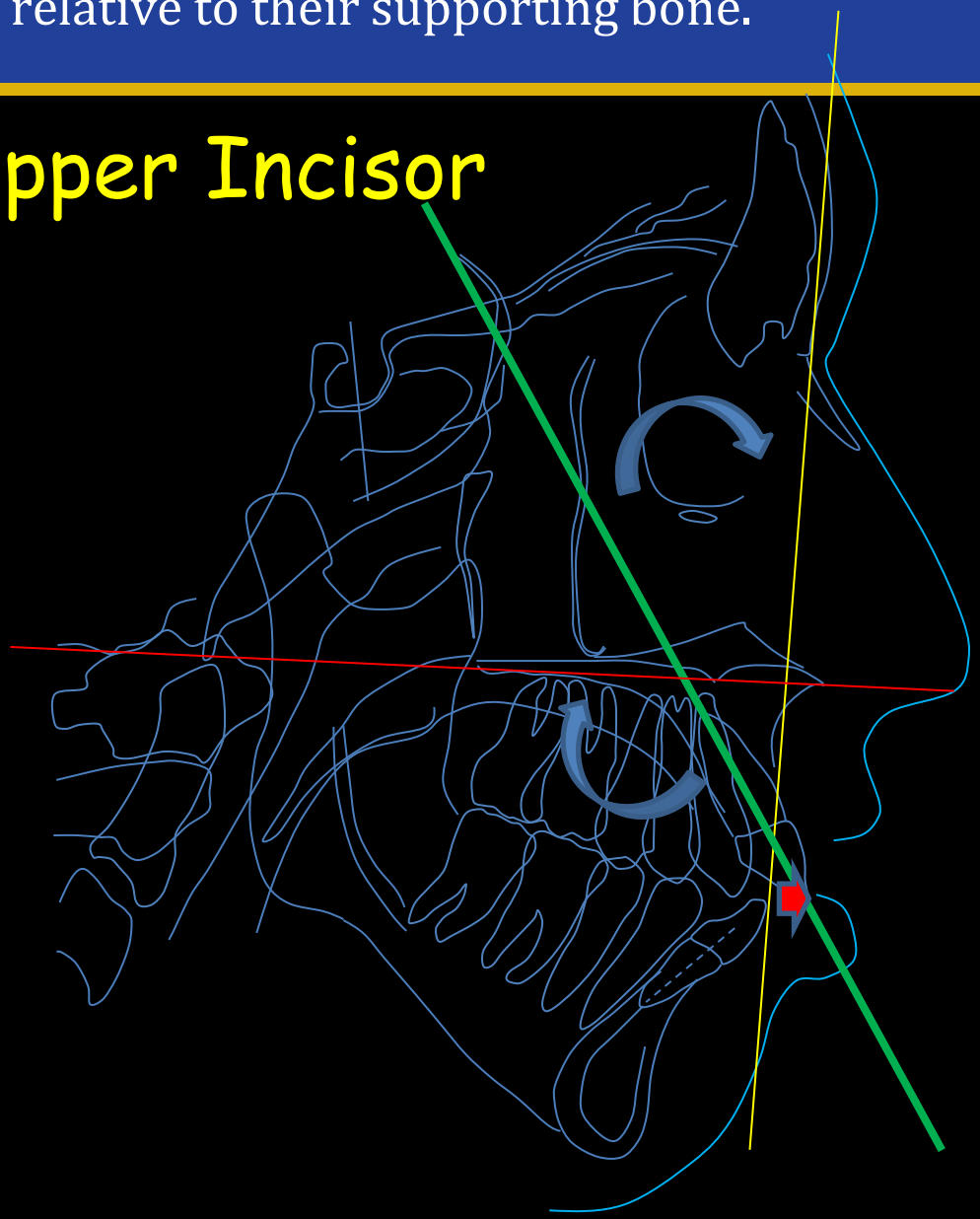
2. Identify the two major uses of cephalometric radiographs in orthodontics.

- Diagnosis
- Growth and treatment effects

3. Given a cephalometric radiograph, identify and trace landmarks necessary to properly outline and evaluate the position of (a) cranial base, (b) skeletal maxilla, (c) maxillary dentition, (d) skeletal mandible and (e) mandibular dentition.



4. Given a cephalometric tracing, evaluate whether the incisor teeth are retrusive, positioned properly or protrusive relative to their supporting bone.



1-NA
1-NA (mm)
1-ANS-PNS

4. Given a cephalometric tracing, evaluate whether the incisor teeth are retrusive, positioned properly or protrusive relative to their supporting bone.

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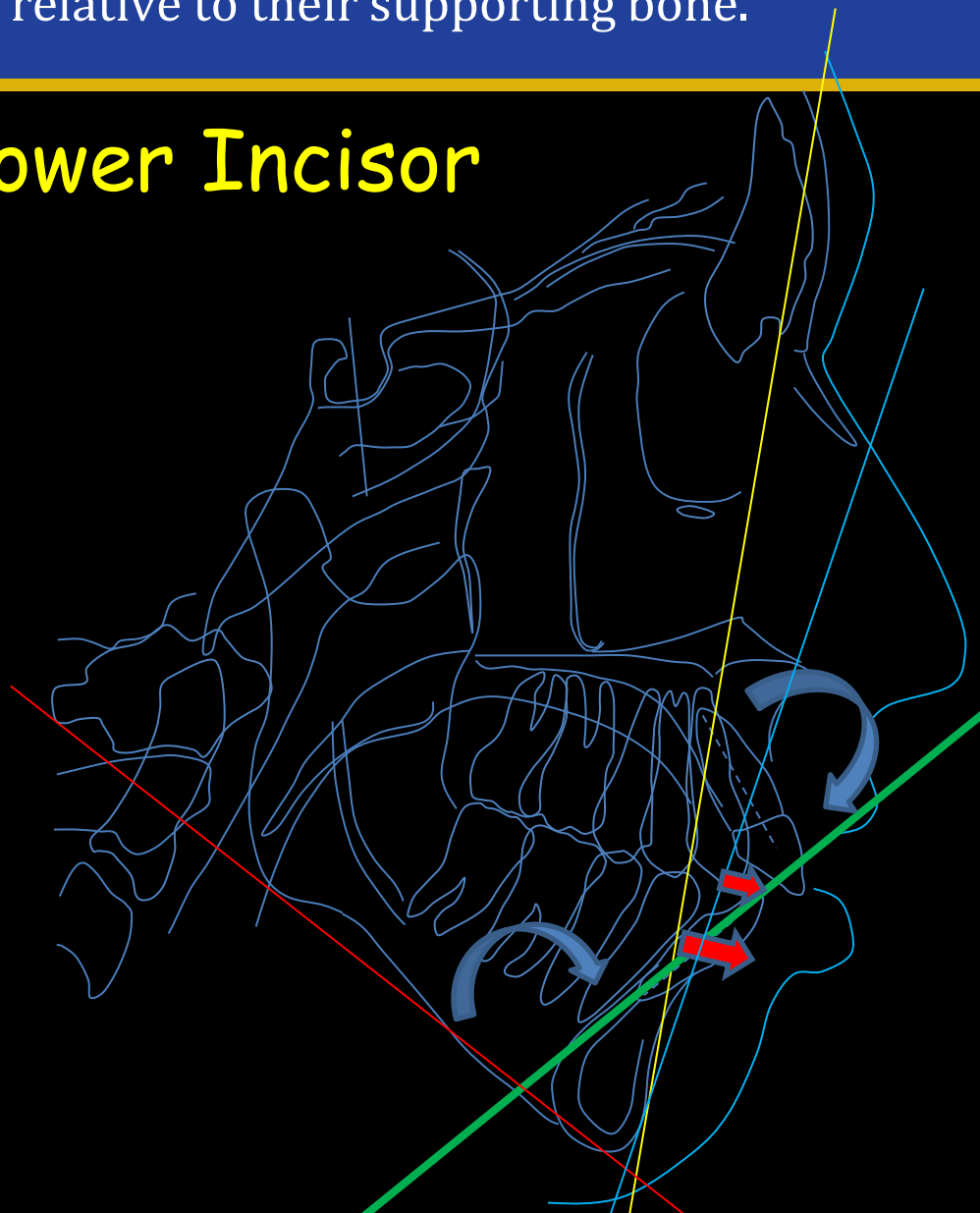
Lower Incisor



1-NB
1-NB (mm)
1-MP
1-Apog (mm)

4. Given a cephalometric tracing, evaluate whether the incisor teeth are retrusive, positioned properly or protrusive relative to their supporting bone.

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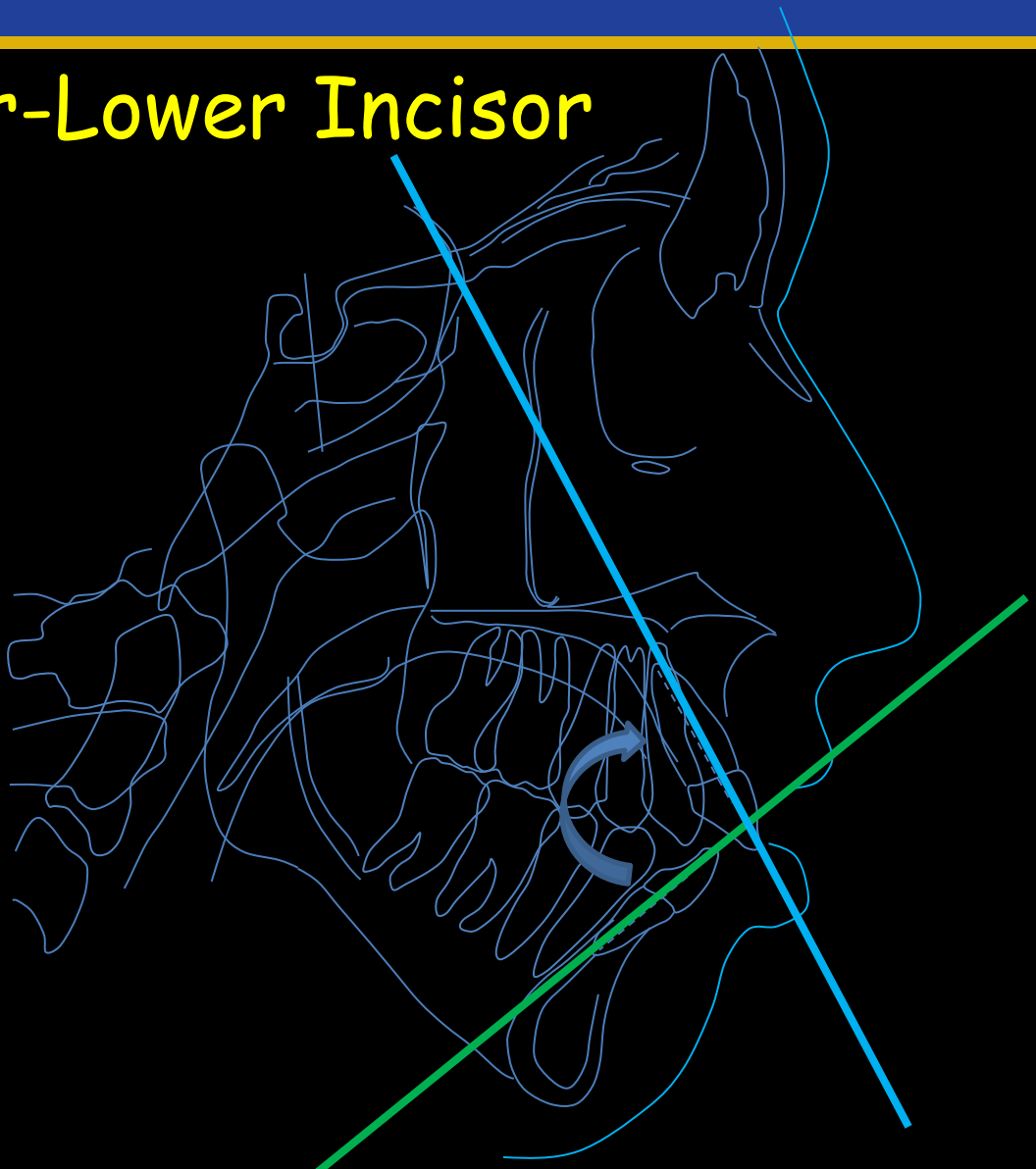
Upper-Lower Incisor



5. Given a cephalometric tracing, evaluate the antero-posterior and vertical relationships of the jaws to the cranial base and to each other.

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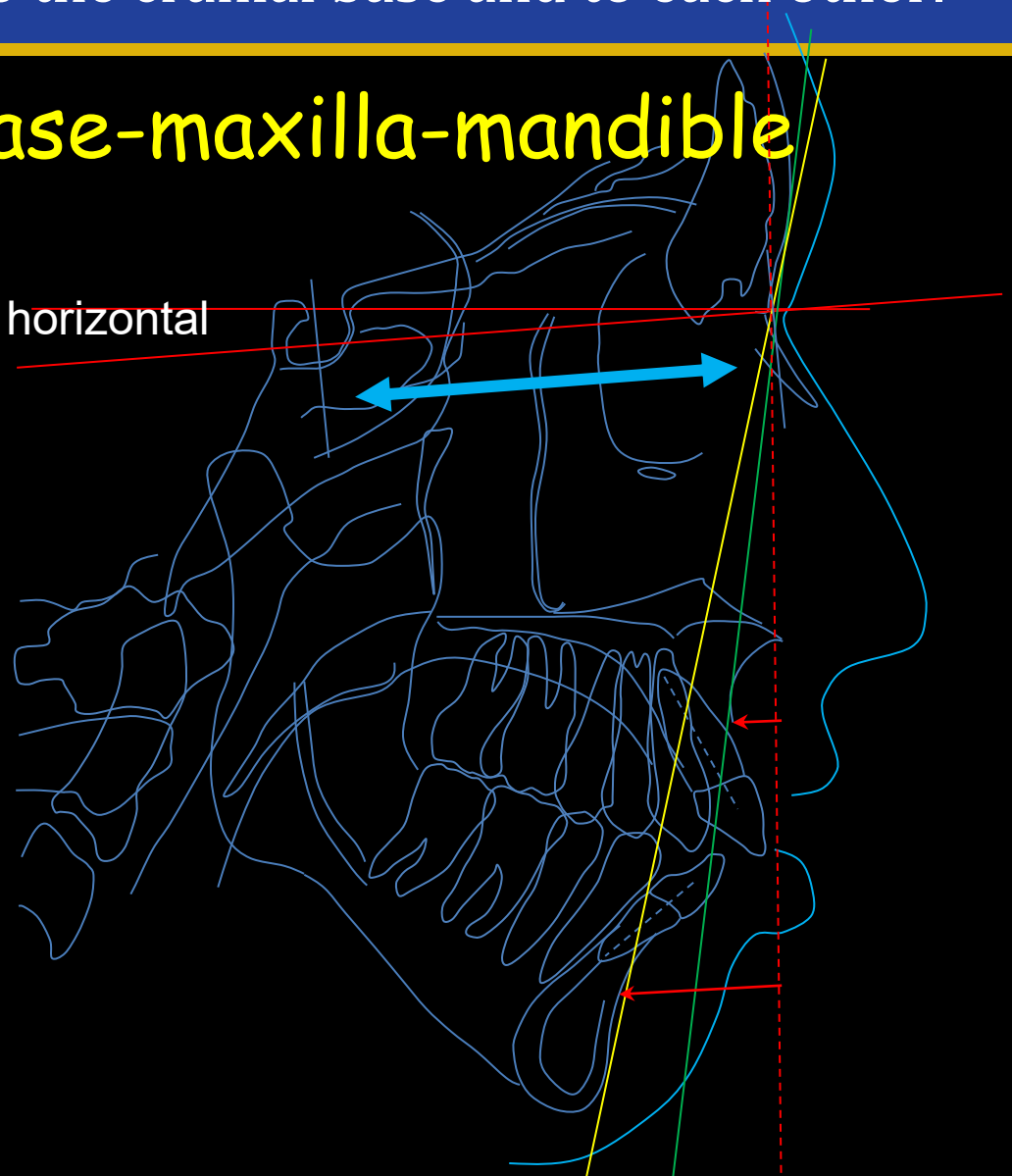
Cranial Base-maxilla-mandible



H-NA
SN-H
SN-A
SN-B
ANB
SN-Pog

A-B Dist
SN length

5. Given a cephalometric tracing, evaluate the antero-posterior and vertical relationships of the jaws to the cranial base and to each other.

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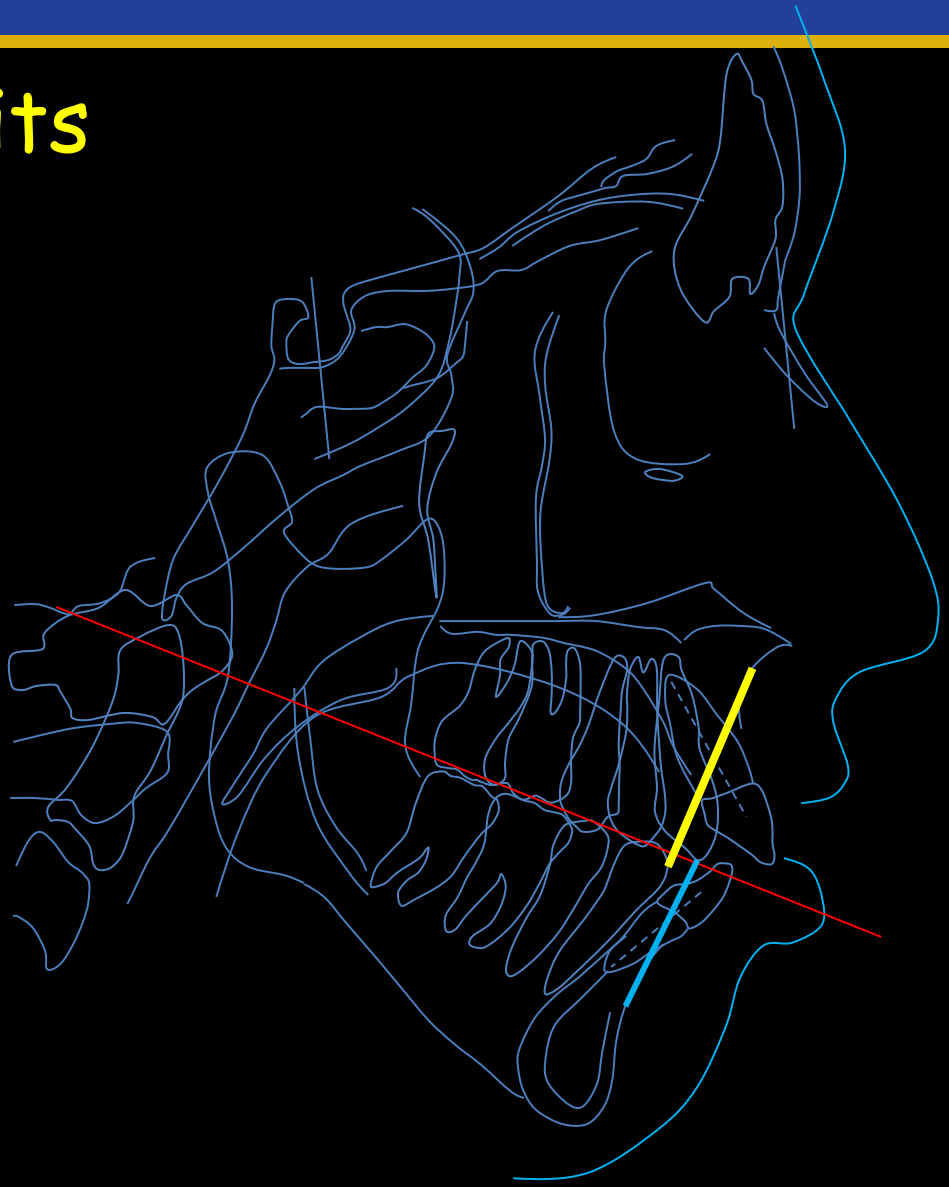
Wits



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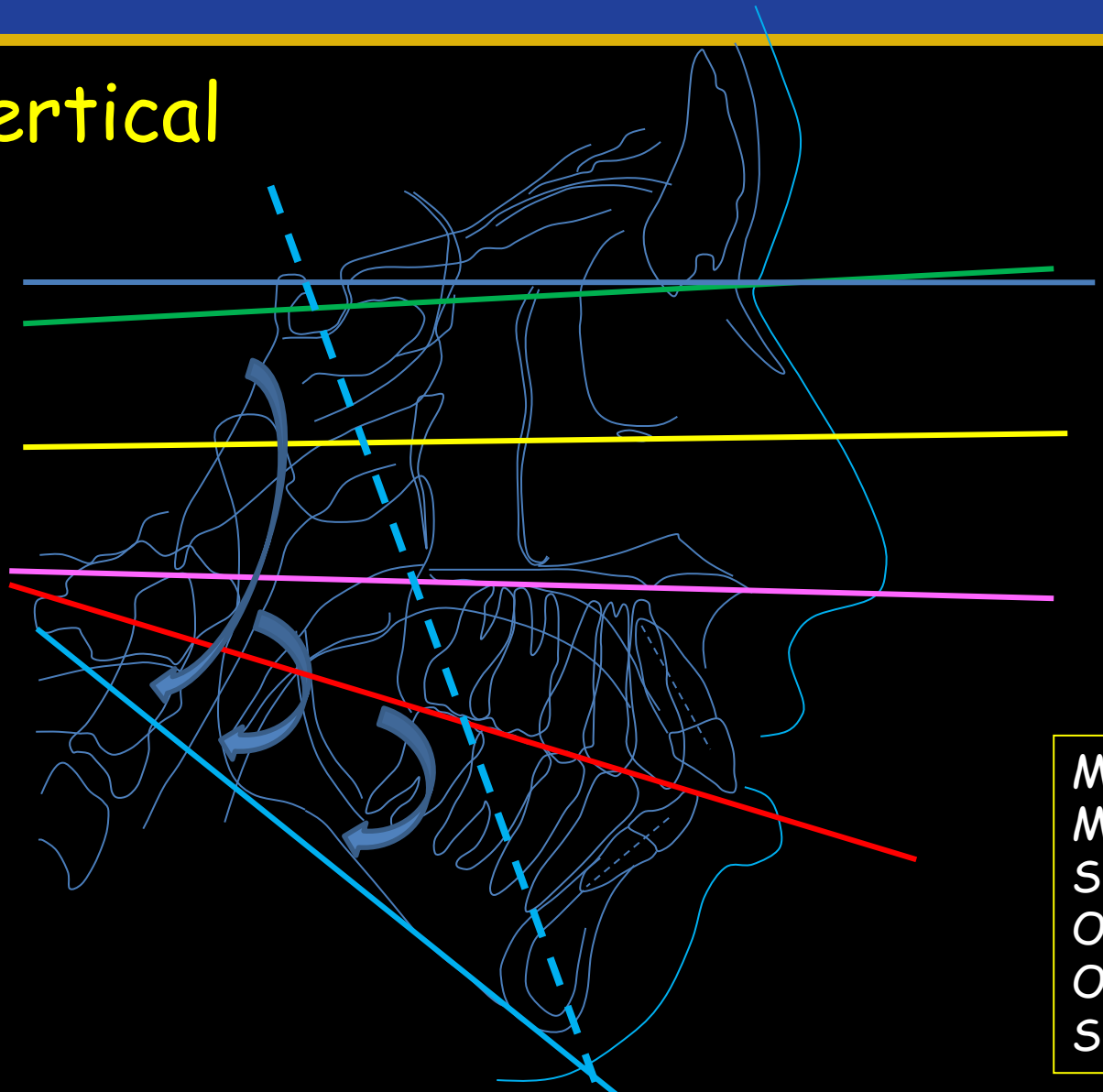
Vertical



MX-H
MX-MP
SN-MP
OP-SN
OP-MP
SGn-FH

5. Given a cephalometric tracing, evaluate the antero-posterior and vertical relationships of the jaws to the cranial base and to each other.

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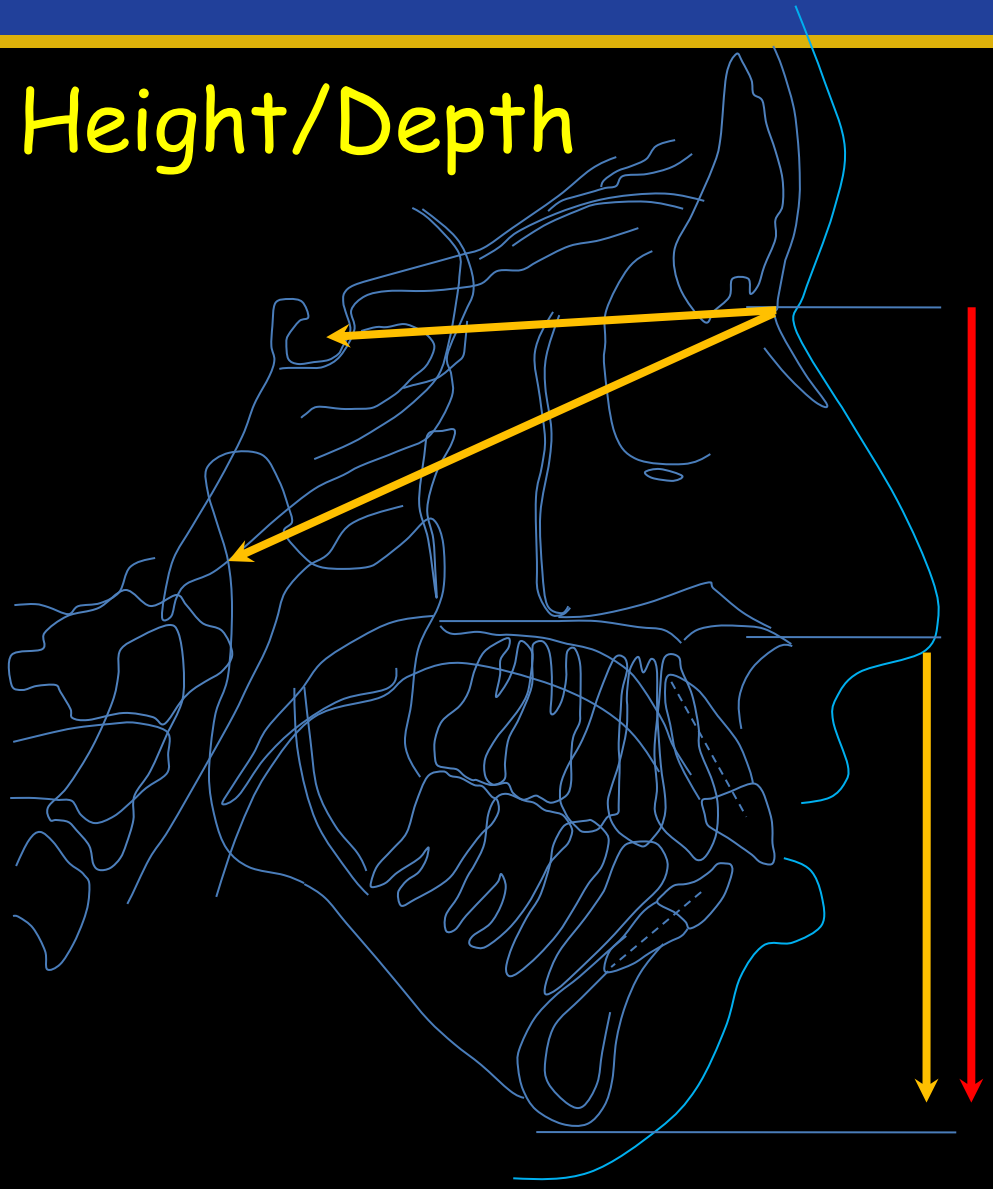
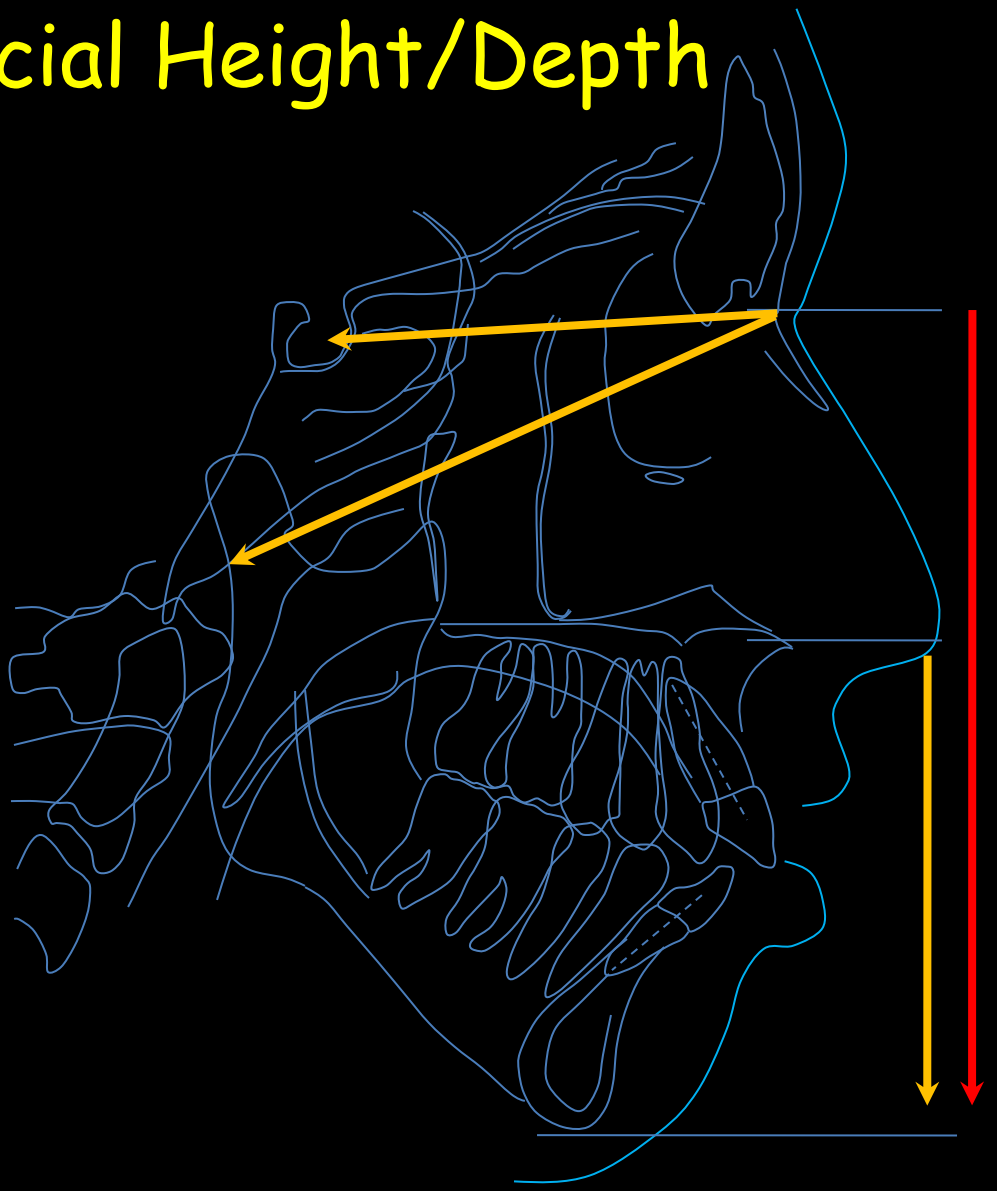
Facial Height/Depth



LFH-TotFH
Nart-TotFH
NS-TotFH

Facial Height/Depth



LFH-TotFH
Nart-TotFH
NS-TotFH

6. Compare and contrast the measurement analysis and template analysis methods of evaluating cephalometric radiographs.

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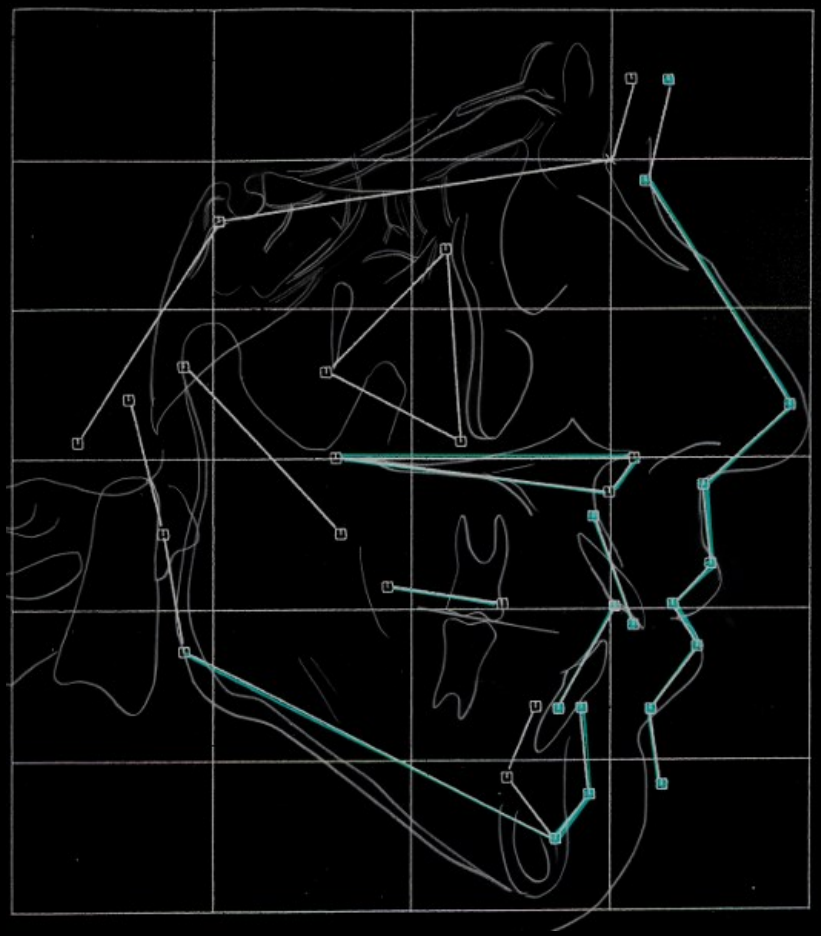
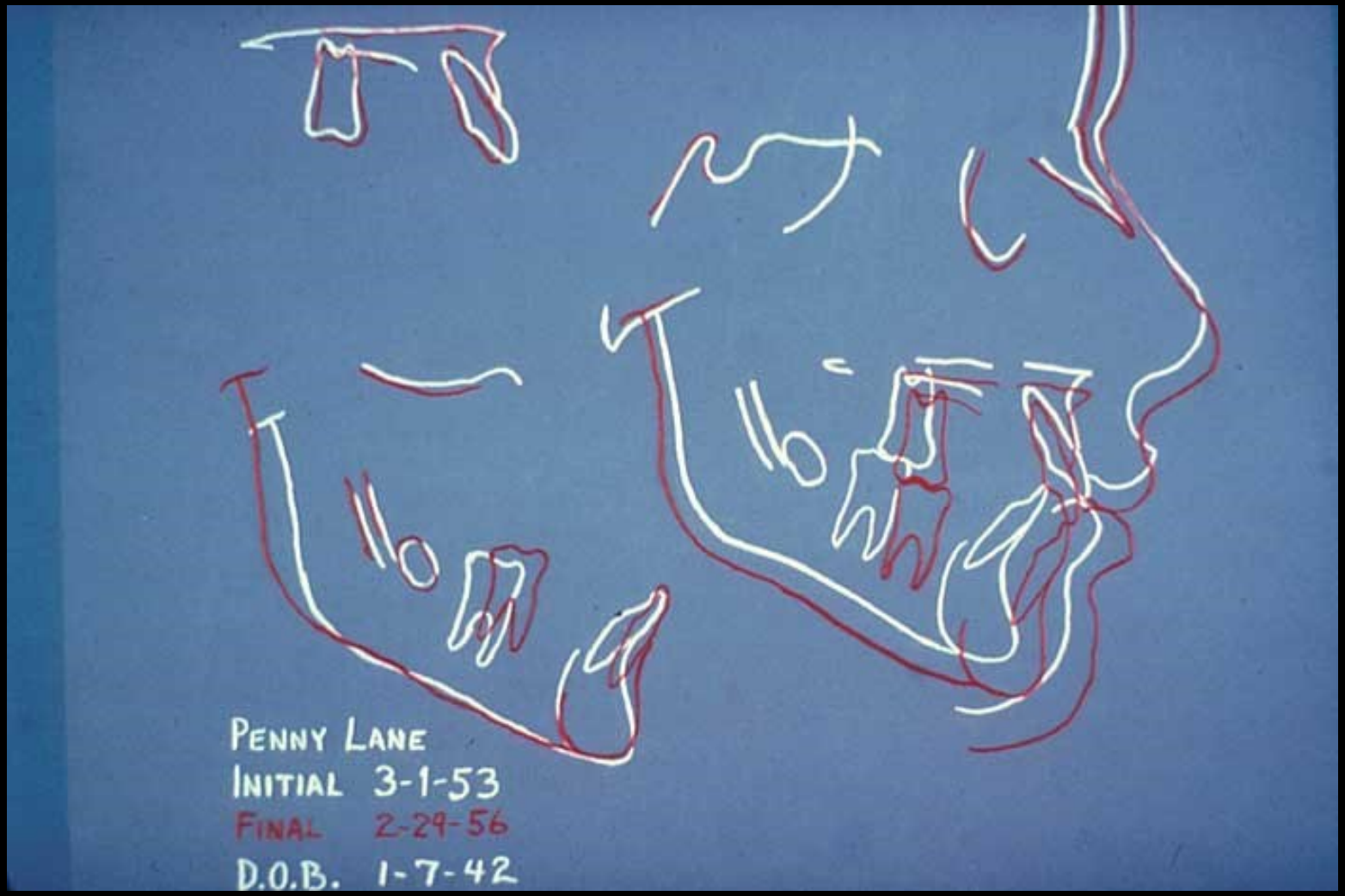
Cranial Base-maxilla-mandible

H-NA
SN-H
SN-A
SN-B
ANB
SN-Pog

A-B Dist
SN length



7. Given an initial and progress or final cephalometric tracing, complete an overall superimposition and maxillary and mandibular superimpositions, producing a composite tracing.



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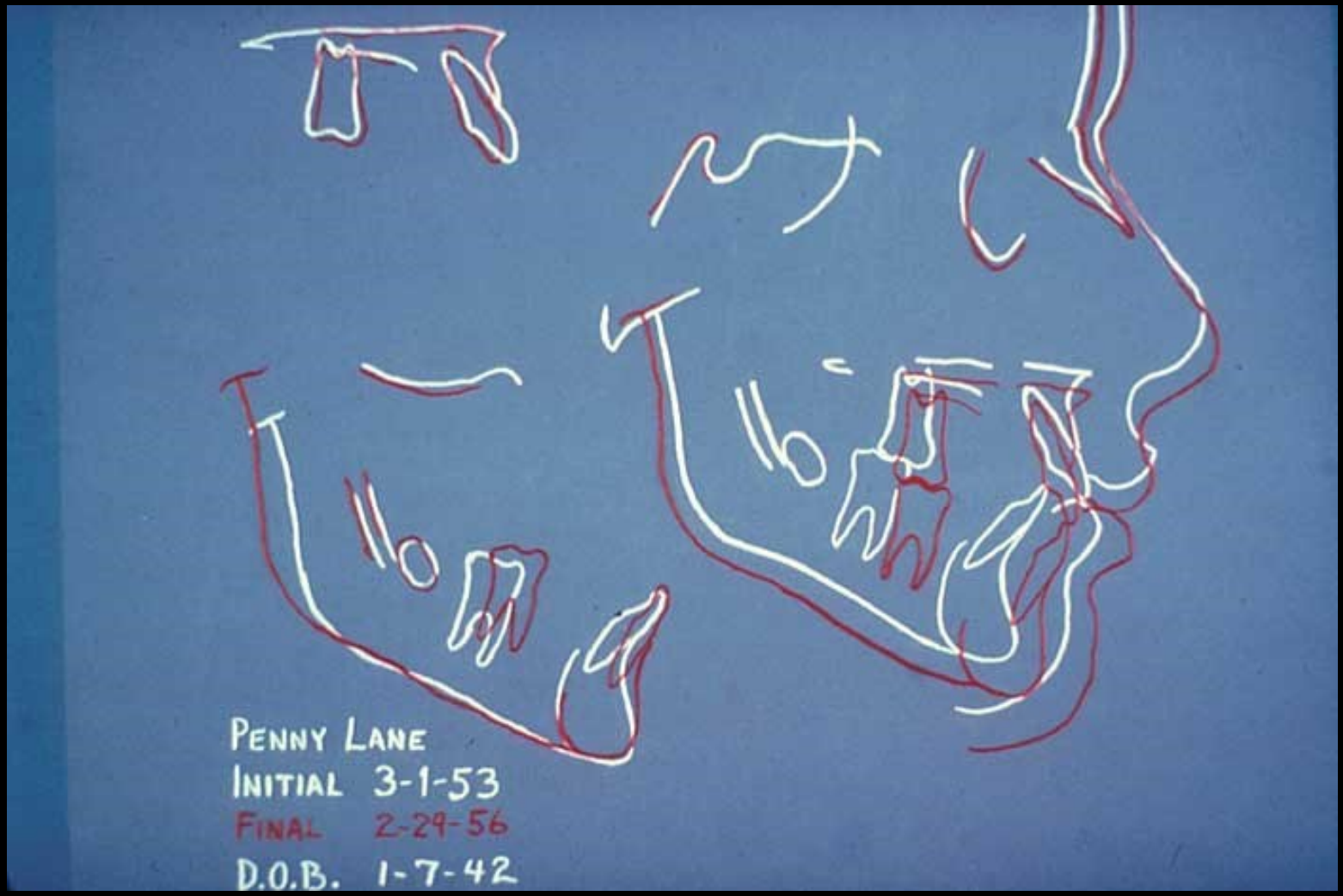


Part 3. Space Analysis

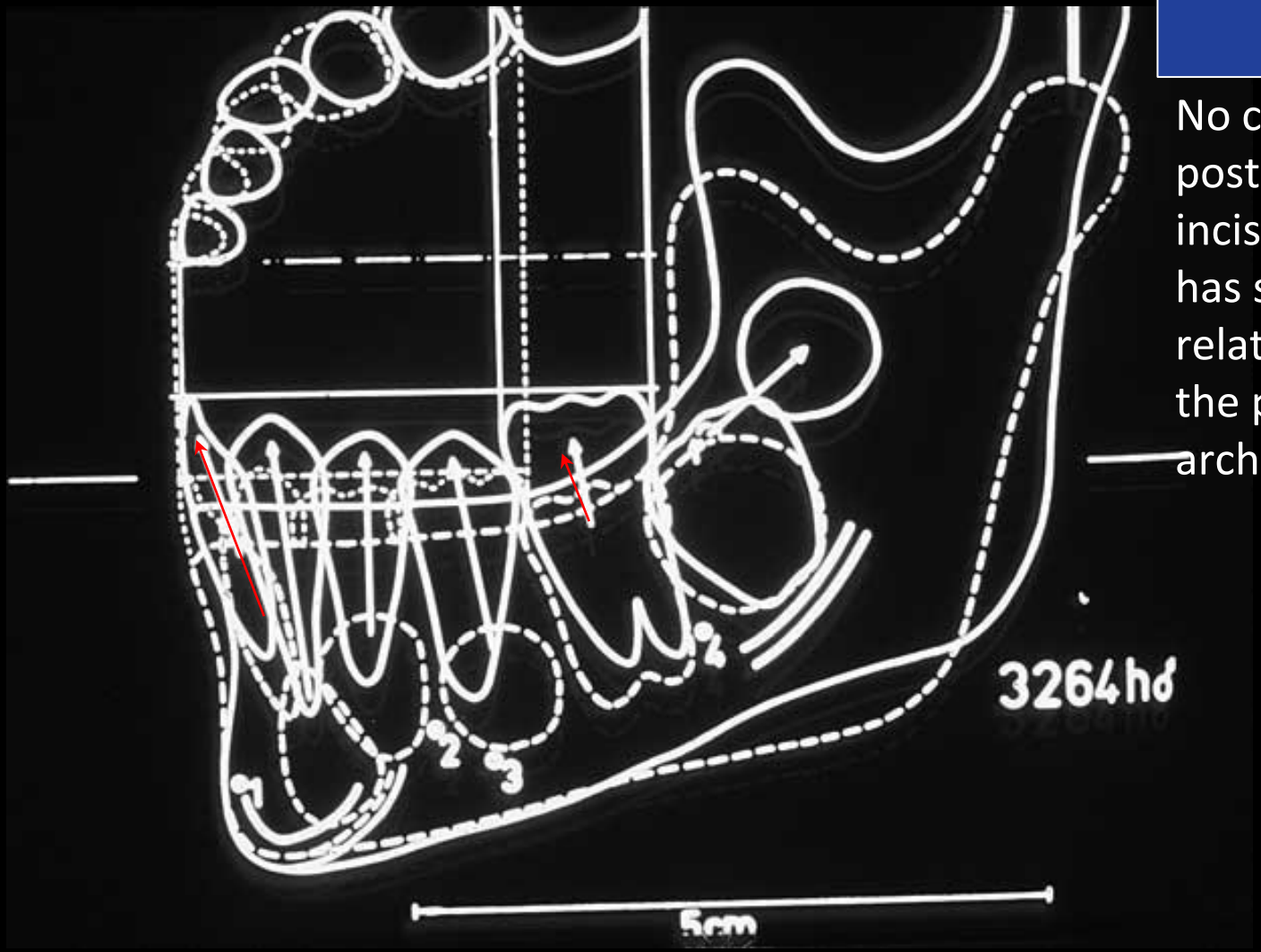
Be sure that you are able to:

1. Identify the four major assumptions about growth and development on which space analysis is based.
2. Discuss the rationale for expecting decreased accuracy of space analysis in children who do not have a Class I jaw relationship.
3. Identify the diagnostic materials needed to perform a space analysis.
4. Carry out a space analysis, as described in Laboratory exercise 2.
5. Indicate how you would interpret a space analysis result in a child whose facial form or cephalometric analysis indicated that the incisors were retrusive or protrusive.

1. Identify the four major assumptions about growth and development on which space analysis is based.

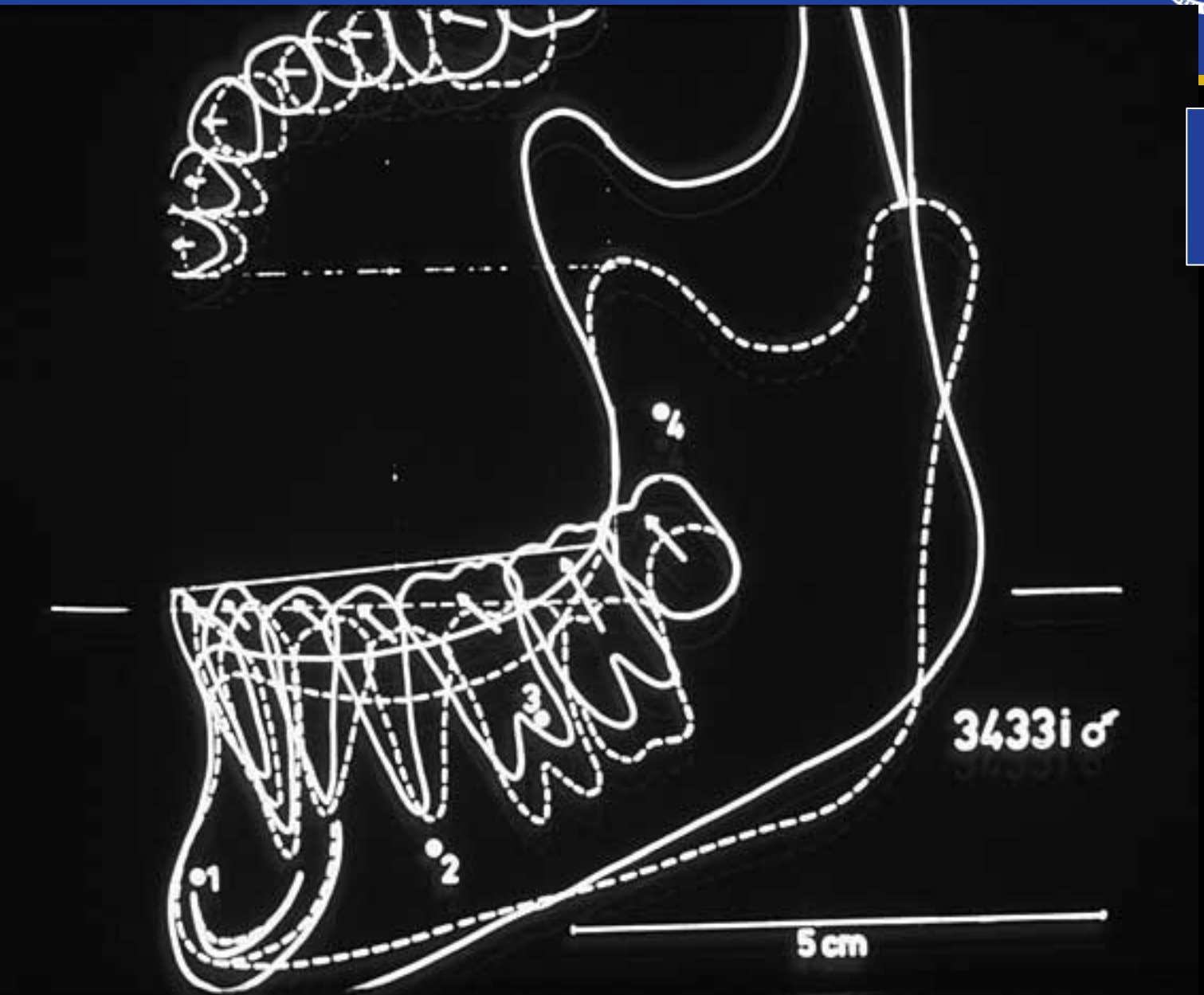
1. There is a correlation between the size of the erupted mandibular incisors and the unerupted succedaneous teeth
2. The prediction tables were valid for your patient
3. Arch dimensions do not change appreciably during growth (incisors stable)
4. The amount of mesial shift is predictable
5. All succedaneous teeth are developing normally

2. Discuss the rationale for expecting decreased accuracy of space analysis in children who do not have a Class I jaw relationship.



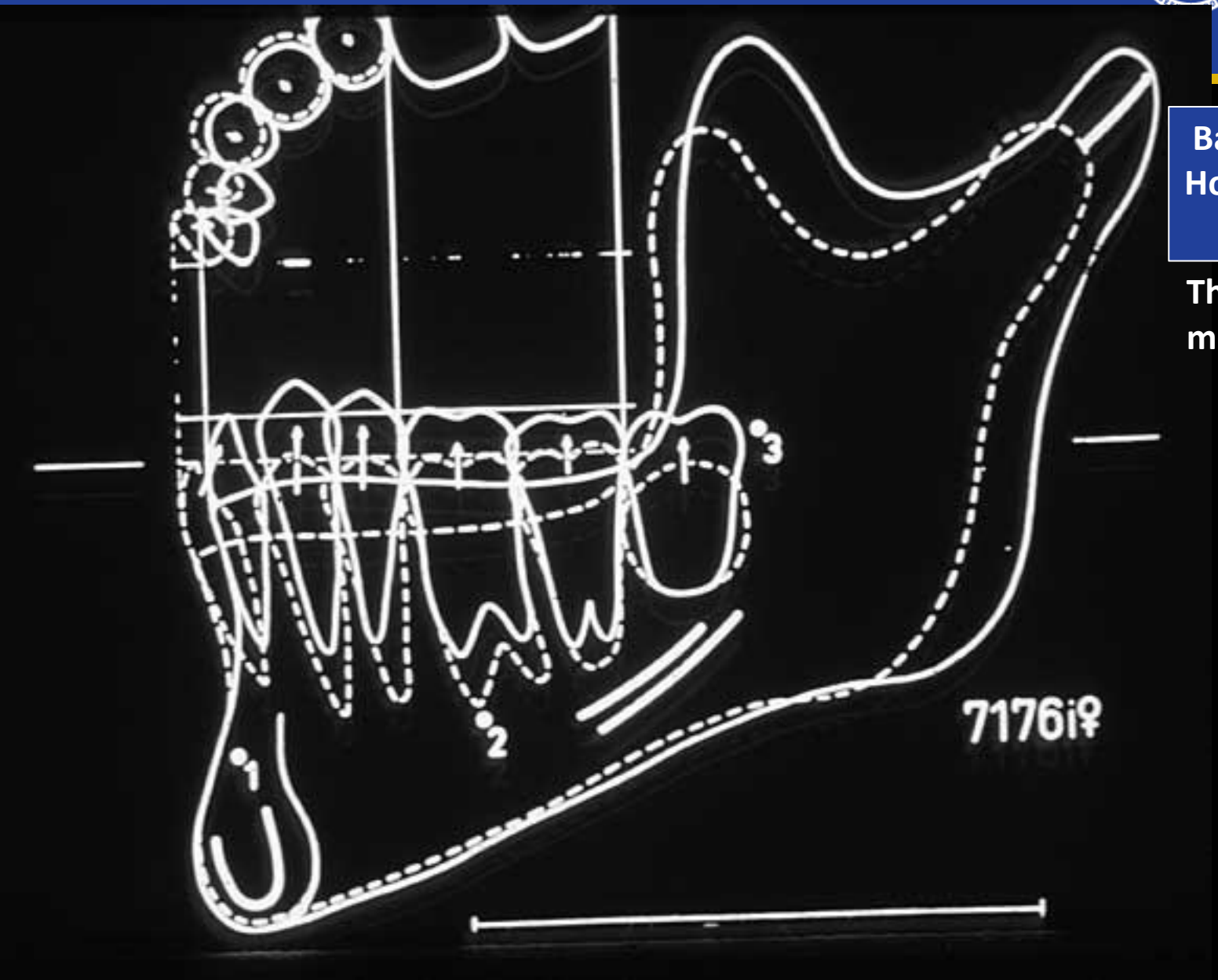
Normal Pattern

No change in antero-posterior position of incisors Permanent molar has shifted forward relative to the position of the primary molar, so that arch length is diminished.



Forward rotation
Vertical condylar growth

Think of soft tissue moulding



Backward rotation
Horizontal condylar growth

Think of soft tissue moulding

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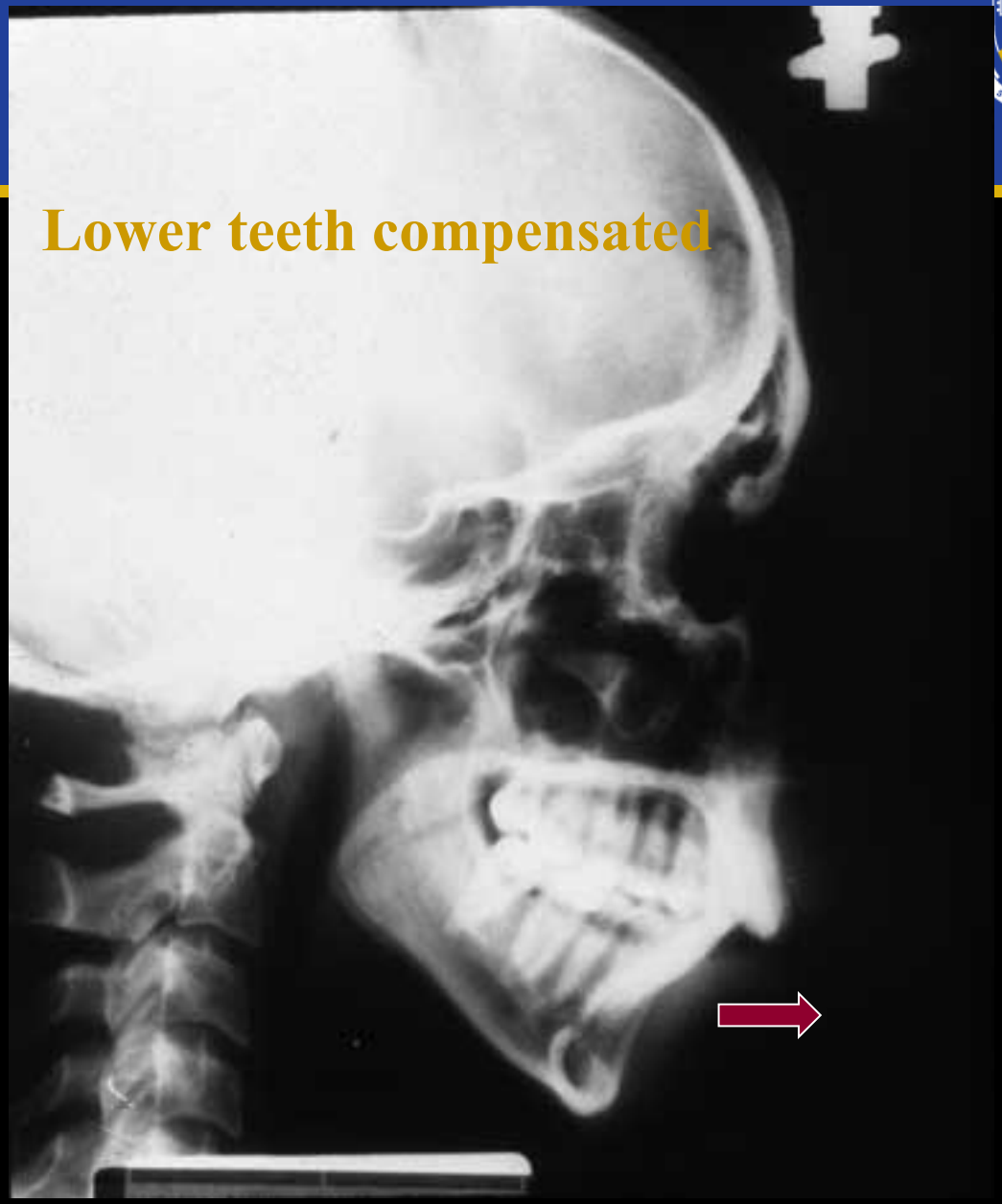
Lower teeth compensated



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3. Identify the diagnostic materials needed to perform a space analysis.

4. Carry out a space analysis, as described in Laboratory exercise 2.

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- To be done in laboratory exercise 2

5. Indicate how you would interpret a space analysis result in a child whose facial form or cephalometric analysis indicated that the incisors were retrusive or protrusive.

Part 4. Systematic Description of Malocclusion

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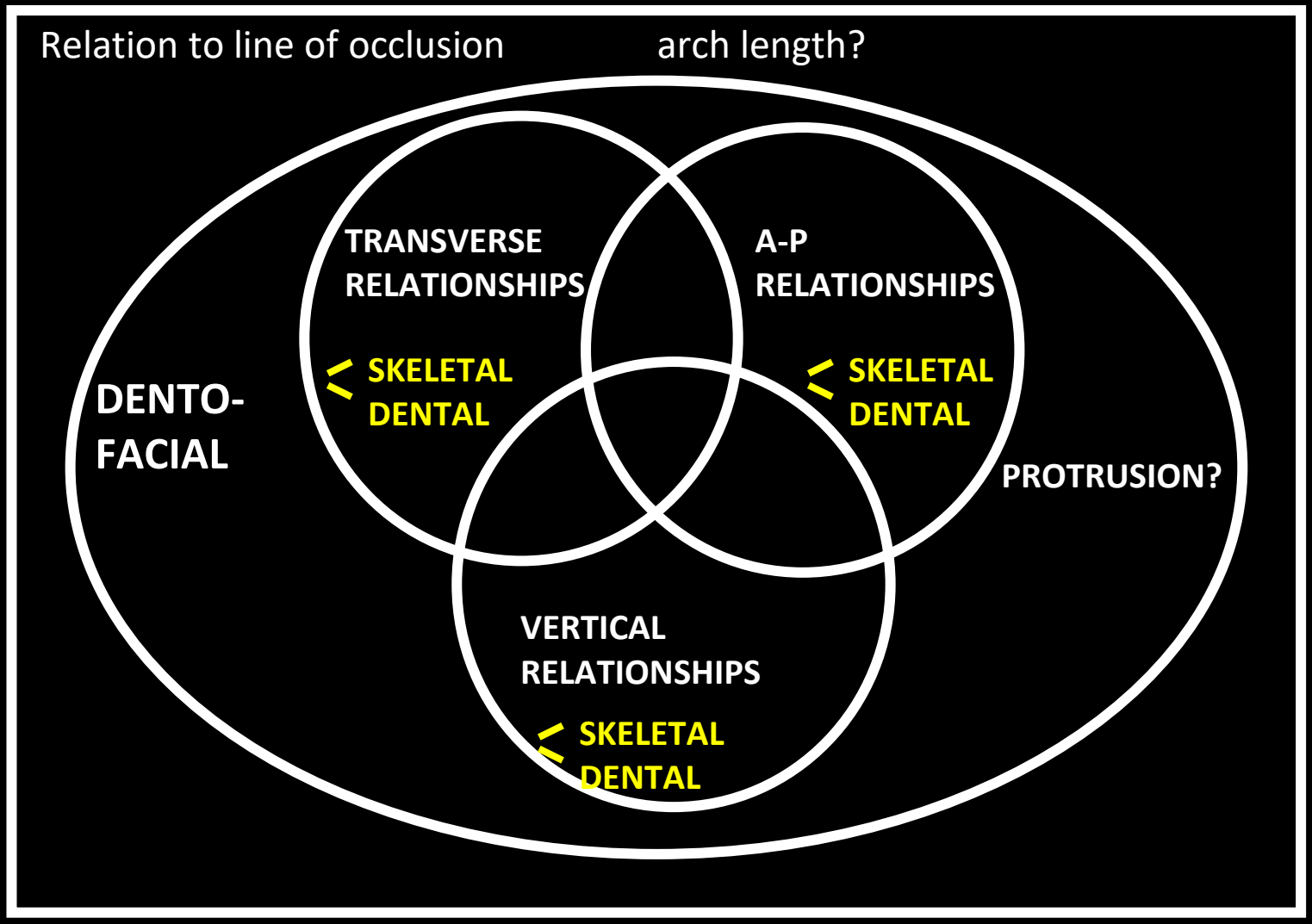
Be sure that you are able to:

1. Identify the five major characteristics of malocclusion on which systematic description is based.
2. Discuss the rationale for considering incisor crowding and incisor protrusion as being two aspects of the same thing.
3. Describe how a skeletal posterior crossbite can be differentiated from a dental crossbite.
4. Describe how a skeletal Class II or Class III malocclusion can be differentiated from a dental Class II or Class III.
5. Describe the cephalometric characteristics of a skeletal open bite and a skeletal deep bite.
6. Indicate how you would distinguish a dental anterior open bite from a skeletal open bite.

1. Identify the five major characteristics of malocclusion on which systematic description is based.



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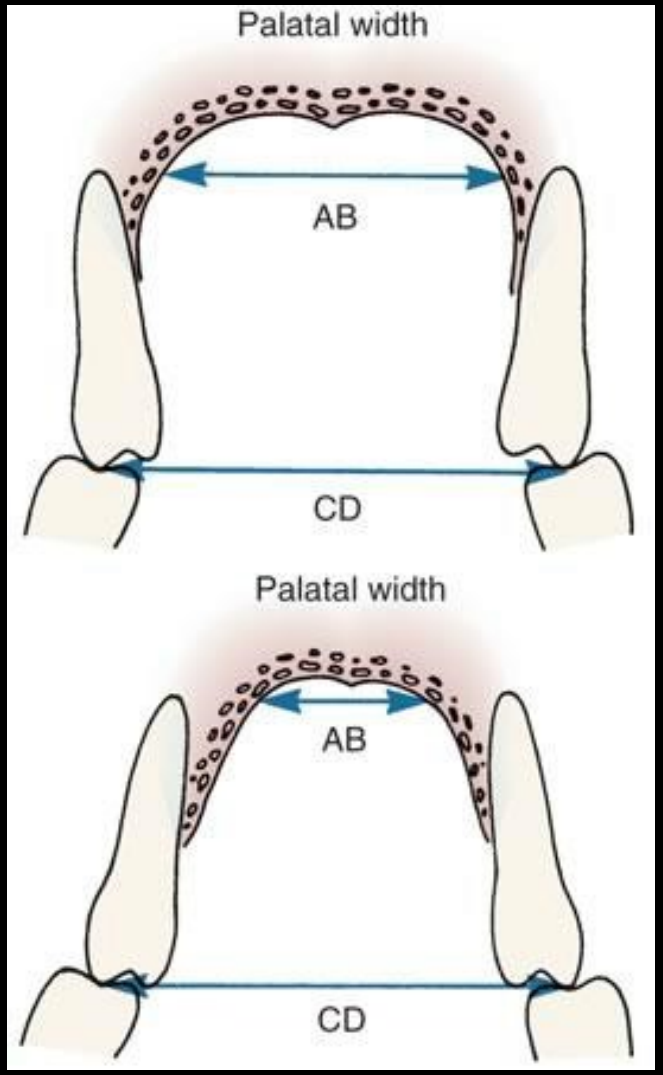
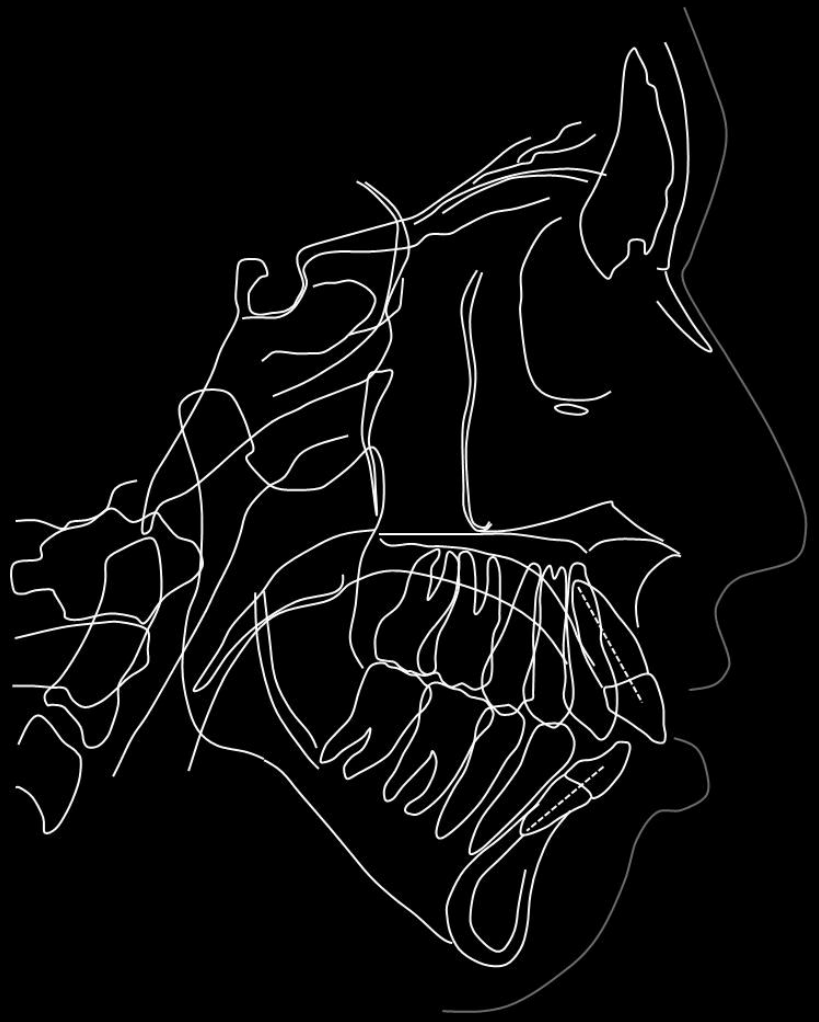
3. Describe how a skeletal posterior crossbite can be differentiated from a dental crossbite.

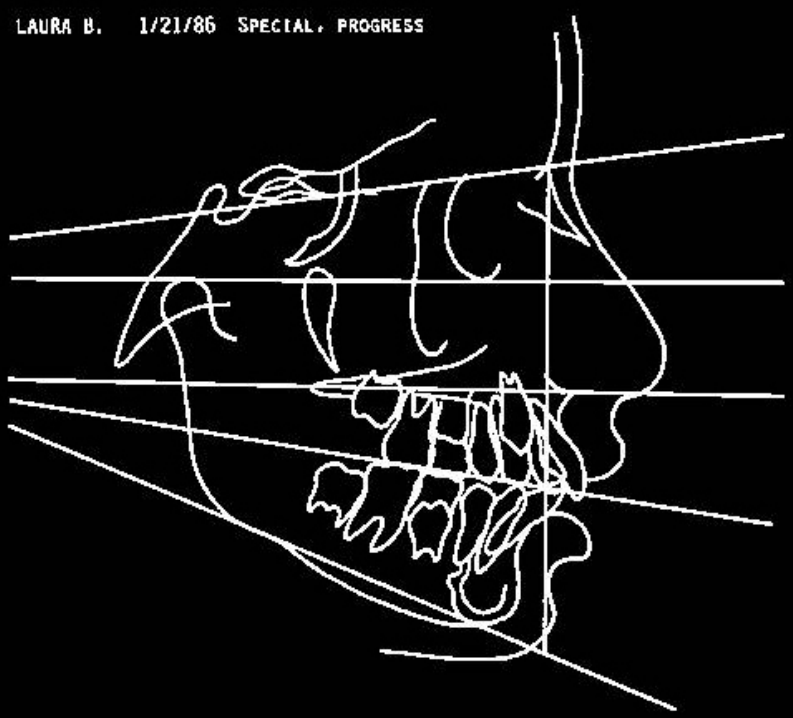
- Dental crossbite
  - Normal width of the maxilla
  - Maxillary teeth leaning lingually
- Skeletal crossbite
  - Narrow maxilla
  - Narrow palatal vault
  - Maxillary teeth leaning facially

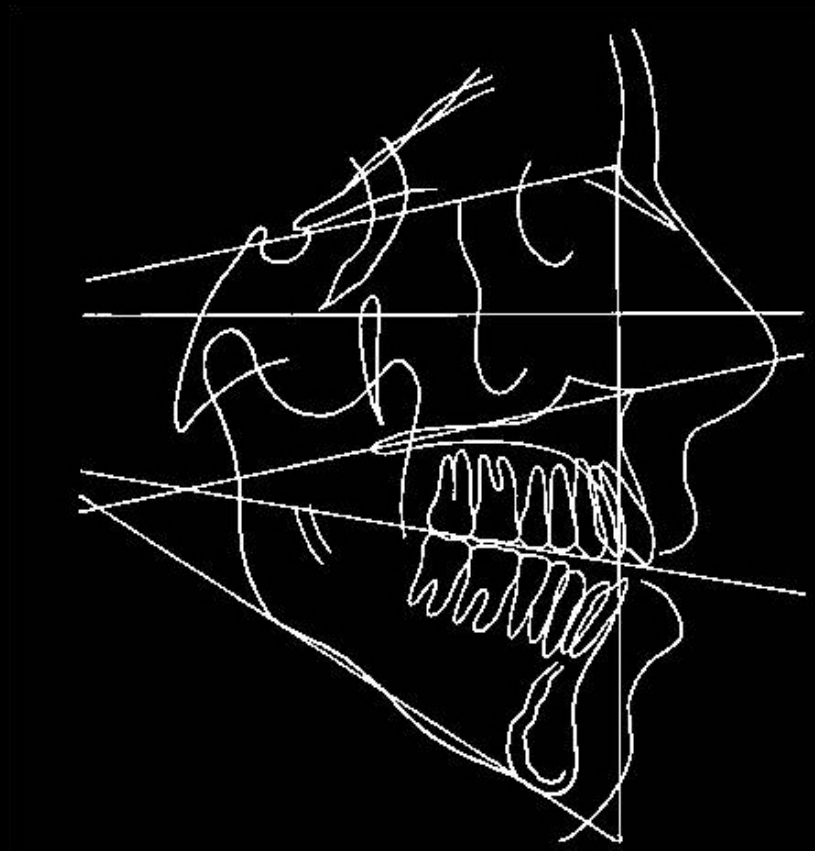


4. Describe how a skeletal Class II or Class III malocclusion can be differentiated from a dental Class II or Class III.



5. Describe the cephalometric characteristics of a skeletal open bite and a skeletal deep bite.





6. Indicate how you would distinguish a dental anterior open bite from a skeletal open bite.

- Facial height
- Lip competence
- Tooth display
- Cephalometric characteristics