OPERATIVE SIMULATION

The Operative Simulation is offered where the Operative Patient section is not available and for candidates wanting to be licensed in states not requiring completion of one or more restorative procedures on a patient.

Operative Simulation Overview

The Operative Simulation section consists of one extended three and a half (3½) hour session during which two (2) operative (restorative) procedures are performed on simulated teeth mounted in a manikin positioned to simulate performing the procedures on a patient.

For purposes of simulation, the procedures are divided into two tasks: Preparation and Restoration:

Preparation:

- A **Class II Composite or Amalgam** (conventional MO for Tooth 14)

  All mesial and occlusal caries must be treated. The preparation can but need not involve the oblique ridge.
- A **Class III Composite** (DL for Tooth 9)

Restoration:

- A **Class II Composite or Amalgam** (conventional MO for Tooth 14)

  The restorative material must be the same as is specified for the Class II preparation.
- A **Class III Composite** (DL for Tooth 9)

The procedures are performed on simulated teeth mounted in a manikin positioned to simulate working on a patient. Radiographic simulation demonstrating the location and approximate extent of caries is provided. The teeth have variable simulated caries; modification requests may be needed. Candidates are asked to prepare the teeth as they ideally would for minimal caries requiring restoration beginning at the contact area and extending to satisfy WREB criteria for a score of "5", and then stop. Extension of the preparation beyond this point must be preceded by a modification request and examiner review. Both preparation and restoration (placement of the restorative material) must be accomplished with rubber dam isolation. When treatment is completed, the arch containing the prepared or restored teeth is submitted for grading. Occlusion is functionally evaluated.

Time allocated for the simulation is three and a half (3½) hours. Candidates are allowed an additional 30 minutes to set up their workstation before the session begins.

WREB provides simulated radiographic images and the maxillary arches containing the teeth for preparation and restoration. Candidates provide everything needed that is not provided by the test site (school), including a suitable opposing arch. Upon completion of the preparations, the arch containing the prepared teeth is submitted for grading and a second arch with teeth already prepared for restoration is provided. When placement of the finish restorations is completed, this second arch also is submitted for grading.

WREB examines candidates with varying educational backgrounds and schools may teach different preparation and restoration techniques. WREB does not look for one specific technique. Performance is scored according to the *Operative Simulation Scoring Criteria Rating Scales* found in this document.

Supplies

The Acadental ModuPRO® One arch is used for the Operative Simulation section and includes the teeth to be prepared and restored. These are Acadental RTX teeth with unique simulated caries lesions. The teeth come already mounted in the arch. Each candidate receives a ziplock bag containing:

1. An *Operative Simulation Worksheet* (sample, page 78)
2. A maxillary Acadental ModuPRO® One arch containing the teeth to be treated.
3. Radiographic images representing the location of caries in the teeth to be prepared.

The candidate needs to provide:

1. The mandibular ModuPRO® One or similar opposing arch.
2. The articulator, if applicable.

The "Dental Exam Site Information" (available at wreb.org) has detail on compatible equipment and whether candidates may purchase supplies through the school. Arches may be purchased directly from Acadental at acadental.com/WREB. Only the supplies listed in the "Dental Exam Site Information" are provided by the school. Anything needed that the school is not providing is the candidate's responsibility.

Candidates must bring their personal handpieces, burs, and anything else needed to complete the preparations and restorations on the simulated teeth, including the ModuPRO® One opposing arch or equivalent opposing arch needed for the simulation.

Candidates may bring the *Dental Exam Candidate Guide* into the simulation and refer to it during the exam. Notes, textbooks, or other informational material must not be brought into the simulation lab. No magnification other than loupes is allowed. No electronic devices are allowed in the simulation; cell phones and smart watches are strictly prohibited.

Exam Procedure

There is an assigned time for the Operative Simulation. Candidates should review their clinical exam schedule carefully when they receive notification that group assignments have been made. Candidates should report to the designated simulation lab at the appointed time. When entering the simulation lab, candidates must be wearing their Candidate ID Badge and it must be visible.

Workstations for the simulation are pre-assigned. The proctor will direct candidates to their assigned workstation when they enter the simulation.

During the setup time candidates can organize their workstation, obtain the labeled ziplock bag from the proctor containing the needed arch and worksheet, fill out the worksheet, label and properly mount the arch in the simulated patient (manikin), and obtain the required setup check from a Floor Examiner. After receipt of the ziplock bag and arch, candidates may not leave the simulation session without the permission of the Floor Examiner.

Candidates must write their Candidate ID on the palate of the maxillary arch with a permanent marker, properly mount the arches in the manikin, place the manikin head in a normal position to simulate a patient, and fill out the *Operative Simulation Worksheet* indicating their choice of restorative material (amalgam or composite) for the Class II procedure. When the arch is marked, correctly mounted, and the worksheet completed, the candidate should turn on their workstation light or otherwise signal that they are ready for the setup check. The setup check should be obtained before placement of a rubber dam.

The Floor Examiner will perform the setup check and initial the Operative Simulation worksheet. The following should be ready for the Floor Examiner:

1. The *Operative Simulation Worksheet* properly completed with Candidate ID legibly written and restorative material clearly designated.
2. The maxillary arch, properly mounted in the manikin, with the Candidate ID written in permanent marker on the palate.
3. A mandibular arch properly mounted in the manikin to complete set up of the simulation.
4. The manikin in a normal patient head position and not overextended or open more than a normal vertical dimension.
5. Workstation (operatory) light on.
6. Mouth mirror available for Floor Examiner use.

If everything is in order, the Floor Examiner will initial the Floor Examiner line on the worksheet. After receipt of the setup check, the arches are not to be removed from the manikin head until the procedure is completed, and the arch is ready for submission with its accompanying worksheet. A candidate who leaves the simulation lab or removes the arches at any time during the exam is subject to failure if permission to do so was not first received from a Floor Examiner.

Candidates must not start treatment until they have received a setup check from the Floor Examiner AND the Floor Examiner has announced the start of the exam. Starting treatment before being authorized to begin results in failure of the Operative Simulation section. Following the announcement, candidates have three and a half (3½) hours to complete the section.

The Floor Examiner is available throughout the session to review modification requests and answer questions relative to administration of the exam and the proper completion of forms. The Floor Examiner also is responsible for monitoring exam security. The Floor Examiner circulates through the simulation lab and observes candidates while the exam is underway to ensure that:

- Proper patient head position and normal vertical dimension are appropriately simulated throughout the exam
- None of the simulated dental arches are removed from any articulator until they are ready to be submitted
- Candidates perform all treatment (preparation and restoration) with rubber dam isolation
- Standard Precautions are followed
- Candidates work independently

Candidates should inform the Floor Examiner immediately if a problem arises. For example, candidates should immediately notify a Floor Examiner if there is clinic equipment failure. Lost time due to school equipment failure may be compensated if it is more than fifteen (15) minutes from the time it is reported to the Floor Examiner. There is no compensation if less than 15 minutes is lost or if the problem is the candidate's own equipment failure.

Similarly, if a tooth loosens in the arch or any other problem arises, candidates should stop treatment and inform the Floor Examiner immediately.

Candidates are to work independently, observe Standard Precautions, and work in a manner that simulates performing the procedures on a patient. Any unprofessional, unethical, or inappropriate behavior could result in immediate dismissal and failure of the Operative Simulation section.

If, after receiving notice of a violation, a candidate repeatedly violates simulation protocol or Standard Precautions, they will be dismissed from the simulation and will fail the Operative Simulation.

Preparation Modification

Candidates are asked to prepare the teeth as they ideally would for minimal caries requiring restoration beginning at the contact area and extending their preparations to satisfy WREB criteria for a score of "5", and then stop. Extension of the preparation beyond this point must be preceded by a modification request and examiner review.

If there is reason to modify the preparation beyond the measurement criteria for a score of "5" candidates must communicate this to the examiners by means of a properly written modification request. A modification request should not be initiated until the outline/extension and internal form of the preparation are at the upper limit of the criteria range for a score of "5."

Modification requests must be written in **ink** in the modification request space provided on the worksheet. Modification requests should be brief. They must include the following:

- **Tooth number**
- **Type** (external outline or internal form)
    - External outline form modification includes the internal form that would normally support the new outline. Internal form modification changes internal form only and has no effect on the preparation's outline form.
- **Location** (pulpal floor, axial wall, mesial-facial proximal wall, etc.)
- **Extent** (extension beyond the criteria of a "5")
- **Reason** (caries, unsound demineralized enamel, affected dentin, etc.)

When initiating a modification request the candidate needs to understand that:

- Some simulated caries, affected dentin, or unsound demineralized enamel should remain to demonstrate why the modification is being requested.
- The extent of a modification request is referenced from the maximum extensions and depths listed in the preparation criteria for a score of "5". The preparation should reflect those maximum extensions before a modification is requested.
- Even though the facial extension of a Class III preparation need not break contact by criteria, any modification request involving the facial extension of the Class III should be referenced from the point where the facial contact is broken by 0.5 mm.
- The extent of the modification needs to be documented in some multiple of 0.5 mm (i.e., 0.5 mm, 1.0 mm, 2.5 mm, etc.). Candidates should initially specify the total extent of modification required to completely remove the reason for modification.
- A planned "finger" extension (see definition) requires a modification request.

If there are multiple modification requests, each should be written on a separate line.

After writing a modification request, candidates must have a Floor Examiner review their request. The Floor Examiner may initial the request and instruct the candidate to proceed or, if the Floor Examiner feels the Grading Examiners should review the request, the Examiner will <u>not</u> initial the request. If the request is not initialed, then the candidate may proceed with or without that modification at the candidate's discretion.

If Grading Examiners find no justification for the modification, they may penalize the candidate for an unapproved modification request; if they find that the candidate has executed an unapproved (uninitialed) modification, they may reduce the candidate's score for Outline and Extension or Internal Form or both, depending on the situation. If Grading Examiners find the candidate's request to be justified, this will be considered when the candidate's performance is scored. Any finding or penalty must be independently found (validated) by at least two Grading Examiners.

Preparation

The use of **preparation diamonds** instead of carbide burs and well directed forces with sharpened hand instruments reduces fracturing of the simulated teeth during preparation. The use of dull hand instruments, heavy forces, or levering a hand instrument against the tooth can fracture the simulated teeth.

Examiners are not looking for sharp internal line angles in composite preparations.

Grading examiners understand that some variation in outline and internal form may occur; however, any variation beyond the criteria for a score of "5" requires a modification request.

It is imperative that all simulated caries, affected dentin, and unsound demineralized enamel be totally removed. However, when caries is very deep (within 0.5 mm of the pulp chamber) the preferred treatment is to leave a small layer of caries or affected dentin and place an indirect pulp cap. If an indirect pulp cap is intended, this MUST be clearly written in the "Note to Examiners" on the worksheet so the grading examiners understand that this is the candidate's decision. The Floor Examiner does not review an indirect pulp cap; the decision to place an indirect pulp cap resides solely with the candidate and is evaluated by the Grading Examiners when the preparation is graded. An indirect pulp cap should not be invoked if no affected dentin or caries remains in the deepest part of the preparation.

Examiner detection of simulated caries, affected dentin, or unsound demineralized enamel is accomplished using a new, sharp explorer. Candidates are advised to provide a new, sharp explorer for their own use, and to provide the same for Floor Examiner use when reviewing modification requests.

Beveling for composite preparations is not a WREB requirement. If placed, bevels will be considered part of the outline and extension of the preparation.

The submitted preparations must be bare. Treatment of preparations with chemical agents of any kind, including disinfectants, Gluma, Concepsis, HEMA, primers or bonding agents, before submission is strictly prohibited. The Class II preparation design must be conventional, i.e., must include a pulpal floor and must treat all mesial and occlusal caries. The preparation can but need not cross the tooth's oblique ridge.

Restoration

For composite restorations, normal composite placement techniques should be used, including the use and curing of a bonding agent of candidate's choice.

Placement of a restorative material other than that entered by the candidate on the preparation worksheet results in failure of the Operative Simulation section.

Grading Examiners use Floss Singles® to evaluate interproximal contacts.

Completing the Section

When the preparations are completed, the rubber dam and the arch are removed. The arch, worksheet, and any forms received from the Floor Examiner are placed back in the ziplock bag and submitted to the proctor at the check-in desk.

The submitted ziplock bag must include:

1. The completed *Operative Simulation Worksheet*.
2. The maxillary arch containing the prepared teeth (with Candidate ID written on the palate with permanent black marker).
3. The radiographic images.
4. Any forms received from the Floor Examiner (if applicable).

After submission of the completed preparations, an arch with pre-prepared teeth ready for restoration will be dispensed. This also will need to be marked with the Candidate ID using a permanent marker and then mounted in the manikin. An additional set-up check from the Floor Examiner then is required before continuing.

When the restorations are completed the second arch is similarly removed and, with the worksheet and any forms received from the Floor Examiner, is similarly placed back in the ziplock bag and submitted to the proctor at the check-in desk.

The second submitted ziplock bag must contain:

1. The completed *Operative Simulation Worksheet*.
2. The maxillary arch (with Candidate ID written on the lingual with permanent black marker) containing the teeth that have been restored.
3. Any forms received from the Floor Examiner (if applicable)

It is the candidate's responsibility to ensure that all materials listed above are turned in to the WREB proctor. The proctor will note the candidate's checkout time, but the proctor is not responsible for checking submitted materials. When both the arch used for the preparations and the arch used for placement of the restorations have been submitted, the candidate is free to gather their personal things, clean their workstation, and leave the simulation lab. **Candidates who leave the simulation are subject to failure if any required items are missing.**

The Simulation Floor Examiner will announce time remaining at intervals of approximately 30 minutes, 15 minutes, 5 minutes, and 1 minute before the submission deadline; however, completing the exam and submitting everything required on time remains wholly the candidate's responsibility. Late penalties will be assessed if the allotted time is exceeded. A penalty will be deducted from the Operative Simulation score for every five (5) minutes the submission is late. After 15 minutes, all points for the Operative Simulation section will be lost.

The finish deadline for each simulation session is fixed. Candidates who report late to an assigned session will have less than the allotted time to complete their treatment. WREB cannot extend the time for individual candidates. Candidates who complete their treatment early may submit their materials to the proctor at the check-in desk and leave the simulation lab.

Candidates who work until the submission deadline must immediately afterward clean their workstation and leave the simulation so that preparation of the facility for the next activity can occur without delay.

A random selection of models may be evaluated at the end of each exam. Any alteration of the model will result in failure of the entire exam and appropriate disciplinary action.

Definitions

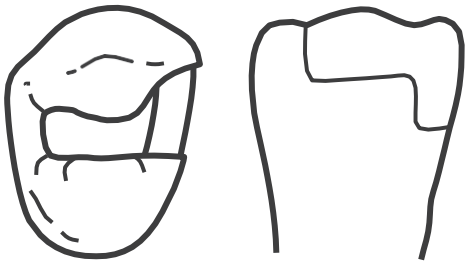
The following definitions are provided to assist understanding of the scoring criteria.

Affected Dentin: A clinical diagnosis made by tactile sensation using light pressure with an explorer and encountering dentin that is slightly penetrable. (Light pressure with an explorer is the amount of pressure it takes to blanch a fingernail with an explorer.) Affected dentin has slight resistance to the perpendicular withdrawal of the explorer.

Caries Remaining: A clinical diagnosis made by tactile sensation using light pressure with an explorer and encountering dentin that is soft and penetrable. (Light pressure with an explorer is the amount of pressure it takes to blanch a fingernail with an explorer.) Caries has definite resistance to the perpendicular withdrawal of the explorer and may have a dry leathery appearance.

NOTE: If insufficient or improper extension of the preparation results in failure to access the entire lesion, a diagnosis of caries remaining can be supported from clinical or radiographic evidence even though the caries may not be accessible to direct tactile sensation.

Class II Conventional Preparation: The conventional Class II preparation has a pulpal floor and extends from the proximal box into some or all the grooves and fissures of the occlusal surface.



Finger Extension: The removal of a small area of caries, affected dentin, or unsound demineralized enamel on the facial proximal or lingual proximal cavosurface margin to avoid overextending a direct preparation.

Fissure: A developmental cleft resulting from the incomplete fusion of adjoining dental lobes that is usually found at the base of a groove.

Fissurotomy: The selective, shallow removal of demineralized or healthy dental enamel in the vicinity of a fissure to facilitate cleansing and to reduce the harboring of bacteria and risk of caries extension. Sometimes performed in preparation for the placement of a preventive resin restoration or sealant, a fissurotomy is not acceptable for the WREB Operative section or its Operative Simulation.

Indirect Pulp Cap: Caries or affected dentin deliberately left directly over the pulp chamber to avoid an exposure. It should be within 0.5 mm of the pulp. Except for caries or affected dentin left in place in connection with an indirect pulp cap, there should be no other caries or affected dentin in the preparation.

Indirect Pulp Cap Declared When Not Indicated: Candidate indicates in "Note to Examiners" intent to place an indirect pulp cap when no caries or affected dentin remains.

Pulp Exposure: A direct communication between the pulp chamber and the oral cavity caused by loss of the normally intervening dentin barrier.

Retentive Grooves: For the amalgam preparation, there may be distinct retentive grooves of no more than 0.5 mm depth that follow the DEJ and extend from the gingival floor up to and/or include the occlusal surface.

Sclerotic Dentin: A dentinal formation occurring ahead of the demineralization front of a slowly advancing carious lesion. It may be shiny and dark in color. It feels hard and impenetrable with an explorer.

Unsound Demineralized Enamel: Enamel characterized by a decrease or loss of mineral constituents resulting in coloration that can range from white to dark brown. Color variation alone does not warrant removal of the affected area; there must be tactile evidence that the enamel is unsound. Unsound demineralized enamel is tactilely different from the adjacent unaffected enamel and should be removed.

Reference Material

Roberson, Heymann, & Swift. Sturdevant's Art and Science of Operative Dentistry, (5th ed.), Mosby Publishing Co.

Summitt J.B., Robbins J.W., Hilton T.J., & Schwartz R.S. (eds). (2013). Fundamentals of Operative Dentistry: A Contemporary Approach (4th ed). Quintessence Publishing Co.

OPERATIVE SIMULATION SCORING

Scoring

The Operative Simulation Exam is graded by three (3) independent Grading Examiners. The examiners grade according to the applicable *Simulated Scoring Criteria Rating Scales* on pages 74-77. Examiners may utilize 2.5 X magnification or greater for grading. The recorded score for each category is based on the median (middle) score of the three (3) scores assigned by the Grading Examiners. The median grades are weighted and summed for the preparation and finish respectively, then averaged for the total procedure score. Two procedures must be completed on the Operative Simulation section. The average of the two procedure scores must be 3.00 or higher to pass the section.

Operative Simulation Onsite Retakes

Candidates with a failing result in the Operative Simulation section may have an opportunity to retake the section at the same exam site on the last day of the exam with no additional fees. Availability depends on each candidate's scheduled sections and individual time constraints. Candidates with a validated critical error will not be allowed to retake the Operative Simulation section at the exam site. Onsite retakes for Operative Simulation are not available until the last day of the exam. Candidates attempting an onsite retake of the Operative Simulation must arrive in the simulation lab no later than one (1) hour after the simulation section is designated to begin. If, for any reason, the section is not retaken onsite, candidates may retake the Operative Simulation section at a different site (where retake fees apply).

PREPARATION WEIGHTING		FINISH WEIGHTING	
Outline and Extension:	46%	**Anatomical Form:**	36.5%
Internal Form:	39%	**Margins:**	36.5%
Operative Environment:	15%	**Finish, Function and Damage:**	27%

SCORE DEDUCTIONS		
Modification Request Not Appropriate (Validated by two or more Grading Examiners.)	=	0.5 deducted for each modification request validated not appropriate from the applicable preparation score. No maximum.
Pulp Exposure (Recognized by a candidate or Floor Examiner or found during grading and validated by the Grading Examiners.)	=	0.5 deducted from the applicable preparation score.

LATE PENALTIES

Time is determined by the official WREB clock displayed in the simulation lab.

1 to 5 minutes late	=	0.2 deduction
6 to 10 minutes late	=	0.4 deduction
11 to 15 minutes late	=	0.6 deduction
16 or more minutes late	=	The applicable submission will not be graded. No points earned.

UNUSUAL SITUATIONS

- Preparing the wrong surface (If a wrong surface is prepared, the assigned preparation must be included in the submission.)

  = Loss of all points for outline and extension and internal form for that preparation
- After completion of the setup check, the candidate fails to compete the simulated treatment or submit all the required materials.

  = Failure of the Operative Simulation
- Altering, crossing-out, or cancelling a written modification request after review by a Floor Examiner.

  = Loss of all points for preparation

The following unusual situations result in failure of the Operative Simulation section:

- Candidate leaves the simulation lab without Floor Examiner permission
- Candidate starts without a setup check or before start of the exam is announced by the Floor Examiner
- Candidate repeatedly fails to use Standard Precautions
- Candidate repeatedly violates simulation protocol

CRITICAL ERRORS

The following critical errors result in failure of the Operative Simulation section:

- Caries remaining (validated by two or more Grading Examiners)
- Preparing the wrong tooth
- Restoring with a material other than indicated at the beginning of the simulation.

OPERATIVE SIMULATION CLASS II – COMPOSITE PREPARATION
SCORING CRITERIA RATING SCALE

	5–Optimal	4–Appropriate	3–Acceptable	2–Inadequate	1–Unacceptable
OUTLINE & EXTENSION	Outline is generally smooth and flowing and does not weaken tooth in any manner.	Outline is slightly irregular but does not weaken tooth. Isthmus is slightly wider than required.	Outline moderately weakens marginal ridge or a cusp. Isthmus is too wide or too narrow.	Outline severely weakens marginal ridge or a cusp. Outline is misshapen and/or forces improper angle of exit. Unsound demineralized enamel that is tactilely different from adjacent unaffected enamel remains.	Outline is grossly improper and/or lacks any definite form. Tactilely unsound demineralized enamel penetrates the DEJ. Caries remains in the enamel or is not completely accessed. Unapproved surface prepared.
	Proximal and gingival extensions are visually open less than 1.0 mm	Proximal and/or gingival extensions are slightly overextended.	Proximal and/or gingival extensions are moderately overextended.	Proximal and/or gingival extensions are in contact or obviously overextended.	Proximal and/or gingival extensions are grossly overextended.
	Optimal treatment of fissures.	Near optimal treatment of fissures.	Adequate treatment of fissures. Neither the tooth nor restoration is compromised.	Inadequate treatment of fissures will compromise the tooth or restoration.	Lack of treatment of fissures will seriously compromise the tooth and restoration.
	Proximal cavosurface angles are equal to or slightly greater than 90°. The integrity of both tooth and restoration is maintained.	Cavosurface angles are not optimal, but do not compromise the integrity of the tooth or restoration. Cavosurface has small areas of minor roughness.	Cavosurface angles possibly compromise the integrity of the tooth or restoration. Cavosurface is moderately rough but will not adversely affect the final restoration.	Improper cavosurface angles or rough cavosurface will cause the final restoration to fail.	Cavosurface angles are grossly improper. Cavosurface has multiple major areas of roughness and/or enamel weakness that will cause the restoration to fail.
INTERNAL FORM	Pulpal floor depth as determined by the lesion or defect does not exceed 2.0 mm from the cavosurface. Axial wall depth at the gingival floor is 1.0 mm-1.5 mm.	Pulpal floor and/or axial wall is slightly shallow or deep.	Pulpal floor and/or axial wall is moderately shallow or deep.	Pulpal floor and/or axial wall is critically shallow or critically deep. Affected dentin remains. Indirect pulp cap declared when no caries or affected dentin remains.	Walls and/or floors are grossly deep. Gross removal of tooth structure jeopardizes the tooth or pulp. Caries remains in the dentin or is not completely accessed. Unapproved surface prepared.
	Conventional design: Internal form is smooth and flowing and has no sharp angles that could weaken or cause voids in the final restoration.	Conventional design: Internal form is mostly smooth and flowing, but some minor roughness and/or sharp angles are present.	Conventional design: Internal form is generally smooth and flowing, but some moderate roughness and/or sharp angles are present.	Conventional design: Internal form is rough and unfinished with major areas of roughness or sharp angles that will lead to restoration failure.	Conventional design: Internal form is grossly rough and/or has gross sharp angles that will lead to restoration failure.
OPERATIVE ENVIRONMENT	No damage to the adjacent tooth.	Minor damage to the adjacent tooth can be removed by polishing without changing the shape of the contact.	Damage to the adjacent tooth can be removed by polishing, but the shape of the contact will be changed.	Damage to the adjacent tooth will be difficult to polish out and still maintain appropriate proximal contour. The adjacent tooth will likely require restoration.	Damage to the adjacent tooth will require restoration.

OPERATIVE SIMULATION CLASS III – COMPOSITE PREPARATION
SCORING CRITERIA RATING SCALE

	5–Optimal	4–Appropriate	3–Acceptable	2–Inadequate	1–Unacceptable
OUTLINE & EXTENSION	Outline provides optimal convenience form (access for caries removal and insertion of restorative material). Gingival extension is visually open to 0.5 mm. Facial (or lingual) extension may break proximal contact up to 0.5 mm. Incisal contact is not broken. Includes proximal contact area.	Outline is slightly over or under extended. Outline is slightly irregular but does not weaken the tooth. Includes proximal contact area with slight variation.	Outline is moderately over or under extended. Outline is moderately irregular but does not weaken the tooth. Gingival margin is moderately overextended. Includes proximal contact area with moderate variation.	Outline is severely over or underextended. Gingival wall is in contact or obviously overextended. Incisal extension has broken contact. Mostly below proximal contact area where caries would be expected. Unsound demineralized enamel that is tactilely different from adjacent unaffected enamel remains.	Outline is grossly improper and/or lacks any definite form. Gingival wall is grossly overextended. Tactilely unsound demineralized enamel penetrates the DEJ. Caries remains in the enamel or is not completely accessed. Unapproved surface prepared. Wholly below proximal contact area where caries would be expected.
	Cavosurface forms a smooth continuous curve with no sharp angles.	Cavosurface is slightly irregular and rough; no sharp angles.	Cavosurface is moderately irregular and rough. A few sharp angles are present.	Cavosurface is severely irregular and/or with sharp angles.	Cavosurface has multiple gross irregularities that will cause the restoration to fail.
	There are no acute cavosurface angles.	Cavosurface angles are not optimal, but do not compromise the integrity of the tooth or restoration.	Cavosurface angles possibly compromise the integrity of the tooth or restoration.	Cavosurface angles will lead to enamel fracture or fracture of the restoration.	Cavosurface angles are grossly inappropriate for the situation and will lead to fracture of the restoration.
INTERNAL FORM	Axial wall follows external contour of tooth. Depth does not exceed 1.0 mm beyond the DEJ.	Axial wall generally follows external contour of tooth. Depth does not exceed 1.5 mm beyond the DEJ.	Axial wall does not follow contour of tooth. Depth does not exceed 2.0 mm beyond the DEJ.	Axial wall depth exceeds 2.0 mm beyond the DEJ. Affected dentin remains. Indirect pulp cap declared when no caries or affected dentin remains.	Gross removal of tooth structure jeopardizes the tooth or pulp. Caries remains in the dentin or is not completely accessed. Unapproved surface prepared.
	Internal line angles are rounded and smooth. Internal walls are well defined.	Internal walls are well defined and rounded but have some slight irregularities.	Internal walls are rounded, but moderately rough, irregular, and not defined. Moderately sharp line angles are present.	Internal walls are severely irregular and not defined. Angle of walls undermines enamel, jeopardizes incisal angle, or encroaches on the pulp.	Grossly irregular and sharp line angles show total disregard for the health of the tooth.
OPERATIVE ENVIRONMENT	No damage to the adjacent tooth.	Minor damage to the adjacent tooth can be removed by polishing without changing the shape of the contact.	Damage to the adjacent tooth can be removed by polishing, but the shape of the contact will be changed.	Damage to the adjacent tooth will be difficult to polish out and still maintain appropriate proximal contour. The adjacent tooth will likely require restoration.	Damage to the adjacent tooth will require restoration.

OPERATIVE SIMULATION CLASS II – AMALGAM PREPARATION
SCORING CRITERIA RATING SCALE

	5–Optimal	4–Appropriate	3–Acceptable	2–Inadequate	1–Unacceptable
OUTLINE & EXTENSION	Outline is generally smooth and flowing and does not weaken tooth in any manner.	Outline is slightly irregular but does not weaken tooth. Isthmus is slightly wider than required.	Outline moderately weakens marginal ridge or a cusp. Isthmus is too wide or too narrow.	Outline severely weakens marginal ridge or a cusp. Outline is misshapen and/or forces improper angle of exit. Unsound demineralized enamel that is tactilely different from adjacent unaffected enamel remains.	Outline is grossly improper and/or lacks any definite form. Tactilely unsound demineralized enamel penetrates the DEJ. Caries remains in the enamel or is not completely accessed. Unapproved surface prepared.
	Proximal and gingival extensions are visually open less than 1.0 mm	Proximal and/or gingival extensions are slightly overextended.	Proximal and/or gingival extensions are moderately overextended.	Proximal and/or gingival extensions are in contact or obviously overextended.	Proximal and/or gingival extensions are grossly overextended.
	Optimal treatment of fissures.	Near optimal treatment of fissures.	Adequate treatment of fissures. Neither the tooth nor restoration is compromised.	Inadequate treatment of fissures will compromise the tooth or restoration.	Lack of treatment of fissures will seriously compromise the tooth and restoration.
	Proximal cavosurface angles are approximately 90°. The integrity of both tooth and restoration is maintained.	Cavosurface angles are not optimal, but do not compromise the integrity of the tooth or restoration. Cavosurface has small areas of minor roughness.	Cavosurface angles possibly compromise the integrity of the tooth or restoration. Cavosurface is moderately rough but will not adversely affect the final restoration.	Improper cavosurface angles or rough cavosurface will cause the final restoration to fail.	Cavosurface angles are grossly improper. Cavosurface has multiple major areas of roughness and/or enamel weakness that will cause the restoration to fail.
INTERNAL FORM	Proximal walls are clearly convergent occlusally.	Proximal walls are barely convergent occlusally.	Proximal walls are parallel or divergent in one area.	Proximal walls are critically divergent occlusally.	Proximal walls are grossly divergent occlusally.
	Pulpal floor is 1.5 mm-2.0 mm from the cavosurface and provides adequate bulk for strength of restorative material. Axial wall depth at the gingival floor is 1.0 mm-1.5 mm.	Axial wall and/or pulpal floor is slightly shallow or deep, but still provides adequate bulk for strength of restorative material.	Axial wall and/or pulpal floor is moderately shallow or deep, but still provides adequate bulk for strength of restorative material.	Axial wall and/or pulpal floor is critically shallow or deep and does not provide adequate bulk for strength of restorative material. Affected dentin remains. Indirect pulp cap declared when no caries or affected dentin remains.	Walls and/or floors are grossly deep. Gross removal of tooth structure jeopardizes the tooth or pulp. Caries remains in the dentin or is not completely accessed. Unapproved surface prepared.
	Conventional design: Internal form is smooth and has no sharp angles. Retentive grooves, if placed, are near ideal. Axial wall follows external contour of the tooth.	Conventional design: Internal form is mostly smooth, but some minor roughness and/or sharp angles are present. Retentive grooves, if placed, are adequate. Axial wall contour is near optimal.	Conventional design: Internal form is generally smooth, but some moderate roughness and/or sharp angles are present. Retentive grooves, if placed, are too deep or too shallow, or placed in an incorrect location. Axial wall contour is not optimal.	Conventional design: Internal form is rough and unfinished with major areas of roughness or sharp angles that will lead to restoration failure. Retentive grooves, if placed, are too deep or too shallow, or placed in an incorrect location, and will compromise the tooth or restoration.	Conventional design: Internal form is grossly rough and/or has gross sharp angles that will lead to restoration failure. Gross disregard for proper placement of retentive features will compromise the tooth and restoration.
OPERATIVE ENVIRONMENT	No damage to the adjacent tooth.	Minor damage to the adjacent tooth can be removed by polishing without changing the shape of the contact.	Damage to the adjacent tooth can be removed by polishing, but the shape of the contact will be changed.	Damage to the adjacent tooth will be difficult to polish out and still maintain appropriate proximal contour. The adjacent tooth will likely require restoration.	Damage to the adjacent tooth will require restoration.

OPERATIVE SIMULATION FINISH RESTORATION
SCORING CRITERIA RATING SCALE

	5–Optimal	4–Appropriate	3–Acceptable	2–Inadequate	1–Unacceptable
ANATOMICAL FORM	Anatomical form is consistent and harmonious with contiguous tooth structure.	Slight variation in normal anatomical form is present.	Moderate variation in normal anatomical form is present. Marginal ridge is improperly shaped.	Anatomical form is improper. Marginal ridge is poorly shaped. Anatomy is too deep or too flat.	There is gross lack of anatomical form.
	Proper proximal contour and shape are restored.	There is slight variation of proximal contour and shape.	There is moderate variation of proximal contour and shape.	Proximal contour is poor. Embrasures are severely over or under contoured.	Grossly improper proximal contour or shape.
	Normal proximal contact area and position are restored. Contact is visually closed and resists the passage of lightly waxed floss.	There is slight variation of normal contact area and position. Contact is visually closed and resists the passage of lightly waxed floss.	There is moderate variation of normal contact area and position. Lightly waxed floss will pass through the contact with slight resistance.	Contact is visually open; contour is pointed and sharp; or so broad, flat or tight that floss will not pass easily through the contact.	Contact is grossly open; contour terminates far from the adjacent tooth or the restoration is bonded to the adjacent tooth.
MARGINS	There are no excesses or deficiencies anywhere along margins.	Slight marginal excesses and/or deficiencies are present.	Moderate marginal excesses and/or deficiencies are present.	A deep open margin is present, or critical excesses or deficiencies are present. A marginal overhang catches floss.	Multiple open margins, or gross excesses, or deficiencies, are present. A gross marginal overhang shreds floss.
FINISH, FUNCTION & DAMAGE	The surface is smooth with no pits, voids or irregularities.	Slight surface irregularities, pitting, or voids are present.	Moderate surface irregularities, pitting, or voids are present.	Critical surface irregularities, pitting, or voids are present.	Gross surface defects are present and/or the restoration is grossly fractured.
	There is no damage to hard or soft tissue. Occlusion is restored to proper centric with no lateral interferences.	Minor damage to hard or soft tissue is evident.	Moderate damage to hard or soft tissue is evident.	Severe damage to hard or soft tissue is evident. There is severe hyperocclusion in centric or lateral excursions. Occlusal marks appear only on the restoration. Open contact risks trapping food debris or overly tight contact makes flossing difficult.	Gross mutilation of hard or soft tissue is evident. Occlusion is grossly unacceptable. Grossly open contact exposes interdental col to potential trauma or fused teeth make flossing impossible.

Front

WREB

OPERATIVE SIMULATION WORKSHEET PREPARATION

Candidate ID#: _____

Date: _____

Use Ink

Class II
14 MO Preparation

Class III
9 DL Preparation

Choose and circle restorative material:

Composite **Amalgam**

Restorative material must be Composite

_____
Floor Examiner Prep Setup Check

Tooth	Request Type	Location	Extent	Reason	SFE/FE OK or GE Review
9	1.				
	2.				
	3.				
14	1.				
	2.				
	3.				

Note to Grading Examiners (if necessary)	Grading Examiner Initials		

2022 - Revised

This worksheet must be submitted with your preparations.

Back

Setup Check

- Completed *Operative Simulation Worksheet*
- Maxillary arch has Candidate ID Number written on palate with permanent black marker
- Arches/articulator properly mounted in manikin
- Manikin in normal patient treatment position with normal vertical dimension
- Light on
- Mirror available

Checklist of required items after treatment (in ziplock bag)

- Completed *Operative Simulation Worksheet*
- Treated maxillary arch with Candidate ID Number written on palate with permanent black marker
- The radiographic images
- Deliver ziplock bag to the WREB Proctor before leaving the simulation lab

Front

WREB

OPERATIVE SIMULATION WORKSHEET
FINISH RESTORATION

Candidate ID#: _____

Date: _____

Use ink

Class II
14 MO

Class III
9 DL

Restorative material must be the same as was specified for the preparation.

_____
Floor Examiner Finish Setup Check

Note to Examiners (if necessary)	Grading Examiner Initials		

2021

This worksheet must be turned in with your restorations.

Back

Setup Check

- Completed *Operative Simulation Worksheet*
- Maxillary arch has Candidate ID Number written on palate with permanent black marker
- Arches/articulator properly mounted in manikin
- Manikin in normal patient treatment position with normal vertical dimension
- Light on
- Mirror available

Checklist of required items after treatment (in ziplock bag)

- Completed *Operative Simulation Worksheet*
- Treated maxillary arch with Candidate ID Number written on palate with permanent black marker
- Deliver ziplock bag to the WREB Proctor before leaving the simulation lab.