

LearnerName_____CompanyName_____

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Level 3 Diploma in Dental Nursing - 5234

Unit 314 Dental Radiography

Below contains all areas that make up the 314 dental exam, please be aware of all the learning outcomes, assessment criteria and range, and ensure you revise thoroughly in all these areas.

The aim of this unit is to understand current legislation relating to radiography in addition to the principles and techniques of taking, processing and quality assuring radiographs.

Learning outcome: 1. know the regulations and hazards associated with ionising radiation

Assessment criteria:

- 1.1 outline the **legal requirements** for ionising radiation
- 1.2 explain the role of dental personnel when using ionising radiation in the dental environment
- 1.3 identify the hazards associated with ionising radiation
- 1.4 explain organisational **practices and policies** relating to ionising radiations and the taking of dental images.

Range

Legal requirements

- a) ionising radiation regulations 1999
- b) ionising radiation (medical exposure) regulations 2000

Practices and policies

- a) local rules
- b) quality control systems
- c) staff training records

Learning outcome: 2. understand the different radiographic films and their uses

Assessment criteria:

- 2.1 explain the uses of
 - a. intra oral radiographs**
 - b. extra oral radiographs**
- 2.2 evaluate the reasons for using digital radiography
- 2.3 explain the purpose of intensifying screens in dental radiography.

Range

Intra oral radiographs

- a) bitewing
- b) periapical
- c) occlusal

Extra oral radiographs

- a) lateral oblique
- b) cephalostats
- c) orthopantomographs (OPG)

Learning outcome: 3. understand the imaging process and the management of chemicals used for processing radiographs

Assessment criteria

- 3.1 explain **methods** for processing radiographs
- 3.2 explain the purpose of using safelights during processing of radiographs
- 3.3 describe faults that may occur when taking and processing radiographs
- 3.4 give **reasons** for faults when taking and processing radiographs
- 3.5 explain how chemicals should be handled, stored and disposed of in a safe manner
- 3.6 explain how to manage a spillage of processing solutions
- 3.7 explain the procedure for managing **equipment** failure.

Range

Methods

- a) Manual
- b) automatic
- c) digital

Reasons

- a) operator error
- b) processing
- c) equipment
- d) storage of materials

Equipment

- a) x-Ray machine
- b) automatic film processors

Learning outcome: 4. understand the importance of stock control, mounting and quality assurance in dental radiography

Assessment criteria

- 4.1 explain the importance of rotating x-ray film stock
- 4.2 explain the protocol for storing:
 - a. x-ray films
 - b. digital images
 - c. processing solutions
 - d. radiographs
- 4.3 explain why film stock that has deteriorated should not be used
- 4.4 explain the methods of mounting radiographs
- 4.5 explain the consequences of incorrectly mounting radiographs
- 4.6 explain the purpose of quality assuring dental radiographs
- 4.7 explain the recording systems used as part of the quality assurance process.

Revision Questions & Exercises

Please use Third Edition Diploma in Dental Nursing Level 3 book chapters:

7 - 307 contribute to the production of dental images
14 – 314 dental radiography

- 1. What are your roles during the taking of x-rays and what safety procedures do you follow?**
- 2. What are the following? Explain briefly;**
 - Ionising Radiation Regulations 1999
 - Ionising Regulation Medical Exposure Regulation 2000
- 3. List the hazards associated with Ionising Radiation**
- 4. List below the local rules displayed in your practice for radiation**
- 5. What are intra oral x-rays?**
- 6. What are extra oral x-rays?**
- 7. Complete the table below:**

Radiograph	Uses
Bitewing	
Periapical	
Occlusal	
Lateral Oblique	
Cephalostat	
OPG	

- 8. What are the pros of using digital radiography?**
- 9. What are intensifying screens and how do they work?**

10. Complete the table explaining the process for processing each one:

X-ray Type	How are they processed
Digital	
Manual	
Automatic	

11. Why is a safelight used in manual processing and what colour bulb is used?
12. List as many faults as you can that may occur during the imaging process and the reason why
13. How should developer and fixer chemicals be stored and disposed off?
14. How would you deal with a spillage of xray chemicals?
15. Why is it important to rotate film stock?
16. What methods are available to mount xrays?
17. Explain the Quality assurance process and why this is carried out

Extra resources:

Levisons multiple choice questions website: <http://bcs.wiley.com/he-bcs/Books?action=index&bcsId=8225&itemId=111850044X>

Please use both interactive multiple choice questions and interactive extended multiple choice questions.

See chapters:

12 - oral health assessment and diagnosis

Mock Questions

1. The layers within a film packet, in order from the machine tube are:

- a. Paper, film, paper, lead foil
- b. Film, lead foil, paper
- c. Lead foil, paper, film, paper
- d. Paper, lead foil, film, paper

2. The deposits found in the bottom of the developing tank are:

- a. Lead
- b. Silver bromide
- c. Silver
- d. Silver crystals

3. The sequence of events when developing a dental film is:

- a. Developer, fixer, wash
- b. Wash, developer, fixer, wash
- c. Developer, wash, fixer, wash
- d. Developer, wash, fixer

4. The ideal time and temperature for developing xrays is

- a. 20 °C for 1 minute
- b. 18 °C for 1 minute
- c. 25 °C for 1 minute
- d. 15 °C for 1 minute

5. Bitewing radiographs are taken to diagnose:

- a. Occlusal caries
- b. Interproximal caries
- c. Periodontal bone loss
- d. All off the above

6. A radiograph that appears black is likely to have been:

- a. Overdeveloped
- b. Over exposed
- c. Developed at too high temperature
- d. Any off the above

7. A lead foil is placed inside intraoral radiographs to:

- a. Reflect the x-rays back in the packet
- b. Concentrate escaping x-rays into a beam
- c. Absorb unused x-rays
- d. Allow easy bending of the packet

8. A developed radiograph that appears blank has:

- a. Not been exposed to x-rays
- b. Placed in the fixer before the developer
- c. Been grossly underdeveloped
- d. Any of the above

9. A radiation protection supervisor, must be appointed in:

- a. All dental practices taking OPG
- b. All practices with more than one radiation machine
- c. All practices using radiography
- d. All practices with a cephalostat machine

10. White crystalline marks on a radiograph indicate:

- a. Poor washing after fixing
- b. Insufficient developing
- c. Poor drying after fixing
- d. Poor washing after developing

11. A periapical abscess on a radiography:

- a. Cannot be seen
- b. Appears as a rounded white area next to the root
- c. Appears as a black area with a white rim at the apex
- d. Appears as a black area at the apex

12. What does RPS stand for?

- a. Radiation protection service
- b. Radiation protection supervisor
- c. Radiation protection standards
- d. Radiation Prevention Services

13. All radiation machines should be switched off:

- a. At the end off each clinical session
- b. At the end of the day
- c. After each exposure
- d. Between patients

14. All off the following views can be used to locate un-erupted third molars, except:

- a. Horizontal bitewing
- b. Lateral oblique
- c. Periapical
- d. OPG/DPT