



EXAM INFORMATION

Items

31

Points

62

Prerequisites

DENTAL SCIENCE I

Grade Level

12

Course Length

ONE SEMESTER

Career Cluster

HEALTH SCIENCE

NCHSE HEALTH SCIENCE BUNDLE

Performance Standards

INCLUDED

Certificate Available

YES

DESCRIPTION

The second assessment in a series, Dental Science II prepares students to assist a dentist or dental hygienist performing the functions of a dental practice. Topics include: chairside assisting, patient preparation, front office functions, selected dental office laboratory procedures, and introduction to radiology.

EXAM BLUEPRINT

STANDARD**PERCENTAGE OF EXAM**

1- Dental Examination	18%
2- Procedures	23%
3- Pharmacology & Pain Control	14%
4- Operative Procedures	45%



STANDARD I

STUDENTS WILL BE ABLE TO PERFORM THE SKILLS AND RESPONSIBILITIES EXPECTED OF A DENTAL ASSISTANT IN A DENTAL EXAMINATION

- Objective 1 Describe the role of the dental assistant in the clinical examination.
- Objective 2 Receive patients and prepare room for treatment
- Objective 3 Take, record, and monitor vital signs (using automated systems)
 - 1. Blood pressure
 - 2. Pulse
- Objective 4 Chart existing restorations or conditions.
- Objective 5 Explain the importance of a treatment plan.
 - 1. Treatment plan is a compilation of clinical findings and oral diagnosis by a dentist, in an outlined format for presentation purposes.
 - 2. The treatment plan must be presented and accepted by the patient before treatment is rendered.
- Objective 6 Maintain field of operation during dental procedures.
- Objective 7 Explain the difference between an oral prophylaxis and coronal polishing.
 - 1. Oral prophylaxis – the complete removal of calculus, debris, stain, and plaque from the teeth.
 - 2. Coronal polish/rubber cup polish – a technique used to remove plaque and stains from the crown of the tooth.
- Objective 8 Demonstrate safety precautions to be followed during coronal polish.
 - 1. Operator and patient positioning
 - 2. Polishing/bristle cups
 - 3. Polishing paste
 - 4. Proper handpiece grasp/fulcrum
 - 5. Proper handpiece operation
 - 6. Polishing strokes
- Objective 9 Perform coronal polish.
- Objective 10 Outline the methods of fluoride therapy
 - 1. Systemic
 - 2. Topical
- Objective 11 Apply topical fluoride.
- Objective 12 Maintain records in accordance with legal guidelines.
 - 1. Black ink
 - 2. Date.
 - 3. Tooth number
 - 4. Surfaces of tooth
 - 5. Procedure performed
 - 6. All important information pertaining to treatment rendered.
 - 7. Signature of individual who made the entry.
- Objective 13 Record the examination in patient record.
- Objective 14 Demonstrate how to correct an error on the patient chart.



Standard I Performance Evaluation included below (Optional)

STANDARD 2

STUDENTS WILL DEMONSTRATE PATIENT AND OPERATOR PROTECTION, INFECTION CONTROL PROCEDURES, EXPOSE AND PROCESS, EVALUATE, MOUNT, AND LABEL DENTAL X-RAYS.

Objective 1 Explain to a patient the benefits of dental x-rays

1. Detect decay between the teeth in its early stages
2. Detect bone loss around the teeth
3. Detect periapical abscess
4. Detect impacted teeth
5. Evaluate patient growth and development
6. Document existing oral conditions
7. Obtain information during dental procedures

Objective 2 Identify types of intraoral and extraoral radiographs and the purpose of each

1. Intraoral
 1. Bitewing x-rays-shows crowns of both upper and lower teeth; for decay detection
 2. Periapical x-rays-used to show crown, root tip, and surrounding area to diagnose abscesses
 3. Occlusal x-rays-used to examine large areas of the jaws to identify impactions or pathological conditions
2. Extraoral
 1. Panoramic x-rays-shows entire upper and lower jaw; used to locate impacted teeth, tooth eruption patterns, and lesions in the jaw Cephalometric x-rays-shows the bones and soft tissues of the facial profile; used in orthodontics

Objective 3 Identify the components of the dental x-ray machine and their use

1. Tubehead
2. Extension arm
3. Control panel

Objective 4 Demonstrate methods of radiation protection for the patient during x-ray exposure

1. Take only those radiographs prescribed by the dentist
2. Use equipment that is properly maintained
3. Use the fastest speed of dental film to limit exposure time
4. Use proper film exposure techniques including use of film-holding devices
5. Use lead aprons and thyroid collars for all patients

Objective 5 Demonstrate methods of radiation protection for the operator during x-ray exposure

1. Never stand directly in front of the x-ray tube head
2. Always stand at least 6 feet from the x-ray unit, or behind a wall, during exposure
3. Use radiation monitoring to protect the operator

Objective 6 Demonstrate infection control during x-ray procedures

Objective 7 Assemble the XCP instrument

Objective 8 Demonstrate techniques for intraoral x-rays

1. Paralleling technique
2. Bisecting angle technique



3. Bite-wing technique
4. Occlusal technique

Objective 9 Outline the advantages and disadvantages of digital radiography

1. Advantages
 1. Gray scale resolution is excellent and the dentist may enhance contrast on the computer
 2. 50%-80% less radiation is used in exposure
 3. Immediate images
 4. Lower cost for equipment and film
 5. No environmental concerns related to disposal of chemicals
 6. Great for patient education because patients can see the conditions within the teeth
2. Disadvantages
 1. Initial setup costs are higher because digital systems require computers and accessory items for each operatory
 2. Intraoral sensors are larger and bulkier than traditional x-ray film
 3. Sensors cannot be heat sterilized, so they must be protected with disposable barriers
 4. Some professionals feel the quality of images is not as good as traditional films

Objective 10 Demonstrate extraoral x-ray techniques

1. Panoramic x-ray technique

Objective 11 Evaluate x-rays for diagnostic quality

1. Contrast
2. Density
3. Image detail
4. Image distortion

Objective 12 Identify common exposure and technique error

1. Blurred images-movement during the exposure
2. Clear film-film was not exposed
3. Cone cutting-x-ray beam did not cover the entire film
4. Double exposure-film was exposed twice
5. Elongation-vertical angulation too flat
6. Foreshortening-vertical angulation too steep
7. Herringbone effect-film was placed with the white side away from the PID
8. Missing apical structures-film did not cover entire tooth
9. Occlusal plane tilted-film not in proper position
10. Overexposure-excessive exposure
11. Overlapping-central ray not directed through interproximal space
12. Underexposure-insufficient exposure

Objective 13 Identify common processing errors

1. Dark films-overdevelopment, strong solution, solution too warm, light leaks
2. Fogged film-improper safelight, expired film, stray radiation
3. Light films-underdevelopment, weak solution, contaminated solution
4. Overlap-films touching or overlapping during processing
5. Roller marks-dirty rollers on automatic processor

Objective 14 Outline care of the automatic processor

1. Must be cleaned according to manufacturer's directions
2. Chemicals should be replenished according to manufacturer's directions and disposed of according to state standards



Objective 15 Identify radiographic landmarks for mounting intraoral films

1. Enamel
2. Dentin
3. Pulp
4. Maxillary sinus
5. Maxillary tuberosity
6. Retromolar area
7. Ramus

Objective 16 Mount and label radiographs

1. Patient's name
2. Date of exposure
3. Dentist's name and address

Standard 2 Performance Evaluation included below (Optional)

STANDARD 3

STUDENTS WILL EXAMINE PHARMACOLOGY AND PAIN CONTROL IN THE DENTAL OFFICE SETTING

Objective 1 List each part of a prescription

1. Superscription
2. Inscription
3. Subscription
4. Signature

Objective 2 Identify common prescription abbreviations

Objective 3 Record prescription in the patient record

Objective 4 List commonly prescribed drugs in dentistry

1. Analgesics
 1. Acetaminophen
 2. Ibuprofen
 3. Naproxen
 4. Aspirin
 5. Codeine
2. Antibiotics
 1. Amoxicillin
 2. Cephalexin
 3. Erythromycin
 4. Clarithromycin
 5. Azithromycin
 6. Chlorhexidene
3. Antifungal agents
 1. Nystatin
4. Antiviral agents
 1. Acyclovir
5. Antianxiety agents
 1. Diazepam



2. Valium

- Objective 5 Prepare for a local anesthetic injection
1. Insert indicator text Proper handling of the anesthetic syringe
 2. Proper handling of the anesthetic cartridge
 3. Proper handling of the disposable needle
 4. Application of a topical anesthetic
- Objective 6 Identify local anesthetic agents
- Objective 7 Identify the complications and precautions for dental anesthesia
1. Injection into a blood vessel-aspiration
 2. Toxic reaction-check patient's dental/medical history for previous reactions
 3. Temporary numbness-caution patient not to bite tongue, lips, and cheeks
 4. Paresthesia (temporary or permanent)-use only sterile solution and proper injection
 5. technique
- Objective 8 Explain the use and purpose of nitrous oxide in dental treatment
1. Inhalation sedation
- Objective 9 Describe the procedure for monitoring nitrous oxide/oxygen analgesia
- Objective 10 Document the use of anesthesia and pain control in the patient record

Standard 3 Performance Evaluation included below (Optional)

STANDARD 4

STUDENTS WILL IDENTIFY COMPONENTS OF OPERATIVE PROCEDURES AND ASSIST IN PATIENT TREATMENT

- Objective 1 Identify reasons for restorative and esthetic dental treatment
1. Restorative
 1. Insert indicator text Treat caries, fractures, abrasions, erosion, defects in tooth structure
 2. Replace failed restorations
 3. Restore a tooth to normal function and appearance
 2. Esthetic
 1. Improve appearance of teeth due to discoloration, developmental abnormalities, abnormal spacing, or trauma
- Objective 2 Outline responsibilities of the dental assistant in operative dental procedures
1. Prepare treatment room
 2. Know proper sequence of procedures in order to anticipate the dentist's needs
 3. during patient treatment
 4. Mix materials
 5. Prepare retainers
 6. Assist in the following:
 1. Administration of local anesthesia
 2. Moisture control
 3. Maintaining patient comfort
 7. Apply appropriate exposure control protocols
 8. Perform only those expanded functions allowed by the State Dental Practice Act



Objective 3 Identify handpieces and burs, their common uses in operative dentistry, and maintenance

1. Low-speed
2. High-speed
3. Fiber optic light
4. Air abrasion
5. Laser handpiece
6. Burs: round, inverted cone, straight fissure plain and cross cut, pear, end cutting
7. Diamonds
8. Trimming and finishing burs
9. Polishing disks and wheels
10. Stones
11. Rubber points

Objective 4 Mix restorative dental materials

1. Insert indicator text Amalgam
2. Composite resins
3. Bonding systems
4. Cements
5. Zinc oxide eugenol
6. Glass ionomer
7. Liners: calcium hydroxide, dental sealer, varnish
8. Tooth whitening systems

Objective 5 Outline treatment options for vital bleaching

1. In-office treatment
2. At-home treatment
3. Over-the-counter treatment

Objective 6 Outline steps for instrument setup and care

Objective 7 Set up for a Class II amalgam procedure

1. Instruments
 1. Basic setup
 2. Hand cutting instruments (spoon excavator)
 3. Amalgam carrier
 4. Condensers
 5. Burnishers
 6. Carvers
 7. Articulating paper holder
2. Accessories
 1. Local anesthetic setup
 2. HVE
 3. Saliva ejector
 4. High and low speed handpieces with assortment of burs
 5. Matrix setup including wedge
 6. Assortment of dental liners
 7. Bases
 8. Sealers
 9. Amalgam capsules
 10. Dental floss
 11. Articulating paper holder



12. Cotton pellets
13. Cotton rolls
14. 2x2 gauze

Objective 8 Set up for a composite procedure

1. Instruments
 1. Basic setup
 2. Hand cutting instruments (spoon excavator)
 3. Composite placement instruments
 4. Articulating paper holder
2. Accessories
 1. Local anesthetic setup
 2. HVE tip
 3. Saliva ejector
 4. High and low speed handpieces with assortment of burs
 5. Mylar matrix setup
 6. Assortment of dental liners
 7. Bases
 8. Sealers and bonding agents
 9. Composite materials
 10. Curing light
 11. Finishing burs
 12. Dental floss
 13. Articulating paper holder
 14. Cotton rolls
 15. 2x2 gauze
 16. Abrasive strips
 17. Polishing kit and paste

Objective 9 Provide post-operative instructions for restorative procedures

Objective 10 Record the amalgam procedure in patient record

Objective 11 Record the composite procedure in patient record

Standard 4 Performance Evaluation included below (Optional)



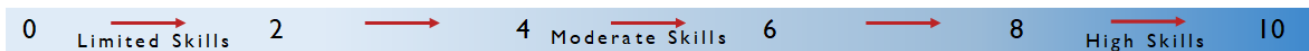
Dental Science II Performance Standards (Optional)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of **8 or higher** on the rating scale. Students may be encouraged to repeat the objectives until they average **8 or higher**.

Students Name _____

Class _____

PERFORMANCE RATING SCALE



STANDARD 1 Dental Examination

Score:

- Receive patients and prepare room for treatment.
- Chart existing restorations or conditions.
- Maintain field of operation during dental procedures.
- Perform coronal polish.
- Apply topical fluoride.
- Record the examination in the patient record.

STANDARD 2 Procedures

Score:

- Assemble the ACP Instrument.
- Demonstrate techniques for intraoral x-rays.
- Demonstrate techniques for extraoral x-rays.
- Mount and label dental radiographs.

STANDARD 3 Pharmacology & Pain Control

Score:

- Record prescription in patient record.
- Set up for a local anesthetic injection.
- Document the use of anesthesia and pain control in the patient record.

STANDARD 4 Operative Procedures

Score:

- Mix restorative dental materials.
- Set up for a class II amalgam procedure.
- Set up for a composite procedure.
- Record the amalgam procedure in the patient record.
- Record the composite procedure in the patient record.

PERFORMANCE STANDARD AVERAGE SCORE: