OSCE

OBJECTIVE STRUCTURED CLINICAL EXAMINATION

Skilled OSCEs

Station (1)
Index of orthodontic Treatment Need

A. What does IOTN stands for?

Index of Orthodontic treatment needs

What are the components of the IOTN?

1.Aesthetic component

2. Dental health component

B. What is the IOTN used for?

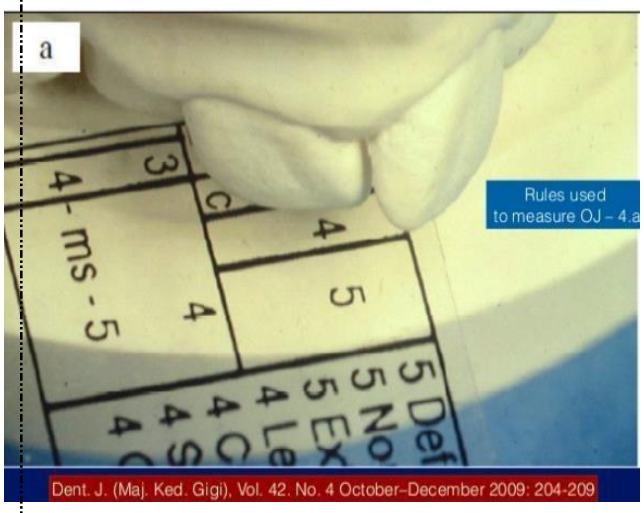
1. Indication for eligibility for NHS referral
2. Patient communication 3.Indication for treatment I

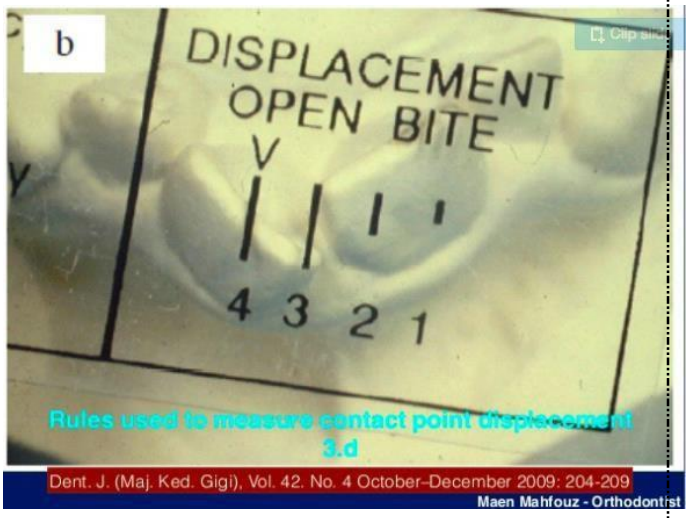
C. When is the patient considered eligible for orthodontic treatment?

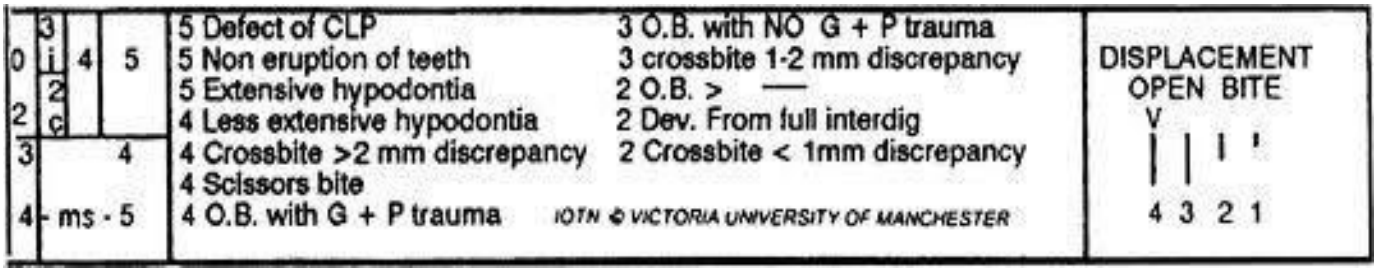
3 on the dental health component and {6,7,8,9,10} on the aesthetic component

4 on the dental health component

5 on the dental health component



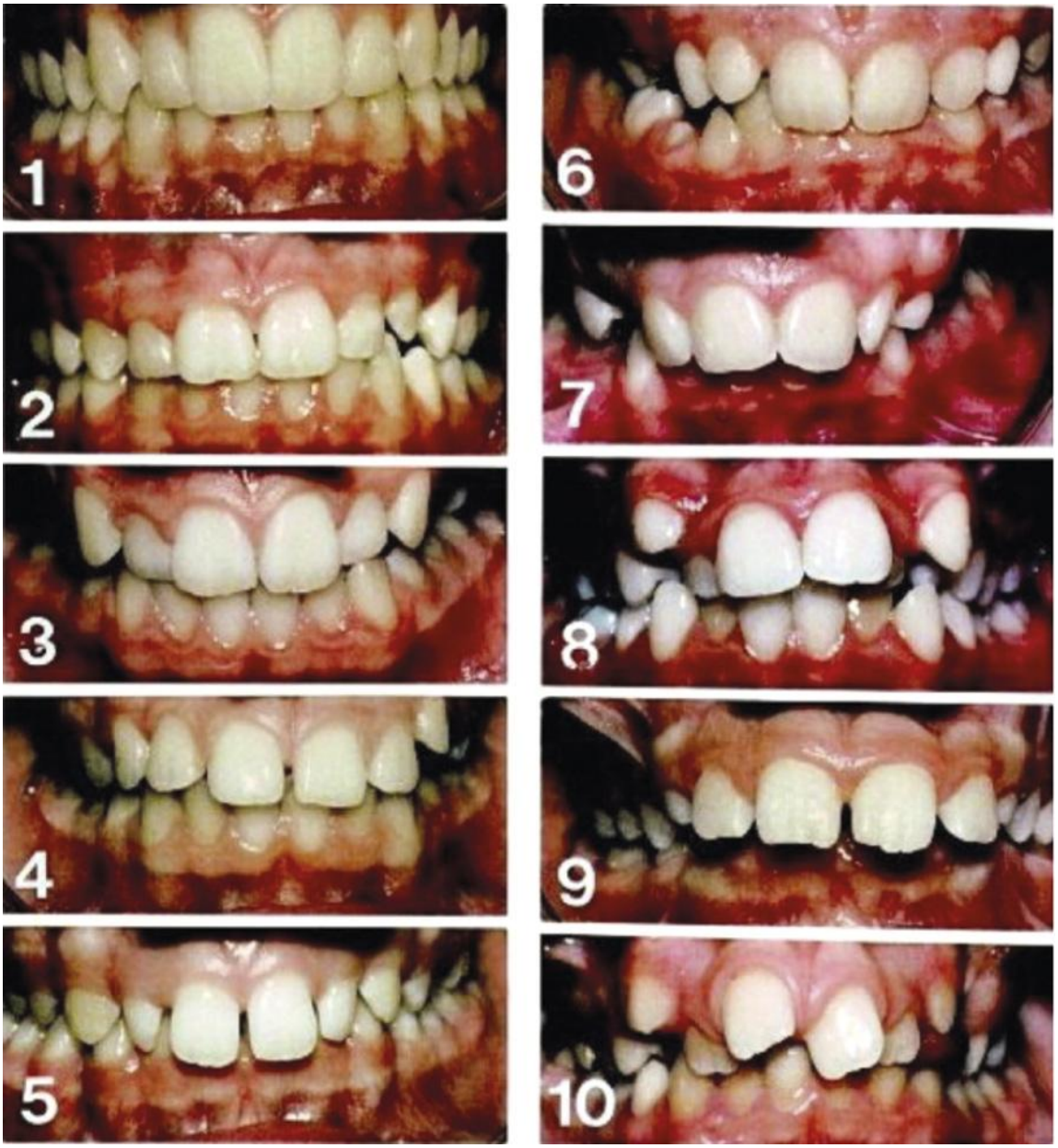




Dental health component

Grade	Characteristics
5 (Very great)	5.i Impeded eruption of teeth (with the exception of third molars) owing to crowding, displacement, the presence of supernumerary teeth, retained primary teeth and any pathological cause 5.h Extensive hypodontia with restorative implications (more than one tooth missing in any quadrant) requiring prerestorative orthodontics 5.a Increased overjet >9 mm 5.m Reverse overjet >3.5 mm with reported masticatory and speech difficulties 5.p Defects of cleft lip and palate 5.s Submerged primary teeth
4 (Great)	4.h Less extensive hypodontia, requiring prerestorative orthodontics or orthodontic space closure to obviate the need for a prosthesis 4.a Increased overjet >6 mm but ≤9 mm 4.b Reverse overjet >3.5 mm with no masticatory or speech difficulties 4.m Reverse overjet >1 mm but <3.5 mm, with recorded masticatory and speech difficulties 4.c Anterior or posterior crossbites with >2 mm discrepancy between retruded contact position and intercuspal position 4.l Posterior lingual crossbite with no functional occlusal contact in one or both buccal segments 4.d Severe displacements of teeth >4 mm 4.e Extreme lateral or anterior open bites >4 mm 4.f Increased and complete overbite with gingival or palatal trauma 4.t Partially erupted teeth, tipped and impacted against adjacent teeth 4.x Supplemental teeth
3 (Moderate)	3.a Increased overjet >3.5 mm but ≤6 mm with incompetent lips 3.b Reverse overjet >1 mm but ≤3.5 mm 3.c Anterior or posterior crossbites with >1 mm but ≤2 mm discrepancy between retruded contact position and intercuspal position 3.d Displacement of teeth >2 mm but ≤4 mm 3.e Lateral or anterior open bite >2 mm but ≤4 mm 3.f Increased and complete overbite without gingival or palatal trauma
2 (Little)	2.a Increased overjet >3.5 mm but ≤6 mm with competent lips 2.b Reverse overjet >0 mm but ≤1 mm 2.c Anterior or posterior crossbite with ≤1 mm discrepancy between retruded contact position and intercuspal position 2.d Displacement of teeth >1 mm but ≤2 mm 2.e Anterior or posterior open bite >1 mm but ≤2 mm 2.f Increased overbite ≥3.5 mm without gingival contact 2.g Prenormal or postnormal occlusions with no other anomalies; includes up to half a unit discrepancy
1 (None)	Extremely minor malocclusions including displacements <1 mm

Aesthetic component



Exam questions:

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Station (2)
Diagnostic Tools:

5-Minute OSCE: Pain on Biting After Amalgam (UR6)
Candidate instructions
You are the dentist. Mr James Smith reports **intense pain on biting** after a recent **amalgam on UR6**. Using the props (dental mirror, William's probe, BPE probe, Nabers probe, ethyl chloride spray, electric pulp tester with toothpaste, Tooth Slooth) **and articulating paper**, explain out loud how you will examine the tooth and what each test tells you. No treatment is required. Time: **5 minutes**

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Examiner prompt
"Describe your step-by-step examination of UR6 and explain how each instrument/test informs your diagnosis of pain on biting."

Structured answer:

1) Dental mirror:
Visual inspection & transillumination
How: Retract cheek/tongue; dry tooth; inspect restoration margins, contact points, cusps; use mirror to reflect light and for transillumination to highlight crack lines.
Interpretation: Marginal gaps/high spots/visible crack lines → consider **high occlusion**, **open contact/food impaction**, or **cracked cusp**.

2). Dental Mirror handle/finger: Percussion & mobility
How: Tap **vertically** and **horizontally** on UR6; compare with contralateral control; check mobility with two blunt instruments/fingers.
Interpretation:

- Tender **vertical percussion** → **apical** inflammation (e.g., acute apical periodontitis).
- Tender **lateral percussion** / **mobility** → **periodontal/traumatic occlusion** component.

3) Articulating paper: Occlusion check
How: Dry occlusal surface; place articulating paper; ask the patient to **close in MIP**, then perform **excursive movements** (R/L protrusive). Observe mark size/intensity and location (especially restored cusps/fossa).
Interpretation:

- Heavier/larger marks on UR6 vs neighbours or marks only appearing on **closure** → **high occlusion** from new amalgam.
- Pain on **bite or release** with normal marks → points more toward **cracked cusp**. (You would normally adjust if indicated—acknowledge but no treatment needed in this station.)

4) William's periodontal probe: Periodontal pocketing

How: Six-point pocket charting around UR6; note **recession**; calculate **clinical attachment loss (CAL)** where relevant.

Interpretation:

- Generalised shallow ≤3 mm with no bleeding → perio unlikely cause.
- **Deep isolated pocket** adjacent to a crack or defective margin → possible **vertical root fracture**/localised perio defect contributing to bite pain.

5) BPE probe- Periodontal screening

How: Rapid sextant screening for **bleeding**, **calculus**, and **pocket codes**.

Interpretation:

- Raised code in UR sextant → indicates need for full charting and possible periodontal contribution.

6) Nabers probe-Furcation assessment

How: Access buccal/palatal furcations of UR6; gently sweep to detect horizontal penetration.

Interpretation:

- **Furcation involvement** (Grades I–III) can mimic/compound bite pain; guides prognosis and treatment planning.

7) Ethyl chloride (Endo Frost)-Cold test

How: Isolate and dry UR6; spray cotton pellet until frosted; apply to mid-facial of UR6; compare to a control tooth.

Interpretation:

- **Brief, non-lingering** pain → **reversible pulpitis** (often occlusal trauma).
- **Lingering (>10 s)** pain → **irreversible pulpitis**.
- **No response** (with control responding) → consider **necrosis**; correlate with other tests.

8) Electric pulp tester (with toothpaste)- Sensibility

How: Dry tooth; place small amount of **toothpaste** as electrolyte; probe on sound enamel; have patient hold handle; increase current slowly; compare threshold with control.

Interpretation:

- **Comparable threshold** → sensibility present (does **not** confirm true vitality).
- **No response/high threshold** → reduced sensibility; consider **necrosis** or heavily restored tooth dampening—interpret with cold/percussion findings.

9) Tooth Slooth (bite test)-Crack localization

How: Place on individual cusps of UR6; ask patient to **bite firmly then release**; test each cusp systematically.

Interpretation:

- **Sharp pain on biting** on a specific cusp (often inclined plane) or **on release** → **cracked cusp/cracked tooth syndrome**. Localizes the culprit cusp.
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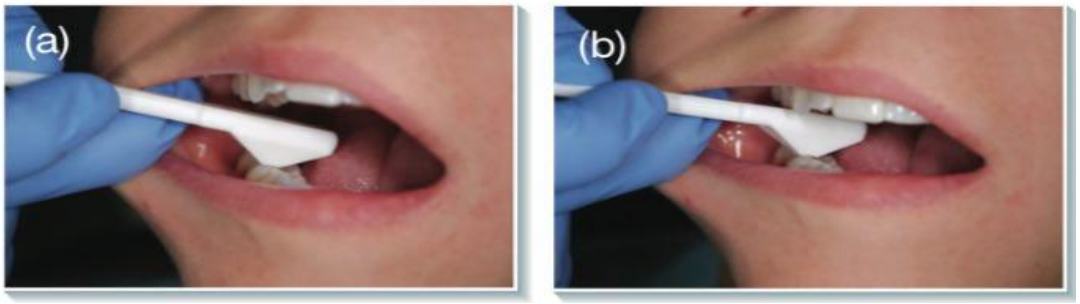
Figure 11.4 Tooth Sleuth. (a) Place the concave area of the pyramid on the suspected cusp (b) Ask the patient to bite down gently and observe the patient's reaction



Station (3)
Dental Surveying:

What are the components of a surveyor?

1. Surveying Table (Cast Holder): The part of the surveyor to which a cast can be attached. Using a ball and socket joint it allows the cast to be oriented at various angles and to be fixed along one of these planes.
2. Surveying Arm: A vertical arm used to analyse the parallelism of various axial cast surfaces. It contains a holder so that several surveying tools may be attached and used.

List the surveyor tools:

a. Analysing Rod - A thin straight metal rod used to analyse contours and undercuts. This is the principal tool used in surveying. The side of the analysing rod is brought into contact with surfaces of the proposed abutment teeth to analyse their axial inclinations. This rod is easily bent and once bent is difficult to straighten. Use it carefully.
b. Carbon Marker - Rods like pencil leads which can be used to mark the location of the height of contour on a dental cast. Some surveyors use a protective sheath to prevent or reduce breakage of the carbon markers.
c. Metal Gauges - Metal rods with terminal ledges or lips of various widths (the most commonly used are 0.01" and 0.02"). Undercut dimensions can be measured on teeth by bringing the vertical shaft of the gauge in contact with a tooth and then moving the surveying arm up or down until there is also contact with the terminal lip.
d. Wax Trimmer - A tool with a straight sharp edge, which parallels the surveying arm. It is used to contour waxed crowns for partial denture abutments, or to place blackouts for a

partial denture framework. It is used with a dragging or shaving motion to remove thin layers.
Selecting the Path of Insertion of a Removable Partial Denture. A path of insertion is selected to provide the best combination of retentive undercuts and parallel surfaces for ALL ABUTMENTS.

List the functions of a surveyor:

1. Locating soft tissue undercuts, which can influence the extent of the denture base, the type of direct retainers and the path of insertion selected.
2. Contouring wax patterns for fixed restorations that will be selected as the partial denture abutments.
3. Machining parallel surfaces on cast restorations.
4. Blocking out undesirable undercuts on master casts.
5. Placing intracoronal retainers (precision attachments).
6. Recording the cast position in relation to the selected path of insertion (tripoding).

Explain and demonstrate how to survey a cast:

STEP 1 Place the cast on the surveyor table and orient the plane of occlusion. It should be relatively horizontal. The final tilt of the cast for the ideal path of insertion is seldom more than 10° from this position.

STEP 2 Place the analyzing rod against the axial surface of a proposed abutment tooth (any tooth adjacent to an edentulous space). The tip of the rod should be at the level of the free gingival margin. The point where the tooth touches the analyzing rod is the greatest point of convexity (bulge) of a tooth and is called the height of contour.
The position of the height of contour can be changed by tilting the cast. The area on a tooth occlusal to the height of contour is called the separable area. All portions of a direct retainer that are rigid or semi-rigid must be in this area. The area gingival to the height of contour is an undercut and is called the inferable area. The retentive portions of direct retainers are in this area since they can flex to pass over the height of contour.

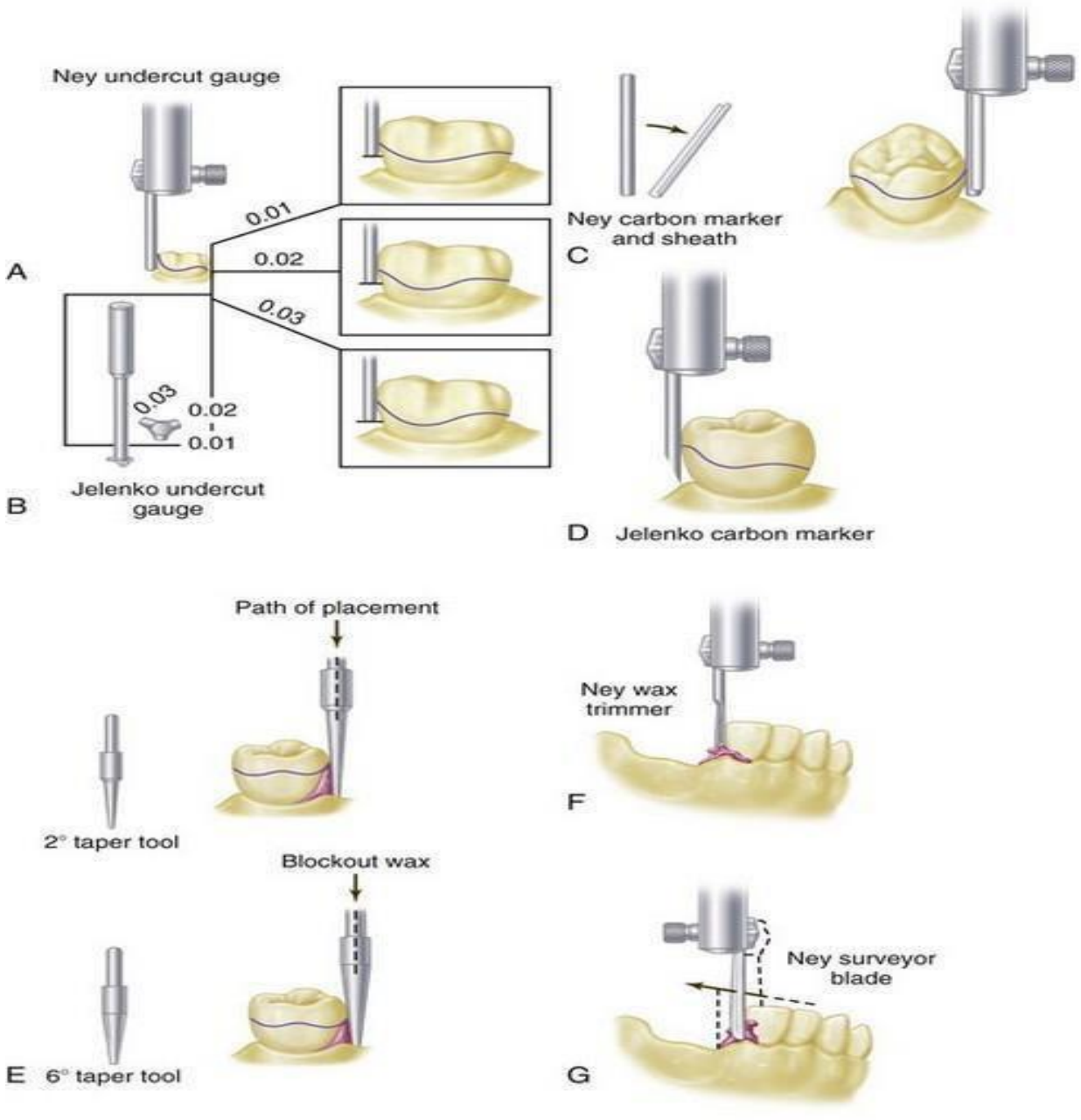
STEP 3 Tilt the cast to gain maximum parallelism of axial surfaces of all the proposed abutments. Maximum parallelism is present when the heights of contour of all teeth and all surfaces are as close as possible to the same position occluso-gingival. An additional check for maximum parallelism is that equal amounts of undercut are present on all abutments and all abutment surfaces. Check the mesial and distal tooth surfaces while tilting the cast anterio-posteriorly (A-P).

STEP 4 Use an undercut gauge to check for adequate and relatively equal retentive, undercuts for retentive arms on all abutments. Alter the tilt of the cast if required.
Surveying, Path of Insertion, Guiding Planes - 17

STEP 5 Change the tilt of the cast if there are any major soft tissue interferences (i.e. mandibular tori, residual ridge undercuts), or if the selected path of insertion will cause an aesthetic problem (i.e. clasp would have to be placed too far incisal on the facial surface of an anterior tooth, as when the height of contour or required depth of undercut is too close to the incisal or occlusal surface).

STEP 6 Lock the diagnostic cast in position on the surveying table and mark the heights of contour on the denture abutments and soft tissues with the carbon marker. When marking the heights of contour, ensure that the carbon tip follows close to the free gingival margin so that you do not register a false height of contour. The heights should be relatively equal occluso-gingivally.

STEP 7 Tripod the diagnostic cast so that the selected path of insertion may be easily found for future reference.



Dental surveyor:

List the functions of a dental surveyor:

1.
2.
3.
4.

List surveyor tool:

1.
2.
3.
4.

Which material will you use for the below undercuts:

0.25 =
0.5 =
0.75 =

Station (4)

Rubber dam placement Scenario:

Mrs. Emily Rose has presented today for her root canal treatment on the lower right first molar. Isolate the lower right first molar using the provided rubber dam before commencing the root canal treatment.

Marking sheet

1. Explain that you will be washing your hands using the 7-step hand washing technique (1 mark)
2. Wear the provided Personal protective equipment (Gloves, Goggles, Apron) (1 mark)
3. Select the correct retainer (1 mark)
4. Ligate the retainer securely (1 mark)
5. Punch the hole in the correct location and make sure it is of adequate size (1 mark)
6. If a latex rubber dam sheet is provided ensure that the matt surface faces upwards (1 mark)
7. Isolate the correct tooth using the winged technique for isolation (1 mark)
8. Floss the rubber dam sheet through the contact area (1 mark)
9. Nasal clearance of rubber dam sheet (1 mark)
10. **Answer the viva questions: (1 mark)** What are the advantages of the rubber dam? Which technique will you use and why?

Rubber Dam Helpful Hints

1. Hole placement

Hole position: Holes should be placed far enough apart so that if the rubber dam were laid passively over the dental arch, each hole would be located over the centre of its corresponding tooth.

Hole size: Use the larger holes for the posterior teeth and correspondingly smaller holes as you go forward in the mouth. Use the largest hole on the punch for the tooth to receive the rubber dam retainer. This facilitates stretching the dam over the retainer during placement.

Common hole placement problems:

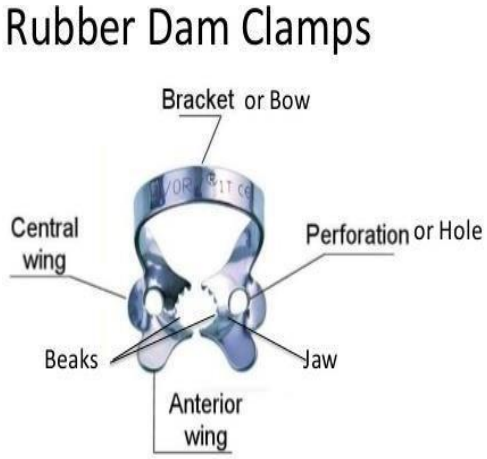
- Hole position too low on dam ⇒ dam covers patient's nose or eyes
- Hole position too high on dam ⇒ dam does not extend over upper lip

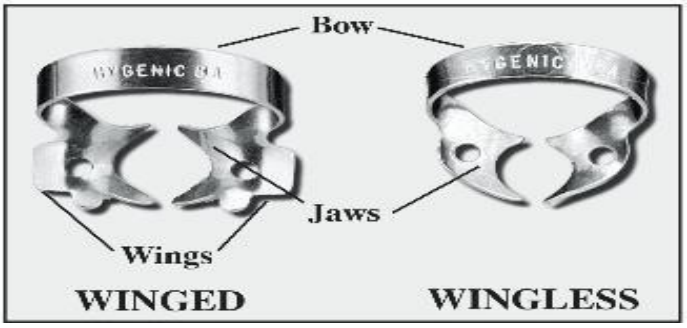
Use a sharp, nick-free punch

Examine the rubber dam for cleanly punched holes. Tags remaining in the holes after punching generally indicate a dull or nicked cutting edge on the punch.

An improperly cut hole will result in a nick or tag that may cause the dam to rip while it is being placed (consistent nicks or tags may be indicative of a dull punch).

3. **Clamp selection:**





4. **Ligation of Rubber Dam Retainers (clamps)**

Additional questions:

What are the benefits of using a rubber dam?

- Patient protection
- Dry, clean operating field
- Improved access and visibility
- Improved properties of dental materials
- Improved infection control
- Increased operating efficiency **Which technique will you use and why?**

Application Techniques

The Winged Technique: The advantage is that steps are eliminated because the dam, clamp,
and frame are simultaneously carried to the patient's mouth for placement. Take the time now to prepare the dental dam for placement using the winged technique

The Wingless Technique: The clamp is placed on the tooth first, and the dam is stretched over the clamp and tooth. Tie a safety ligation to the clamp to prevent swallowing should the clamp become dislodged. Now place a safety ligation on a wingless clamp.

The Modified Winged Technique: The dam is stretched over the bow of the clamp prior to its placement in the mouth. The clamp is seated, and the dam is stretched over the jaws and tooth. Take the time now to prepare the dental dam using the modified winged technique.

Station (5)
BASIC PERIODONTAL EXAMINATION
Scenario

Mrs. Sally James is a new patient who complains of bleeding gums. It has been an on-going problem for the past 6 months. You decide to perform a periodontal examination. Using the provided instrument measure her BPE score and answer the associated questions regarding her future care

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Marking sheet:

1. Explain that you will be washing your hands using the 7 step hand washing technique (1 mark)
2. Wear the provided personal protective equipment (Gloves, Google's, Apron) (1 mark)
3. Select the probe (C-BPE) (1 mark)
4. Correct BPE recording (1 mark)
5. Answer the written questions:
   - What's the patient's BPE score (1 mark)
   - Based on your BPE score what's the proposed treatment? (1 mark)
   - Based on your BPE score will you take any x-rays for the patient? (1 mark)

How to record the BPE:

1. The dentition is divided into 6 sextants and the **highest** score for each sextant is recorded:

-upper right (17 to 14) upper anterior (13 to 23) upper left (24 to 27)
-lower right (47 to 44) lower anterior (43 to 33) lower left (34 to 37)

2. All teeth in each sextant are examined (except for 3rd molars unless 1st and/or 2nd molars are missing)

3. For a sextant to qualify for recording, it must contain at least 2 teeth

4. A World Health Organization (WHO) BPE probe is used. This has a 'ball end' 0.5mm in diameter and a black band from 3.5mm to 5.5mm. Light probing force should be used (20- 25 grams).

5. The probe should be 'walked around' the teeth in each sextant. All sites should be examined to ensure that the highest score in the sextant is recorded before moving on to the next sextant. If a code 4 is identified in a sextant, continue to examine all sites in the sextant. This will help to gain a fuller understanding of the periodontal condition and will make sure that furcation involvements are not missed.

Based on the provided cast:
((In-Person Skilled OSCE session))

1. What's the BPE score for the lower teeth?

2. Based on your answer to the first question, what's the proposed treatment for this patient?

3.Based on your answer to the first question, which further investigations will you carry out?

5. Based on your answer to the first question what is the recall interval of the patient?

6.Which probe is used to measure the BPE?

Station (6)
Suturing

After surgically extracting the retained roots of the lower right first molar you are now attempting to close the flap. Perform two simple interrupted sutures that are necessary for flap closure.

Examiner notes:

The candidate should be able to perform two simple interrupted sutures in 5 minutes using the provided equipment while adhering to all infection control and health and safety guidelines.

Marking sheet

1. Explain that you will be washing your hands using the 7-step hand washing technique (1 mark)
2. Wear the provided Personal protective equipment (Gloves, Goggles, Apron) (1 mark)
3. Select the correct equipment (Needle holder, tissue forceps, and blunt scissors) (1 mark)
4. Select the correct suturing material: 3-0 Vicryl resorbable (1 mark)
5. Using a non-touch technique to load the needle onto the needle holder at the correct position, hold the needle holder correctly (1 mark)
6. The needle should enter perpendicular to the tissue approximately 4-5 mm front the wound edge (1 mark)
7. Pass through the Buccal then lingual side of the flap separately (1 mark)
8. Perform a correct surgeon's knot and avoid blanching of the flap (1 mark)
9. Use the blunt scissors to cut the sutures 5mm short (1 mark)
10. Dispose of the excess needle, packaging, and personal protective equipment as per the waste disposal guidelines (1 mark)
11. Answer the viva questions
    - What are the advantages of a vicryl suture?

General clinical principles

a. Do not take too small bites of tissue so that the suture tears through the wound edges. The needle should enter the tissue approximately 2-3 mm front the wound edge or papillae tip.

b. Do not attempt to bridge the tissues with the needle. It is not advisable to pass the suture through the facial and lingual papillae in one pass.

c. If the needlepoint is dull, do not try to force it through the tissues – stop, get a new sharp needle, and then suture.

d. Sutures should always be inserted through the more mobile tissue flap first.

e. When penetrating through tissues, the needle should enter at right angles to the tissue.

f. Suture needles are grasped in the centre (or about 1/3 the distance from the swaged area to the tapered point of the needle) and only by needle holder and are inserted and

through the tissue in line with the circle. The suture is pulled just tightly enough to secure the flap in place without restricting the blood supply.

g. The flaps should not be blanched when tying a suture.

h. Sutures should be placed no closer than 2-3 mm from the edge of the flap to prevent tearing through the flap during the swelling that occurs 24-48 Hours post-operative

Equipment:

Figure 5: Suturing Instruments.

The Most Used Suturing Techniques in Oral Cavity **Interrupted simple suture**

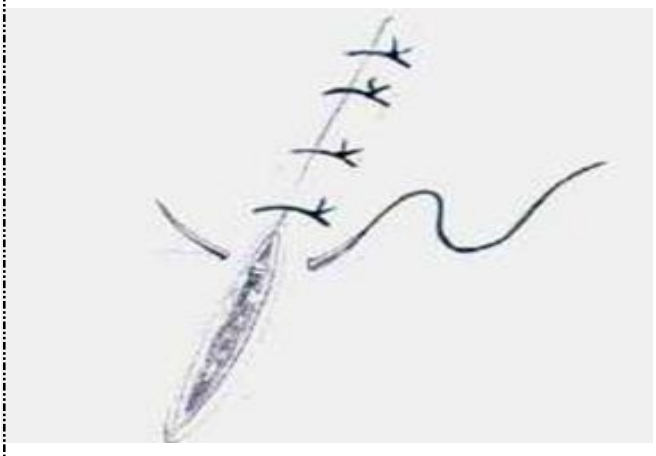
Advantages

a. Strong and can be used in areas of stress.

b. Placed 4-8 mm apart to close large wounds, so that tension is shared.

c. Each is independent and loosening one will not produce loosening of the other.

d. Degree of eversion produced.



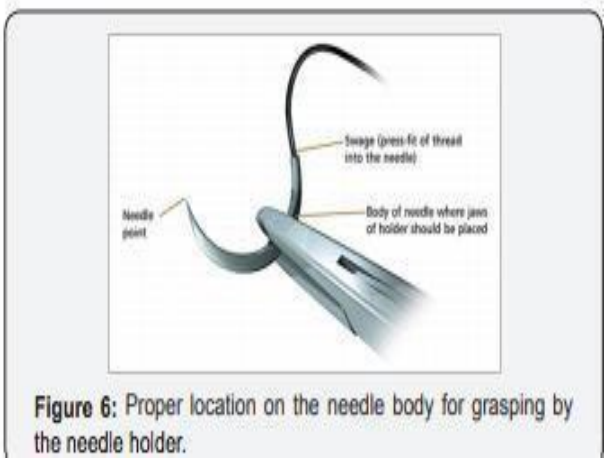


Figure 6: Proper location on the needle body for grasping by the needle holder.

Surgical knot: This knot is used primarily with braided suture material, whether synthetic or natural. In the surgeon's knot the first overhand knot is doubled; therefore, two loops of the suture are formed over the jaws of the needle holder and tightened. The last loop is formed under the jaws of the needle holder in a direction opposite from the first loops. This is the standard suture knot used in conjunction with the mattress technique of suturing. Note: When synthetic or natural resorbable sutures are used, one additional overhand knot may be added to the surgeon's knot to prevent unravelling.

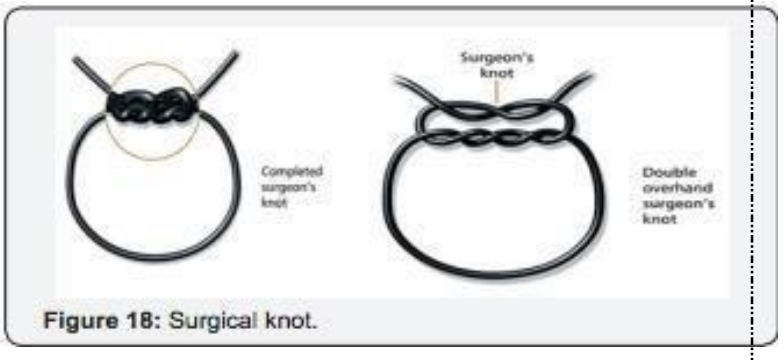


Figure 18: Surgical knot.

Station (7)
Acrylic Dentures Faults:

Mrs. Sarah Matthew is booked for a denture fit appointment; she is due to receive both her upper and lower acrylic dentures. You have received the dentures from the dental laboratory today; inspect the denture for any possible faulty construction.

Denture inspection:
Inspect each denture separately by covering three important aspects:

Upper denture

1. Polished surface:
Checking for the denture base extension, quality of the denture phalanges (Absence of feathered edges)

2. Teeth:
1. Number of the teeth per quadrant
2. Arrangement of the teeth in relation to the crest of the alveolar ridge
3. Position of the teeth in relation to the allocated quadrant

3. Fitting surface:
Check for any defects, e.g., Gaseous porosities, crazing or warping

- Internal gaseous porosities are caused by the vaporization of the monomer when the temperature rises beyond 100.8 C
- External gaseous porosities are caused by inadequate pressure
- Crazing: formation of cracks on the surface of the resin, caused by mechanical stresses or incorporation of water
- Warping**:** Deformity in the shape of the denture that can affect its fit, caused by the release of stresses incorporated during processing: e.g., curing, shrinkage, rapid cooling

-Repeat the same steps with the lower denture
-Articulate both dentures together and examine the occlusion:
(Overjet/Overbite/Cross bite/Open bite**)**

Station (8)
Splinting

Scenario:

Mrs. Emily White presented for an emergency appointment with her son Matthew. She explains that Mathew had an accident at school and his upper right and left central incisors have come out. The teacher managed to store the teeth in a container of milk and contacted her to take Mathew to the dentist urgently. You are the on-call emergency dentist. Splint the avulsed tooth using the equipment provided.

Examiner notes:
Candidates must adhere to infection control and health and safety guidelines, failure to do so will result in failure to pass the station. Candidates can manipulate the wax (Composite) with their hands.

Marking sheet:

1. Wash the hands using the 7-step hand washing technique and put on the personal protective equipment provided
2. Verify normal position of the replanted tooth clinically (position and occlusion) and radiographically.
3. Apply a flexible splint for up to 2 weeks
4. Select the appropriate splinting wire (th most flexible) and cut an appropriate length
5. Splint the tooth to the neighboring teeth
6. Wire edges are covered with wax (Composite)
7. Dispose of the excess wire in the sharps and the wax in the clinical waste
8. Answer the viva questions:
    - How long will you splint the teeth for?
      2 weeks with a flexible splint to prevent ankylosis
    - Would you provide any antibiotic cover?
      Yes, Amoxycillin or penicillin is the first choice (for 7 days at the appropriate dose for the patient's age and weight).

Dental Trauma guidelines 2020:

-The goal for replanting still-developing (immature) teeth in children is to allow for possible revascularization of the tooth pulp. If that does not occur, apexification, pulp revitalization/revascularization is recommended.

-The risk of infection related root resorption should be weighed up against the chances of revascularization. Such resorption is very rapid in children. If revascularization does not occur, root canal treatment may be recommended.

Patient instructions

- Avoid participation in contact sports.
- Soft food for up to 2 weeks.
- Brush teeth with a soft toothbrush after each meal.
- Use a chlorhexidine (0.1%) mouth rinse twice a day for 1 week.

Follow-up

- For immature teeth, root canal treatment should be avoided unless there is clinical or radiographic evidence of pulp necrosis.
- Splint removal and clinical and radiographic control after 2 weeks.
- Clinical and radiographic control after 4 weeks, 3 months, 6 months, 1 year and then yearly.

Station (7):
Extraction position

A 35-year-old patient is present with severe pain localized to the upper right side of their mouth, which has been persisting for the past few days. The pain is throbbing, intermittent, and worsening when chewing. Clinical examination reveals that the upper right first molar tooth is grossly carious, with significant decay and a compromised crown structure. The tooth is non-vital and requires extraction due to extensive caries and pain. Additionally, the lower right second premolar tooth is carious, with visible decay, and while it is not causing the current pain, it is also indicated for extraction due to its poor prognosis. The upper left tooth first molar shows signs of severe buccal swelling, and the patient has a fever, indicative of a periapical infection. Treatment plan and perform the required extraction.

Patient Information:

- Presenting Complaint: Severe pain in relation to the upper right side.
- Clinical Findings:
    1. Upper right first molar tooth: Grossly carious, requiring extraction.
    2. Lower right second premolar tooth: Carious, requiring extraction.
    3. Upper left first molar tooth: Indicated for extraction but associated with severe buccal swelling and fever.
- Treatment Plan:
    - Extract UR6 tooth first due to pain.
    - Extract LR5
    - Delay extraction of UL6 due to severe periapical infection and systemic involvement, prescribe antibiotics.

	Points to cover	**Marks**
1	Introduce yourself and confirm the Patient name, DOB, Address	1
2	Confirm with patient that she is scheduled today for the extraction of three teeth under local anaesthetic	1
3	Confirm, using the provided clinical notes, the teeth to be extracted and assess the patient's medical history	1
4	Run through the consent form with the patient explaining (advantages- disadvantages and risks)	1
5	Check the patient consent form (signed and dated by both dentist and the patient)	1
6	Evaluate the teeth to be extracted using radiographs (checking proximity to vital structures)	1
7	Evaluate the teeth to be extracted clinically	1
8	Explain that you will be washing your hands using the 7-step hand washing technique	1

9	Wear the personal protective equipment provided (Gloves, Goggles, Apron)	1
10	Select the correct forceps for the extraction of the upper right first molar- Correct operator position - Correct extraction motion	1
12	Select the correct forceps for the extraction of the lower second premolar-Correct operator position - Correct extraction motion	1
13	Provide post-operative instructions and extraction leaflet	1

Station (8)
Handwashing
Scenario
You are about to see Mrs. Adel Fox for her dental examination appointment.
Demonstrate the handwashing technique

Candidate instructions:
Explain and demonstrate the 7-step hand washing technique and answer the viva questions

Examiner notes:
The students should be able to follow all the 7 steps of hand washing

Version 1:
The station will take place in a room with a sink. Candidates will be provided with a cream (Glitter), that the examiner will place in their hands and ask them to rub it in thoroughly. He will then provide them with liquid soap, and they will have to demonstrate the handwashing technique followed by rising their hands with water and drying it with paper towels.
Examiner will evaluate the efficiency of the handwashing technique by asking the candidates to pass their hands below the ultraviolet light.
Aim of the station: Candidate's hands should be completely clean of any glitter

Version 2:
A sink will not be provided for this station. The examiner will place the glitter cream in the candidate's hands and ask them to demonstrate the 7 steps handwashing technique. He will evaluate the efficiency of handwashing using the ultraviolet chamber.
Aim of the station: Candidate's hand should glitter throughout which ensures that they have washed their hands thoroughly.

Marking sheet

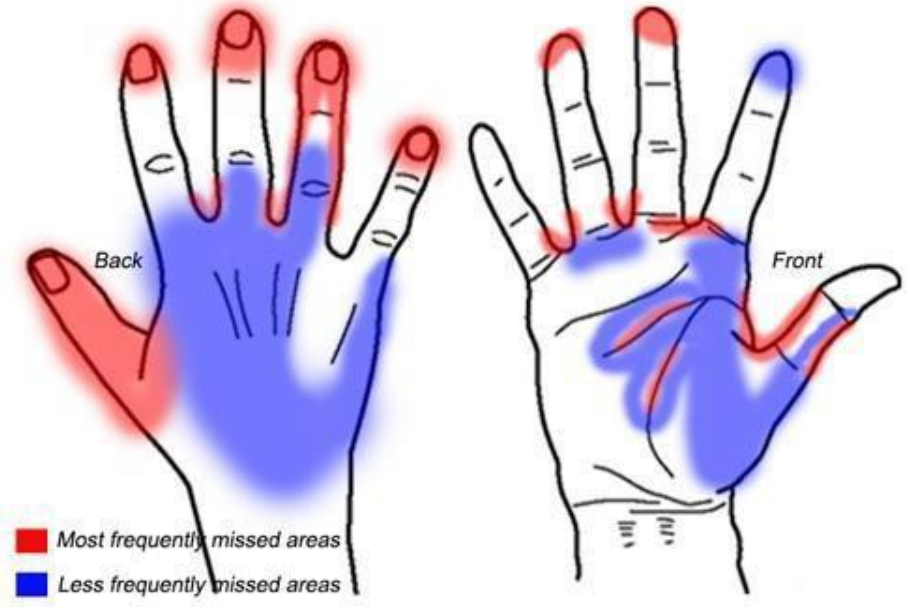
1. The fingernails are cut short, sleeve rolled above the elbows and all accessories are removed
2. Rub palms together
3. Rub the back of both hands
4. Interlace fingers and rub hands together
5. Interlock fingers and rub the back of the fingers of both hands
6. Rub thumb in a rotating manner followed by the area between the index finger and thumb for both hands
7. Rub fingertips on palms for both hands
8. Rub both wrists in a rotating manner, rinse and dry thoroughly.
9. Answer the viva questions:

- What infections would adequate handwashing prevent:
  (Clostridium difficile, Methicillin Resistant Staphylococcus Aureus (**MRSA**), Vancomycin Intermediate Staphylococcus aureus (VISA)

- What's the difference between sterilization and disinfection?
  Sterilization is the complete elimination or destruction of all forms of microbial life and is accomplished in healthcare facilities by either physical or chemical

processes. **Disinfection** describes a process that eliminates many or all-pathogenic microorganisms on inanimate objects except for **bacterial spores**

Name the different detergents that are used in hand washing?**(70% isopropyl alcohol, chlorhexidine gluconate 4%, 7.5% Povidone-Iodine)**



Additional Exam questions:

-

-

-

-

Donning and doffing personal protective equipment in the right order:

Donning
protective equipment

1. Disinfect hands.

2. Put on protective gown. Make sure that the body is completely covered from the neck to the knees and wrists!

3. Don face mask. Mask must fit tightly.

4. Put on safety glasses.

5. Don gloves and pull them over the sleeve cuffs.

Doffing
protective equipment

1. Remove gloves and discard them in a closed waste container.

2. Disinfect hands.

3. Take off protective gown. Pull arms out of gown first. Fold the gown with the contaminated side facing inwards and discard it in the closed waste container.

4. Disinfect hands.

5. Remove safety glasses. Hold both earpieces and take it off.

6. Disinfect hands.

7. Take off face mask and discard it in a closed waste container.

8. Disinfect hands.

References:
Centers for Disease Control and Prevention (CDC). Posters: Sequence for Donning and Removing Personal Protective Equipment. https://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf (last accessed 11/17/2021)
Reska, M. et al. Persönliche Schutzausrüstung an- und ausziehen - Schritt für Schritt. Krankenhaushygiene up2date 2017; 12: 117-122.

Research for infection protection
hartmann-science-center.com

Download Poster:

Station (10)
Periapical film holders

Scenario:

Use the provided x-ray holders to complete the following tasks:

A. Take a working length radiograph for the lower right first molar using the Endo ray system

B. Take a horizontal bitewing of the deciduous molars on the lower left side using the Rinn system

C. Take an intraoral periapical radiograph for the upper anterior teeth using the Kerr system

Marking sheet

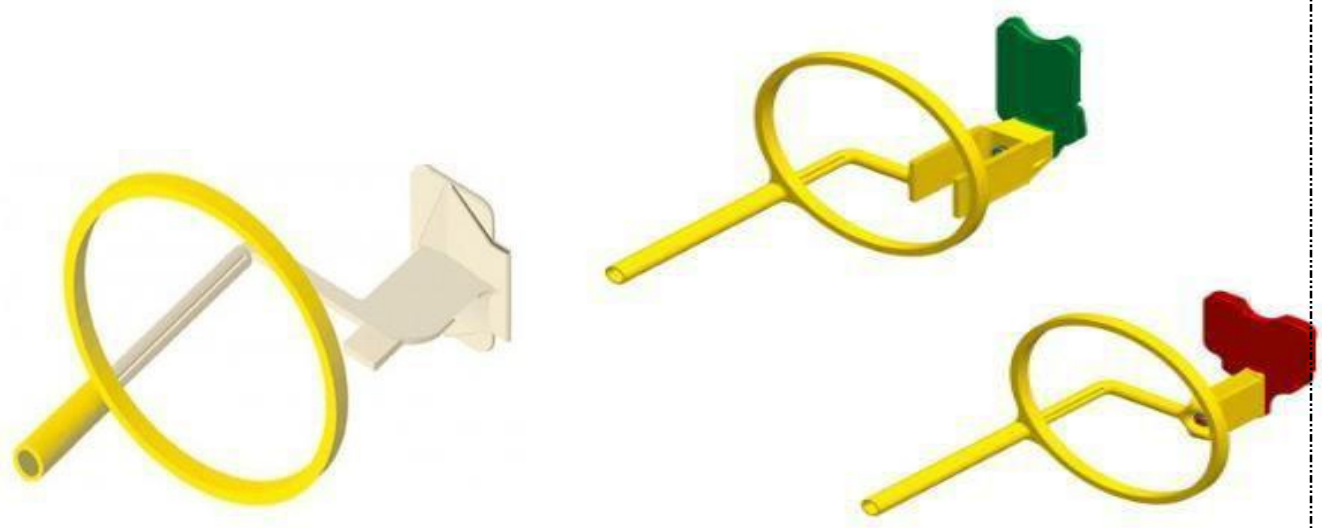
	Points to cover	**Marks obtained**
1	Explain that you will be washing your hands using the 7-step hand washing technique	
2	Wear the personal protective equipment provided (Gloves, Goggles, Apron)	
3	Select the correct x-ray size (1) for deciduous teeth and (2) for permanent teeth	
4	Correct positioning of the radiographic film in relation to the x-ray cone with the dot placed toward the occlusal surface for all 3 exercises	
5	Correct performance of the first task	
6	Correct performance of the second task	
7	Correct performance of the third task	

EndoRay Film holder

Rinn Film holders

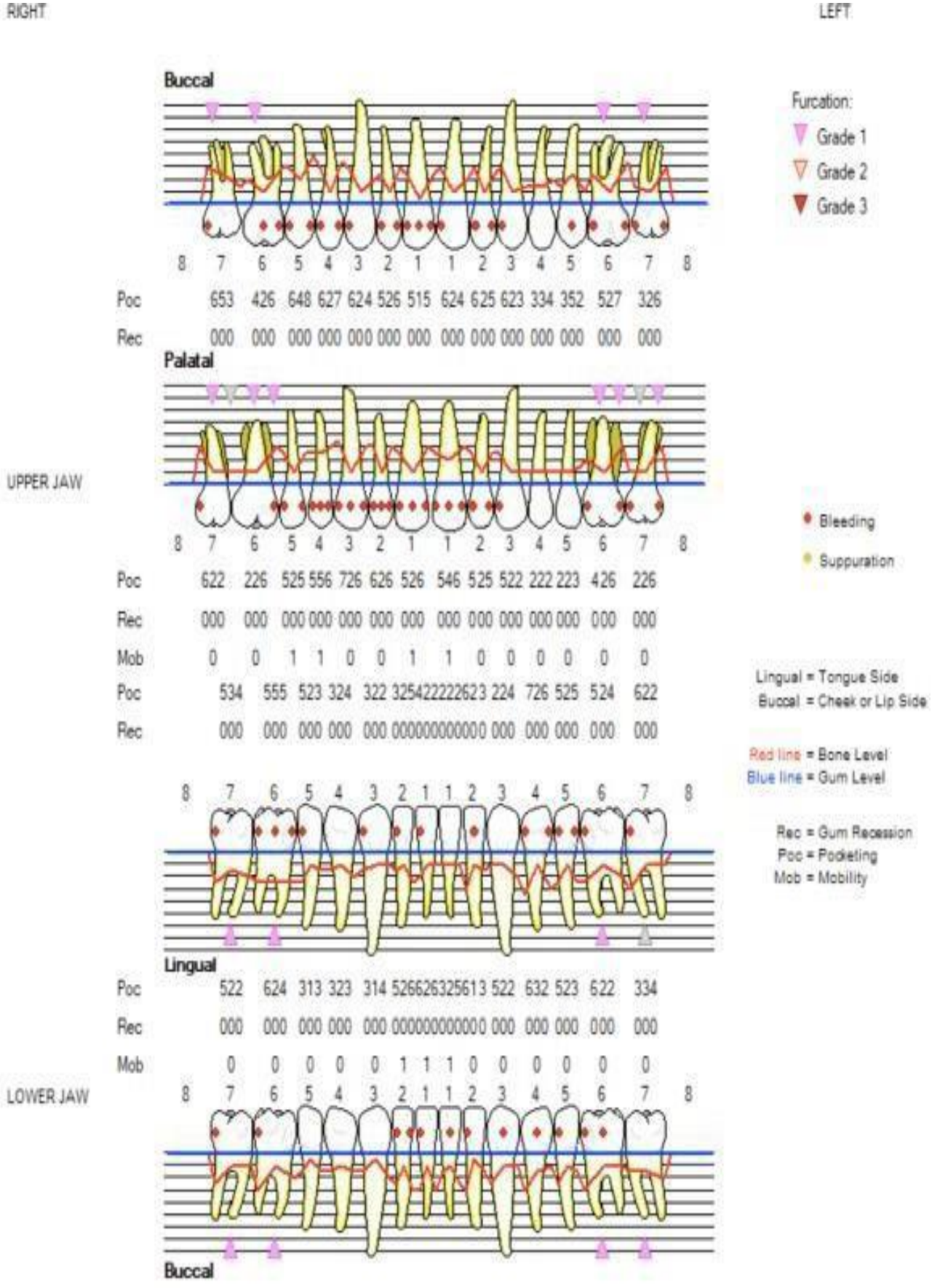
Kerr Film holders


Kwik-Bite
with index
Super-Bite
Anterior holder
with ring
Super-Bite
Posterior holder



Station 11:

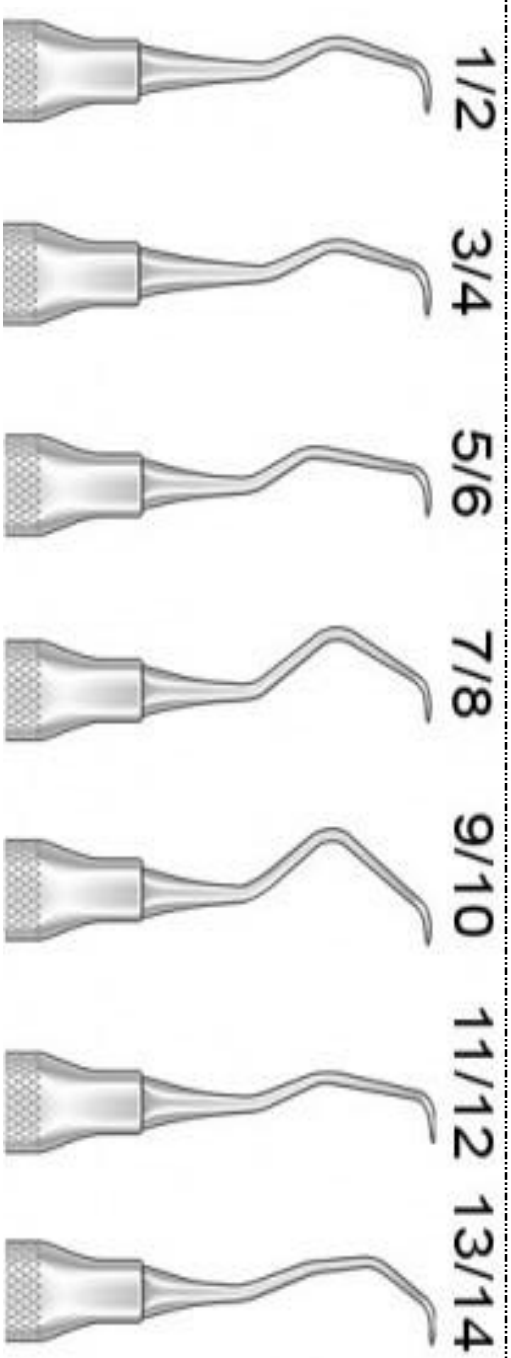
Based on the provided 6-point pocket chart perform subgingival debridement



Exam setup:
You will be provided with universal curettes, Gracy curettes and a Sickel scaler, Google, face shield and a full mouth six-point pocket chart.

Area Specific (Gracy)

Gracey	Region / Surfaces	Function (typical)
1/2	**Anterior incisors & canines – all surfaces**	Fine subgingival scaling and root planing on anterior teeth.
3/4	**Anterior incisors & canines – all surfaces**	As 1/2; alternative shank angulation for access preference.
5/6	**Anterior + premolars (shallow molar B/L)**	Versatile for shallow–moderate pockets, cervical/CEJ areas.
7/8	**Posteriors – buccal & lingual**	Long shank for posterior B/L surfaces (not mesial/distal).
9/10	**Posteriors – buccal & lingual**	Alternative to 7/8 with different shank angulation.
11/12	**Posteriors – MESIAL surfaces**	Subgingival scaling/root planing on mesials of premolars & molars.
13/14	**Posteriors – DISTAL surfaces**	Subgingival scaling/root planing on distals of premolars & molars.

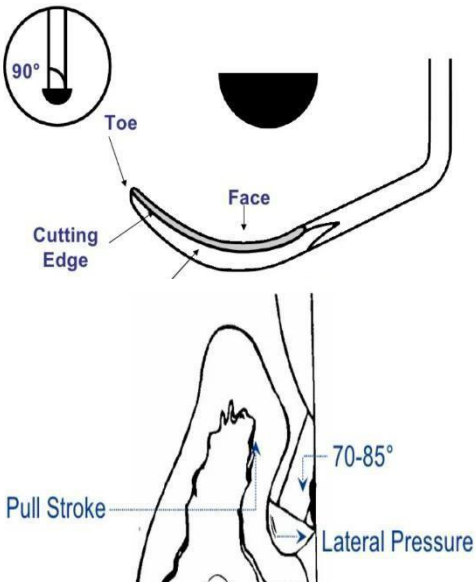


Points to cover:

1. Introduce yourself and confirm that patient's name and date of birth.
2. Wash your hands using the seven steps handwashing technique and put on the PPE (Personal Protective Equipment).
3. Assess the six-point pocket chart probing depth and for probing depth sites of 4 mm or more perform subgingival scaling.
4. Select the curette of choice (Universal or Gracy curette) and demonstrate subgingival scaling.

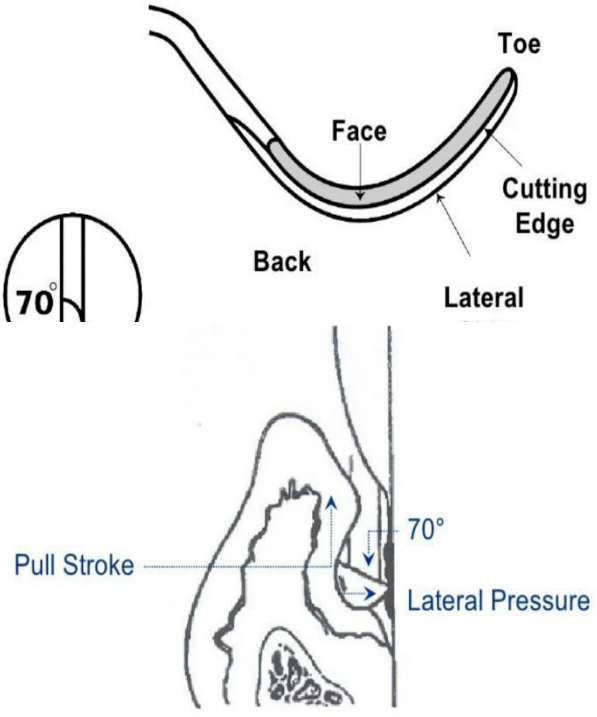
Universal instrumentation:

a. The blade is correctly adapted when the toe is directed inter-proximally and the terminal shank is parallel to the tooth.
b. To remove deposits, then cutting edge is applied to the tooth surface and the facial surface of the blade is tilted towards the tooth to achieve a 70-85 angle between the tooth and the blade.
c. Apply lateral pressure against the tooth and pull upwards while maintaining contact with the tooth.



Area Specific (Gracy) Curettes:

a. The Gracey blade design is offset from the terminal shank at 70 degrees, this creates one cutting edge referred to as the lower edge.
b. The blade of a Gracey Curette is correctly adapted when the lower cutting edge is against the tooth and the terminal shank is parallel to the tooth surface being scaled.
c. Apply lateral pressure against the tooth (root) and pull upwards, maintaining the parallel shank.
d. The standard Gracey Curettes are area specific to allow for deep scaling, root planning and periodontal debridement.



5. Provide post operative instructions.
6. Document the performed treatment in the patient record.

Additional theory:

Types of Curettes:

A curette is a type of scaler that is designed for moderate calculus removal on supragingival and subgingival surface.

Types of curettes:

- Universal
- Area Specific (Gracy)

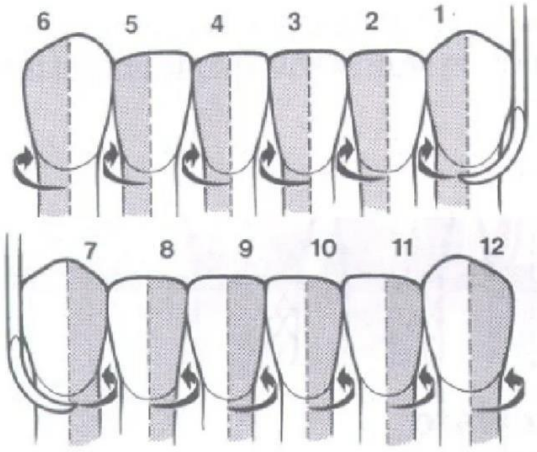
Universal Curettes:

- Are designed for easy adaptation on all tooth surfaces
- The blade of a universal curette has a round toe and back, and two cutting edges for scaling.
- The anterior universal is the (2R2L), the coding of the instrument is written on it.
- Posterior universal is the (4R4L), the coding of the instrument is written on it.

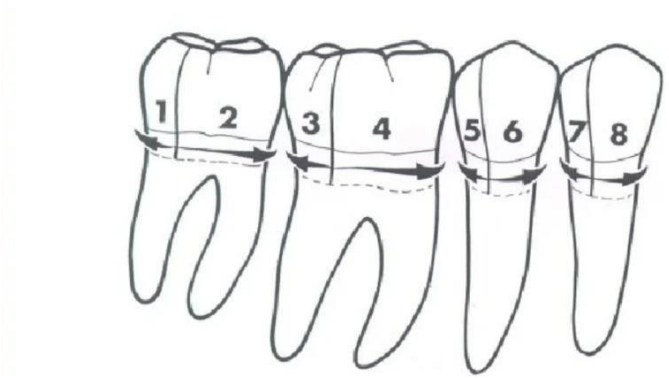
(2R2L)

(4R4L)

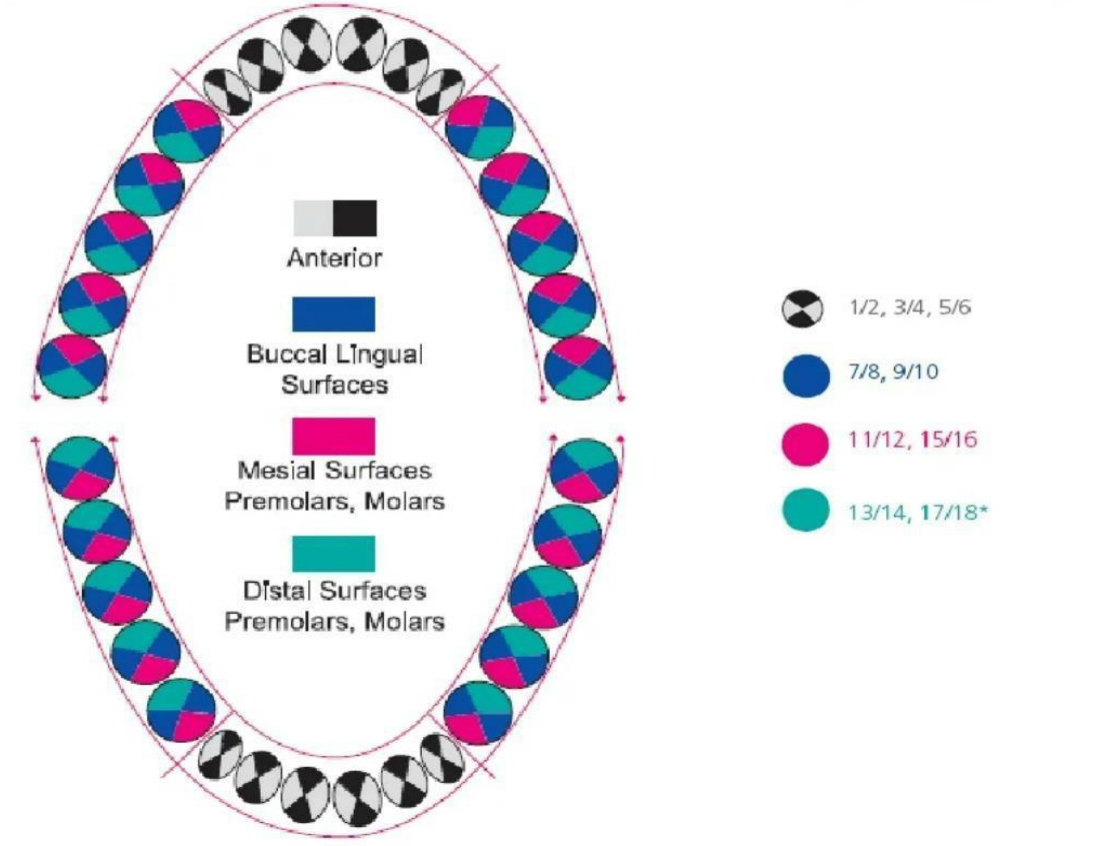
Anterior Universal Instrumentation Sequence

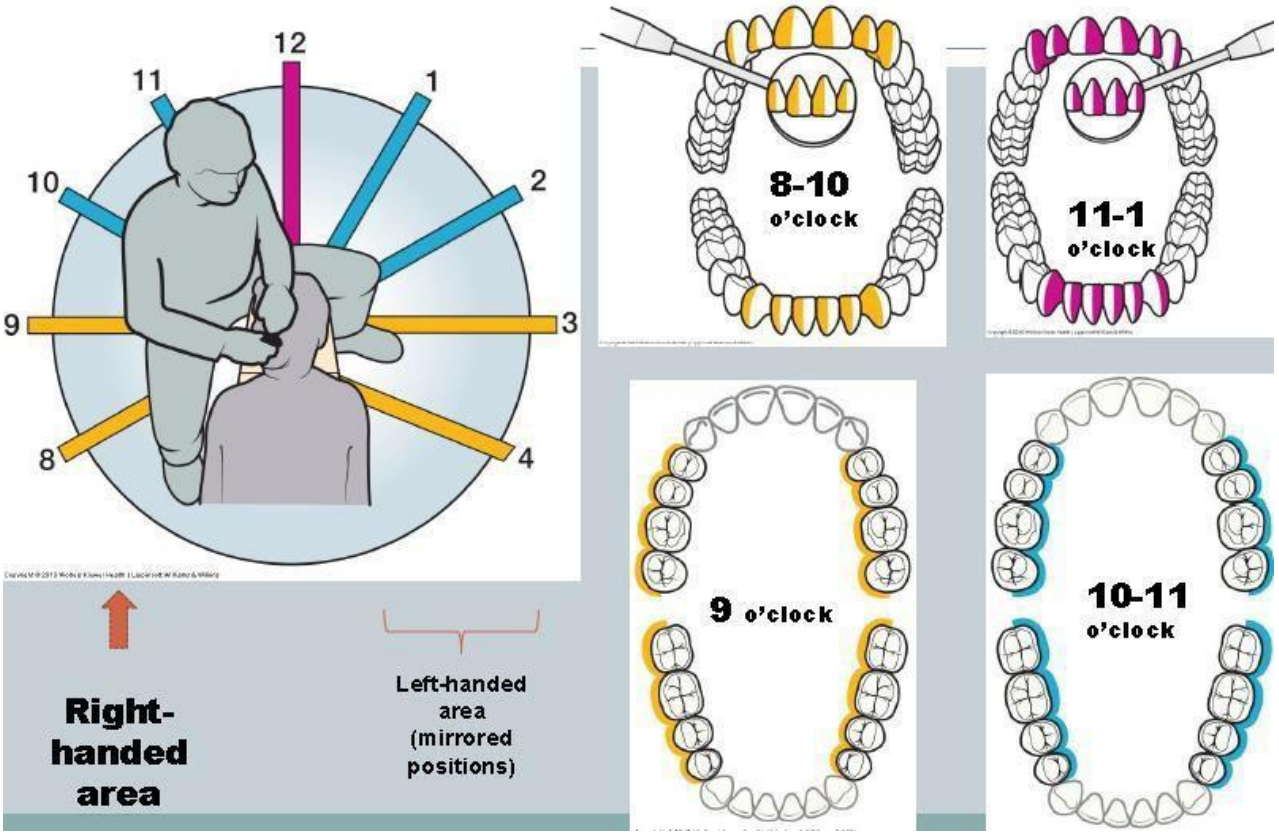


Posterior Universal Instrumentation Sequence



Gracey Chart




12
11
1
10
2
9
3
8
4
Right-handed area
Left-handed area (mirrored positions)
8-10 o'clock
11-1 o'clock
9 o'clock
10-11 o'clock

Station 12
Waste disposal
Segregate the following items which was used in dental treatment:

Candidate task (5 minutes)
Scenario: You've completed a dental procedure. On the tray are used items. Segregate each item into the correct container using the labels provided: Black bag, Special waste, Sharps bin, Autoclave, Yellow bag, Surface disinfection.
Instructions: For each item, point to the correct container and state one sentence why.

Examiner notes (marking, 10 marks)
Correct container choice for 10 listed items (1 mark each).

Common definitions:
Yellow bag = contaminated soft clinical waste
Sharps = puncture risk items
Autoclave = reusable instruments
Surface disinfection = reusable, non-autoclavable items; Black bag = clean domestic waste; Special waste = hazardous (e.g., amalgam, lead, some chemicals).

Item	Correct container	Why / notes
Single-use burs	**Sharps**	Small metal, puncture risk; single-use.
Rubber dam sheet	**Yellow bag**	Contaminated soft clinical waste (saliva/blood).
Metal rubber dam frame	**Autoclave**	Reusable instrument—sterilise.
Handle of the UltraSafety Plus syringe	**Autoclave**	Needle is sharps; reusable body is Sterilized.
Cast model (stone/plaster)	**Special waste**	Treat as special waste per instruction.
Dental floss	**Yellow bag**	Contaminated soft clinical waste.
Single-use Tofflemire band	**Sharps**	Thin metal band poses laceration risk.

Tofflemire retainer/holder	**Autoclave**	Reusable instrument—sterilise.
Needles	**Sharps**	Highest puncture risk; single-use.
Empty LA cartridge/ampule	**Sharps**	Glass/metal cartridge—dispose in sharps.
Goggles/eye protection	**Surface disinfection**	Wipe/disinfect and reuse.
Vita shade guide	**Autoclave**	Per instruction: process in autoclave.
Endo files	**Sharps**	Fine metal sharps; single-use in many settings.
Empty medication box (outer cardboard, clean)	**Black bag**	Domestic waste/recyclable if clean.
Saliva ejector (single-use)	**Yellow bag**	Contaminated plastic, clinical waste.
Blood-stained gauze	**Yellow bag**	Infectious soft clinical waste.
Amalgam capsules (spent/unused), amalgam scrap	**Special waste**	Mercury-containing; designated amalgam container.
Lead X-ray foils	**Special waste**	Hazardous lead; return to supplier/hazardous stream.
Developer/fixer solution bottles (residues)	**Special waste**	Hazardous chemicals; licensed contractor.
3-in-1 air/water syringe tip (used)	**Yellow bag**	Contaminated disposable tip—clinical waste.

Extracted teeth with amalgam	**Special waste**	Contains amalgam; hazardous waste stream.

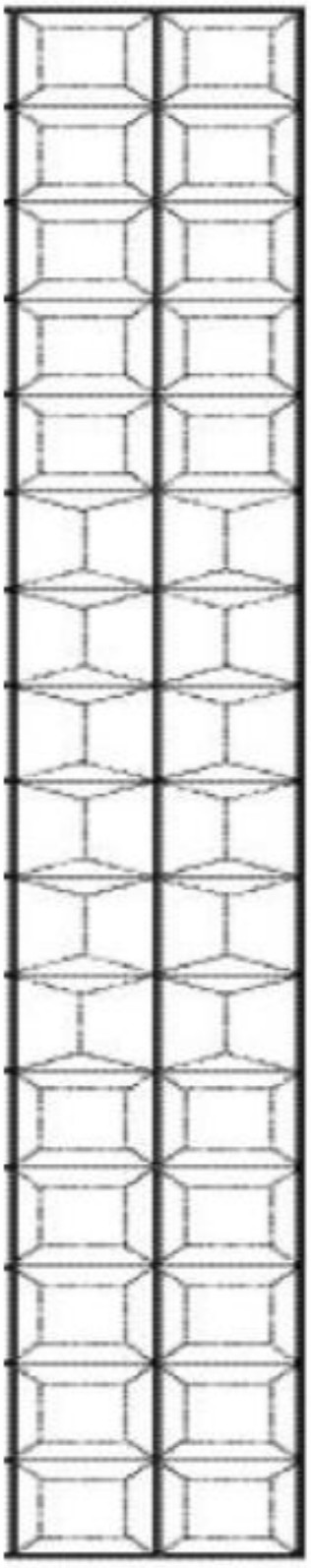
Waste Segregation

Container Type	Example Waste Description	Contents	Classification & EWC Codes	Disposal
 Sharps Recepticle (Yellow Lid)	Clinical Waste: Mixed sharps and pharmaceurtical waste	Hypodermic needles, syringes and syringe barrels including those contaminated with medicines (not cytotoxic and cytostatic). Used medicine vials. Other sharp instruments or items including teeth without amalgam fillings.	18 01 03 & 10 01 09 Hazardous	Incineration only
 Soft clinical wastes (orange bag)	Clinicle waste: Infectious	Blood-contaminated dressings, disposable gowns, clinical gloves, PPE (contaminated disposable gowns and clinical gloves) and swabs, and other waste that may present a risk of infection (including saliva-contaminated items from known infectious patients or where medical history is not available). No medicinally, chemically or amalgam contaminated wastes.	18 01 03 Hazardous	Alternative treatment or incineration
Lead foils (container type not specified)	X-ray lead foils from dentistry	Lead foils from X-ray film packaging.	15 01 04 Non-hazardous	Recovery (various)
 Municipal waste	Mixed municipal waste	Domestic type refuse: food packaging, paper/magazines that cannot be recycled, paper towels (no hazardous wastes).	20 03 01 Non-hazardous	Landfill or municipal incineration/ energy from waste.

 Amalgam waste	Dental amalgam: Infectious, clinical waste.	Teeth with amalgam fillings.	18 01 10 Hazardous	Metal recovery
	Dental amalgam and mercury: Non-infectious.	Dental amalgam and mercury including spent and out-of-date capsules, excess mixed amalgam, and contents of amalgam separators.		
 Plaster Cast Waste	Plaster Cast Waste	Gypsum or calcium sulphate study or working models.	18 01 04	Gypsum recovery or landfill in a separate dedicated cell for gypsum.
X-ray fixer (container type not specified)	Photographic fixer	Waste photographic fixer from X-ray (must be kept separate from developer).	09 01 04 Hazardous	Recovery (various)
	Photographic developer	Waste photographic developer from X-ray (must be kept separate from fixer).		
X-ray film	X-ray film	Waste photographic film from X-ray.	09 01 07	Silver recovery

 Medicines (rigid leakproof container)	Clinical waste: non-cytotoxic and cytostatic medicines	Non-cytotoxic and cytostatic medicines including used and out-of-date stock.	18 01 09 Hazardous	Incineration only
 Offensive or hygiene wastes	Offensive / hygiene waste from dental care, for example saliva-contaminated infection risk is present.	Gowns, gloves, tissues and other items from dental care which are not contaminated with blood, medicines, chemicals or amalgam.	18 01 04 Non-hazardous	Landfill or municipal incineration/ energy from waste.
	Municipal offensive/hygiene	Hygiene waste from toilets only.	20 01 99 Non-hazardous	

Station 13
Dental Charting:
Based on the cast provided during the course:



For teeth with caries choose a restoration and write an advantage

Station 14
Denture Drawing:

Denture 1:

List the denture specifications:

1. Rest seat:

2.Retention:

3.Major connector:

Denture 2:
Denture Drawing:

List the denture specifications:

1. Rest seat:

2.Retention:

3.Major connector:

Station (15A)

X-ray segregation into patient's files:
Perform the required task:

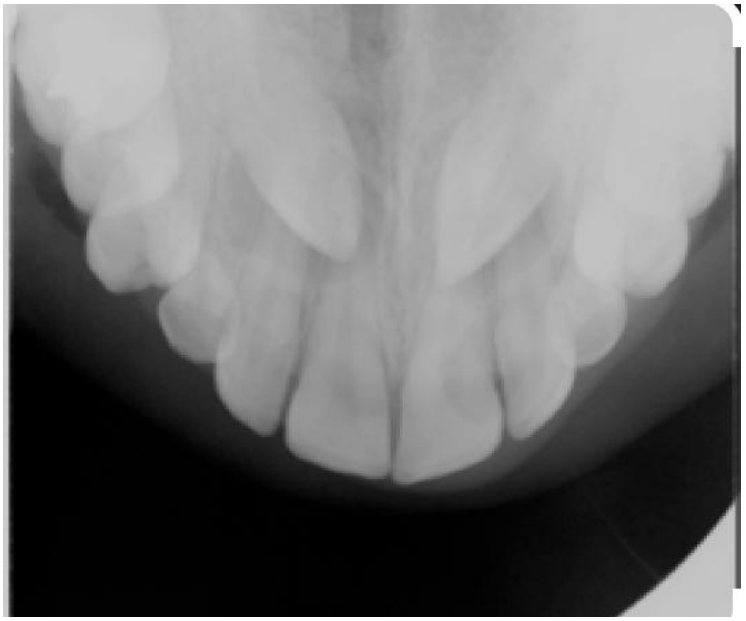
Your nurse Samanth Smith has dropped some of today's patient's dental records and their relevant radiographs got mixed up. Assist your nurse in allocating each radiograph to its correct patient file.

Scenario	**Radiographs**	
1). Sarah White is 14 years old presented with a bilaterally impacted upper canines both upper right and the upper left canines are palatal impacted.		
2). Jack Allen radiographic records show the presence of unilateral palatally impacted upper left canine.		
3). Katy James presented complaining of delayed eruption of the upper right central and radiographic examination reveals the presence of an simple odontome.		
4). James Smith presented with a Unilaterally buccally impacted canine.		
5).Yin George presented with periapical radiograph showing the presence of a compound odontoma blocking the eruption of the permanent upper right central incisor.		

(A)

(B)

(C)



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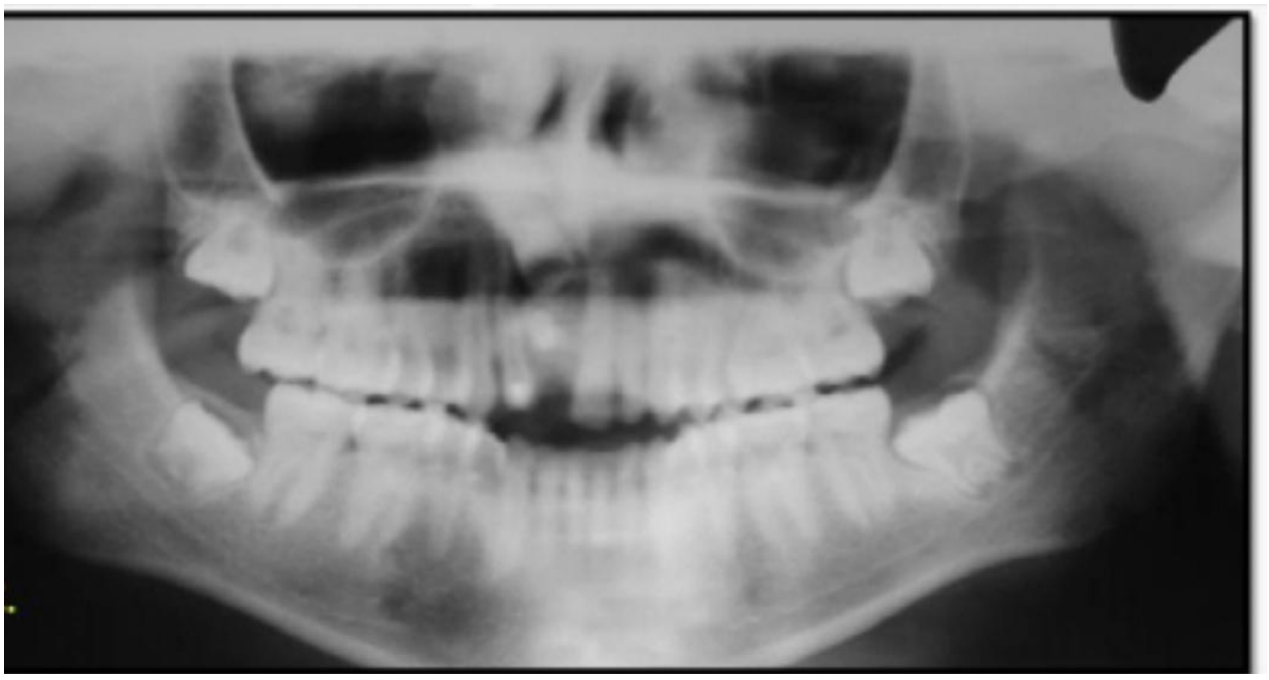
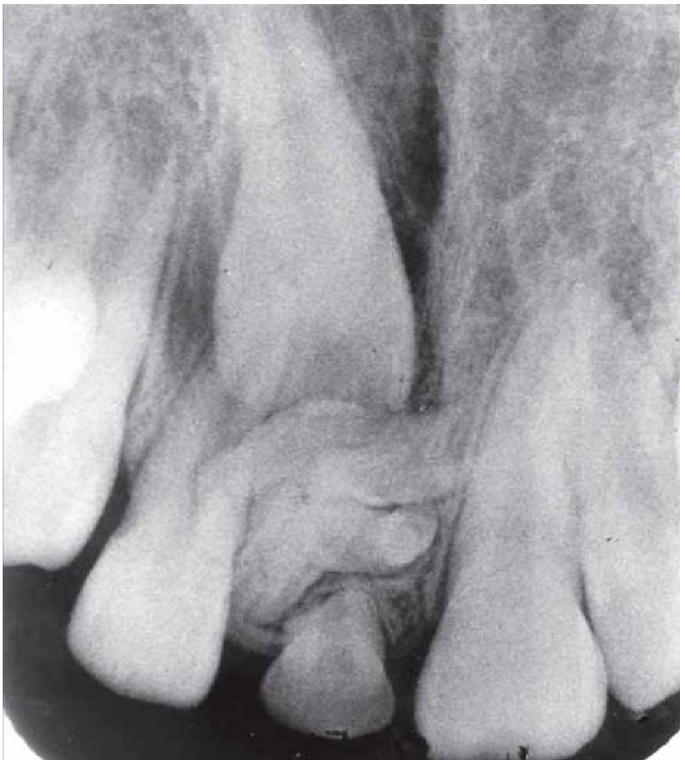


(E)

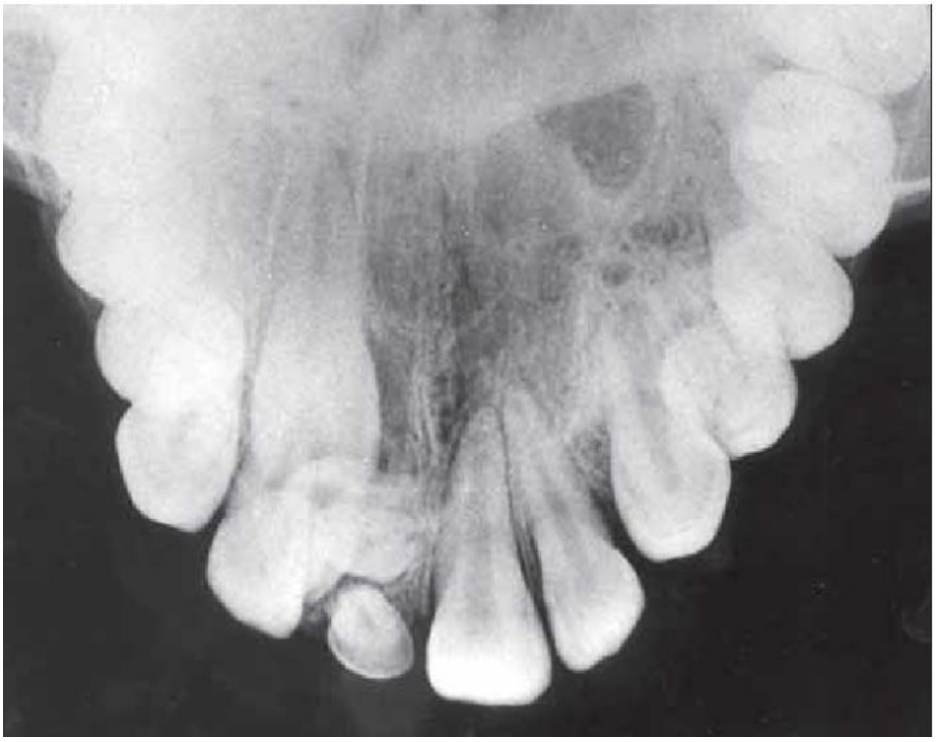
(F)

(G)



(H)

(I)



(G)

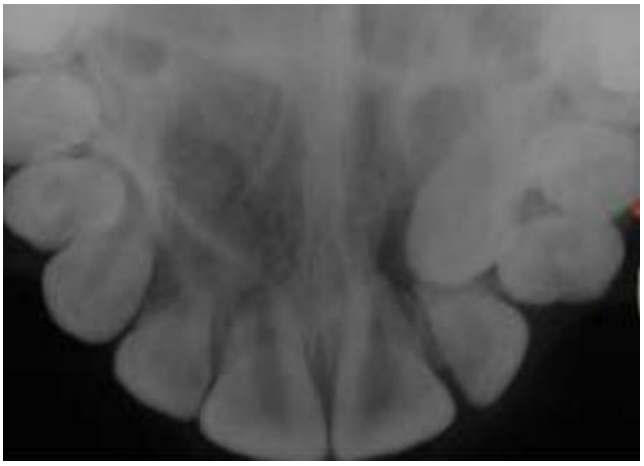
Station (15B)

X-ray segregation into patient's files:

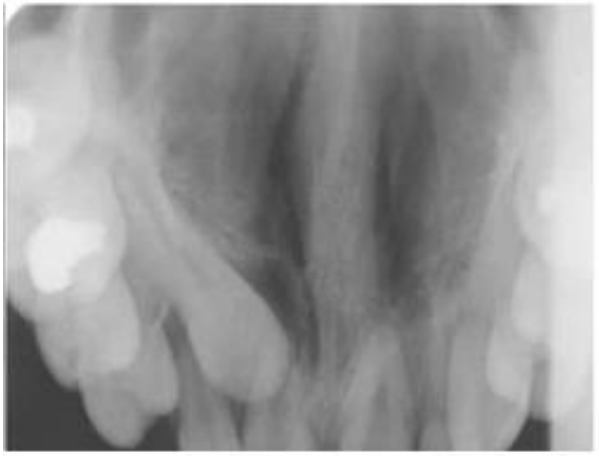
Perform the required task:

Your nurse Sam James dropped some of the patient's dental records and their relevant radiographs got mixed up. Assist your nurse in allocating each radiograph to its correct patient file.

Scenario	**Radiographs**	
1). Sarah White is 14 years old presented with delayed eruption of upper left canine. Radiographic examination revealed a unilateral impacted left canine	a	g
2). Jack Allen presented with a complaint of a missing permanent tooth. Radiographic examination reveals an impacted upper right canine.	c	b
3). Mohammed Ali is a 9-year-old child presented complaining of retained deciduous tooth. Radiographic examination reveals a compound odontoma.	h	d
4). Aya Ali presented complaining of dental malocclusion. Radiographic assessment revealed the presence of impacted upper right maxillary deciduous molar	f	j
5). Katy James presented complaining of delayed eruption of the upper right central and radiographic examination reveals the presence of a simple odontome	e	i

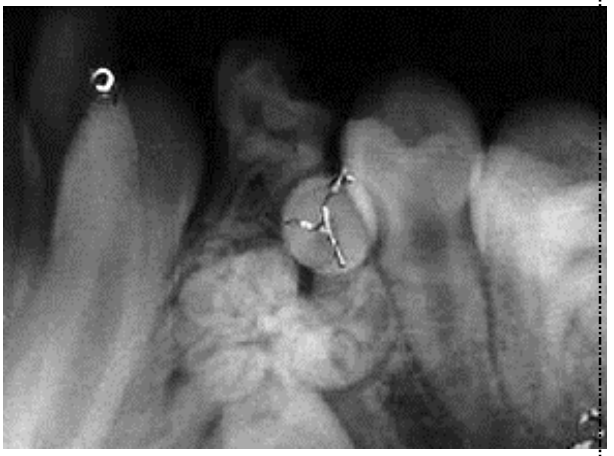


(A)



(B)

(C)



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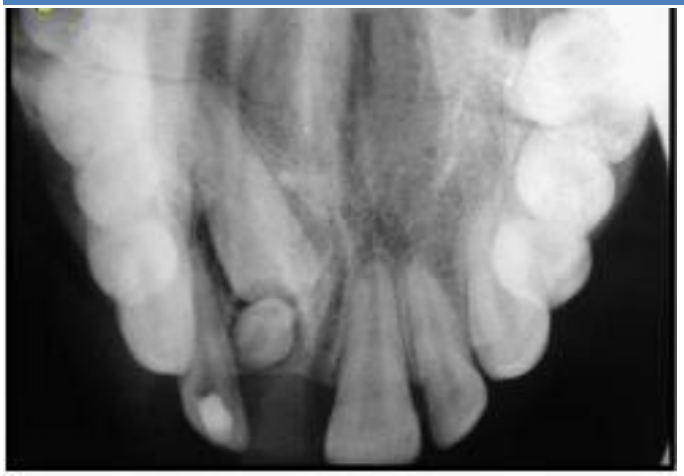

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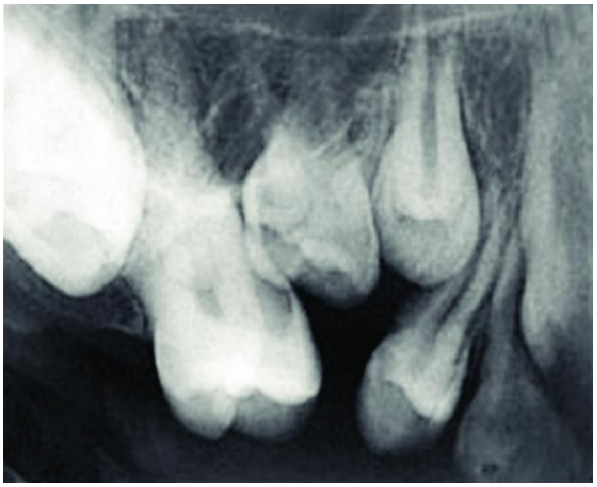
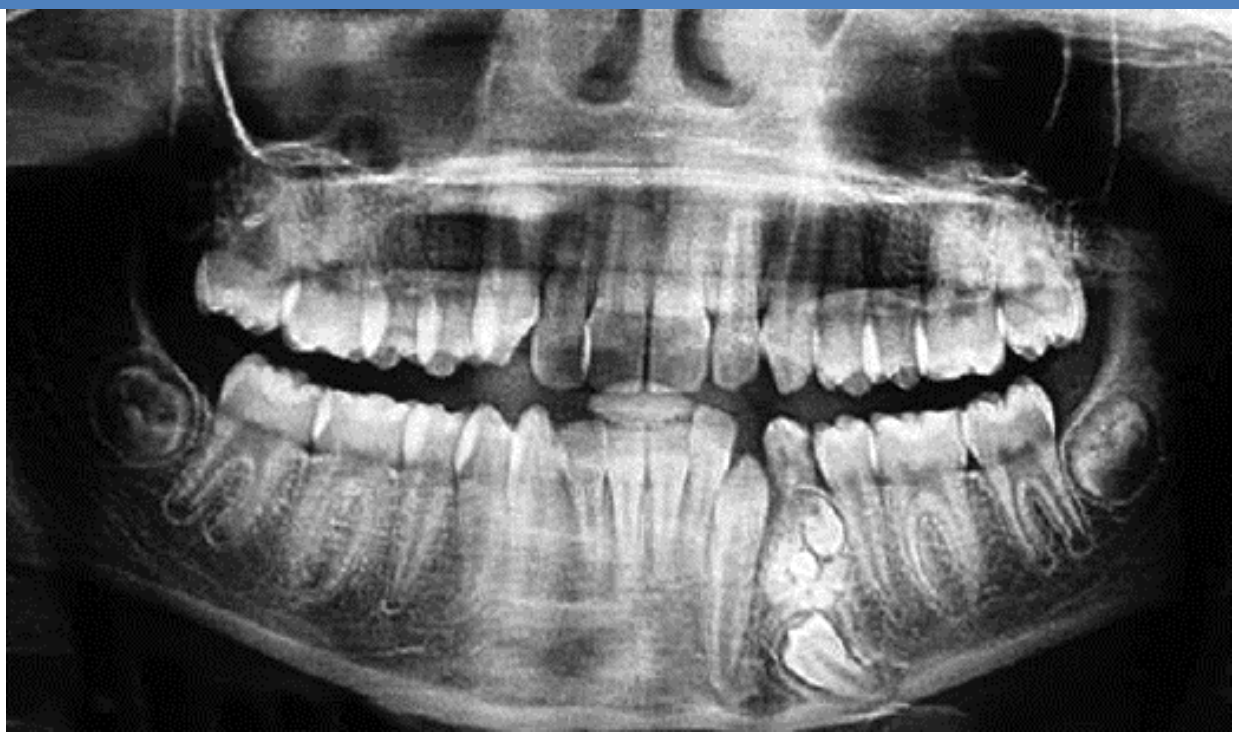
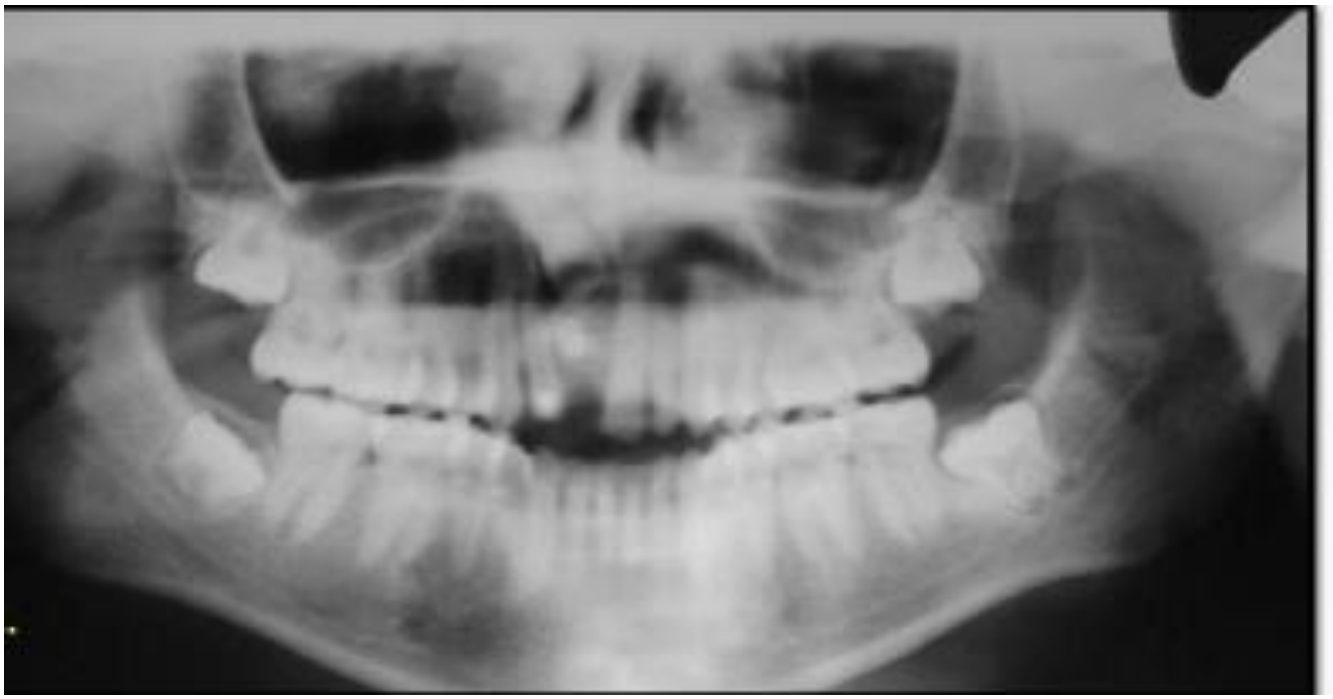


(F)

(G)



(H)



(I)

(J)

Station (16):

Cobalt chromium denture faults

Denture provided during the course:

Systematic assessment of denture faults:

- 2 S:

- 2R:

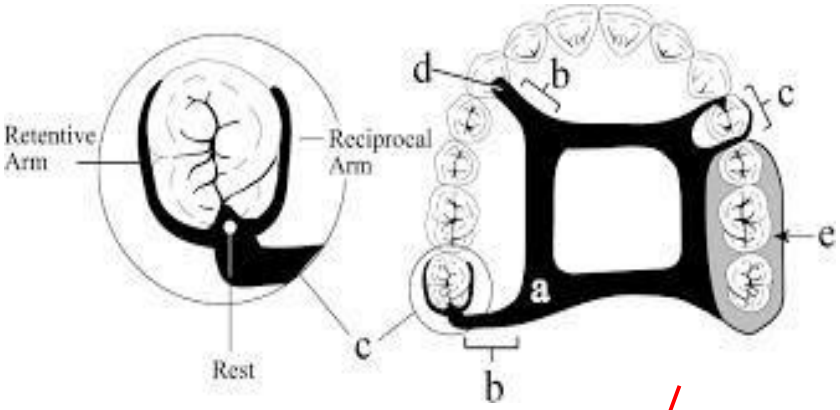
- 2M:

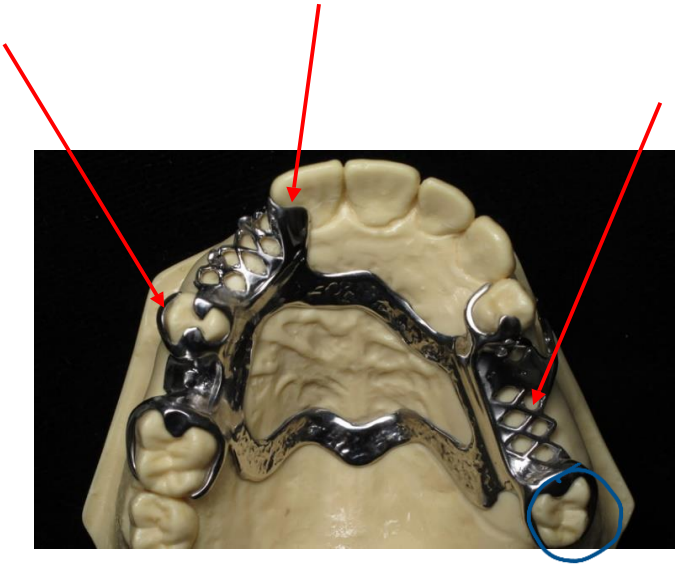
- IR:

List the denture faults in the provided design:

1.
2.
3.

LABEL THE DIAGRAM?





1