

Dental Terminology Kit Curriculum



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Author



Angela McBride, CDA, EFDA, brings over a decade of hands-on experience in dental assisting to her role as an educator and guide for aspiring dental professionals. Her journey began in an unexpected field: she holds a bachelor's degree in sport management. However, a desire for a more fulfilling career led her to the dental field, where her fascination with oral health found a perfect fit.

After earning her associate degree in specialized technology, McBride began working in a dental practice, gaining comprehensive experience across both clinical and administrative roles. McBride's dedication to her craft led her to pursue certification as a certified dental assistant (CDA) and a licensed expanded functions dental assistant (EFDA).

McBride's skills and commitment naturally progressed into teaching, and she became an instructor at a CODA-approved dental assisting school. Her passion for teaching motivated her to complete an M.A. in adult learning and training, which she now uses to develop innovative, accessible training resources. Most recently, McBride has collaborated with multiple online education platforms to create comprehensive courses and learning guides for aspiring dental assistants. With a lifelong enthusiasm for empowering future dental assistants, McBride remains dedicated to sharing her expertise and helping others succeed in the dental field.

Curriculum Structure

The *Dental Terminology Kit Curriculum* is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Introduction to Dental Terminology	120 minutes
Two	Landmarks of the Skull and Oral Cavity	120 minutes
Three	Tooth Anatomy and Function	120 minutes
Four	Tooth Surfaces, Anatomic Features, and Directional Terminology	120 minutes
Five	Tooth Numbering Systems	120 minutes
Six	Infection Control in Dentistry	120 minutes
Seven	Instrument Processing and Sterilization	120 minutes
Eight	Common Dental Procedures	120 minutes
Nine	Dental Instruments	120 minutes
Ten	Oral Health and Hygiene	120 minutes
Eleven	Pain Control in Dentistry	120 minutes
Twelve	Dental Radiology	120 minutes
	Total	24 hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives, and a Lesson at a Glance table, which lists lesson activities, materials required, suggested preparation steps, and approximate class time.

Lesson Sections

The actual lesson follows the overview, which contains some of the sections described below.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a demonstration, or a review of previous lesson information. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One – Introduction to Dental Terminology

Lesson Overview

In this lesson, learners will receive get an overview of prefixes, suffixes, and root words used in the dental industry. Participants will learn how these words are related to dental treatment, procedures, and products.

Lesson Objectives

After completing this lesson, participants will be able to:

- Define and explain the importance of dental terminology
- Recognize root words, prefixes, suffixes, and combining forms
- Demonstrate proficiency in pronouncing and spelling common dental terms
- Discuss the role of dental terminology in effective patient care

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• Dental Terminology Student Workbooks • Dental Terminology Student Workbook – Teacher Guide • <i>Popular Prefixes and Suffixes</i>– Answer Key • <i>Introduction to Dental Terminology Pre-Test</i>	1. Print/photocopy the <i>Introduction to Dental Terminology Pre-Test</i> (one of each per learner). 2. Distribute student workbooks. 3. Review the <i>Popular Prefixes and Suffixes</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Introduction to Dental Terminology</i> slide presentation • <i>Introduction to Dental Terminology Presentation Guide</i> • <i>Introduction to Dental Terminology Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Introduction to Dental Terminology Presentation Guide</i> (one per learner). 2. Prepare the <i>Introduction to Dental Terminology</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Introduction to Dental Terminology Post-Test</i> • <i>Introduction to Dental Terminology Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Dissecting Dental Terminology</i> – Answer Key • <i>Prefix and Suffix Scramble</i> – Answer Key	1. Print/photocopy the <i>Introduction to Dental Terminology Post-Test</i> (one per learner). 2. Distribute the Dental Terminology Scenario Cards. 3. Review the <i>Dissecting Dental Terminology</i> and <i>Prefix and Suffix Scramble</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson One – Introduction to Dental Terminology

FOCUS: Developing Awareness of Dental Terminology

30 minutes

Purpose:

To help students understand basic dental terms and their use in patient care. Take the *Introduction to Dental Terminology Test* to gauge learner knowledge.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Popular Prefixes and Suffixes* – Answer Key
- *Introduction to Terminology Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Popular Prefixes and Suffixes* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Distribute the student workbooks.
3. Have the *Popular Prefixes and Suffixes* – Answer Key available.
4. Lead a discussion on the prefixes and suffixes in the *Popular Prefixes and Suffixes* workbook activity.
5. Distribute the *Introduction to Dental Terminology Pre-Test*. Explain that this test is to gauge learners' current knowledge on dental terminology.
6. Have learners complete the pre-test and collect them once they are done.
7. Have learners follow along and fill in the *Popular Prefixes and Suffixes* activity in the workbook as you explain the word parts and their definitions.

Name: _____ Class: _____

Introduction to Dental Terminology Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Why is using the correct dental terminology important in a dental office?
 - a. It helps oral healthcare providers describe symptoms, diagnoses, and treatments more efficiently
 - b. It allows dental professionals to communicate with each other in code
 - c. It helps oral healthcare providers interpret illnesses better
 - d. It helps the dentist sound smarter
2. What is a prefix?
 - a. Letters added to the end of a word to change the spelling but not create a new word
 - b. Letters added to the beginning of a word to change the spelling but not create a new word
 - c. Letters added to the beginning of a word to create a new word with a different meaning
 - d. Letters added to the end of a word to create a new word with a different meaning
3. What is a suffix?
 - a. Letters added to the end of a word to change the spelling but not create a new word
 - b. Letters added to the beginning of a word to change the spelling but not create a new word
 - c. Letters added to the beginning of a word to create a new word or alter the meaning
 - d. Letters added to the end of a word to create a new word or alter the meaning
4. What is root word?
 - a. The beginning unit of a word
 - b. The end unit of a word
 - c. The fundamental unit of the word
 - d. All the above
5. Which is the best example of a word using a combining vowel?
 - a. Postotreatment
 - b. Temporomandibular
 - c. Gingivoectomy
 - d. Gingivoplasty

Popular Prefixes and Suffixes – Answer Key

Part of working in a dental office is using the correct terminology. Before you can use these impressive-looking words, you must understand the word parts. A prefix comes at the beginning of the root word, and a suffix comes at the end, altering the word's meaning. A combining vowel is sometimes used to join word parts and simplify the pronunciation.

As your teacher leads the discussion, fill in the blanks to define what each word part means.

Prefix/Suffix	Definition	Example
-algia	Pain	odontALGIA means tooth pain
a-	Without	Acellular means having no cells
apic-	Top, cap, or tip	APICectomy is the removal of the tip of the root of a tooth
-ectomy	Excision	gingivECTOMY means excision of the gums
endo-	Within	ENDOdont means inside a tooth
-gen	Beginning or produce	pathoGENic means disease producing
gingiv-	Pertaining to the gums	GINGIVitis means inflammation of the gums
-ia, -iasis	Condition	odontalgIA means condition of tooth pain
-infra	Below	INFRAorbital means below the eye
-inter	Between	INTERcellular means between cells
-intra	Within	INTRAoral means within the mouth
-itis	Inflammation	periodontITIS means inflammation of supporting structures of teeth

lingu-	Pertaining to the tongue	LINGUal surface means the surface closest to the tongue
muc-	Mucous	MUCositis means inflammation of the mucous membrane
-osis	Condition, disease	periodontOSIS means condition of the periodontium
odont-	tooth or teeth	ODONToma means tumor composed of tooth structures
path-	Disease	PATHology means the study of disease
peri-	Around	PERIoral means around the mouth
perio-	Supporting structures of the teeth	PERIOdental means involving the supporting structures of teeth
-plast, -plasty	Repair, form, or grow	gingivoPLASTY means the repair of the gingiva
post-	Behind or after	POSTnatal is the period after childbirth
quad-	Four or fourth	QUADrant is ¼ of a circle
-stomia	Mouth	xeroSTOMIA means dry mouth
super-	Above, excessive	SUPERnumerary means excessive number
supra-	Above	SUPRAgingival means above the gum line
xero-	Dry	XEROstomia means dry mouth

Lesson One – Introduction to Dental Terminology

LEARN: Defining and Interpreting Dental Terminology

60 minutes

Purpose:

Participants will receive a thorough introduction to prefixes, suffixes, and root words used in dentistry.

Materials:

- *Introduction to Dental Terminology* slide presentation
- *Introduction to Dental Terminology Presentation Guide*
- *Introduction to Dental Terminology Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Introduction to Dental Terminology Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slides 1-2: Introduction to Dental Terminology

Slide 3: Goals and Objectives

Slide 4: Dental Prefixes

Prefixes are letters added to the beginning of a word to create a new word with a different meaning. Prefixes can, for example, create a new word opposite in meaning to the word the prefix is attached to.

Example: Bi (prefix) + cuspid = Bicuspid

A prefix usually indicates:

- Position (ante-, endo-, infra-)
- Number (bi-, prim-, quad-)
- Time (post-, pre-, pro-)
- Color (leuk-, melan-, erythr-)
- Size or degree (hyper-, macro-, pan-)

Slide 5: Common Dental Prefixes

Slide 6: Dental Suffixes

A suffix is a letter, syllable, or group of syllables added to the end of a word to create a new word, alter its meaning, or give it a grammatical function.

Example: Gingiv (word) + ectomy (suffix) = Gingivectomy

A suffix usually indicates:

- A procedure (-ectomy, -opsy, -plasty)
- A condition (-algia, -ism, -plegia)
- Disease (-pathy)

Slide 7: Common Dental Suffixes

Slide 8: Dental Root Words

A root word is the fundamental unit of a word. It has nothing added at the beginning or end. Combined with a prefix or suffix, they create a dental term.

Example: Coron (root word) + al (suffix) = Coronal

Slide 9: Common Dental Root Words

Root words are sometimes followed by a vowel, which makes them easier to say. Adding a vowel to the root makes it a combining form. Usually, it is an “o,” but it could be an “i” or “e.”

Example: Gingiv + o = Gingivo, which is a combining form. Add the suffix -plasty, and you have the full dental term “gingivoplasty.”

Slide 10: Using Combining Vowels

A combining vowel is always used to link two root words. Example: Tempor/o/mandibular

If the root word starts with a consonant, do not use a combining vowel after the prefix.

Example: macro/gloss/ia

If a suffix begins with a vowel, use only the root word without a combining vowel. Example: dist/al

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If a suffix begins with a consonant, use the combining vowel. Example: gingiv/o/plasty

Slide 11: Interpreting Dental Terminology
Many dental words contain three basic parts; however, not every word contains all three. You can determine the meaning of a more challenging word by breaking it down to its simplest form: the suffix, prefix, and root word.

Example: Periodontitis

- Suffix: Itis means inflammation
- Prefix: Peri means around
- Root Word: Odont means tooth.

Peri/odont/itis means inflammation around the tooth.

Name: _____ Class: _____

Introduction to Dental Terminology

Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

Introduction

Dental terminology is significant because it helps oral healthcare providers describe _____, _____, and _____ more efficiently.

True or False: There is no such thing as a small miscommunication between the provider and the patient.

Prefixes

Prefixes are letters added to the _____ of a word to create a new word with a different meaning. Prefixes can, for example, create a new word _____ in _____ to the word the prefix is attached to.

Example: _____ (prefix) + _____ (word) = Bicuspid

A prefix usually indicates:

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____ or degree

Suffixes

A suffix is a letter, syllable, or group of syllables added to the _____ of a word to create a new word or _____ its meaning.

Example: _____ (word) + _____ (suffix) = _____

A suffix usually indicates:

- 1) A _____
- 2) A _____
- 3) _____

Root Words

A root word is the _____ unit of a word. _____ is added to the beginning or end.

Example: _____ (root word) + _____ (suffix) = _____

Combined with a _____ or _____, they create a dental term.

Root words are sometimes followed by a _____, which makes them easier to say. Adding a vowel to the root makes it a _____ form. Usually, it is an “o,” but it could be an “i” or “e.”

Example: _____ + o = _____, which is a combining form. Add the suffix – _____ and you have the full dental term “_____”

Using Combining Vowels

A combining vowel is always used to link _____ root words. If the root word starts with a _____, do not use a combining vowel after the prefix. If the suffix begins with a vowel, use _____ the root word _____ a combining vowel. If a suffix _____ with a consonant, use the combining vowel.

Interpreting Dental Terminology

Many dental words contain _____ basic parts; however, _____ every word will consist of all three. You can determine the meaning of a more challenging word by breaking it down to its simplest form: the suffix, prefix, and root word.

Example: Periodontitis

- Suffix: Itis means _____
- Prefix: _____ means around
- Root Word: Odont means _____

Peri/odont/itis means inflammation around the tooth.

Introduction to Dental Terminology

Presentation Guide

- Answer Key

Instructions: Complete the following information as you listen to the presentation.

Introduction

Dental terminology is significant because it helps oral healthcare providers describe **symptoms**, **diagnoses**, and **treatments** more efficiently.

True or **False**: There is no such thing as a small miscommunication between the provider and the patient.

Prefixes

Prefixes are letters added to the **beginning** of a word to create a new word with a different meaning. Prefixes can, for example, create a new word **opposite** in **meaning** to the word the prefix is attached to.

Example: **Bi** (prefix) + **Cuspid** (word) = Bicuspid

A prefix usually indicates:

- 1) **Position**
- 2) **Number**
- 3) **Time**
- 4) **Color**
- 5) **Size** or degree

Suffixes

A suffix is a letter, syllable, or group of syllables added to the **end** of a word to create a new word or **alter** its meaning.

Example: **Gingiv** (word) + **ectomy** (suffix) = **Gingivectomy**

A suffix usually indicates:

- 1) A **procedure**
- 2) A **condition**
- 3) **Disease**

Root Words

A root word is the **fundamental** unit of a word. **Nothing** is added to the beginning or end.

Example: **Coron** (root word) + **al** (suffix) = **Coronal**

Combined with a **prefix** or **suffix**, they create a dental term.

Root words are sometimes followed by a **vowel**, which makes them easier to say. Adding a vowel to the root makes it a **combining** form. Usually, it is an "o," but it could be an "i" or "e."

Example: **Gingiv** + o = **gingivo**, which is a combining form. Add the suffix **-plasty** and you have the full dental term "**gingivoplasty**".

Using Combining Vowels

A combining vowel is always used to link **two** root words. If the root word starts with a **consonant**, do not use a combining vowel after the prefix. If the suffix begins with a vowel, use **only** the root word **without** a combining vowel. If a suffix **begins** with a consonant, use the combining vowel.

Interpreting Dental Terminology

Many dental words contain **three** basic parts; however, **not** every word will consist of all three. You can determine the meaning of a more challenging word by breaking it down to its simplest form: the suffix, prefix, and root word.

Example: Periodontitis

- Suffix: Itis means **inflammation**
- Prefix: **Peri** means around
- Root Word: Odont means **tooth**

Peri/odont/itis means inflammation around the tooth.

Lesson One – Introduction to Dental Terminology

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on the introduction to dental terminology. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Introduction to Dental Terminology Post-Test*
- *Introduction to Dental Terminology Test – Answer Key*
- Dental Terminology Scenario Cards
- *Dissecting Dental Terminology – Answer Key*
- *Prefix and Suffix Scramble – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Dissecting Dental Terminology* and *Prefix and Suffix Scramble* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Dissecting Dental Terminology* and *Prefix and Suffix Scramble*.
3. Access the answer keys.
4. Distribute the *Introduction to Dental Terminology Post-Test* and instruct learners to take a few minutes to complete it.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other groups discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Introduction to Dental Terminology Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Why is using the correct dental terminology important in a dental office?
 - a. It helps oral healthcare providers describe symptoms, diagnoses, and treatments more efficiently
 - b. It allows dental professionals to communicate with each other in code
 - c. It helps oral healthcare providers interpret illnesses better
 - d. It helps the dentist sound smarter
2. What is a prefix?
 - a. Letters added to the end of a word to change the spelling but not create a new word
 - b. Letters added to the beginning of a word to change the spelling but not create a new word
 - c. Letters added to the beginning of a word to create a new word with a different meaning
 - d. Letters added to the end of a word to create a new word with a different meaning
3. What is a suffix?
 - a. Letters added to the end of a word to change the spelling but not create a new word
 - b. Letters added to the beginning of a word to change the spelling but not create a new word
 - c. Letters added to the beginning of a word to create a new word or alter the meaning
 - d. Letters added to the end of a word to create a new word or alter the meaning
4. What is root word?
 - a. The beginning unit of a word
 - b. The end unit of a word
 - c. The fundamental unit of the word
 - d. All the above
5. Which is the best example of a word using a combining vowel?
 - a. Postotreatment
 - b. Temporomandibular
 - c. Gingivoectomy
 - d. Gingivoplasty

Introduction to Dental Terminology

Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Why is using the correct dental terminology important in a dental office?
 - a. **It helps oral healthcare providers describe symptoms, diagnoses, and treatments more efficiently**
 - b. It allows dental professionals to communicate with each other in code
 - c. It helps oral healthcare providers interpret illnesses better
 - d. It helps the dentist sound smarter
2. What is a prefix?
 - a. Letters added to the end of a word to change the spelling but not create a new word
 - b. Letters added to the beginning of a word to change the spelling but not create a new word
 - c. **Letters added to the beginning of a word to create a new word with a different meaning**
 - d. Letters added to the end of a word to create a new word with a different meaning
3. What is a suffix?
 - a. Letters added to the end of a word to change the spelling but not create a new word
 - b. Letters added to the beginning of a word to change the spelling but not create a new word
 - c. Letters added to the beginning of a word to create a new word or alter the meaning
 - d. **Letters added to the end of a word to create a new word or alter the meaning**
4. What is root word?
 - a. The beginning unit of a word
 - b. The end unit of a word
 - c. **The fundamental unit of the word**
 - d. All the above
5. Which is the best example of a word using a combining vowel?
 - a. Postotreatment
 - b. **Temporomandibular**
 - c. Gingivoectomy
 - d. Gingivoplasty

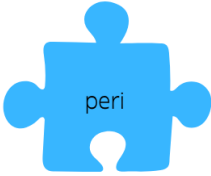
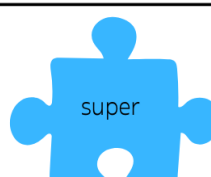
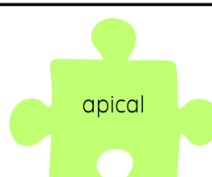
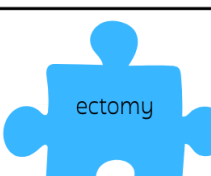
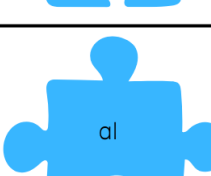
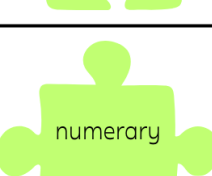
Dissecting Dental Terminology – Answer Key

Instructions: Write each word's prefix, root word, and suffix in the correct box. Not every word may have all three parts.

Words	Prefix	Root Word	Suffix
Apicoectomy		Apic	ectomy
Alveoloplasty		Alveolar	plasty
Bicuspid	Bi	cuspid	
Bifurcation	Bi	furcation	
Calculus		Calc	ulus
Dentin		Dent	in
Gingivitis		Gingiv	itis
Intraoral	Intra	oral	
Nonnarcotic	Non	narcotic	
Odontology		Odont	ology
Periodontitis	Peri	odont	itis
Supragingival	Supra	gingiv	al
Xerostomia	Xero	stomia	
Vasoconstrictor	Vaso	constrictor	

Unscramble Prefixes and Suffixes – Answer Key

Directions: Unscramble the prefixes, root words, and suffixes to make a whole word. Each root word will have a prefix or suffix. Match it with the definition and write the word in the space provided below. Remember to use a vowel to create a combining form for root words.

1. Periapical – around the apex
2. Malocclusion – poor occlusion
3. Supernumerary – excessive number
4. Gingivectomy – removing gingiva
5. Lingual – surface near the tongue

Lesson One – Introduction to Dental Terminology

Sources

Dofka, C. M. (2000). Introduction to Dental Terminology. In *Dental Terminology* (pp. 1–8). essay, Delmar Thomas Learning.

Fadhil, A. G. (2021). Prefixes used in dental terminology.
<https://faculty.uobasrah.edu.iq/uploads/teaching/1619783184.pdf>

Frese, P. A. (n.d.). *Root words, prefixes and suffixes used in dental terminology - oral health care: A whole new language*. Dentalcare. <https://www.dentalcare.com/en-us/ce-courses/ce21/root-words-prefixes-and-suffixes-used-in-dental-terminology>

McAuley, D. (2023, February 9). *Prefixes denoting position and direction*. GlobalRPH.
<https://globalrph.com/prefixes-denoting-position-and-direction/>

Med term word building rules.pdf - medical terminology word building rules: Root words usually indicate a body - college sidekick. collegesidekick. (2024, January 23).
<https://www.collegesidekick.com/study-docs/1957879>

Medical prefixes that describe the time or speed. Master Medical Terms. (2023, January 7).
<https://mastermedicalterms.com/prefixes-that-describe-the-time-or-speed-review-flashcard/>

Lesson Two – Landmarks of the Skull and Oral Cavity

Lesson Overview

In this lesson, learners get an overview of terms used to describe the landmarks of the oral cavity. Participants will learn to identify basic bones and soft tissue.

Lesson Objectives

After completing this lesson, participants will be able to:

- Recognize and name the primary bones of the skull
- Identify and describe the key structures within the oral cavity, including teeth, gums, and palate
- Locate and describe important anatomical landmarks of the oral cavity, such as the hard and soft palate, uvula, frenulum, and alveolar ridges

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• <i>Anatomy of the Skull</i> – Answer Key • <i>Landmarks of the Skull and Oral Cavity Pre-Test</i> • Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide	1. Print/photocopy the <i>Landmarks of the Skull and Oral Cavity Pre-Test</i> (one of each per learner). 2. Review the <i>Anatomy of the Skull</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Landmarks of the Skull and Oral Cavity</i> slide presentation • <i>Landmarks of the Skull and Oral Cavity Presentation Guide</i> • <i>Landmarks of the Skull and Oral Cavity Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Landmarks of the Skull and Oral Cavity Presentation Guide</i> (one of each per learner). 2. Prepare <i>Landmarks of the Skull and Oral Cavity</i> slide presentation for viewing	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Landmarks of the Skull and Oral Cavity Post-Test</i> • <i>Landmarks of the Skull and Oral Cavity Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Exploring the Skull and Oral Cavity</i> – Answer Key • <i>Landmark Makeup: Where Does it Go?</i> – Answer Key	1. Print/photocopy the <i>Landmarks of the Skull and Oral Cavity Post-Test</i> (one of each per learner). 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Exploring the Skull and Oral Cavity</i> and <i>Landmark Makeup: Where Does it Go?</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Two – Landmarks of the Skull and Oral Cavity

FOCUS: Locating and Identifying Features of the Skull and Oral Cavity

30 minutes

Purpose:

To help students understand the anatomical structure of the head and mouth. Take the *Landmarks of the Skull and Oral Cavity Pre-Test*.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Anatomy of the Skull* – Answer Key
- *Landmarks of the Skull and Oral Cavity Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Anatomy of the Skull* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Anatomy of the Skull* – Answer Key available.
3. Distribute the *Landmarks of the Skull and Oral Cavity Pre-Test* and have students complete it.
4. Collect pre-tests and have students follow along and fill in the *Anatomy of the Skull* activity in the workbook as you explain the anatomy.

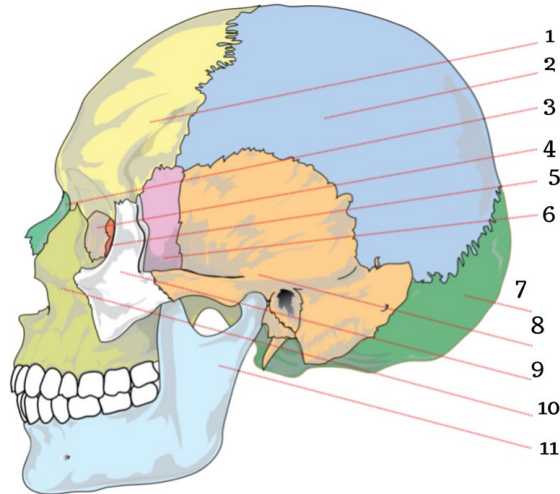
Name: _____ Class: _____

Landmarks of the Skull and Oral Cavity Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not considered a facial bone?
 - a. Maxilla
 - b. Vomer
 - c. Frontal
 - d. Zygomatic
2. An opening in the bone used for nerve or vessel passage is called:
 - a. Foramen
 - b. Sinus
 - c. Ramus
 - d. Condyle
3. The main muscle of mastication, which closes the mouth, is the:
 - a. Temporal
 - b. Parotid
 - c. Pterygoid
 - d. Masseter
4. Which of the following structures is not found on the tongue?
 - a. Filiform
 - b. Fungiform
 - c. Fauces
 - d. Foliate
5. The _____ is the band of tissue that attaches the inside of the lip to the mucous membrane in the anterior of the oral cavity.
 - a. Labial frenum
 - b. Lingual frenum
 - c. Buccal frenum
 - d. Uvula frenum

Anatomy of the Skull – Answer Key



1) **Frontal**

2) **Parietal**

3) **Nasal**

4) **Lacrimal**

5) **Ethmoid**

6) **Sphenoid**

7) **Occipital**

8) **Temporal**

9) **Zygomatic**

10) **Maxilla**

11) **Mandible**

Lesson Two – Landmarks of the Skull and Oral Cavity

LEARN: Identifying Landmarks in the Skull and Oral Cavity

60 minutes

Purpose:

Participants will receive an introduction to the anatomy and landmarks of the skull and oral cavity.

Materials:

- *Landmarks of the Skull and Oral Cavity* slide presentation
- *Landmarks of the Skull and Oral Cavity Presentation Guide*
- *Landmarks of the Skull and Oral Cavity Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Landmarks of the Skull and Oral Cavity Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Landmarks of the Skull and Oral Cavity

Slide 2: Introduction to Landmarks of the Skull and Oral Cavity

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Recognize and name the primary bones of the skull
- Identify and describe the key structures within the oral cavity, including teeth, gums, and palate
- Locate and describe important anatomical landmarks of the oral cavity, such as the hard and soft palate, uvula, frenulum, and alveolar ridges

Slide 4: Anatomy of the Skull

Slide 5: Cranium

- The portion of the skull that covers the brain
- Made up of eight bones:
 - Temporal: Two fan-shaped bones on either side of the skull
 - Parietal: Two bones, one on each side, that create the roof and side walls that cover the brain
 - Frontal: One bone that makes up the forehead
 - Occipital: One large bone in the lower portion of the head, base of the skull
 - Ethmoid: A spongy bone located at the base of the skull, between the nasal cavity and orbits (eye sockets)
 - Sphenoid: A butterfly-shaped bone situated at the base of the skull, in front of the temporal bones and base part of the occipital bone

Slide 6: Facial Bones

- 14 bones make up the face.
 - Zygomatic: Two bones that form the cheekbone, are located under the eye, and are sometimes called malar bones
 - Maxillary: Two bones, one on each side, that join to form the upper jaw and support the maxillary teeth
 - Palatine: Two bones, one on each side, that join to form the hard palate and nasal floor
 - Nasal: Two bones, one on each side, that form the bridge of the nose
 - Lacrimal: Two bones at the inner portion of the orbital cavity
 - Inferior Conchae: Two thin bones that form the lower portion of the nasal cavity
 - Mandible: One horseshoe-shaped bone that forms the lower jaw
 - Vomer: One bone that forms the lower posterior part of the septum

Slide 7: Sinus

- Hollow, air-filled cavities in the skull and facial bones
 - Lightens the bone
 - Helps form sounds
- Named for the bone they are in
- Four pair of paranasal sinuses:
 - Ethmoid: At the side of the eye in the ethmoid bone
 - Sphenoid: Behind the eyes in the sphenoid bone
 - Frontal: Above the eyes in the frontal bone
 - Maxillary: In the maxilla and is the largest

Slide 8: Sutures

- An immovable joint where two or more bones come together
- Several sutures on the skull:
 - Sagittal: Line between two parietal bones on the top of the skull
 - Coronal: Junction of the frontal and parietal bones
 - This area is soft at birth, often called the “soft spot” and the fontanelle
- Lambdoid: Joins the parietal bone and the upper border of the occipital bone
- Temporoparietal: Located between the temporal and parietal bones

Slide 9: Process

- A projection of bone or tissue
- Eight main processes in the head related to dentistry:
 - Alveolar: Border of the maxilla and mandible and makes up the tooth sockets
 - Condylod: Posterior growth on the ramus of the mandible
 - Coronoid: Anterior growth on the ramus of the mandible that attaches to the temporalis muscle
 - Frontal: Projection of the maxilla that joins with the frontal bone to form the eye orbit
 - Infraorbital: Growth process from the zygomatic bone joins with the maxilla to form the lower part of the eye orbit
 - Mastoid: The growth on the temporal bone behind the ear that is used for muscle attachment
 - Pterygoid: Growth of the sphenoid bone extending downward from the bone
 - Styloid: Small, pointed growth from the lower border of the temporal bone

Slide 10: Foramen

- An opening or hole in the bone through which nerves and vessels pass through
- Nine related to dentistry:
 - Magnum: Opening in the occipital bone that allows the spinal cord to pass through
 - Mandibular: Located on the lingual side of the ramus and permits nerve and blood vessel passage
 - Mental: One found on the left and right side of the mandible and permits nerve and blood vessel passage
 - Lingual: Small hole in the center of the mental spine for nerves to pass through near the incisors
 - Incisive: Opening in the maxilla behind the central incisors
 - Supraorbital: Opening in the frontal bone above the eye orbit
 - Infraorbital: Opening in the frontal bone below the eye orbit
 - Palatine: Anterior and posterior openings in the hard palate
 - Zygomatic: Opening in zygomatic bone

Slide 11: Palatine Bones

- Made of two plates:
 - Horizontal
 - Forms the hard palate
 - Vertical
 - Rises behind the nose to meet the eye sockets
- It contains several sutures and foramen:
 - Median palatine suture
 - Transverse palatine suture
 - Incisive foramen

Slide 12: Mandible

- Only movable bone in the skull
- Has seven anatomical parts:
 - Ramus: Portion of the mandible that rises from the curved lower arch
 - Angle of the Mandible: Area along the lower edge of the mandible where the upward curve forms
 - Sigmoid Notch: S-shaped curvature between the condyle and coronoid process
 - Mylohyoid Ridge: Bone ridge located on the lower, lingual part of the mandible
 - Oblique Line: Slanted, bony growth line on the facial side of the mandible
 - Retromolar Area: Behind the mandibular molars
 - Mandibular Notch: Area located on the lower border of the mandible, near the angle where the ramus starts an upright position

Slide 13: Muscles of Mastication

- Group of muscles that help with chewing
- Four major muscles:
 - Temporal: Fan-shaped muscle on the side of the skull that moves the mandible up, down, and backward
 - Masseter: Primary muscle for chewing, closes the mouth
 - Internal (Medial) Pterygoid: Raises the mandible to close the jaw
 - External (Lateral) Pterygoid: Opens the jaw and moves the mandible forward, helps with lateral movement

Slide 14: Salivary Glands

- Produce and supply saliva to the mouth
- Saliva protects the lining, helps moisten food, and helps with speech
- Three major salivary glands:
 - Parotid: Largest salivary gland and located near the ear, dumps saliva into the mouth near the maxillary second molar through Stenson's duct
 - Submandibular: Smaller gland located on the lower side of the face, empties through the Wharton's duct under the tongue
 - Sublingual: Small salivary gland in the floor of the mouth, empties through multiple ducts

Slide 15: Anatomy of the Oral Cavity

Slide 16: Lips

- Also called the labia and consists of several major sections:
 - Superior Oris: Upper lip
 - Inferium Oris: Lower lip
 - Labial Commissure: Corners of the mouth where the lips meet
 - Vermilion Border: Outline of the lip where the pink-red portion meets the facial skin
 - Philtrum: Groove on the external surface of the outer lip

Slide 17: Frenum

- A narrow band of tissue connects the tongue, lip, and cheek to the oral membrane
- Major frena (plural for frenum):
 - Labial: Tissue on the maxillary and mandibular arches attaching the inside of the lip to the mucous membrane
 - Lingual: Tissue attaching the lower side of the tongue to the floor
 - Buccal: Attaches the inside of the cheek on the left and right to

the oral cavity in the maxillary and mandibular molar area

Slide 18: Tongue

- Muscle that helps with chewing, talking, and swallowing
- It contains papillae, the taste buds on the back of the tongue
- The major papillae are:
 - Circumvallate: V-shaped and largest papillae on the back of the tongue
 - Filiform: Hair-like and the smallest papillae that cover the entire back portion of the tongue
 - Fungiform: Small, dark red papillae covering the tongue's middle and front, also cover the sides
 - Foliate: Located on the posterior side of the tongue and can be seen when the tongue is grasped with gauze and extended

Slide 19: Palate

- The roof of the mouth is divided into two parts:
 - Hard Palate: Composed of palatine processes of the maxilla bones
 - Incisive Papilla: Tissue growth located behind the maxillary central incisors
 - Palatine Raphe: The ridge between the two halves of the hard palate, the white streak running through the middle of the hard palate
 - Soft Palate: Flexible portion of the palate located behind the hard palate
 - Uvula: Tissue hanging from the palate in the back of the oral cavity
 - Fauces: Passage leading from the mouth to the oral pharynx

Slide 20: Anatomy of the Oral Cavity

This slide shows a more detailed anatomy of the palate.

Slide 21: Gingiva

- Masticatory mucosa covers the alveolar process and surrounds the neck of the teeth
- Commonly known as the gums
- Self-cleaning
- Types:
 - Attached: Extends from the base of the sulcus to the mucogingival junction
 - Unattached (Free Gingiva): Collar-like border that surrounds the tooth, light pink or coral, and not attached to the underlying tooth
 - Interdental: Also known as interdental papilla, is an extension of the free gingiva that fills the space between two adjacent teeth
- Gingival Groove: A shallow groove that runs parallel to the margin of the unattached gingiva, marking the start of the attached gingiva

Slide 22: Teeth

- Humans have two sets of teeth during a lifetime
 - Primary and permanent
- These teeth sit in bony sockets, called alveoli, within the alveolar process of the maxilla and the mandible
- The portion of the tooth visible in the oral cavity, called the crown, is surrounded by a cuff of gingival tissue

Name: _____ Class: _____

Landmarks of the Skull and Oral Cavity Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

Anatomy of the Skull

The portion of the skull that covers the brain is called the _____. It is made up of _____ bones.

Name the 14 bones of the face:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

How many pairs of sinuses are found in the skull? _____

An immovable joint where two or more bones come together is called a _____.

There are _____ main processes in the head related to dentistry.

What is a foramen? How many are related to dentistry?

The _____ is the only movable bone in the skull.

Dental Terminology Kit Curriculum

Name the four major muscles of mastication:

- 1.
- 2.
- 3.
- 4.

Name the three major salivary glands:

- 1.
- 2.
- 3.

Anatomy of the Oral Cavity

What are the labial commissures?

A _____ is a narrow band of tissue connecting the tongue, lip, and cheek to the oral membrane.

Which muscle helps with chewing, talking, and swallowing?

The palate is divided into how many parts?

Landmarks of the Skull and Oral Cavity Presentation Guide – Answer Key

Instructions: Complete the following information as you listen to the presentation.

Anatomy of the Skull

The portion of the skull that covers the brain is called the **cranium**. It is made up of **eight** bones.

Name the 14 bones of the face:

1. Zygomatic (2)

2. Maxilla (2)

3. Palatine (2)

4. Nasal (2)

5. Lacrimal (2)

6. Inferior conchae (2)

7. Mandible (1)

8. Vomer (1)

How many pairs of sinuses are found in the skull? **Four**

An immovable joint where two or more bones come together is called a **suture**.

There are **eight** main processes in the head related to dentistry.

What is a foramen? How many are related to dentistry?

An opening or hole in the bone through which nerves and vessels pass through. Nine are related to dentistry.

The **mandible** is the only movable bone in the skull.

Name the four major muscles of mastication:

1. Temporal

2. Masseter

3. Internal (Medial) Pterygoid

4. External (Lateral) Pterygoid

Dental Terminology Kit Curriculum

Name the three major salivary glands:

1. Parotid

2. Submandibular

3. Sublingual

Anatomy of the Oral Cavity

What are the labial commissures?

The corners of the mouth where the lips meet

A **frenum** is a narrow band of tissue connecting the tongue, lip, and cheek to the oral membrane.

Which muscle helps with chewing, talking, and swallowing?

The tongue

The palate is divided into how many parts?

Two

Lesson Two – Landmarks of the Skull and Oral Cavity

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on landmarks of the skull and oral cavity. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Landmarks of the Skull and Oral Cavity Post-Test*
- *Landmarks of the Skull and Oral Cavity Test – Answer Key*
- Dental Terminology Scenario Cards
- *Exploring the Skull and Oral Cavity – Answer Key*
- *Landmark Makeup: Where Does it Go? – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Exploring the Skull and Oral Cavity* and *Landmark Makeup: Where Does it Go?* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Exploring the Skull and Oral Cavity* and *Landmark Makeup: Where Does it Go?* labeling sheet.
3. Access the *Exploring the Skull and Oral Cavity – Answer Key*
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Landmarks of the Skull and Oral Cavity Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not considered a facial bone?
 - a. Maxilla
 - b. Vomer
 - c. Frontal
 - d. Zygomatic
2. An opening in the bone used for nerve or vessel passage is called:
 - a. Foramen
 - b. Sinus
 - c. Ramus
 - d. Condyle
3. The main muscle of mastication, which closes the mouth, is the:
 - a. Temporal
 - b. Parotid
 - c. Pterygoid
 - d. Masseter
4. Which of the following structures is not found on the tongue?
 - a. Filiform
 - b. Fungiform
 - c. Fauces
 - d. Foliate
5. The _____ is the band of tissue that attaches the inside of the lip to the mucous membrane in the anterior of the oral cavity.
 - a. Labial frenum
 - b. Lingual frenum
 - c. Buccal frenum
 - d. Uvula frenum

Landmarks of the Skull and Oral Cavity Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not considered a facial bone?
 - a. Maxilla
 - b. Vomer
 - c. **Frontal**
 - d. Zygomatic

2. An opening in the bone used for nerve or vessel passage is called:
 - a. **Foramen**
 - b. Sinus
 - c. Ramus
 - d. Condyle

3. The main muscle of mastication which closes the mouth is the:
 - a. Temporal
 - b. Parotid
 - c. Pterygoid
 - d. **Masseter**

4. Which of the following structures is not found on the tongue?
 - a. Filiform
 - b. Fungiform
 - c. **Fauces**
 - d. Foliate

5. The _____ is the band of tissue that attaches the inside of the lip to the mucous membrane in the anterior of the oral cavity.
 - a. **Labial frenum**
 - b. Lingual frenum
 - c. Buccal frenum
 - d. Uvula frenum

Exploring the Skull and Oral Cavity – Answer Key

Instructions: Match the definition with the word it describes.

1. E The portion of the skull that covers the brain
2. K Hollow, air-filled cavities in the skull and facial bones
3. C An immovable joint where two or more bones come together
4. I A projection of bone or tissue
5. N An opening or hole in the bone through which nerves and vessels pass through
6. J The only movable bone in the skull
7. A Group of muscles that help with chewing
8. O Produce and supply saliva to the mouth to protect the lining, help moisten food, and help with speech
9. H Another word for lips
10. D A narrow band of tissue that connects the tongue, lip, and cheek to the oral membrane
11. F Contains papillae
12. G Divided into a soft and hard part
13. M Commonly known as the gums
14. B These sit in bony sockets called alveoli
15. L Primary muscle for chewing.

- A. Muscles of mastication
- B. Teeth
- C. Suture
- D. Frenum
- E. Cranium
- F. Tongue
- G. Palate
- H. Labia
- I. Process
- J. Mandible
- K. Sinus
- L. Masseter
- M. Gingiva
- N. Foramen
- O. Salivary glands

Landmark Makeup: Where Does it Go? – Answer Key

Although makeup has changed over the years, one thing remains the same: women use it to enhance their natural facial features. Look at various cosmetic advertisements in magazines or social media and identify the bones and facial features enhanced by applying products such as bronzer, blush, lipstick, and eyeshadow.

What natural landmark/feature is enhanced when using a lip liner?

The Vermillion Border

Blush is applied over which facial bone?

Zygomatic

Bronzer is applied over which facial bone(s)?

Zygomatic and frontal bones

Name: _____ Class: _____

Landmarks of the Skull and Oral Cavity Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

6. Which of the following is not considered a facial bone?
 - e. Maxilla
 - f. Vomer
 - g. Frontal
 - h. Zygomatic
7. An opening in the bone used for nerve or vessel passage is called:
 - e. Foramen
 - f. Sinus
 - g. Ramus
 - h. Condyle
8. The main muscle of mastication, which closes the mouth, is the:
 - e. Temporal
 - f. Parotid
 - g. Pterygoid
 - h. Masseter
9. Which of the following structures is not found on the tongue?
 - e. Filiform
 - f. Fungiform
 - g. Fauces
 - h. Foliate
10. The _____ is the band of tissue that attaches the inside of the lip to the mucous membrane in the anterior of the oral cavity.
 - e. Labial frenum
 - f. Lingual frenum
 - g. Buccal frenum
 - h. Uvula frenum

Landmarks of the Skull and Oral Cavity Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

6. Which of the following is not considered a facial bone?
 - a. Maxilla
 - b. Vomer
 - c. **Frontal**
 - d. Zygomatic
7. An opening in the bone used for nerve or vessel passage is called:
 - a. **Foramen**
 - b. Sinus
 - c. Ramus
 - d. Condyle
8. The main muscle of mastication which closes the mouth is the:
 - a. Temporal
 - b. Parotid
 - c. Pterygoid
 - d. **Masseter**
9. Which of the following structures is not found on the tongue?
 - a. Filiform
 - b. Fungiform
 - c. **Fauces**
 - d. Foliate
10. The _____ is the band of tissue that attaches the inside of the lip to the mucous membrane in the anterior of the oral cavity.
 - a. **Labial frenum**
 - b. Lingual frenum
 - c. Buccal frenum
 - d. Uvula frenum

Lesson Two – Landmarks of the Skull and Oral Cavity

Sources

Bird, D. L., & Robinson, D. S. (2021a). Head and Neck Anatomy. In *Modern Dental Assisting* (13th ed., pp. 95–101). essay, Elsevier. Retrieved May 19, 2024.

Bird, D. L., & Robinson, D. S. (2021b). Landmarks of the Face and Oral Cavity. In *Modern Dental Assisting* (13th ed., pp. 120–125). essay, Elsevier. Retrieved May 20, 2024.

Dofka, C. M. (2000). Anatomy and Oral Structures. In *Dental Terminology* (pp. 12–25). essay, Delmar Thomas Learning.

Lesson Three – Tooth Anatomy and Function

Lesson Overview

In this lesson, learners get an overview of terms used to describe the anatomy of each tooth. Participants will learn to identify basic landmarks, the function of the teeth, and additional key terms.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify and describe the different parts of a tooth, including the crown, root, enamel, dentin, pulp, cementum, and periodontal ligament
- Name the three dentition periods and explain the differences among them
- Name the two dental arches and explain two ways that the arches can be divided
- Classify teeth based on their location in the dental arch (incisors, canines, premolars, molars)
- Describe the anatomical differences between anterior and posterior teeth

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• <i>Parts of the Tooth – Answer Key</i> • <i>Tooth Anatomy and Function Pre-Test</i> • Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide	1. Print/photocopy <i>Tooth Anatomy and Function Pre-Test</i> (one of each per learner). 2. Review the <i>Parts of the Tooth</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Tooth Anatomy and Function</i> slide presentation • <i>Tooth Anatomy and Function Presentation Guide</i> • <i>Tooth Anatomy and Function Presentation Guide – Answer Key</i>	1. Print/photocopy the <i>Tooth Anatomy and Function Presentation Guide</i> (one of each per learner). 2. Prepare the <i>Tooth Anatomy and Function</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Tooth Anatomy and Function Post-Test</i> • <i>Tooth Anatomy and Function Test – Answer Key</i> • Dental Terminology Scenario Cards • <i>Label the Teeth and Tooth – Answer Key</i> • <i>The Periodontium: The Oral Support System – Answer Key</i>	1. Print/photocopy the <i>Tooth Anatomy and Function Post-Test</i> (one of each per learner). 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Label the Teeth and Tooth</i> and <i>The Periodontium: The Oral Support System</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Three – Tooth Anatomy and Function

FOCUS: Locating and Identifying Features of the Teeth

30 minutes

Purpose:

To help students understand the anatomy and function of teeth. Take the *Tooth Anatomy and Function Pre-Test*.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Parts of a Tooth* – Answer Key
- *Tooth Anatomy and Function Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Parts of a Tooth* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Parts of a Tooth* – Answer Key available.
3. Distribute the *Tooth Anatomy and Function Pre-Test* and have students complete it.
4. Collect the pre-tests.
5. Have students follow along and fill in the *Parts of a Tooth* activity in the workbook as the you explain the concepts.

Name: _____ Class: _____

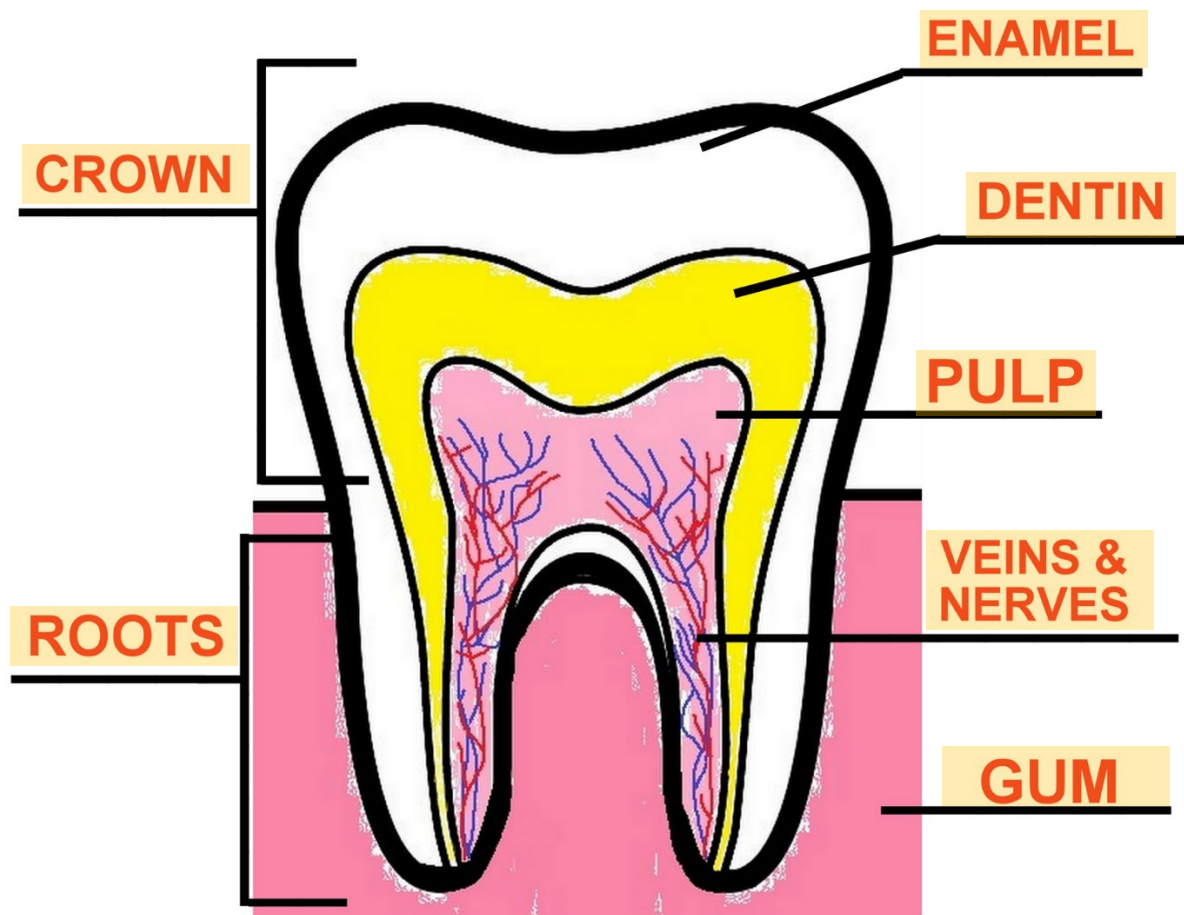
Tooth Anatomy and Function Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following are not a part of a tooth?
 - a. Crown
 - b. Root
 - c. Enamel
 - d. Gingiva
2. Which material is the hardest substance in the body?
 - a. Enamel
 - b. Dentin
 - c. Cementum
 - d. Bone
3. The permanent dentition contains how many teeth?
 - a. 20
 - b. 24
 - c. 28
 - d. 32
4. The primary dentition does not have _____.
 - a. Incisors
 - b. Canines
 - c. Molars
 - d. Premolars
5. The _____ is the most stable tooth in the mouth.
 - a. Incisor
 - b. Canine
 - c. Molars
 - d. Premolars

Parts of a Tooth – Answer Key

Instructions: Label the different parts of the tooth using the word bank.



Word Bank

- Crown
- Roots
- Enamel
- Gum
- Veins and nerves
- Dentin
- Pulp

Lesson Three – Tooth Anatomy and Function

LEARN: Understanding Tooth Anatomy and Function

60 minutes

Purpose:

Participants will receive an introduction to the anatomy and function of each type of tooth.

Materials:

- *Tooth Anatomy and Function* slide presentation
- *Tooth Anatomy and Function Presentation Guide*
- *Tooth Anatomy and Function Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Tooth Anatomy and Function Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Tooth Anatomy and Function

Slide 2: Introduction to Tooth Anatomy and Function

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Identify and describe the different parts of a tooth, including the crown, root, enamel, dentin, pulp, cementum, and periodontal ligament
- Name the three dentition periods and explain the differences among them
- Name the two dental arches and explain two ways that the arches can be divided
- Classify teeth based on their location in the dental arch (incisors, canines, premolars, molars)
- Describe the anatomical differences between anterior and posterior teeth

Slide 4: Tooth Anatomy

- The anatomy of a tooth involves many parts:
 - Crown
 - Root
 - Apex
 - Enamel
 - Dentin
 - Cementum
 - Pulp
 - Cervical line
 - Embrasure
 - Proximal surface
 - Axial surface
 - Line angle
 - Point angle
 - Midline

Slide 5: Crown

- Top part of the tooth
- Contains the pulp, dentin, and enamel
- Two classifications:
 - Anatomical: Portion of the crown that is covered with enamel, it may not be totally visible in the mouth but will be present for the life of the tooth
 - Clinical: Visible portion of the crown in the mouth, it may not be completely visible for many reasons (like impaction or immaturity)

Slide 6: Roots and Apex

- Roots
 - Bottom portion of the tooth
 - Typically embedded into the alveolar process
 - Covered with cementum
 - May have a single root, two roots, or three
 - Bifurcation means division into two roots
 - Trifurcation means division into three roots
- Apex
 - One apex is found at the end of each root
 - Any structure or object near the apex is considered apical.
 - Anything surrounding the apex is periapical (peri- means around, and apical refers to the apex)

Slide 7: Tissues

- A tooth is comprised of four primary tissues:
 - Enamel: The hardest material in the body and protects the softer underlying tissues; provides a strong surface for crushing, grinding, and chewing food; translucent, allowing some light to pass through it; color ranges from yellow to grayish white
 - Dentin: Tissue that is the main portion of the tooth structure, extends almost the entire tooth length and is covered by enamel on the crown and cementum on the root, is light yellow and somewhat translucent in adult teeth
 - Because it can continue to grow and repair, dentin is available in three major types: primary dentin, which is formed before eruption, forms most of the tooth; secondary dentin

develops after eruption, this grows at a very slow rate throughout the life of the tooth and eventually causes the pulp chamber to narrow with age; and tertiary dentin, also known as reparative dentin, forms due to irritation and appears on the wall of the pulp chamber

- Cementum: The most bone-like tissue but is a rigid connective tissue covering the tooth's root, covers the dentin and meets the enamel at the cervical line, also known as the cemento-enamel junction (CEJ), main function of cementum is to anchor the tooth to the bone with attachment periodontal ligaments
- Pulp: The innermost tissue of the tooth, contains the blood vessels and nerves and is divided into the coronal pulp, which is found in the crown, and the radicular pulp, which is found in the roots

Slide 8: Periodontium

- Supports the teeth within the alveolar bone
- Consists of cementum, alveolar bone, and periodontal ligaments
 - These tissues also protect and nourish the teeth
- Divided into two major units:
 - Attachment Apparatus:
 - Includes the cementum, alveolar process, and periodontal ligaments
 - These tissues support, maintain, and keep the tooth in its functional position within the jaw
 - Gingival Unit:
 - Made up of three main types of oral mucosa: the lining (covers the inside of the cheeks, lips, soft palate, and underside of the tongue), masticatory (includes the attached gingiva, hard palate, and tongue's upper surface), and specialized mucosa (on the top of the tongue, both masticatory and specialized mucosa are present in the form of lingual papillae)

Slide 9: Overview of Dentitions

- Everyone has two sets of teeth, or dentitions, throughout their life
 - The primary dentition is the first set of 20 teeth
 - Also known as baby teeth
 - The permanent dentition is the second set of 32 teeth
 - Also known as adult teeth
 - There is a third dentition called the mixed dentition
 - Occurs between about six and 12 years of age when a child loses their primary dentition, and the permanent dentition begins to emerge

Slides 10-11: Types and Functions of Teeth
Human teeth are designed for cutting, tearing, and grinding food. The permanent dentition consists of incisors, canines, premolars, and molars. The primary dentition consists of incisors, canines, and molars. There are no premolars in the primary dentition.

Slide 11 visualizes the dental arches, permanent dentition tooth names, primary dentition tooth names, and their eruption patterns.

Slide 12: Incisors

- Single-rooted teeth
- Sharp, thin edge
- Located near the front of the mouth
- Used for cutting food
- The tongue side is shaped like a shovel to help guide food into the mouth

Slide 13: Canines

- Located at the “corner” of the arch
- Longest teeth in the human mouth
 - The long root makes them the most stable teeth in the mouth; as a result, they are usually the last to be lost
- Used for cutting and tearing food

Slide 14: Premolars

- A cross between the canines and molars
- Has a broader surface for chewing
- Not as long as canines
- No premolars in the primary dentition

Slide 15: Molars

- Larger than premolars
- Molars chew and grind food
- Each molar has four or five cusps
- Maxillary and mandibular molars differ in shape, size, number of cusps, and roots

Name: _____ Class: _____

Tooth Anatomy and Function

Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

List the anatomy of a tooth:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.

What are the two classifications of a dental crown?

- 1.
- 2.

What is found at the end of each root?

List the tissues a tooth is made of.

- 1.
- 2.
- 3.
- 4.

The _____ supports the teeth within the alveolar bone. It consists of _____, alveolar bone, and periodontal ligaments.

The primary dentition contains _____ teeth, while the permanent dentition contains _____ teeth.

Permanent teeth are classified in four ways.

- 1.
- 2.
- 3.
- 4.

Dental Terminology Kit Curriculum

There are no _____ in the primary dentition.

An incisor has _____ root(s). They are located near the _____ of the mouth.
True or False: Canines are the shortest teeth in the mouth.

Premolars are a cross between _____ and _____.

Each molar has _____ or _____ cusps.

Tooth Anatomy and Function

Presentation Guide – Answer Key

Instructions: Complete the following information as you listen to the presentation.

List the anatomy of a tooth:

1. **Crown**
2. **Root**
3. **Apex**
4. **Enamel**
5. **Dentin**
6. **Cementum**
7. **Pulp**
8. **Cervical line**
9. **Embrasure**
10. **Proximal surface**
11. **Axial surface**
12. **Line angle**
13. **Point angle**
14. **Midline**

What are the two classifications of a dental crown?

1. **Anatomical**
2. **Clinical**

What is found at the end of each root?

An apex

List the tissues a tooth is made of.

1. **Enamel**
2. **Dentin**
3. **Cementum**
4. **Pulp**

The **periodontium** supports the teeth within the alveolar bone. It consists of **cementum**, alveolar bone, and the periodontal ligaments.

The primary dentition contains **20** teeth while the permanent dentition contains **32** teeth.

Permanent teeth are classified in four ways.

1. **Incisors**
2. **Canines**
3. **Premolars**
4. **Molars**

Dental Terminology Kit Curriculum

There are no **premolars** in the primary dentition.

An incisor has **1** root(s). They are located near the **front** of the mouth.

True or **False**: Canines are the shortest teeth in the mouth.

Premolars are a cross between **canines** and **molars**.

Each molar has **four** or **five** cusps.

Lesson Three – Tooth Anatomy and Function

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on tooth anatomy and function. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Tooth Anatomy and Function Post-Test*
- *Tooth Anatomy and Function Test – Answer Key*
- Dental Terminology Scenario Cards
- *Label the Teeth and Tooth – Answer Key*
- *The Periodontium: The Oral Support System – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Label the Teeth and Tooth* and *The Periodontium: The Oral Support System* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Label the Teeth and Tooth* and *The Periodontium: The Oral Support System*.
3. Instruct students to take a few minutes to complete the Post-Test.
4. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Tooth Anatomy and Function Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

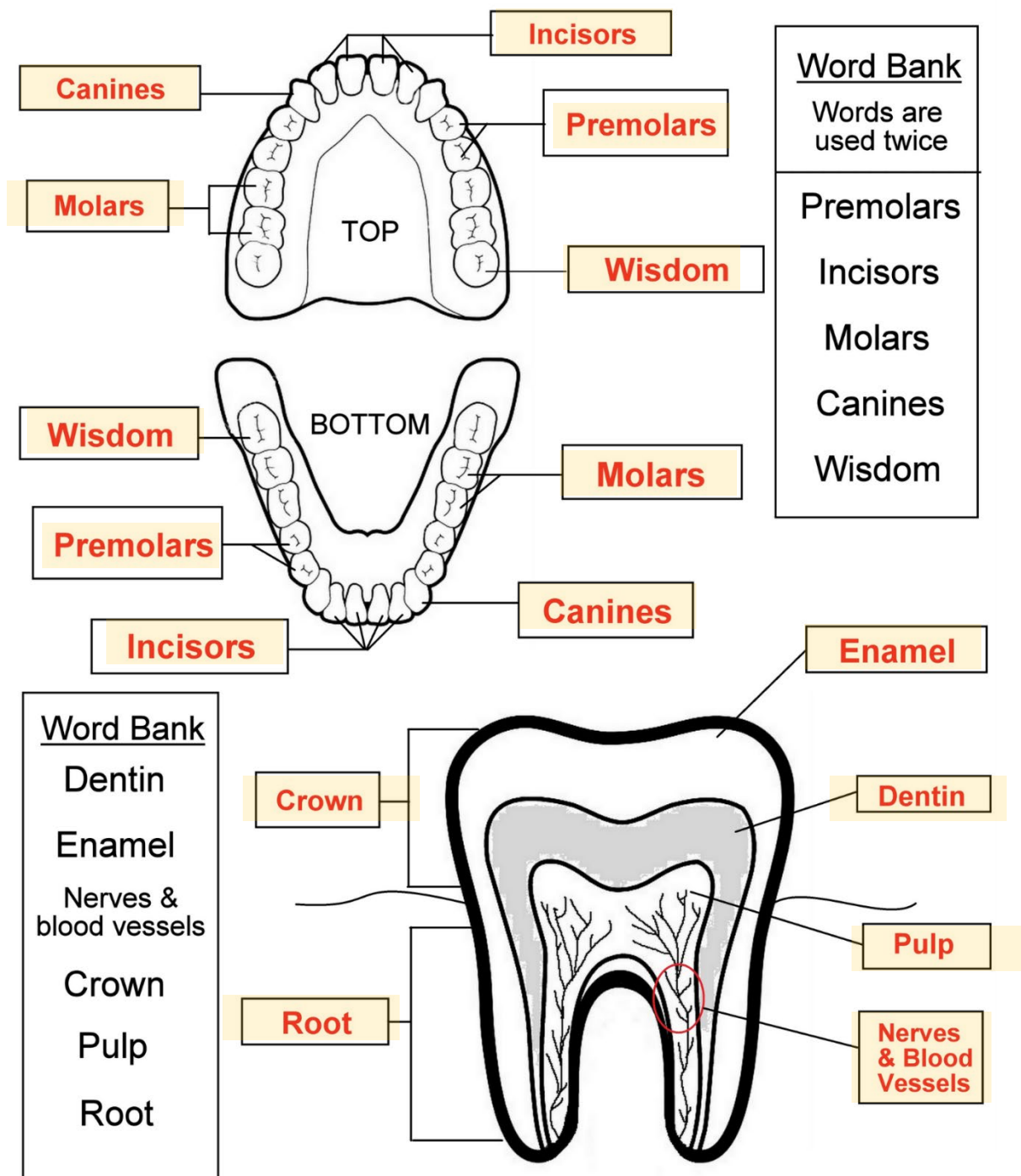
1. Which of the following are not a part of a tooth?
 - a. Crown
 - b. Root
 - c. Enamel
 - d. Gingiva
2. Which material is the hardest substance in the body?
 - a. Enamel
 - b. Dentin
 - c. Cementum
 - d. Bone
3. The permanent dentition contains how many teeth?
 - a. 20
 - b. 24
 - c. 28
 - d. 32
4. The primary dentition does not have _____.
 - a. Incisors
 - b. Canines
 - c. Molars
 - d. Premolars
5. The _____ is the most stable tooth in the mouth.
 - a. Incisor
 - b. Canine
 - c. Molars
 - d. Premolars

Tooth Anatomy and Function Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following are not a part of a tooth?
 - a. Crown
 - b. Root
 - c. Enamel
 - d. Gingiva**
2. Which material is the hardest substance in the body?
 - a. Enamel**
 - b. Dentin
 - c. Cementum
 - d. Bone
3. The permanent dentition contains how many teeth?
 - a. 20
 - b. 24
 - c. 28
 - d. 32**
4. The primary dentition does not have _____.
 - a. Incisors
 - b. Canines
 - c. Molars
 - d. Premolars**
5. The _____ is the most stable tooth in the mouth.
 - a. Incisor
 - b. Canine**
 - c. Molars
 - d. Premolars

Label the Teeth and Tooth – Answer Key



The Periodontium: The Oral Support System – Answer Key

Instructions: Read the following passage about periodontium. Then, answer the questions on below.

The periodontium is a complex system of tissues that surrounds and supports the teeth within the jawbones. It has four main components: the gingiva (gums), cementum, periodontal ligament, and alveolar bone. The gingiva is the visible, soft tissue that covers the jawbones and protects the underlying structures. The cementum is a thin, hard layer that covers the tooth's root, serving as an anchor for the periodontal ligament. The periodontal ligament comprises tiny fibers connecting the cementum to the alveolar bone, acting like shock absorbers for the teeth. Finally, the alveolar bone is the part of the jawbone that forms sockets to hold the teeth securely.

The health of the periodontium is crucial for maintaining healthy teeth. Periodontal disease, also known as gum disease, is a common infection that damages the supporting structures of the teeth. In its early stages, called gingivitis, symptoms include red, swollen, and bleeding gums. If left untreated, gingivitis can progress to periodontitis, characterized by the formation of pockets around the teeth, receding gums, and gradual bone loss. In severe cases, periodontitis can ultimately lead to tooth loss.

Questions:

What is the periodontium?

A complex system of tissues that surrounds and supports the teeth within the jawbones

List the four primary components of the periodontium.

Gingiva (gums), cementum, periodontal ligament, and alveolar bone

What is the primary function of the periodontal ligament?

Connects the cementum to the alveolar bone, acting like shock absorbers for the teeth

Explain the difference between cementum and alveolar bone.

The cementum is a thin, hard layer that covers the tooth's root, serving as an anchor for the periodontal ligament. The alveolar bone is the part of the jawbone that forms sockets to hold the teeth securely.

Lesson Three – Tooth Anatomy and Function

Sources

Bird, D. L., & Robinson, D. S. (n.d.). In *Modern Dental Assisting* (13th ed., pp. 83–89). essay. Retrieved May 27, 2024.

Dofka, C. M. (2000). Tooth Origin and Formation. In *Dental Terminology* (pp. 33–39). essay, Delmar Thomas Learning.

Lesson Four – Tooth Surfaces, Anatomical Features, and Directional Terminology

Lesson Overview

In this lesson, students learn how to identify tooth surfaces, the anatomical features of each tooth, and directional terminology used during diagnosis and treatment planning.

Lesson Objectives

After completing this lesson, participants will be able to:

- Name and identify tooth surfaces
- Describe the anatomical features of teeth
- Identify the location of each primary and permanent tooth
- Use directional terminology to identify specific areas of a tooth

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• <i>Surfaces of Teeth</i> – Answer Key • <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Pre-Test</i> • Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide	1. Print/photocopy the <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Pre-Test</i> (one of each per learner). 2. Review the <i>Surfaces of Teeth</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Tooth Surfaces, Anatomical Features, and Directional Terminology</i> slide presentation • <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Presentation Guide</i> • <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Presentation Guide</i> (one of each per learner). 2. Prepare the <i>Tooth Surfaces, Anatomical Features, and Directional Terminology</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Post-Test</i> • <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Types of Teeth Labeling Exercise</i> – Answer Key • <i>Compare and Contrast Dentitions</i> – Answer Key	1. Print/photocopy the <i>Tooth Surfaces, Anatomical Features, and Directional Terminology Post-Test</i> (one of each per learner). 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Types of Teeth Labeling Exercise</i> and <i>Compare and Contrast Dentitions</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Four – Tooth Surfaces, Anatomical Features, and Directional Terminology

FOCUS: Identifying Tooth Surfaces

30 minutes

Purpose:

To help students understand the anatomy and function of teeth.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Surfaces of Teeth* – Answer Key
- *Tooth Surfaces, Anatomical Features, and Directional Terminology Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Surfaces of Teeth* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Surfaces of Teeth* – Answer Key available and distribute the *Tooth Surfaces, Anatomical Features, and Directional Terminology Pre-Test*.
3. Have students complete the pre-test and collect the tests when they are done.
4. Have students follow along and fill in the *Surfaces of Teeth* activity in the workbook as you explain the information

Name: _____ Class: _____

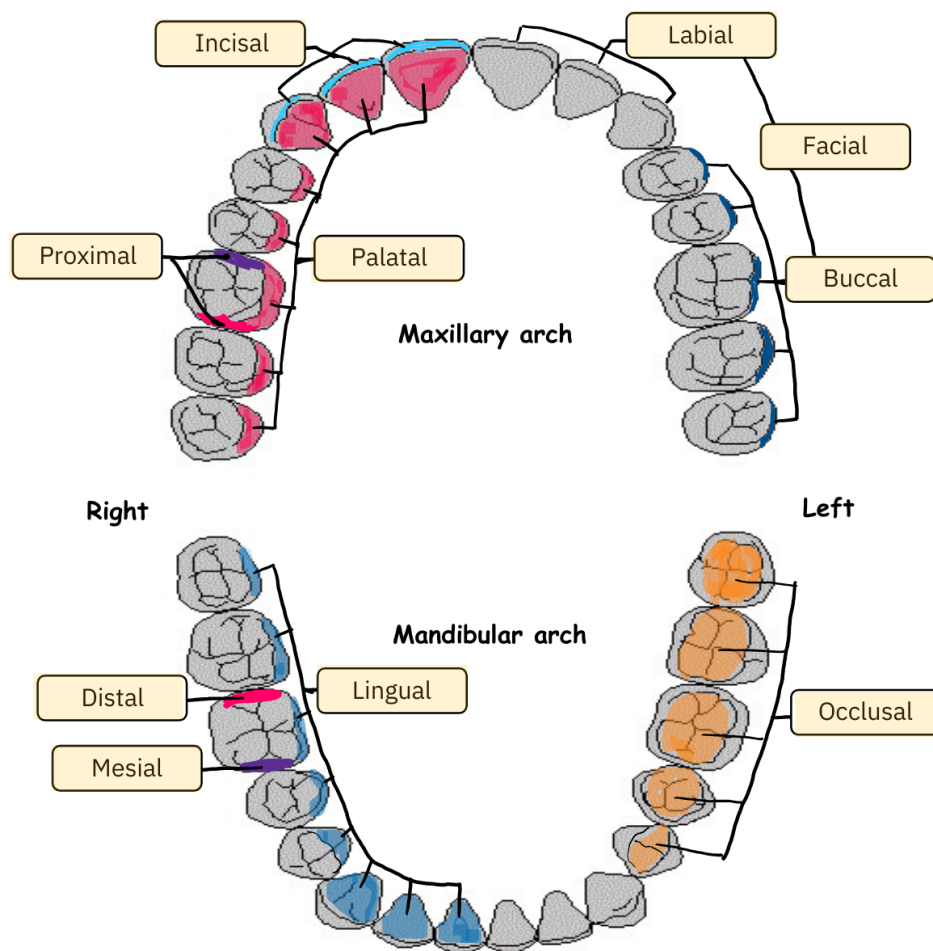
Tooth Surfaces, Anatomical Features, and Directional Terminology Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not a tooth surface?
 - a. Mesial
 - b. Distal
 - c. Proximal
 - d. Enamel
2. How many teeth are in the permanent dentition?
 - a. 20
 - b. 24
 - c. 28
 - d. 32
3. Which of the following are nonsuccedaneous teeth?
 - a. Molars
 - b. Premolars
 - c. Centrals
 - d. Canines
4. The mouth can be divided into four sections called:
 - a. Sections
 - b. Quadrants
 - c. Sextants
 - d. Hexagons
5. The primary dentition has how many premolars?
 - a. 0
 - b. 2
 - c. 4
 - d. 6

Surfaces of Teeth – Answer Key

Directions: Use the word bank to label the surfaces of teeth.



Word Bank: Buccal, Distal, Facial, Incisal, Mesial, Labial, Lingual, Occlusal, Palatal, Proximal

Lesson Four – Tooth Surfaces, Anatomical Features, and Directional Terminology

LEARN: Understanding Tooth Surfaces, Anatomical Features, and Directional Terminology

60 minutes

Purpose:

Participants will learn how to identify a tooth by its anatomical features, locate tooth surfaces, and use directional terminology during treatment.

Materials:

- *Tooth Surfaces, Anatomical Features, and Directional Terminology* slide presentation
- *Tooth Surfaces, Anatomical Features, and Directional Terminology Presentation Guide*
- *Tooth Surfaces, Anatomical Features, and Directional Terminology Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Tooth Surfaces, Anatomical Features, and Directional Terminology Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Tooth Surfaces, Anatomical Features, and Directional Terminology

Slide 2: Introduction to Tooth Surfaces, Anatomical Features, and Directional Terminology

Slide 3: Goals and Learning Objectives

- Define and apply directional terms describing tooth surfaces and relationships, including proximal, distal, mesial, and occlusal/incisal
- Understand the anatomical features on tooth surfaces, such as pits, fissures, ridges, grooves, and cusps
- Use correct terminology when discussing features of the primary and permanent dentition

Slide 4: Directional Terminology

Many directional terms relating to the whole body are easier to understand if you consider them as pairs of opposites, like front and back or up and down.

Slide 5: Tooth Surfaces

Each tooth has five surfaces:

- Facial or Buccal: Surface toward the cheek and lips
 - Sometimes called the labial surface on anterior teeth
- Lingual: Surface toward the tongue
- Mesial: Surface closest to the midline (middle of the face)
- Distal: Surface of the tooth farthest from the midline
- Incisal or Occlusal: Surface of the tooth used to grind (posterior teeth) or cut (anterior teeth)

Slides 6-7: Dental Arches

Two dental arches:

- Maxillary
- Mandibular
- Commonly referred to as the upper and lower jaw

Maxillary arch:

- Part of the skull
- Teeth set in the maxilla

Mandibular arch:

- Movable through the temporomandibular joint

When the teeth of both arches are in contact, the teeth are in occlusion.

When the maxillary and mandibular arches are each divided into halves, the resulting four sections are called quadrants:

- Maxillary right quadrant
- Maxillary left quadrant
- Mandibular left quadrant
- Mandibular right quadrant

When you look into the mouth, the directions are reversed. Like when you shake hands, the patient's right side is opposite yours. Each quadrant has eight permanent teeth or five primary teeth

- $(4 \times 8 = 32)$
- $(4 \times 5 = 20)$

Slide 8: Anterior and Posterior Teeth

Anterior:

- Toward the front
- Incisors and canines
- Aligned in a slight curve

Posterior:

- Toward the back
- Premolars and molars
- Little to no curve

Remembering how these teeth are aligned in the dental arch will be important when exposing radiographs.

Slides 9-10: Anterior Teeth Features

Permanent Teeth:

- Anterior teeth include:
 - 4 Central Incisors: Closest to the midline (middle of the mouth)
 - 4 Lateral Incisors: Second teeth from the midline
 - 4 Canines: Third teeth from the midline
- All anterior teeth are succedaneous, meaning they replace a primary tooth when they erupt
- Size, color, and shape of anterior teeth help shape your appearance and form the *s* and *t* sound when you talk

All anterior teeth have:

- Cingulum: A rounded, raised area on the lower third of the tooth
- Marginal Ridges: Rounded, raised borders on the lingual surface of the tooth
- Fossa: Wide, shallow depression on the lingual surface of some teeth

Slides 11-16: Permanent Anterior Teeth

Maxillary Central Incisors

- Larger than mandibular central incisors in all dimensions
- Labial surfaces (closest to the lip) are more rounded from the incisal aspect
- Root of the maxillary central teeth is shorter than the roots of other permanent maxillary teeth
- Cingulum, marginal ridges, and fossa are more prominent than those on the mandibular central incisor
- When an incisor first erupts, the incisal portion is rounded; this is called the incisal ridge
- An incisal edge does not exist until the surface begins to wear
 - The term edge implies an angle formed by merging two flat surfaces

Maxillary Lateral Incisors:

- Smaller than the central incisors in all dimensions except root length
- Usually erupt after the maxillary central incisors
- Vary in form more than any other tooth except the third molars
 - They may be congenitally missing
 - They may have a pointed or tapered shape, called pegged laterals
- May have large open spaces between teeth, called diastemas

Maxillary Canines:

- Typically erupt after mandibular canines, sometimes after the maxillary premolars
- Larger and more developed cusps than mandibular canines
- Has an incisal ridge and a cusp, different from other anterior teeth

Mandibular Central Incisors:

- Smallest teeth in the mouth
- Centered cingulum
- Subtle fossa and marginal ridges
- Crown is narrower on the lingual surface

Mandibular Lateral Incisors:

- Slightly larger than the mandibular central incisors but otherwise similar
- Lateral teeth usually erupt after the mandibular central incisors
- Mesial side of the crown is often longer than the distal side, causing the straight incisal ridge to slope downward toward the distal
 - This helps in knowing the right mandibular lateral incisor from the left incisor

Mandibular Canines:

- Usually erupt before the maxillary canines
- Looks similar to the maxillary canines
- Has a less well-developed cingulum than the maxillary
- Has two marginal ridges

Slide 17: Posterior Teeth Features

Permanent Posterior Teeth:

- Molars and premolars
- Crowns of a posterior tooth have:
 - Occlusal surface
 - Marginal ridge on each side that borders the occlusal surface
 - Two or more cusps (a mountain with sloping sides)
 - Fossa: Wide depression on the occlusal surface
 - Central fossa
 - Triangular fossa
 - Developmental grooves are in different locations on the posterior tooth; they are sharp, deep, and V-shaped depressions
 - Central groove is the most prominent and runs from mesial to distal, dividing the tooth in half

Slides 18-22: Permanent Posterior Teeth

Premolars:

- Each quadrant of the arch has a first premolar and a second premolar; premolars are always anterior to the molars
 - The first premolar is distal to the canine
 - The second premolar is behind the first premolar
- Work like molars and grind food, but they also help the canines tear and shred
- Succedaneous and replace the primary first and second molars
- Crowns of the premolars are shorter than the crowns of the anterior teeth
- Buccal surfaces are rounded
- Has a vertical buccal ridge near the center of the crown
- A depression is on either side of the buccal ridge

Maxillary First Premolars:

- Each maxillary first premolar has two cusps (buccal and lingual)
 - Buccal cusp is long, sharp, and more prominent than the lingual cusp
- Each maxillary first premolar has two roots (buccal and lingual)
 - These are considered bifurcated. A furcation is the area between two or more root branches
- Larger than a maxillary second premolar
- Both maxillary premolars erupt earlier than do mandibular premolars

Maxillary Second Premolars:

- Each maxillary second premolar has two cusps (buccal and lingual) and one root
 - Lingual cusp is almost as long as the buccal cusp
 - Cusps are not as sharp
- Wider buccolingually than mesiodistally

Mandibular First Premolars:

- Long and well-formed buccal cusp and a nonfunctioning lingual cusp
- Smaller and shorter than mandibular second premolars
- Erupt after the maxillary premolars

Mandibular Second Premolars:

- Distal to the mandibular first premolars
- Two forms of mandibular second premolar
 - Three cusps (tricanineate form)
 - Two cusps (bicanineate form)
 - The more common three-cusp type consists of one large buccal cusp and two smaller lingual cusps

Slides 23-30: Permanent Molars

- 12 total
- Largest teeth in the dentition
- Used to grind food
- Three types:
 - First molar (6-year)
 - Second molar (12-year)
 - Third molar (Wisdom teeth)
- Crowns have four or five short, blunt cusps
- Has two or three roots to support the larger crown

Maxillary First Molars:

- First permanent teeth to erupt into the maxillary arch
- Distal to the primary maxillary second molars
- Nonsuccedaneous teeth, so they do not replace a primary tooth
- It is the largest tooth in the maxillary arch
- It has the largest crown in the permanent dentition
- It has five developmental lobes
 - Two buccal
 - Three lingual
- Four well-developed cusps
 - Mesiolingual
 - Distolingual
 - Mesibuccal
 - Distobuccal
- The fifth cusp is called the Cusp of Carabelli and has no practical use. It is located lingual to the mesiolingual cusp.

Maxillary Second Molars:

- Help the first molars grind food
- Erupt distal to the permanent maxillary first molar
- Nonsuccedaneous
- Has a shorter crown than the first molar
- Usually has four cusps:
 - Mesibuccal
 - Distobuccal
 - Mesiolingual
 - Distolingual
- Roots are smaller than the roots of the maxillary first molars
- Lingual root is the largest and longest
- Buccal groove is more distal on the buccal surface compared to the first molar
- Mesibuccal cusp is longer and has a less sharp cusp tip than the distobuccal cusp

Maxillary Third Molars:

- Help the first and second molars grind food
- Distal to the primary maxillary second molar
- Nonsuccedaneous
- Has a smaller crown and shorter roots
 - Roots often fuse together
- Last tooth to erupt
- Has the most developmental anomalies
- Considerable size and shape difference and position compared to the other molars
- Most likely to be out of position

Mandibular Molars:

- Erupts six months to one year before permanent maxillary molars
- Crown has four or five cusps
 - Always has two lingual cusps
- Mandibular molars have two well-developed roots (bifurcated)
 - Mesial
 - Distal

Mandibular First Molars:

- Erupt between ages six and seven
- Usually the first permanent tooth to erupt
- Erupt distal to the primary mandibular second molar
- Nonsuccedaneous
- Mesial and distal roots are longer than a second molar root
- Roots are usually the same length, but if one is longer, it will be the mesial
- Mesibuccal cusp is the largest, widest, and highest cusp on the buccal side
- Distobuccal cusp is smaller, shorter, and sharper
- Distal cusp is the lowest and slightly sharper

Mandibular Second Molars:

- Erupts between ages 11 and 12
- Distal to the permanent mandibular first molar
- Nonsuccedaneous
- Has a slightly smaller crown than the mandibular first molar
- Has four well-developed cusps:
 - Mesiolingual
 - Distolingual
 - Mesibuccal
 - Distobuccal
- Has two roots that are smaller and closer together than the mandibular first molar:
 - Mesial
 - Distal
- Mesiolingual cusp and the distolingual cusp are the same in size and shape as the buccal cusps

Mandibular Third Molars:

- Vary in shape and have no standard form
- Erupts between ages 11 and 12
- Distal to the permanent mandibular first molar
- Nonsuccedaneous
- Has smaller dimensions than a mandibular second molar
- Four developmental lobes
 - Mesial cusps are larger than the distal cusps
- Usually has two fused roots with an irregular curve
- Roots are shorter than a mandibular second molar
- Third molars are frequently impacted
- Commonly have anomalies in shape and position

Slides 31-39: Primary Dentition

Primary Teeth Features:

- 20 teeth
 - 10 maxillary
 - 10 mandibular
- Include incisors, canines, and molars
 - No premolars in the primary dentition
- Smaller and have whiter enamel
 - Enamel layer is thin
- Crowns are short compared to their length
- Crowns are narrower at the cemento-enamel junction (CEJ)
- Roots are narrower and longer than the crown
- Pulp chambers and pulp horns are proportionately larger than permanent teeth

Maxillary Central Incisors:

- Crown is wider than it is tall
- No mamelons
- Cingulum and marginal ridges are more pronounced than on the permanent central incisors
- Lingual fossa is deeper

Maxillary Lateral Incisors:

- Similar to the crown of a central incisor but much smaller
- Lateral root is proportionally longer than the crown

Mandibular Central Incisors:

- Very symmetrical
- Smooth lingual surface with a prominent cingulum.
- Less pronounced marginal ridges than the maxillary incisor

Mandibular Lateral Incisors:

- Resembles the mandibular central incisor but is longer and wider
- Root may have a distal curvature

Maxillary Canines:

- Relatively longer and sharper cusp than permanent maxillary canine
- Well-developed cingulum and marginal ridges
- Shallow fossa
- More slender roots compared to the permanent maxillary canine

Mandibular Canines:

- Looks like the maxillary canine but smaller
- Shallow lingual fossa
- Long, narrow root that is almost twice the length of the crown

Primary Molars:

- Eight primary molars
 - Four first primary molar
 - Four second primary molar
 - One in each quadrant
- Replaced by premolars

Maxillary First Molars

- Crown doesn't look like any other crown
- May have four cusps
 - Mesio Buccal
 - Mesio lingual
 - Distobuccal
 - Distolingual
- H-shaped groove pattern and three fossa:
- Central
- Mesial triangular
- Distal triangular
- Three roots with the lingual being the longest

Maxillary Second Molars:

- Larger than the primary maxillary first molar

- Looks similar to the maxillary first molar but smaller
- May have a cusp of Carabelli

Mandibular First Molars:

- Four cusps:
 - Mesio lingual
 - Mesio Buccal
 - Distolingual
 - Distobuccal
- Two roots

Mandibular Second Molars:

- Larger than the primary mandibular first molar
- Five cusps
- Three buccal cusps are nearly equal in size
- Two roots

Slide 38: Primary Dentition

Mandibular First Molars:

- Four cusps
 - Mesio lingual
 - Mesio Buccal
 - Distolingual
 - Distobuccal
- Two roots

Mandibular Second Molars:

- Larger than the primary mandibular first molar
- Two roots
- Five cusps
 - Three buccal cusps are nearly equal in size

Name: _____

Class: _____

Tooth Surfaces, Anatomical Features, and Directional Terminology Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

1. Fill in the table with the missing information.

Term	Definition	Example
Anterior		The lips are anterior to the throat
Posterior	Toward the back	The tongue is posterior to the lips
	Closer to a point of attachment or the trunk of the body	Surfaces of the teeth that are next to each other
Distal	Farther from a point of attachment, or the trunk of the body	Fingers are distal to wrist
Lateral	The side or away from the midline	
	Toward or closer to the midline	The nose is medial to the ears
Dorsal	On the back	The spine is on the dorsal side of the body
Ventral		Face is on the ventral side of the body
Superior	Above another part, closer to the head	
Inferior		Lips are inferior to the eyes

2. List the five major tooth surfaces.

3. What are the two arches called?

4. Each quadrant has _____ permanent teeth or _____ primary teeth.

5. List the permanent types of anterior teeth.
6. The root of the maxillary central incisor is _____ than the roots of other permanent maxillary teeth.
7. Maxillary lateral incisors are smaller than central incisors in all dimensions except for the _____ length.
8. Maxillary canines typically erupt _____ mandibular canine.
9. _____ central incisors are the smallest teeth in the mouth.
10. Mandibular lateral incisors often erupt _____ the mandibular central incisors.
11. Mandibular canines have a less well-developed _____ compared to maxillary canines.
12. Name the two types of permanent posterior teeth.
13. Each quadrant has a _____ and _____ premolar.
14. Maxillary first premolars have _____ cusps.
15. Maxillary second premolars have _____ root(s).
16. Mandibular first premolars erupt after the _____ premolars.
17. Tricune premolars have a _____-shaped central groove.
18. There are _____ molars in the permanent dentition.
19. Maxillary first molars are _____, meaning they do not replace a primary tooth.
20. The _____ root is the largest root on the maxillary second molar.
21. Which tooth has roots that often fuse together?
22. Mandibular molars erupt _____ to one year before maxillary molars.
23. Mandibular first molars erupt between ages _____ and _____.

24. A mandibular second molar has a slightly _____ crown than the mandibular first molar.
25. Which tooth has the most anomalies in shape and position?
26. How many total teeth are in the primary dentition?
27. Which primary tooth has a proportionally longer root than the tooth?
28. Which primary tooth has a root with a distal curvature?
29. Which primary tooth has a long, narrow root almost twice the crown's length?
30. There are _____ molars in the primary dentition.
31. A primary maxillary first molar has _____ roots.
32. A primary mandibular second molar has _____ cusps.

Tooth Surfaces, Anatomical Features, and Directional Terminology

Presentation Guide – Answer Key

Instructions: Complete the following information as you listen to the presentation.

- Fill in the table with the missing information.

Term	Definition	Example
Anterior	Toward the front	The lips are anterior to the throat
Posterior	Toward the back	The tongue is posterior to the lips
Proximal	Closer to a point of attachment or the trunk of the body	Surfaces of the teeth that are next to each other
Distal	Farther from a point of attachment, or the trunk of the body	Fingers are distal to wrist
Lateral	The side or away from the midline	Cheeks are lateral to the lips
Medial	Toward or closer to the midline	The nose is medial to the ears
Dorsal	On the back	The spine is on the dorsal side of the body
Ventral	On the front	Face is on the ventral side of the body
Superior	Above another part, closer to the head	Nose is superior to the mouth
Inferior	Below another part, closer to the feet	Lips are inferior to the eyes

- List the five major tooth surfaces.

Facial/buccal

Mesial

Distal

Lingual

Occlusal/incisal

- What are the two arches called?

Mandible and maxilla

- Each quadrant has **eight** permanent teeth or **five** primary teeth.

- List the permanent types of anterior teeth.

Central Incisors

Lateral Incisors

Canines

6. The root of the maxillary central incisor is **shorter** than the roots of other permanent maxillary teeth.
7. Maxillary lateral incisors are smaller than central incisors in all dimensions except for the **root**.
8. Maxillary canines typically erupt **after** mandibular canine.
9. **Mandibular** central incisors are the smallest teeth in the mouth.
10. Mandibular lateral incisors often erupt **after** the mandibular central incisors.
11. Mandibular canines have a less well-developed **cingulum** compared to maxillary canines.
12. Name the two types of permanent posterior teeth.
Molars
Premolars
13. Each quadrant has a **first** and a **second** premolar.
14. Maxillary first premolars have **two** cusps.
15. Maxillary second premolars have **one** root(s).
16. Mandibular first premolars erupt after the **maxillary** premolars.
17. Tricune premolars have a **Y**-shaped central groove.
18. There are **12** molars in the permanent dentition.
19. Maxillary first molars are **Nonsuccedaneous**, meaning they do not replace a primary tooth.
20. The **lingual** root is the largest root on the maxillary second molar.
21. Which tooth has roots that often fuse together? **Maxillary third molar**
22. Mandibular molars erupt **six months** to one year before maxillary molars.
23. Mandibular first molars erupt between ages **six** and **seven**.
24. A mandibular second molar has a slightly **smaller** crown than the mandibular first molar.
25. Which tooth has the most anomalies in shape and position? **Mandibular third molar**
26. How many total teeth are in the primary dentition? **20**

27. Which primary tooth has a proportionally longer root than the tooth? **Maxillary lateral incisor**
28. Which primary tooth has a root with a distal curvature? **Mandibular lateral incisor**
29. Which primary tooth has a long, narrow root almost twice the crown's length? **Mandibular canine**
30. There are **eight** molars in the primary dentition.
31. A primary maxillary first molar has **three** roots.
32. A primary mandibular second molar has **five** cusps.

Lesson Four – Tooth Surfaces, Anatomical Features, and Directional Terminology

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on tooth surfaces, anatomical features, and directional terminology. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Tooth Surfaces, Anatomic Features, and Directional Terminology Post-Test*
- *Tooth Surfaces, Anatomic Features, and Directional Terminology Test – Answer Key*
- Dental Terminology Scenario Cards
- *Types of Teeth Labeling Exercise – Answer Key*
- *Compare and Contrast Dentitions – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Types of Teeth Labeling Exercise* and *Compare and Contrast Dentitions* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Label the Teeth and Tooth* and *The Periodontium: The Oral Support System*.
3. Have the answer keys for the workbook pages available.
4. Instruct students to take a few minutes to complete the Post-Test.

5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is being discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Dental Terminology Kit Curriculum

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____

Class: _____

Tooth Surfaces, Anatomical Features, and Directional Terminology Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not a tooth surface?
 - a. Mesial
 - b. Distal
 - c. Proximal
 - d. Enamel
2. How many teeth are in the permanent dentition?
 - a. 20
 - b. 24
 - c. 28
 - d. 32
3. Which of the following are nonsuccedaneous teeth?
 - a. Molars
 - b. Premolars
 - c. Centrals
 - d. Canines
4. The mouth can be divided into four sections called:
 - a. Sections
 - b. Quadrants
 - c. Sextants
 - d. Hexagons
5. The primary dentition has how many premolars?
 - a. 0
 - b. 2
 - c. 4
 - d. 6

Tooth Surfaces, Anatomical Features, and Directional Terminology Post-Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not a tooth surface?
 - a. Mesial
 - b. Distal
 - c. Proximal
 - d. Enamel**

2. How many teeth are in the permanent dentition?
 - a. 20
 - b. 24
 - c. 28
 - d. 32**

3. Which of the following are nonsuccedaneous teeth?
 - a. Molars**
 - b. Premolars
 - c. Centrals
 - d. Canines

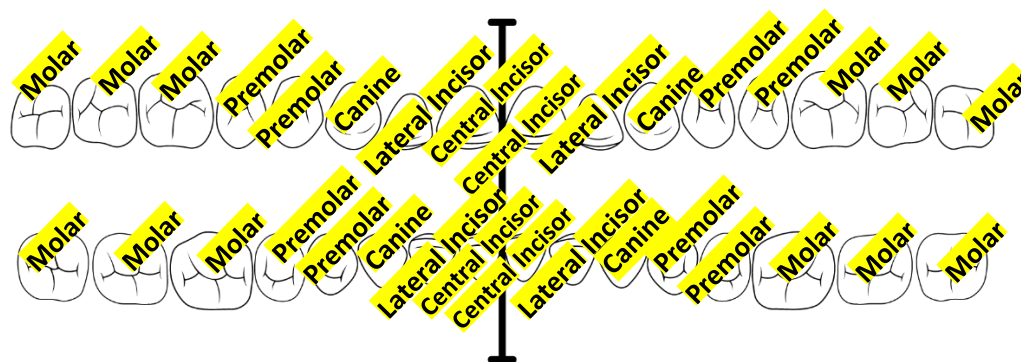
4. The mouth can be divided into four sections called?
 - a. Sections
 - b. Quadrants**
 - c. Sextants
 - d. Hexagons

5. The primary dentition has how many premolars?
 - a. 0**
 - b. 2
 - c. 4
 - d. 6

Types of Teeth Labeling Exercise – Answer Key

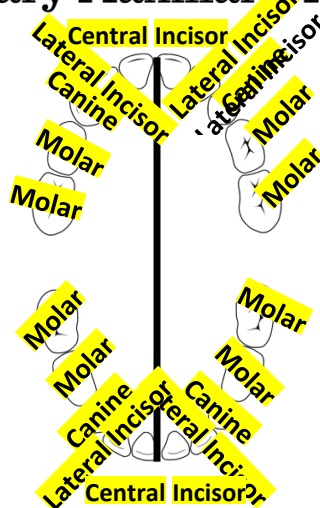
Instructions: Label the teeth in the permanent dentition. Use the words at the bottom of the page. Each word must be used multiple times.

Permanent Maxillary Teeth



Permanent Mandibular Teeth

Primary Maxillary Teeth



Primary Mandibular Teeth

Compare and Contrast Dentitions – Answer Key

Instructions: Use this worksheet to compare primary (deciduous) and permanent dentition.

1. Total Number of Teeth
 - Primary Dentition: **20**
 - Permanent Dentition: **32**
2. Number of Each Type of Tooth
 - Primary Dentition:
 - Incisors: **8**
 - Canines: **4**
 - Molars: **8**
 - Premolars: **Not present**
 - Permanent Dentition:
 - Incisors: **8**
 - Canines: **4**
 - Premolars: **8**
 - Molars: **12**

Lesson Four – Tooth Surfaces, Anatomical Features, and Directional Terminology

Sources

Bird, D. L., & Robinson, D. S. (n.d.). In *Modern Dental Assisting* (13th ed., pp. 127–133). essay.
Retrieved June 13, 2024.

Dofka, C. M. (2000). Tooth Origin and Formation. In *Dental Terminology* (pp. 39–40). essay, Delmar
Thomas Learning.

Lesson Five – Tooth Numbering Systems

Lesson Overview

In this lesson, learners will get an overview of how dental professionals identify teeth using numbering systems and the proper name for each tooth. Participants will learn how these words are related to dental treatment and procedures.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify and describe the different tooth numbering systems, including the Universal (ADA), Palmer Notation, and FDI World Dental Federation (ISO) Systems
- Demonstrate the ability to accurately number and identify teeth using the Universal (ADA) System
- Name each tooth based on the location and position in the mouth

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Tooth Names, Locations, and Numbers</i> – Answer Key • <i>Tooth Numbering Systems Pre-Test</i>	1. Print/photocopy the <i>Tooth Numbering Systems Pre-Test</i> (one of each per learner). 2. Review the <i>Tooth Names, Locations, and Numbers</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Tooth Numbering Systems</i> slide presentation • <i>Tooth Numbering Systems Presentation Guide</i> • <i>Tooth Numbering Systems Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Tooth Numbering Systems Presentation Guide</i> for each participant. 2. Prepare the <i>Tooth Numbering Systems</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Tooth Numbering Systems Post-Test</i> • <i>Tooth Numbering Systems Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Tooth Numbering Exercise</i> – Answer Key	1. Print/photocopy the <i>Tooth Numbering Systems Post-Test</i> for each participant. 2. Distribute the Dental Terminology Scenario Cards. 3. Review the <i>Tooth Numbering Exercise</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Five – Tooth Numbering Systems

FOCUS: Identifying Tooth Names

30 minutes

Purpose:

To help students understand how teeth are identified and documented using various numbering systems.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbook – Teacher Guide
- *Tooth Names, Locations, and Numbers* – Answer Key
- *Tooth Numbering Systems Pre-Test*
- *Tooth Numbering Systems Pre-Test* – Answer Key

Facilitation Steps:

1. If you have not already, review the *Tooth Names, Locations, and Numbers* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Tooth Names, Locations, and Numbers* – Answer Key available.
3. Distribute the *Tooth Numbering Systems Pre-Test* and have learners complete it.
4. Collect the pre-tests and have students follow along, filling in the *Tooth Names, Location, and Numbers* activity from the workbook, as you explain tooth numbering.

Name: _____

Class: _____

Tooth Numbering Systems Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is in the correct order for naming a tooth?
 - a. Maxillary First Right Molar
 - b. Right Maxillary First Molar
 - c. Right First Maxillary Molar
 - d. Maxillary Right First Molar
2. Which does the Universal Numbering System use to identify permanent teeth?
 - a. 1-32
 - b. A-T
 - c. 1-8
 - d. A-E
3. The Palmer Notation System begins numbering teeth at which part of the mouth?
 - a. Third molars
 - b. Central incisors
 - c. First molars
 - d. First premolars
4. What makes the Palmer Notation System different from the other systems?
 - a. It does not use quadrants
 - b. It does not use numbers
 - c. It uses a unique symbol
 - d. None of the above
5. Which number identifies the primary lower left quadrant using the FDI World Dental Federation Notation System?
 - a. 1
 - b. 3
 - c. 5
 - d. 7

Tooth Names, Locations, and Numbers – Answer Key

Instructions: Fill out the table below as your instructor explains the numbers and names of teeth.

Number	Name and Location of Tooth
1	<u>Maxillary Right Third Molar</u>
2	<u>Maxillary Right Second Molar</u>
3	<u>Maxillary Right First Molar</u>
4	<u>Maxillary Right Second Premolar</u>
5	<u>Maxillary Right First Premolar</u>
6	<u>Maxillary Right Canine</u>
7	<u>Maxillary Right Lateral Incisor</u>
8	<u>Maxillary Right Central Incisor</u>
9	<u>Maxillary Left Central Incisor</u>
10	<u>Maxillary Left Lateral Incisor</u>
11	<u>Maxillary Left Canine</u>
12	<u>Maxillary Left First Premolar</u>
13	<u>Maxillary Left Second Premolar</u>
14	<u>Maxillary Left First Molar</u>
15	<u>Maxillary Left Second Molar</u>
16	<u>Maxillary Left Third Molar</u>
17	<u>Mandibular Left Third Molar</u>
18	<u>Mandibular Left Second Molar</u>
19	<u>Mandibular Left First Molar</u>
20	<u>Mandibular Left Second Premolar</u>
21	<u>Mandibular Left First Premolar</u>
22	<u>Mandibular Left Canine</u>
23	<u>Mandibular Left Lateral Incisor</u>
24	<u>Mandibular Left Central Incisor</u>
25	<u>Mandibular Right Central Incisor</u>

26	<u>Mandibular Right Lateral Incisor</u>
27	<u>Mandibular Right Canine</u>
28	<u>Mandibular Right First Premolar</u>
29	<u>Mandibular Right Second Premolar</u>
30	<u>Mandibular Right First Molar</u>
31	<u>Mandibular Right Second Molar</u>
32	<u>Mandibular Right Third Molar</u>

Lesson Five – Tooth Numbering Systems

LEARN: Understanding Tooth Numbering Systems

60 minutes

Purpose:

Participants will receive an introduction to the various tooth numbering systems used in dentistry.

Materials:

- *Tooth Numbering Systems* slide presentation
- *Tooth Numbering Systems Presentation Guide*
- *Tooth Numbering Systems Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Tooth Numbering Systems Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Tooth Numbering Systems

Slide 2: Introduction to Tooth Numbering Systems

Slide 3: Goals and Learning Objectives

The goals and objectives of this lesson are:

- Identify and describe the different tooth numbering systems, including the Universal (ADA), Palmer Notation, and FDI World Dental Federation (ISO) systems
- Demonstrate the ability to accurately number and identify teeth using the Universal (ADA) system
- Name each tooth based on the location and position in the mouth

Slide 4: Identifying a Tooth

- Each tooth is identified according to:
 - Arch (maxillary or mandibular)
 - Quadrant (right or left)
 - Tooth type (molar, premolar, etc.)
- They are always identified in that order

Slide 5: Tooth Numbering Systems

- What is a tooth numbering system?
 - Numbering systems simplify tooth identification, making charting and communicating treatment easier
 - The United States uses two systems, with a third used internationally
 - It is beneficial for a dental assistant to understand each system

Slide 6-9: Universal Numbering System

- Adopted by the American Dental Association (ADA)
- Uses the numbers 1-32 to identify the permanent teeth in the maxillary and mandibular arches
 - Begins with the upper right third molar (#1)
 - Moves across the upper teeth until the upper left third molar (#16)
 - Drops down to the lower left third molar (#17)
 - Finishes with the lower right third molar (#32)
- Uses the letters A-T to identify the primary teeth in the maxillary and mandibular arches.
 - Begins with the upper right second molar (A)
 - Moves across the upper teeth until the upper left second molar (J)
 - Drops down to the lower left second molar (K)
 - Finishes with the lower right second molar (T)
- Permanent Third Molars: #1, #16, #17, #32

- Permanent Second Molars: #2, #15, #18, #31
- Permanent First Molars: #3, #14, #19, #30
- Permanent Second Premolars: #4, #13, #20, #29
- Permanent First Premolars: #5, #12, #21, #28
- Permanent Canines: #6, #11, #22, #27
- Permanent Lateral Incisors: #7, #10, #23, #26
- Permanent Central Incisors: #8, #9, #24, #25
- Primary Second Molars: A, J, K, T
- Primary First Molars: B, I, L, S
- Primary Canines: C, H, M, R
- Primary Lateral Incisors: D, G, N, Q
- Primary Central Incisors: E, F, O, P

Slide 9 shows a graphic of the permanent dentition numbered using the Universal Numbering System.

Slide 10: Universal Numbering System – Primary Teeth

This slide shows a graphic of the primary dentition numbered using the Universal Numbering System.

Slide 11: Palmer Notation Method

- The Palmer Notation Method uses the following to identify teeth:
 - Quadrants
 - Numbers
 - One through eight for permanent teeth
 - A through E for primary teeth
 - A unique symbol
- Numbering begins in the center of the mouth and moves toward the molars

Slide 12: Palmer Notation Method – Permanent Dentition

This slide shows a graphic of the permanent dentition numbered using the Palmer Notation Method.

Slide 13: Palmer Notation Method – Primary Dentition

This slide shows a graphic of the primary dentition numbered using the Palmer Notation Method.

Slide 14: FDI World Dental Federation Notation System

- A two-digit system is often used internationally
- The first number designates the quadrant.
 - Permanent teeth use one through four
 - Maxillary Right: One
 - Maxillary Left: Two
 - Mandibular Left: Three
 - Mandibular Right: Four
 - Primary teeth use five through eight
 - Maxillary Right: Five
 - Maxillary Left: Six
 - Mandibular Left: Seven
 - Mandibular Right: Eight
- The second number identifies the tooth.
 - Permanent teeth use numbers one through eight
 - Tooth number one is the central incisor
 - Tooth number eight is the third molar
 - Primary teeth use numbers one through five
 - Tooth number one is the central incisor

Slide 15: FDI World Dental Federation Notation System – Permanent Dentition

This slide shows a graphic of the permanent dentition numbered using the FDI World Dental Federation Notation System.

Slide 16: FDI World Dental Federation Notation System – Primary Dentition

This slide shows a graphic of the primary dentition numbered using the FDI World Dental Federation Notation System.

Name: _____ Class: _____

Tooth Numbering Systems Presentation Guide

Instructions: Fill out the following information as you listen to the presentation.

1. What three things are used to name each tooth?
 - a.
 - b.
 - c.
2. How would a dental professional identify the second molar on the lower left?
3. Why do dental professionals use tooth numbering systems?
4. Which tooth numbering system was adopted by the American Dental Association?
5. What does the Universal Numbering System use to identify permanent teeth?
6. What tooth is #5?
7. What is tooth M?
8. What three things are used to identify each tooth using the Palmer Notation Method?
 - a.
 - b.
 - c.
9. How would the Palmer Notation Method label the permanent Maxillary Right Central Incisor?
10. How would the Palmer Notation Method label the primary Mandibular Right Second Molar?

11. The FDI World Dental Federation Notation System uses a _____-_____ system to identify teeth.
12. How would the FDI World Dental Federation Notation System label the permanent Maxillary Left First Premolar?
13. How would the FDI World Dental Federation Notation System label the primary Mandibular Left Canine?

Tooth Numbering Systems

Presentation Guide – Answer Key

Instructions: Complete the following information as you listen to the presentation.

1. What three things are used to name each tooth?

a. Arch
b. Quadrant
c. Tooth

2. How would a dental professional identify the second molar on the lower left?

Mandibular Left Second Premolar

3. Why do dental professionals use tooth numbering systems?

To simplify tooth identification and make charting and communicating treatment easier.

4. Which tooth numbering system was adopted by the American Dental Association?

Universal Numbering System

5. What does the Universal Numbering System use to identify permanent teeth?

Numbers 1-32

5. What tooth is #5?

Maxillary Right First Premolar

6. What is tooth M?

Mandibular Left Canine

7. Which three things are used to identify each tooth using the Palmer Notation Method?

Quadrants
Numbers
A unique symbol

8. How would the Palmer Notation Method label the permanent Maxillary Right Central Incisor?

8

9. How would the Palmer Notation Method label the primary Mandibular Right Second Molar?

E

10. The FDI World Dental Federation Notation System uses a **two-digit** system to identify teeth.

11. How would the FDI World Dental Federation Notation System label the permanent Maxillary Left First Premolar?

2-4

12. How would the FDI World Dental Federation Notation System label the primary Mandibular Left Canine?

7-3

Lesson Five – Tooth Numbering Systems

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on the tooth numbering systems. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- *Tooth Numbering Systems Post-Test*
- *Tooth Numbering Systems Test – Answer Key*
- Dental Terminology Scenario Cards
- *Tooth Numbering Exercise – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Tooth Numbering Exercise* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook page *Tooth Numbering Exercise*.
3. Have the *Tooth Numbering Exercise – Answer Key* available.
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other group Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____

Class: _____

Tooth Numbering Systems Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

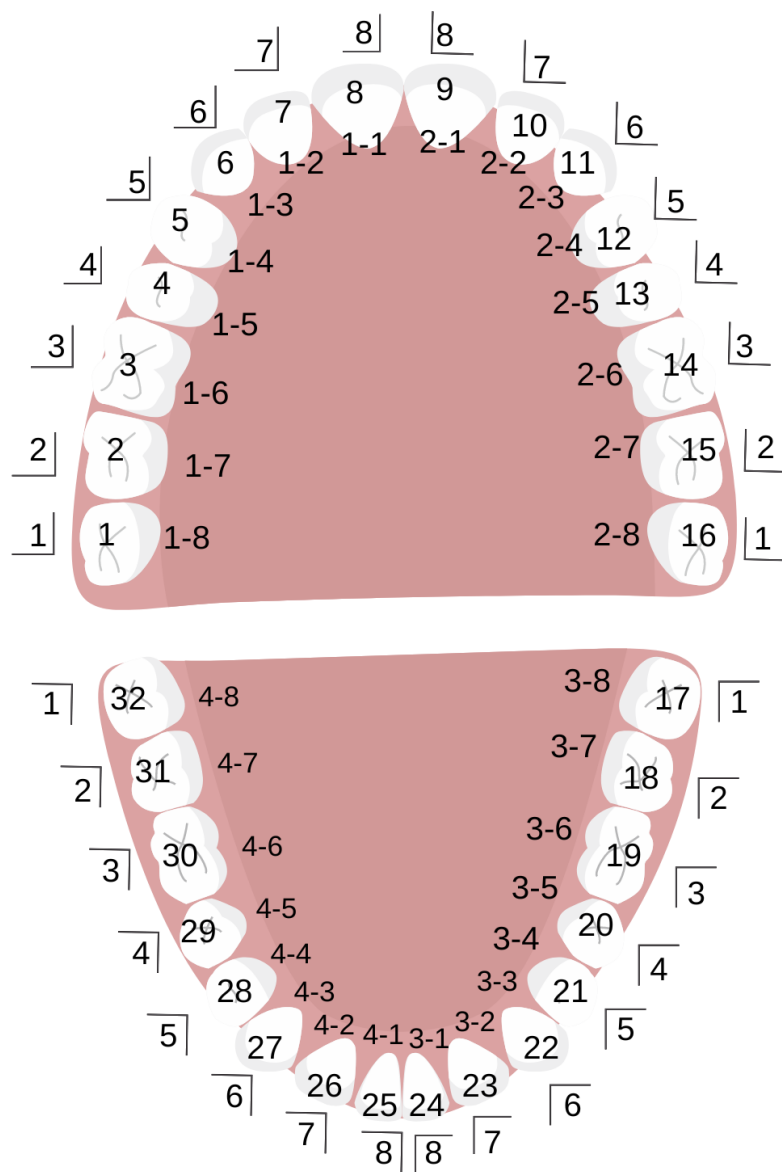
1. Which of the following is in the correct order for naming a tooth?
 - a. Maxillary First Right Molar
 - b. Right Maxillary First Molar
 - c. Right First Maxillary Molar
 - d. Maxillary Right First Molar
2. Which does the Universal Numbering System use to identify permanent teeth?
 - a. 1-32
 - b. A-T
 - c. 1-8
 - d. A-E
3. The Palmer Notation System begins numbering teeth at which part of the mouth?
 - a. Third molars
 - b. Central incisors
 - c. First molars
 - d. First premolars
4. What makes the Palmer Notation System different from the other systems?
 - a. It does not use quadrants
 - b. It does not use numbers
 - c. It uses a unique symbol
 - d. None of the above
5. Which number identifies the primary lower left quadrant using the FDI World Dental Federation Notation System?
 - a. 1
 - b. 3
 - c. 5
 - d. 7

Tooth Numbering Systems Post-Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is in the correct order for naming a tooth?
 - a. Maxillary First Right Molar
 - b. Right Maxillary First Molar
 - c. Right First Maxillary Molar
 - d. Maxillary Right First Molar**
2. Which does the Universal Numbering System use to identify permanent teeth?
 - a. 1-32**
 - b. A-T
 - c. 1-8
 - d. A-E
3. The Palmer Notation System begins numbering teeth at which part of the mouth?
 - a. Third molars
 - b. Central incisors**
 - c. First molars
 - d. First premolars
4. What makes the Palmer Notation System different from the other systems?
 - a. It does not use quadrants
 - b. It does not use numbers
 - c. It uses a unique symbol**
 - d. None of the above
5. Which number identifies the primary lower left quadrant using the FDI World Dental Federation Notation System?
 - a. 1
 - b. 3
 - c. 5
 - d. 7**

Tooth Numbering Exercise – Answer Key



Lesson Five – Tooth Numbering Systems

Sources

Bird, D. L., & Robinson, D. S. (2021). Overview of the Dentitions. In *Modern Dental Assisting* (13th ed., pp. 138–140). essay, Elsevier.

Tyler, L. (2009). Dental Charting. In *Comprehensive Dental Assisting* (pp. 134–136). essay, Pearson.

Lesson Six – Infection Control in Dentistry

Lesson Overview

In this lesson, students will learn the essential principles and practices of infection control in dentistry, emphasizing the critical role of infection prevention to maintain a safe environment for patients and dental professionals.

Lesson Objectives

After completing this lesson, participants will be able to:

- Understand the basic principles of infection control and their importance in dentistry
- Identify common pathogens and modes of transmission in a dental setting
- Define standard precautions, including hand hygiene and personal protective equipment (PPE)
- Describe the correct use of various types of PPE

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Chain of Infection</i> – Answer Key • <i>Infection Control in Dentistry Pre-Test</i> • Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide	1. Print/photocopy the <i>Infection Control in Dentistry Pre-Test</i> (one of each per learner). 2. Review the <i>Chain of Infection</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Infection Control in Dentistry</i> slide presentation • <i>Infection Control in Dentistry Presentation Guide</i> • <i>Infection Control in Dentistry Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Infection Control in Dentistry Presentation Guide</i> for each participant. 2. Prepare the <i>Infection Control in Dentistry</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Infection Control in Dentistry Post-Test</i> • <i>Infection Control in Dentistry Test</i> – Answer Key • <i>Infection Control Matching</i>– Answer Key • Dental Terminology Scenario Cards	1. Print/photocopy the <i>Infection Control in Dentistry Post-Test</i> for each participant. 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Infection Control Research</i> and <i>Infection Control Matching</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Six – Infection Control in Dentistry

FOCUS: Understanding the Chain of Infection

30 minutes

Purpose:

To help students understand the chain of transmitting pathogens and infection control methods that prevent the spread of diseases.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbooks – Teacher Guide
- *Chain of Infection* – Answer Key
- *Infection Control in Dentistry Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Chain of Infection* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Chain of Infection* – Answer Key available.
3. Distribute the *Infection Control in Dentistry Pre-Test* and have learners complete it.
4. Collect the pre-tests and have learners follow along, filling in the *Chain of Infection* activity in the student workbook, as you explain the information.

Name: _____

Class: _____

Infection Control in Dentistry Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. How many links are in the chain of infection?
 - a. 2
 - b. 4
 - c. 6
 - d. 8

2. What kind of contact is considered when a disease is transmitted through contact with a contaminated surface or instrument?
 - a. Direct
 - b. Indirect
 - c. Airborne
 - d. Parenteral

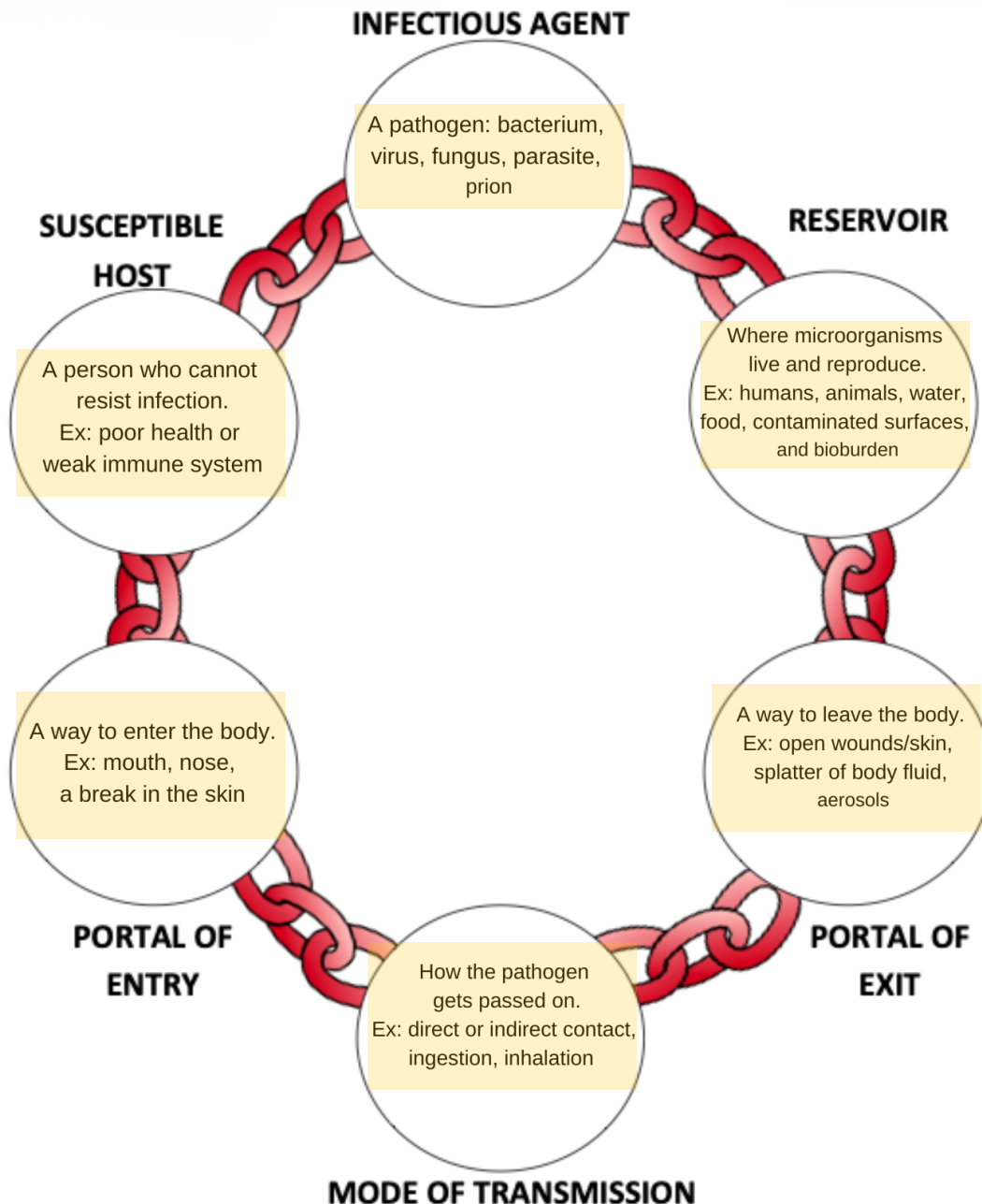
3. Which organization issues standards designed to protect the health of employees?
 - a. FDA
 - b. EPA
 - c. CDC
 - d. OSHA

4. What is used on the surface of equipment to protect against cross-contamination?
 - a. No touch technique
 - b. Surface barriers
 - c. Styrofoam
 - d. None of the above

5. The ideal surface disinfectant would:
 - a. Have no odor
 - b. Kill a single microorganism
 - c. Be expensive
 - d. None of the above

Chain of Infection – Answer Key

Instructions: Follow along as your instructor discusses what each portion of the chain of infection means. List examples in the circles.



Lesson Six – Infection Control in Dentistry

LEARN: Infection Control in Dentistry

60 minutes

Purpose:

Participants will receive an introduction to infection control practices in dentistry.

Materials:

- *Infection Control in Dentistry* slide presentation
- *Infection Control in Dentistry Presentation Guide*
- *Infection Control in Dentistry Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Infection Control in Dentistry Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Infection Control in Dentistry

Slide 2: Introduction to Infection Control in Dentistry

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Understand the principles of infection control and their critical importance in dentistry
- Identify common pathogens found in a dental setting and their modes of transmission
- Define standard precautions, including hand hygiene and personal protective equipment (PPE)
- Describe the correct use of various types of PPE

Slide 4: Chain of Infection

Pathogens are disease-causing microorganisms. Without them, we would not have a transmissible, infectious disease. Examples of pathogens include:

- Viruses
- Bacteria
- Fungi
- Parasites

A reservoir is the environment where a pathogen lives, duplicates, and thrives. Pathogens may live in humans, animals, or the environment.

The portal of exit is any route through which the pathogen can escape the reservoir. In humans, a portal of exit can be body fluids, including droplets associated with coughing, sneezing, talking, and open wounds.

Mode of transmission is how the disease spreads from person to person. The most common form of transmission is direct contact between two people. In dentistry, direct contact includes skin-to-skin contact and touching oral or body lesions.

Another mode is droplet transmission, including coughing, sneezing, and talking. This is done by inhaling droplets, touching particles on the surface and transferring them to the face, and droplets entering the mucous membranes of the face.

Other modes of transmission include bloodborne pathogens and airborne pathogens.

The portal of entry is where the pathogen enters the body. Some examples are inhalation, absorption, and ingestion.

Having a susceptible host is the last link in the chain of infection. This is where the pathogen lives, creating the adverse effects you see as disease symptoms.

To break the chain of infection, you must eliminate the pathogen at the transmission source and protect any entry portal.

Slide 5: Types of Microorganisms

A microorganism is a living thing that cannot be seen with the human eye. When they have a susceptible host, they cause infectious diseases that can often spread easily through direct or indirect contact. Groups of microorganisms include:

- Bacteria
- Algae
- Protozoa
- Fungi
- Viruses
- Prions

Bacteria are large groups of one-celled microorganisms in varying sizes, shapes, and arrangements of cells. Although good bacteria exist in our respiratory and gastrointestinal tract and skin, others cause bacterial infections that spread in many ways. Some bacteria change into spores, a highly resistant form of this microorganism. One example of a disease caused by spores is tetanus. Spores are the most resistant pathogen, surviving in extreme heat and dry environments and resisting disinfectants and radiation. Harmless spores are used to ensure sterilization techniques are effective against them.

Fungi are organisms, such as mold without chlorophyll, mushrooms, and yeast. One of the most common fungi in dentistry is Candida, yeast in the mouth. You can also find this fungus in the gastrointestinal tract, female genital tract, and skin. It is caused by the yeast Candida albicans and typically affects young, old, and ill patients. Many patients with dentures develop a yeast infection under their dentures. Patients with human immunodeficiency virus (HIV) are also commonly affected.

Viruses are smaller than bacteria but cause many serious diseases. They must have a viable host to live and multiply within, with the host being a human, animal, plant, or bacteria. After invading a host, the virus copies itself and destroys host cells, releasing more viruses into the body.

Viruses are transmitted in the following ways:

- Direct contact
- Insects
- Needle sticks
- Blood transfusions
- Contaminated food or water
- Coughing or sneezing

Viruses are easily destroyed using bleach, iodine, phenol, and formaldehyde. Some examples of viral diseases include:

- All forms of viral hepatitis
- human immunodeficiency virus (HIV)
- Herpes viruses

Slide 6: Infectious Diseases in Dentistry

The microorganisms that cause these diseases are the primary concern in dentistry. Of course, they aren't the only transmissible diseases.

Slide 7: Modes of Transportation

Before properly preventing disease transmission, you must understand how it is spread. In dentistry, we focus on six modes of transmission:

- Direct Contact:
 - Person-to-person contact
 - Occurs through unprotected contact with infectious lesions or infected body fluids, such as blood, saliva, semen, and vaginal secretions
- Indirect Contact:
 - Microorganisms are transmitted to an object or surface and then to another person who touches those objects or surfaces
 - Example: Touching a dental chart with your gloves and handing it to a team member
- Airborne Transmission:
 - Also known as droplet infection
 - Refers to the spread of disease through droplets of moisture that contain bacteria or viruses
 - Most contagious respiratory diseases are spread this way
- Aerosol, Spray, and Spatter:
 - The difference among aerosols, sprays, and spatter is size
 - Can be blood, saliva, or nasal fluid
 - Can be created by the dental handpiece or ultrasonic scaler
- Parenteral Transmission
 - Parenteral means through the skin
 - Organisms enter the body through an opening in the skin
- Bloodborne Transmission:
 - Direct or indirect contact
 - Saliva is a concern because it can carry blood, even if it is not visible
 - Improperly sterilized instruments can transmit bloodborne pathogens

Slide 8: Disease Transmission in the Dental Office

Disease transmission in the dental office can occur in many ways:

- Patient to the dental team:
 - Touching patients' blood or saliva
 - Inhaling aerosol generated by the dental handpiece
 - Touching a contaminated surface
- Dental team to patient:
 - Less likely but possible
 - If team member has a cut or lesion on their hand
 - If team member has a cold
- Patient to patient:
 - Only two cases documented in dentistry
 - Example: Contaminated instruments used on a patient
- Dental office to the community (includes dental team's family):
 - Leaving the office via contaminated impressions or equipment sent to another facility
- Community to dental office to patient:
 - Microorganisms enter the office via the water supply and form biofilm within the water lines
 - The patient may swallow contaminated water as water flows through and gets used during treatment

Slide 9: Regulating Infection Control in the Dental Office

The Center for Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA) are federal agencies that play very important roles in infection control for dental offices.

CDC:

- Federal agency that issues recommendations based on scientific evidence
- Cannot make laws, but other state, local, and federal agencies use their recommendations as the basis of their laws
- Released the *Guidelines for Infection Control in Dental Health-Care Settings—2003*
 - Not a law but the standard of care for the dental profession

OSHA:

- Regulatory agency that issues standards designed to protect the health of employees
- Issued the Bloodborne Pathogen Standard in 1991

Slide 10: Bloodborne Pathogen Standard

- The most important infection control law in dentistry
 - Protects employees against exposure to bloodborne pathogens like HBV, HCV, and HIV
- This standard requires employers to protect their employees from exposure to blood and other potentially infectious material
 - It is the employer's duty to provide proper care if an employee is exposed, ensuring their wellbeing is a top priority
 - Every dental office must have a written exposure control plan that describes how it complies with the BBP Standard
 - This plan must be updated yearly
- Employers must categorize tasks and procedures in which employees might encounter blood or other body fluids
 - Category I: These employees, including the dentist, hygienist, and assistants, are regularly exposed to blood and saliva
 - Category II: These employees may occasionally be exposed to

blood, saliva, or both, such as some front office assistants who may occasionally clean rooms or help with instrument processing

- Category III: These employees are never exposed to blood, saliva, or fluid, such as an insurance processor or financial manager
- Employers are responsible for training their employees to respond to an exposure incident
 - This training must include infection control procedures and safety
 - Records must be kept for all sessions and must consist of the following information:
 - Date of training
 - Name of presenter
 - Topic presented
 - Names of employees present

Slide 11: Standard Precautions

- The concept is that all blood and body fluids must be treated like they are infectious
 - Includes saliva
- Designed to protect healthcare providers
- Applies to contact with the following:
 - All body fluids, except sweat
 - Blood
 - Nonintact skin
 - Mucous membranes

Slide 12: Standard Precautions

- Wash hands before and after every patient
- Wear gloves when touching body fluids
- Use care when handling sharp items
- Wear a mask and eye protection during treatment
- Carefully handle contaminated patient care items
- Use a mouthpiece to deliver mouth-to-mouth resuscitation
- Apply Standard Precautions to all patients

Slide 13: Hand Hygiene

A crucial step in preventing cross-contamination is washing your hands before putting on gloves and immediately after removing them. Gloves may contain small holes or get torn throughout the procedure, contaminating your hands.

Steps for Hand Washing:

1. Remove all jewelry
2. Use the foot pedal to turn the water on and off
 - If this is not available, use a paper towel to turn the faucet on and off and discard it after
3. Run your hands under the water
4. Apply soap and lather in a circular motion with your fingertips pointed downward
5. Rub between your fingers and use a nailbrush to clean under the fingernails
6. Rub your hands together under the water to remove any surface debris
7. Apply more soap and repeat the process, rubbing your hands together for 10 seconds under running water
8. Rinse your hand with cool water to close the pores
9. Use a paper towel to dry the hands and forearms
10. Turn off the faucet with a paper towel if a foot pedal is unavailable

Slide 14: Personal Protective Equipment

Dental assistants must wear personal protective equipment (PPE) when working directly with patients. These items must be provided at no charge to all employees and include:

- Protective clothing
- Surgical masks
- Face shields
- Safety glasses
- Treatment gloves
- Utility gloves

Protective masks must cover the nose and mouth to protect against inhaling infectious particles. Safety goggles or a face shield must be worn to protect the eyes from aerosol, splatter particles, and flying tooth debris. Patients should also be offered protective eyewear. Handpiece spatter splashed dental materials, and airborne particles can damage their eyes.

Slide 15: Dental Office Waste Management

Dental practices must follow many federal, state, and local regulations regarding waste management. This subject can be confusing because agencies do not always use consistent terminology. For example, the Environmental Protection Agency (EPA) and most state and local regulations do not consider saliva items as infectious waste. However, because of the high chances that blood may be carried in saliva, CDC guidelines and OSHA BBP Standard regulations consider saliva in dentistry a potentially infectious body fluid. Saliva items should be treated as potentially infectious waste and disposed of as contaminated waste. The OSHA BBP Standard requires that all waste be disposed of according to applicable federal, state, and local regulations.

Slide 16: Hazardous Waste Disposal

Hazardous materials have specific properties that could harm your health and the environment if discarded. Each state regulates hazardous waste disposal, and sometimes, within the same state, regulations vary between counties and cities. Check the regulations for your area for disposing of these chemicals. A general rule to follow is that if it has the following characteristics, it is hazardous:

- Flammable
- Highly acidic or extremely basic
- Chemically unstable or gives off toxic fumes
- Contains arsenic, mercury, lead, silver, barium, or certain pesticides
- Listed as hazardous by the EPA
 - The EPA has a list of several hundred chemicals classified as hazardous

Slide 17: Hazardous Communication Standard
OSHA created the Hazard Communication Standard in 1983. It's also called the Employee Right-to-Know Law. Under this law, employers must inform their employees about known hazardous chemicals to which they may have been exposed. Since its inception, this standard has undergone three significant changes: hazard classification, labels, and Safety Data Sheets (SDS). Labels have been standardized to have a signal word, pictogram, and hazard statement to match a hazard class and category. SDS will all have a 16-section format. All employers had until June 1, 2016, to adapt to these changes and complete employee training.

Slide 18: Chemical Labels

Every chemical container in a dental office must have a label. Labels must include what chemical is inside and any associated hazards as well as all required information. All employees must be trained to understand and read labels. A chemical must also have a label if it is transferred into a different container. For example, when using a concentrated chemical disinfectant mixed with water in a spray bottle, it is prepared in a secondary bottle. This requires a label to identify the chemical and hazards it presents and is known as a secondary label.

Slide 19: Environmental Infection Control
According to the CDC Guidelines for Infection Control in Dental Healthcare Settings—2003, a dental operatory can be divided into clinical contact surfaces and housekeeping surfaces. Housekeeping surfaces include:

- Sink
- Floors
- Walls

These surfaces are less likely to transmit infectious diseases, so cleaning isn't as demanding as clinical contact surfaces and patient instruments. Clinical contact surfaces include the patient treatment room and instruments.

Slide 20: Clinical Contact Surfaces

Clinical contact surfaces are contaminated because they get exposed to spray or spatter created during the dental procedure or by a dirty gloved hand. Clinical contact surfaces are classified in three ways:

- Touch
- Transfer
- Splash, spatter, and droplet

Touch and transfer surfaces require barrier protection, or they must be cleaned and disinfected between each patient. Splash, spatter, and droplet surfaces must be cleaned a minimum of once daily. Touch surfaces become contaminated when someone touches them directly. Touch surfaces include:

- Chair switches
- Dental unit controls
- Light handles
- Computers or tablets
- Pens
- Telephones
- Dental materials containers
- Drawer handles

Transfer surfaces that are not directly touched but have contact with contaminated instruments, including instrument trays and handpiece holders. Splash, spatter, and droplet surfaces never directly contact people or contaminated instruments, such as a countertop.

Slide 21: Housekeeping Surfaces

Housekeeping surfaces are less likely to transmit diseases, so most can be cleaned with a detergent or an EPA-registered low-level disinfectant. However, cleaning solutions not made fresh daily may carry harmful microorganisms between surfaces.

Slide 22: Surface Contamination

Prevent surface contamination using surface barriers or precleaning and disinfecting between patients. Most dental offices use both methods for the most effective protection. Surface barriers cover equipment and surfaces to prevent cross-contamination of any clinical contact area.

Barriers are crucial to protecting difficult-to-clean areas.

All surface barriers should be fluid-resistant to prevent microorganisms from body fluids from penetrating the barrier and touching the surface underneath. Some plastic barriers are specifically designed to fit the air-water syringe, curing lights, and the dental chairs. Other barriers are:

- Clear plastic wraps
- Bags
- Tubes
- Plastic tape
- Plastic-backed paper
- Sticky tape

Aluminum foil may also be used because it can be shaped to fit around any device. Even though surfaces are protected by barriers, they must be cleaned and disinfected daily at the beginning and end of the workday.

Slide 23: Precleaning

When a surface is precleaned, all debris is removed. Even if there isn't any visible blood, a thin layer of saliva could still contain microorganisms, making the disinfectant less effective. Precleaning is most effective on smooth surfaces because irregular textures create hiding places for pathogens, interfering with disinfection. Regular soap and warm water can be used for precleaning. There are risks of exposure to chemicals used during precleaning, so be sure to wear appropriate PPE, including gloves, safety glasses, and a mask.

Slide 24: Disinfecting

Disinfecting kills disease-causing pathogens on the surface after precleaning. The Environmental Protection Agency (EPA) registers and regulates all chemicals used for disinfecting and sterilizing. Only EPA-registered chemicals claiming to kill tuberculosis should be used in dentistry. These products are labeled tuberculocidal. Sporocidal products can kill spores. Virucidal destroys viruses, and fungicidal products kill fungi.

Many chemicals are available as surface disinfectants. But you must read the labels carefully to ensure they are suitable for your needs. Other information you'll find on a disinfectant label includes:

- Shelf life
- Reuse life
- Directions for use
- Warnings for handling the products
- Storage
- Disposal

Slide 25: Chemical Classifications of Disinfectants

Dental offices must use a minimum of an intermediate-level disinfectant to clean all noncritical items that may be contaminated with blood.

Slide 26: Ideal Surface Disinfectant

An ideal surface disinfectant quickly kills many bacteria. It has residual activity, meaning it continues to work for a period after it is applied. Other characteristics of an ideal surface disinfectant include:

- No odor
- Cost effective
- Works on surfaces containing blood or saliva
- Simple to use

Currently, no disinfectant is perfect. When choosing a disinfectant, weigh the pros and cons of each product. Some dental equipment manufacturers recommend a specific product for their chairs or units.

Name: _____ Class: _____

Infection Control in Dentistry

Presentation Guide

Instructions: Complete the following information as you listen to the Infection Control in Dentistry presentation.

1. What are the six links in the chain of infection?
2. _____ are living things that cannot be seen with the human eye.
3. What are the three primary bacterial infectious diseases that are of concern in dentistry?
4. The mode of transmission that requires contact with the patient's blood or other body fluids is _____.
5. What are the five types of disease transmission in the dental office?
6. What federal agency issues infection control recommendations based on scientific evidence?
7. What is the most important infection control law in dentistry?
8. The concept that all blood and body fluids must be treated like they are infectious is called _____.
9. Step 7 of hand hygiene states that you must apply more soap and repeat the process, rubbing your hands together for a minimum of ____ seconds under running water.
10. What does PPE stand for?
11. Hazardous waste is _____ dangerous for humans for the _____

12. True or False: All hazardous waste disposal regulations are the same throughout the United States.
13. The Hazard Communication Standard was issued in what year?
14. All chemicals in the dental office must have a label. _____ labels must be created.
15. The two types of environmental surfaces are:
16. How often must splash, spatter, and droplet surfaces be cleaned?
17. Housekeeping surfaces can be cleaned with an EPA-registered, _____ - _____ disinfecting agent.
18. The use of _____ barriers protects against cross-contamination.
19. _____ - _____ is removing debris from the surface to prepare for disinfection.
20. Disinfecting kills remaining _____ after precleaning.
21. High-level disinfectants have a _____ contact time than other disinfectants.
22. The ideal surface disinfectant is _____, meaning it kills many pathogens.

Infection Control in Dentistry

Presentation Guide – Answer Key

Instructions: Complete the following information as you listen to the Infection Control in Dentistry presentation.

1. What are the six links in the chain of infection?
Infectious agent
Reservoir
Portal of exit
Mode of transmission
Portal of entry
Susceptible host
2. **Microorganisms** are living things that cannot be seen with the human eye.
3. What are the three primary bacterial infectious diseases that are of concern in dentistry?
Tuberculosis
MRSA
Strep throat
4. The mode of transmission that requires contact with the patient's blood or other body fluids is **direct contact**.
5. What are the five types of disease transmission in the dental office?
Patient to dental team, dental team to patient, patient to patient, dental office to community, community to dental office to patient
6. What federal agency issues infection control recommendations based on scientific evidence?
Centers for Disease Control and Prevention
7. What is the most important infection control law in dentistry?
Bloodborne Pathogen Standard
8. The concept that all blood and body fluids must be treated like they are infectious is called **Standard Precautions**.
9. Step 7 of hand hygiene states that you must apply more soap and repeat the process, rubbing your hands together for a minimum of **10** seconds under running water.
10. What does PPE stand for?
Personal Protective Equipment
11. Hazardous waste is **anything** dangerous for humans for the **environment**

12. True or **False**: All hazardous waste disposal regulations are the same throughout the United States.
13. The Hazard Communication Standard was issued in what year?
1983
14. All chemicals in the dental office must have a label. **Secondary** labels must be created.
15. The two types of environmental surfaces are:
Housekeeping and clinical contact surfaces
16. How often must splash, spatter, and droplet surfaces be cleaned?
At least once daily
17. Housekeeping surfaces can be cleaned with an EPA-registered, **low-level** disinfecting agent.
18. The use of **surface** barriers protects against cross-contamination.
19. **Precleaning** is removing debris from the surface to prepare for disinfection.
20. Disinfecting kills remaining **pathogens** after precleaning.
21. High-level disinfectants have a **shorter** contact time than lower-level disinfectants.
22. The ideal surface disinfectant is **broad-spectrum**, which means it kills many pathogens.

Lesson Six – Infection Control in Dentistry

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on the introduction to dental terminology. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- *Infection Control in Dentistry Post-Test*
- *Infection Control in Dentistry Test – Answer Key*
- *Infection Control Matching – Answer Key*
- Dental Terminology Scenario Cards

Facilitation Steps:

1. If you have not already, review the *Infection Control Research* and *Infection Control Matching* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Infection Control Research* and *Infection Control Matching*.
3. Instruct students to take a few minutes to complete the Post-Test.
4. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____

Class: _____

Infection Control in Dentistry Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. How many links are in the chain of infection?
 - a. 2
 - b. 4
 - c. 6
 - d. 8
2. What kind of contact is considered when a disease is transmitted through contact with a contaminated surface or instrument?
 - a. Direct
 - b. Indirect
 - c. Airborne
 - d. Parenteral
3. Which organization issues standards designed to protect the health of employees?
 - a. FDA
 - b. EPA
 - c. CDC
 - d. OSHA
4. What is used on the surface of equipment to protect against cross-contamination?
 - a. No touch technique
 - b. Surface barriers
 - c. Styrofoam
 - d. None of the above
5. The ideal surface disinfectant would:
 - a. Have no odor
 - b. Kill a single microorganism
 - c. Be expensive
 - d. None of the above

Infection Control in Dentistry Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. How many links are in the chain of infection?
 - a. 2
 - b. 4
 - c. 6**
 - d. 8

2. What kind of contact is considered when a disease is transmitted through contact with a contaminated surface or instrument?
 - a. Direct
 - b. Indirect**
 - c. Airborne
 - d. Parenteral

3. Which organization issues standards designed to protect the health of employees?
 - a. FDA
 - b. EPA
 - c. CDC
 - d. OSHA**

4. What is used on the surface of equipment to protect against cross-contamination?
 - a. No touch technique
 - b. Surface barriers**
 - c. Styrofoam
 - d. None of the above

5. The ideal surface disinfectant would:
 - a. Have no odor**
 - b. Kill a single microorganism
 - c. Be expensive
 - d. None of the above

Infection Control Matching – Answer Key

Instructions: Match the following terms with the correct description

Answer	Term	Description
D	1. Indirect contact	a. Certain conditions must be met for a microbe or infectious disease to be spread from person to person
S	2. Mode of transmission	b. Hospital grade disinfectant with tuberculocidal action
R	3. Portal of exit	c. A route of transmission when an individual has this with a lesion or microorganism while performing intraoral dental procedures; touching or first-hand contact
H	4. Disinfection	d. The process by which bacteria or other microorganisms are unintentionally transferred from one substance or object to another, with harmful effect
J	5. Parenteral	e. A route of transmission that involves contact with a microorganism through such means as contaminated instruments, supplies, and equipment
P	6. Compromised host	f. Any reasonably anticipated exposure to secretions of the eye, mucosa, skin, parenteral, or any contact with blood or saliva that may be a result of employment tasks
O	7. Hazardous Waste	g. microscopic communities that allow bacteria, fungi, and viruses to multiply
N	8. Standard precautions	h. Kills remaining pathogens after pre-cleaning
V	9. Transfer surfaces	i. The action or state of making or being made impure by polluting or poisoning
C	10. Direct contact	j. Piercing of the mucous membranes of the skin through such events as needlesticks, cuts, and abrasions
U	11. Personal protective equipment	k. A bacterium, virus, or other microorganism that can cause disease
F	12. Occupational exposure	l. Methods to eliminate or reduce the transmission of infectious microorganisms
A	13. Chain of infection	m. removing debris from the surface to prepare for disinfection.

T	14. Portal of entry	n. Guidelines established by the CDC to help protect healthcare workers and patients from the transmission of infectious diseases
K	15. Pathogen	o. Anything waste that is dangerous for humans for the environment
E	16. Cross-contamination	p. An individual whose normal defense mechanisms are impaired
Q	17. Splash, spatter, and droplet surfaces	q. Areas that dental personnel do not actually contact, but still may be contaminated, such as countertops or front of the dental light
G	18. Biofilms	r. The route by which an infectious agent leaves the reservoir to be transferred to a susceptible host
I	19. Contamination	s. The route or method of transfer by which the infectious microorganism moves or is carried from one place to another to reach the new host
M	20. Precleaning	t. The route by which an infectious agent enters the host
B	21. Intermediate-level disinfectant	u. Items that should be worn to protect against contact with all body fluids
L	22. Infection control	v. Surface is not directly touched, but are areas or items that are indirectly contaminated, such as air–water syringe holders, dental trays, and handpiece holders

Lesson Six – Infection Control in Dentistry

Sources

Bird, D. L., & Robinson, D. S. (2021). Disease Transmission and Infection Prevention. In *Modern Dental Assisting* (13th ed., Chapter 19), Elsevier.

Bird, D., & Robinson, D. (2021). Principles and Techniques of Disinfection. In *Modern Dental Assisting* (13th ed., pp. 287–298). essay, Elsevier.

Dofka, C. M. (2000b). Infection Control. In *Dental Terminology* (pp. 58–64). essay, Delmar Thomas Learning.

Tyler, L. (2009). Microbiology. In *Comprehensive Dental Assisting* (pp. 167–172). essay, Pearson.

Lesson Seven – Instrument Processing and Sterilization

Lesson Overview

In this lesson, students will learn the essential sterilization techniques and principles of instrument processing. They will explore the procedures and best practices for ensuring dental instruments are properly cleaned, disinfected, and sterilized to prevent cross-contamination and disease transmission.

Lesson Objectives

After completing this lesson, participants will be able to:

- Discuss proper techniques for cleaning, disinfecting, and sterilizing dental instruments and equipment
- List the steps involved in processing dental instruments
- Describe the classification of instruments that determines the type of processing
- Explain the methods of sterilization and sterilization monitoring

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>7 Steps for Instrument Processing</i> – Answer Key • <i>Instrument Processing and Sterilization Pre-Test</i>	1. Print/photocopy the <i>Instrument Processing and Sterilization Pre-Test</i> (one of each per learner). 2. Review the <i>7 Steps for Instrument Processing</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Instrument Processing and Sterilization</i> slide presentation • <i>Instrument Processing and Sterilization Presentation Guide</i> • <i>Instrument Processing and Sterilization Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Instrument Processing and Sterilization Presentation Guide</i> (one for each participant). 2. Prepare the <i>Instrument Processing and Sterilization</i> slide presentation for viewing	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Instrument Processing and Sterilization Post-Test</i> • <i>Instrument Processing and Sterilization Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Instrument Processing and Sterilization Scramble</i> – Answer Key	1. Print/photocopy the <i>Instrument Processing and Sterilization Post-Test</i> (one for each participant). 2. Distribute Dental Terminology Student Workbooks and Dental Terminology Scenario Cards. 3. Review the <i>Instrument Processing and Sterilization Scramble</i> and <i>Design Your Own Instrument Processing Area</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Seven – Instrument Processing and Sterilization

FOCUS: Seven Steps for Instrument Processing

30 minutes

Purpose:

To help students understand the steps taken to minimize cross-contamination from dental instruments.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbooks – Teacher Guide
- *7 Steps for Instrument Processing* – Answer Key
- *Instrument Processing and Sterilization Pre-Test*

Facilitation Steps:

1. If you have not already, review the *7 Steps for Instrument Processing* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *7 Steps for Instrument Processing* – Answer Key available.
3. Distribute the *Instrument Processing and Sterilization Pre-Test* and have the answer key available.
4. Have students complete the pre-test and collect the tests when they are complete.
5. Have students follow along and fill in the *7 Steps for Instrument Processing* activity from the workbook as you explain the information.

Name: _____ Class: _____

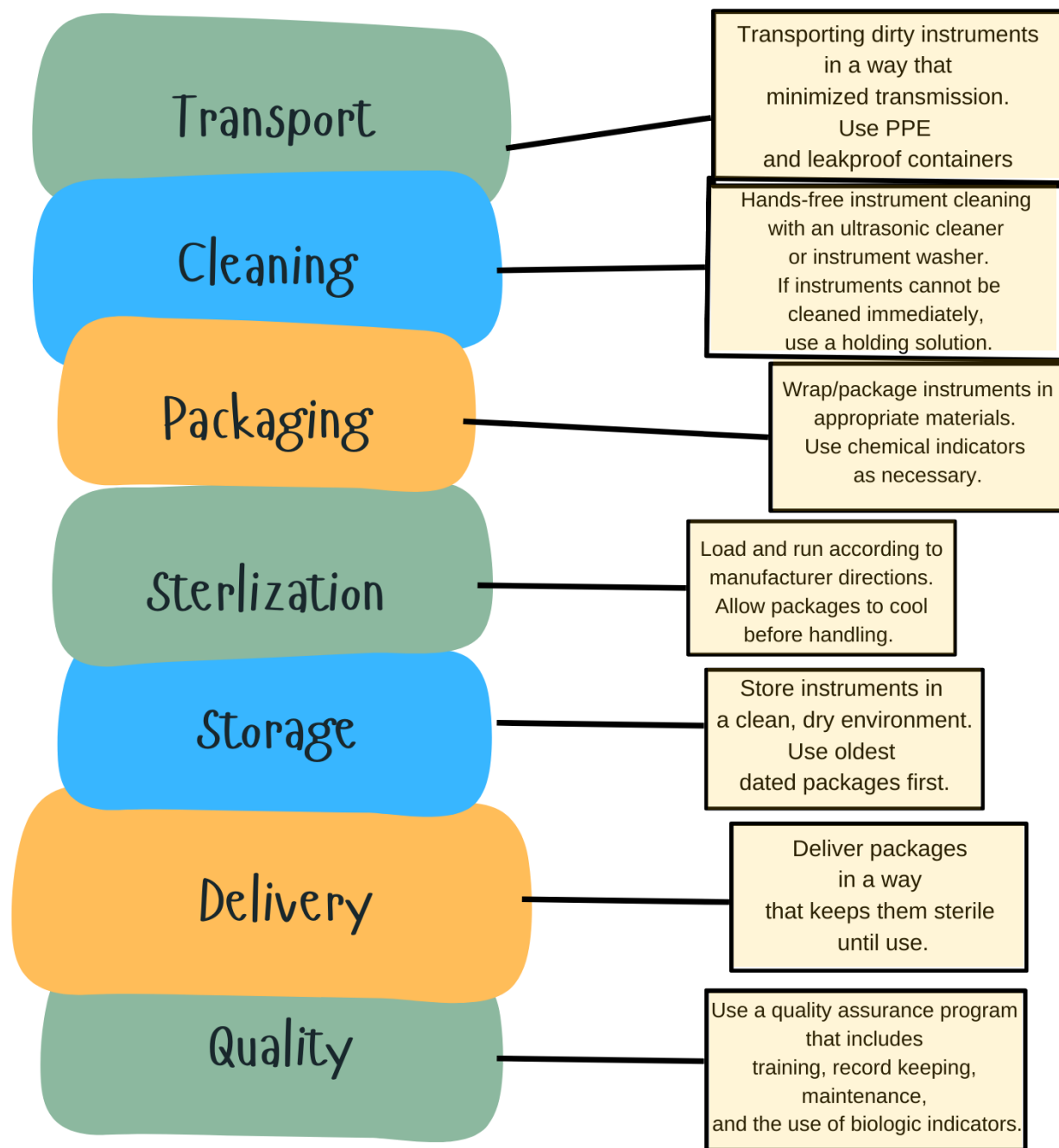
Instrument Processing and Sterilization Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Any instrument that penetrates bone or soft tissue falls into what category?
 - a. Critical
 - b. Semi-critical
 - c. Noncritical
 - d. Light-critical
2. Which method of precleaning instruments is not recommended?
 - a. Ultrasonic cleaner
 - b. Automated instrument washers
 - c. Hand scrubbing
 - d. Holding solution
3. Which method of precleaning is not approved by the Food and Drug Administration (FDA)?
 - a. Ultrasonic cleaner
 - b. Automated instrument washers
 - c. Hand scrubbing
 - d. Holding solution
4. Which sterilization method does not rust or corrode instruments?
 - a. Steam autoclave
 - b. Flash sterilization
 - c. Unsaturated chemical vapor
 - d. Dry heat
5. Which method of sterilization monitoring requires the dental assistant to look at gauges and record data?
 - a. Physical monitoring
 - b. Chemical monitoring
 - c. Biological monitoring
 - d. None of the above

7 Steps of Instrument Processing – Answer Key

Instructions: Write out and explanation for each step of instrument processing in its corresponding box.



Lesson Seven – Instrument Processing and Sterilization

LEARN: Instrument Processing and Sterilization

60 minutes

Purpose:

Participants will receive an introduction to instrument processing and sterilization techniques used in dentistry.

Materials:

- *Instrument Processing and Sterilization* slide presentation
- *Instrument Processing and Sterilization Presentation Guide*
- *Instrument Processing and Sterilization Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Instrument Processing and Sterilization Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Instrument Processing and Sterilization

Slide 2: Introduction to Instrument Processing and Sterilization

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Discuss proper techniques for cleaning, disinfecting, and sterilizing dental instruments and equipment
- List the steps involved in processing dental instruments
- Describe the classification of instruments that determines the type of processing
- Explain the methods of sterilization and sterilization monitoring

Slide 4: Instrument Processing

Dental assistants must follow a seven-step process to ensure all instruments are sterilized for the next patient. The seven steps are:

1. Transport: Moving contaminated instruments to the processing area using a leakproof container to minimize the risk of exposing someone. All PPE must be worn.
3. Cleaning: Using a hands-free method to remove debris from the instrument.
4. Packaging: Wrapping/packaging instruments and ensuring process indicators are on the outside.
5. Sterilization: Load and run the equipment according to the manufacturer's directions. Packages must be labeled, and the machine must not be overloaded. Run the machine correctly and allow the instruments to cool before removing them from it.
6. Storage: Place instruments in a clean, dry area for storage, rotating packages, so the ones with the oldest sterilization date get used first.
7. Delivery: Take the packages to the operatory, maintaining sterility until use. Ensure no packages are damaged and open using aseptic techniques.
8. Quality: Implement a quality assurance program that includes training, recordkeeping, maintenance, and biologic indicators.

Slide 5: Classification of Patient Care Items

Patient care items are placed into three categories: critical, semi-critical, and noncritical. These categories are defined by their risk for infection and determine the minimum sterilization requirements.

- **Critical:** Any instrument that penetrates soft tissue or bone. These create the highest risk of transmitting infection and must be heat sterilized. Examples of critical instruments are forceps, scalpels, and burs.
- **Semi-critical:** Instruments that contact mucous membranes or nonintact skin. They have a lower risk of transmitting diseases but should still be heat sterilized. If the item cannot withstand heat, it must undergo immersion sterilization with a high-level disinfectant.
- **Noncritical:** These items should only contact intact skin and create the least risk for transmitting diseases. They should be cleaned with an EPA-registered, intermediate- or low-level disinfectant after each patient use.

Slide 6: Instrument Processing Area

The instrument processing area should be located near the center of the office, so all team members have access. This prevents the need to carry contaminated items through the office. It should be used only for processing instruments. No other business should be conducted there. It should be physically separate from the treatment rooms and office laboratory. This area should not be part of a walkway and should not have doors or windows with outside access. This prevents dust from entering the room.

Every processing area should have:

- Air circulation to help control the heat produced by the sterilizing equipment
- Hands-free sink for rinsing instruments
- No carpeting
- Seamless floors

Slide 7: Workflow Patterns

Although every office's instrument processing area will differ in size and shape, the same rules apply to the workflow pattern. Instruments should always be processed in a single loop from dirty to storage without doubling back.

Another common workflow pattern is the U-shape. It follows the same pattern from entrance to exit but has a slightly different shape.

Slide 8: Holding Solutions

A holding solution is the first step to precleaning instruments. If an instrument cannot be immediately cleaned, it must be placed in a holding solution to prevent blood from drying. This solution may be any liquid that will not cause corrosion. Commercial enzymatic solutions or dishwasher detergent are often used.

Slide 9: Precleaning

Instrument precleaning happens using one of three methods:

- **Hand Scrubbing:** This method is not recommended because it requires contact with contaminated patient care items. If you must hand scrub, wear PPE and clean one or two instruments at a time using a long-handled brush.
- **Ultrasonic Cleaner:** These machines loosen and remove blood and debris from contaminated instruments, eliminating the need for hand scrubbing. Wear appropriate PPE when handling instruments inside the ultrasonic cleaner and removing them after the cycle. Instruments should run through the ultrasonic cleaner until they are visibly clean. This could take 5-15 minutes, depending on the debris type.
- **Automated Instrument Washers:** These devices look and operate like a household dishwasher. They use recirculating hot water and soap to remove organic debris and automatically dry the instruments. However, they are not FDA-approved for medical use.

Slide 10: Methods of Sterilization

Sterilization means that all forms of life are destroyed, including bacterial spores. Any reusable item with direct contact with the patient's blood, saliva, or mucous membranes must be heat-sterilized.

The most common methods of heat sterilization in the dental office are:

- Steam
- Chemical vapor
- Dry heat

Most reusable items can be heat sterilized, but some plastic items, like shade guides, may be ruined by heat. These items must be placed in a liquid sterilant.

Slide 11: Steam Autoclave

Autoclaves are dental sterilizers that work with heat under pressure. This is done by heating water to create steam, which produces moist heat and kills microorganisms.

Autoclaves have four cycles:

- Heat up
- Sterilizing
- Depressurization
- Drying

Steam fills the sterilizer, pushing out cool air through the escape valve. It closes, increasing the pressure. The heat, not the pressure, kills the microorganisms. The temperature for using an autoclave is maintained for a set time, usually between 3 and 30 minutes.

Slide 12: Flash Sterilization

Flash sterilization refers to sterilizing instruments without packaging. This method uses short exposure times, but it is not preferred. Unwrapped instruments are no longer sterile once they are removed from the machine.

This method should only be used when instruments will be used immediately after removing them from the sterilizer.

Slide 13: Unsaturated Chemical Vapor

Unsaturated chemical vapor sterilization is like autoclaving, but it creates the vapor using a combination of chemicals instead of water. To comply with OSHA standards, any office that uses this method must have a Safety Data Sheet (SDS).

This method does not rust or corrode dry metal instruments or destroy endodontic files. Many items can withstand this form of sterilization. It has a short cycle time, and instruments come out dry.

The disadvantage to this method is that it requires ventilation because of the formaldehyde and methyl alcohol released when the door opens.

These chemicals may cause an odor to drift through the office and irritate the eyes. For this form of sterilization to be effective, it must satisfy three criteria:

- Pressure of 20 psi
- Temperature of 270° F
- 20-40 minutes of sterilizing time

Slide 14: Dry Heat Sterilization

Dry heat sterilization works by heating air and transferring the heat from the air to the patient care items. These machines must reach 320-375 degrees Fahrenheit and run for different lengths.

This method has the advantage that instruments will not rust if they are not dried thoroughly before being placed in the sterilizer.

Static air sterilizers work like an oven. Coils on the bottom are heated, forcing hot air to rise. Heat is transferred from the static air to the instruments within 1-2 hours. Disadvantages of this method include:

- Time
- Vulnerable to calculation errors

Instruments must be packaged in a heat-resistant material. Aluminum foil, metal, and glass containers may be used.

A forced air sterilizer circulates the hot air throughout the machine at high speeds. This permits heat to move from the air to the instrument, reducing the time needed for sterilization. The time for instruments processing through forced air ranges from 6 minutes for unwrapped instruments to 12 minutes for packaged instruments.

Slide 15: Sterilization Monitoring

Three forms of sterilization monitoring are used to ensure instruments are properly sterilized.

- Physical
- Chemical
- Biological

Each process has different functions, but each method must be used to guarantee sterility.

Physical monitoring includes looking at gauges and recording the exposure time, temperature, and pressure the sterilizer reaches. These readings do not guarantee sterilization, but an inaccurate reading indicates a problem with the equipment.

Chemical monitoring occurs externally and internally using a heat-sensitive, color-changing chemical. These change colors when exposed to certain conditions. The two chemical monitoring types are process indicators and process integrators. Indicators are on the external package, like autoclave tape or markings on the packages. Integrators are placed inside the package with the instruments in strips or tabs. They respond to pressure, temperature, and time. These items do not guarantee sterility.

Biological monitoring is the only way to know that sterilization took place. This method uses strips of paper containing harmless spores placed inside the sterilizer. The strips are placed inside the machine with instruments and run through a sterilization cycle. After the cycle ends, the strips are tested. If the spores remain alive, the sterilization fails, and the machine needs repairing.

Slide 16: Handpiece Sterilization

High-speed dental handpieces move up to 400,000 revolutions per minute. Blood and other debris may get lodged in the head of the handpiece, potentially contaminating another patient. Handpieces must be cleaned and sterilized by following the manufacturer's instructions.

Name: _____ Class: _____

Instrument Processing and Sterilization Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

1. List the seven steps for instrument processing.
2. What are the three classifications of patient care items?
3. The instrument processing area should be in a _____, giving all team members access to it.
4. What are the two common workflow patterns in dentistry?
5. If an instrument cannot be immediately cleaned, it must be placed in a _____ solution.
6. List the three methods of precleaning instruments.
7. Name the methods of sterilization used in dentistry.
8. How many cycles does an autoclave have?
9. Why is flash sterilization not an ideal method?
10. If an officer uses unsaturated chemical vapor sterilization, what must they have to comply with OSHA standards?
11. What is the temperature range for dry heat sterilization?
12. What is biological monitoring?
13. How are dental handpieces sterilized?

Instrument Processing and Sterilization Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

1. List the seven steps for instrument processing.
Transport, cleaning, packaging, sterilization, storage, delivery, and quality assurance
2. What are the three classifications of patient care items?
Critical, semi-critical, and noncritical
3. The instrument processing area should be in a **central location**, giving all team members access to it.
4. What are the two common workflow patterns in dentistry?
Linear and U-shape
5. If an instrument cannot be immediately cleaned, it must be placed in a **holding** solution.
6. List the three methods of precleaning instruments.
Hand scrubbing, ultrasonic cleaner, and automated instrument washers
7. Name the methods of sterilization used in dentistry.
Steam sterilization, chemical vapor sterilization, and dry heat sterilization
8. How many cycles does an autoclave have?
Four
9. Why is flash sterilization not an ideal method?
Once they are removed from the sterilizer, they are no longer sterile
10. If an office uses unsaturated chemical vapor sterilization, what must they have to comply with OSHA standards?
Safety Data Sheet
11. What is the temperature range for dry heat sterilization?
320-375 degrees Fahrenheit
12. What is biological monitoring?
Spore testing
13. How are dental handpieces sterilized?
According to the manufacturer's instructions

Lesson Seven – Instrument Processing and Sterilization

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on instrument processing and sterilization. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- *Instrument Processing and Sterilization Post-Test*
- *Instrument Processing and Sterilization Test – Answer Key*
- Dental Terminology Scenario Cards
- *Instrument Processing and Sterilization Scramble – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Instrument Processing and Sterilization Scramble* and *Design Your Own Instrument Processing Area* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Instrument Processing and Sterilization Scramble* and *Design Your Own Instrument Processing Area*.
3. Have the *Instrument Processing and Sterilization Scramble – Answer Key* available.
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Instrument Processing and Sterilization Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Any instrument that penetrates bone or soft tissue falls into what category?
 - a. Critical
 - b. Semi-critical
 - c. Noncritical
 - d. Light-critical
2. Which method of precleaning instruments is not recommended?
 - a. Ultrasonic cleaner
 - b. Automated instrument washers
 - c. Hand scrubbing
 - d. Holding solution
3. Which method of precleaning is not approved by the Food and Drug Administration (FDA)?
 - a. Ultrasonic cleaner
 - b. Automated instrument washers
 - c. Hand scrubbing
 - d. Holding solution
4. Which sterilization method does not rust or corrode instruments?
 - a. Steam autoclave
 - b. Flash sterilization
 - c. Unsaturated chemical vapor
 - d. Dry heat
5. Which method of sterilization monitoring requires the dental assistant to look at gauges and record data?
 - a. Physical monitoring
 - b. Chemical monitoring
 - c. Biological monitoring
 - d. None of the above

Instrument Processing and Sterilization

Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Any instrument that penetrates bone or soft tissue falls into what category?
 - a. **Critical**
 - b. Semi-critical
 - c. Noncritical
 - d. Light-critical
2. Which method of precleaning instruments is not recommended?
 - a. Ultrasonic cleaner
 - b. Automated instrument washers
 - c. **Hand scrubbing**
 - d. Holding solution
3. Which method of precleaning is not approved by the Food and Drug Administration (FDA)?
 - a. Ultrasonic cleaner
 - b. **Automated instrument washers**
 - c. Hand scrubbing
 - d. Holding solution
4. Which sterilization method does not rust or corrode instruments?
 - a. Steam autoclave
 - b. Flash sterilization
 - c. **Unsaturated chemical vapor**
 - d. Dry heat
5. Which method of sterilization monitoring requires the dental assistant to look at gauges and record data?
 - a. **Physical monitoring**
 - b. Chemical monitoring
 - c. Biological monitoring
 - d. None of the above

Instrument Processing and Sterilization

Scramble – Answer Key

Instructions: Unscramble the letters to form a word related to instrument processing and sterilization in dentistry.

1. LROTIESZNTAI - **Sterilization**
2. EITRICMCILAS - **Semicritical**
3. ADHN BBURCNIGS - **Hand Scrubbing**
4. RKFOLWO AERPNTT - **Workflow Pattern**
5. BLICALIGOO STCIONDIAR - **Biological Indicators**
6. RMPATEEEUTR - **Temperature**
7. ATCBRAEI - **Bacteria**
8. NARILEGCEPN - **Precleaning**
9. CIAILTRC - **Critical**
10. ETAOAUCVL - **Autoclave**
11. NSCIUROTAL - **Ultrasonic**
12. ASTLTNIEOIZR IGTMRNIOON - **Sterilization Monitoring**
13. CTOCNRLIANI - **Noncritical**
14. ESOPR ETTGSIN - **Spore Testing**
15. TIGRNEAOTR - **Integrator**
16. CPALHYSI NMROINGTOI - **Physical Monitoring**
17. DYR ATHE IITRLEASZONTI - **Dry Heat Sterilization**
18. EAUDNRTUSAT ECAICHML POARV - **Unsaturated Chemical Vapor**
19. SHLAF TNRALEIISTOZI - **Flash Sterilization**
20. DLOHNIG SONUOTIL - **Holding Solution**

Lesson Seven – Instrument Processing and Sterilization

Sources

Bird, D., & Robinson, D. (2021b). Principles and Techniques of Instrument Processing and Sterilization. In *Modern Dental Assisting* (13th ed., pp. 302–317). Elsevier.

Tyler, L. (2009). Instrument Processing and Sterilization. In *Pearson's Comprehensive Dental Assisting* (pp. 253–268). Pearson Education, INC.

Lesson Eight – Common Dental Procedures

Lesson Overview

In this lesson, students will gain an in-depth understanding of the various procedures commonly performed in a dental practice. Participants will enhance their technical skills and improve their ability to educate and comfort patients.

Lesson Objectives

After completing this lesson, participants will be able to:

- Describe the most common dental procedures performed in a general dental practice
- Explain the indications, benefits, and goals of various dental procedures
- Recognize the instruments and materials used during various procedures

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Dental Procedures</i> – Answer Key • <i>Common Dental Procedures Pre-Test</i>	1. Print/photocopy the <i>Common Dental Procedures Pre-Test</i> (one of each per learner). 2. Review the <i>Dental Procedures</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Common Dental Procedures</i> slide presentation • <i>Common Dental Procedures Presentation Guide</i> • <i>Common Dental Procedures Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Common Dental Procedures Presentation Guide</i> (one of each per learner). 2. Prepare the <i>Common Dental Procedures</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Common Dental Procedures Post-Test</i> • <i>Common Dental Procedures Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>You Determine the Dental Procedure</i> – Answer Key	1. Print/photocopy the <i>Common Dental Procedures Post-Test</i> (one of each per learner). 2. Distribute the Dental Terminology Scenario Cards. 3. Review the <i>Newest Dental Materials Research Project</i> and <i>You Determine the Dental Procedure</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Eight – Common Dental Procedures

FOCUS: Understanding Common Dental Procedures

30 minutes

Purpose:

To help students understand common dental procedures and their use in patient care. Take the *Common Dental Procedures Pre-Test*.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbooks – Teacher Guide
- *Dental Procedures – Answer Key*
- *Common Dental Procedures Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Dental Procedures* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Common Dental Procedures – Answer Key* available and distribute the *Common Dental Procedures Pre-Test*.
3. Have students complete the pre-test and collect them when they are done.
4. Have students follow along and fill in the *Dental Procedures* activity in the workbook as you explain the information.

Name: _____

Class: _____

Common Dental Procedures Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which preventive procedure removes plaque and tartar from external tooth surfaces?
 - a. Sealants
 - b. Fluoride
 - c. Prophylaxis
 - d. None of the above
2. Which restorative treatment restores and protects damaged or weakened teeth?
 - a. Dental fillings
 - b. Dental crowns
 - c. Dental implants
 - d. Dental veneers
3. What type of procedure is root canal therapy?
 - a. Restorative
 - b. Endodontic
 - c. Oral Surgery
 - d. Cosmetic
4. Which type of procedures treat severe gum disease?
 - a. Restorative
 - b. Periodontic
 - c. Endodontic
 - d. Oral surgery
5. Which type of procedures focus on improving the appearance of teeth?
 - a. Restorative
 - b. Endodontic
 - c. Oral surgery
 - d. Cosmetic

Dental Procedures – Answer Key

Instructions: List what you know about the common dental procedures listed below.

Fillings

Restores cavities

White or silver

Anesthetic

Caused by bacteria

Crowns

Restores decayed, broken
and damaged teeth

Can closely match natural
tooth color

Must remove enamel layer

Will wear a temporary crown

Root Canal Treatment

Tissue inside or under tooth is
inflamed or infected

Removes nerve tissue

Requires anesthetic

Dental Implants

Replaces one or more missing teeth

Metal post and artificial tooth

Can help hold dentures in place

Takes several months to complete

Lesson Eight – Common Dental Procedures

LEARN: Common Dental Procedures in General Dentistry

60 minutes

Purpose:

Participants will receive an introduction to common dental procedures used in a general dentist's office.

Materials:

- *Common Dental Procedures* slide presentation
- *Common Dental Procedures Presentation Guide*
- *Common Dental Procedures Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Common Dental Procedures Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Common Dental Procedures

Slide 2: Introduction to Common Dental Procedures

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Describe common dental procedures performed in a general dental office
- Explain the indications, benefits, and goals of common dental procedures
- Recognize the instruments and materials used during various procedures

Slide 4: Preventive Procedures

The goal of preventive procedures is to help maintain optimal health. This is done through various procedures and practicing good home hygiene habits.

Preventive procedures are the cornerstone of maintaining oral health and preventing dental diseases. They focus on detecting and managing dental issues before they become serious problems.

As a dental assistant, your role in these procedures includes preparing the patient, assisting the dentist or hygienist, and educating patients on maintaining their oral health.

Slide 5: Dental Cleanings (Prophylaxis)

- Scaling and polishing of teeth
- Remove plaque and tartar from external tooth surfaces to prevent cavities and promote gum health
- Instruments used:
 - Hand instruments
 - Ultrasonic scaler
 - Prophyl cup
 - Dental floss

Slide 6: Fluoride Treatment

Fluoride is a naturally occurring mineral. These treatments strengthen tooth enamel, reducing the risk of decay. Fluoride is available in various methods of application, including gel, foam, and varnish.

Instruments and materials used in this procedure include fluoride trays, applicators, and fluoride. Gel and foam products require a tray. The material is placed in the tray, inserted over clean teeth, timed, and removed. Most commonly, it sits on the teeth for one minute, but all products are different. The patient must not eat or drink for 30 minutes.

Fluoride varnish is applied to the teeth using a paintbrush-like applicator. It is not removed, and you must advise the patient not to eat or drink for 30 minutes.

Slides 7-8: Sealants

Dental sealants are thin plastic-like coatings that protect molars and premolars from decay by sealing pits and fissures on the teeth. This coating prevents bacteria and food particles from setting into the deeper parts of the tooth.

Patients need sealants for many reasons, but the primary three are deep pits, fissures, and newly erupted teeth.

The tooth must be cleaned and dried before a dental sealant is placed. Then, an acid etch is applied to the surface to roughen it. The tooth is rinsed and dried again. The sealant material is placed into the pits and fissures. The material can be clear or tinted, auto cured, or require a curing light to harden it.

Instruments and materials used for dental sealants include:

- Sealant material
- Etching gel
- Curing light
- Applicators

Slide 9: Restorative Procedures

Restorative procedures are crucial for repairing damaged teeth from decay, injury, or wear and tear. These treatments restore a tooth's function and appearance, helping patients maintain beautiful, healthy smiles.

A dental assistant plays a vital role in preparing for and assisting with these procedures, ensuring they are performed smoothly and efficiently.

Slides 10-11: Fillings

Fillings repair cavities and restore tooth structure that may be decayed or slightly damaged. There are several steps for a dental filling. The exact process depends on the materials used. Common materials are composite and amalgam. The basic steps for a filling include:

- Numbing the area with local anesthesia
- Removing decayed tooth material
- Cleaning the cavity
- Placing and shaping the filling material
- Curing (if composite) and polishing

Although instruments will vary based on the dentist's preference, common instruments include:

- High-speed handpiece
- Excavator
- Composite placement instrument
- Curing light

Slides 12-13: Crowns

Crowns restore and protect damaged or weakened teeth. Dental crowns often require two appointments because the restoration is made at a dental lab. However, modern technology allows dentists to create the crown in their offices, eliminating the need for a second appointment.

The basic steps for a crown include:

- Numbing the area with local anesthesia
- Preparing the tooth by removing tooth structure and decay
- Taking an impression or digital scan
- Placing a temporary crown
- Fitting and cementing the permanent crown at a later appointment

Common materials used include porcelain, metal, porcelain fused to metal, and ceramic.

Typical instruments used include:

- Diamond burs
- Impression materials
- Temporary crown materials
- Temporary and permanent cement

Slides 14-15: Bridges

A dental bridge, similar to a crown, involves multiple teeth. These teeth, known as abutment teeth, play a crucial role in supporting the pontic, which replaces the missing tooth.

The steps for completing a dental bridge are also similar to making a dental crown:

- Numb the area using a local anesthetic
- Preparation of the abutment teeth
- Taking impressions for the bridge
- Placing a temporary bridge
- Fitting and cementing the permanent bridge

Common materials used include porcelain, metal, and porcelain fused to metal. Common instruments used include:

- Diamond burs
- Impression materials
- Temporary bridge materials
- Temporary and permanent cement

Slide 16: Endodontic Procedures

Endodontic procedures focus on treating issues within the dental pulp and root canals. These procedures are crucial for saving teeth that would otherwise need to be extracted due to severe decay or infection.

As a dental assistant, you support these procedures by preparing the operatory, assisting the dentist, and providing post-operative care instructions to patients.

Slides 17-18: Root Canal Therapy

Root canal therapy (RCT) removes infected or damaged pulp to relieve pain and save the tooth. After removing the inflamed or infected tissue, the canal is filled with a rubber-like gutta-percha material.

The two main causes of pulpal damage are:

- Physical irritation, which consists of an infection caused by bacteria reaching the nerves and blood vessels
- Trauma, like a blow to the tooth or jaw

Like most procedures, RCT begins with the dentist using a local anesthetic to numb the area.

The other steps are as follows:

- Place a rubber dam to isolate the tooth
- Create an access opening to the pulp chamber
- Remove the infected or damaged pulp
- Clean and shape the root canals
- Fill the root canals with gutta-percha
- Seal the access opening with a temporary or permanent filling

Following RCT, a dental crown is often recommended to protect the tooth. This is because the tooth, having lost its blood and nutrient supply, can become brittle over time. The crown acts as a shield, preventing the tooth from fracturing and ensuring its longevity.

Common materials include gutta-percha, a sealant, and temporary or permanent filling material. Common instruments used include:

- Dental handpiece
- Rubber dam
- Endodontic files

Slides 19-20: Apicoectomy

An apicoectomy involves removing the tip (apical portion) of the root and any surrounding infected tissue when standard root canal therapy is insufficient. It is often done on a tooth still inflamed or infected near the root tip after RCT.

The steps for an apicoectomy are:

- Numb the area with local anesthesia
- Make an incision in the gum tissue to expose the tooth's root
- Remove the infected tissue and tip of the root
- Place a small filling to seal the end of the root canal
- Suture the gum tissue back in place

Common materials used include filling material.

Common instruments used include:

- Dental handpiece
- Surgical scalpel
- Curettes
- Sutures

Slide 21: Periodontal Procedures

Periodontal procedures focus on diagnosing and treating gum disease and other conditions affecting the supporting structures of the teeth. These treatments are essential for maintaining oral health and preventing tooth loss.

As a dental assistant, you assist with these procedures, ensure effective infection control, transfer instruments, and educate patients on maintaining periodontal health.

Slides 22-23: Scaling and Root Planing

The scaling and root planing procedure is a comprehensive process that removes plaque and tartar from below the gum line and smooths root surfaces to promote healing and prevent further buildup. The dentist or a hygienist can perform this, ensuring a thorough and effective treatment.

The steps for a scaling and root planing include:

- Numbing the area with local anesthesia (if necessary)
- Using ultrasonic scalers and hand instruments to remove plaque and tartar
- Smoothing the root surfaces (root planing)

This procedure does not require any materials.

Common instruments used include:

- Ultrasonic scaler
- Curettes
- Root planers

Slides 24-25: Periodontal Surgery

Periodontic surgery aims to treat severe gum disease, repair damaged tissues, and reshape the gums. Common types of periodontal surgery include:

- Flap Surgery: Lifting the gums to remove tartar deposits and then suturing them back in place
- Bone Grafts: Rebuilding bone lost to gum disease using graft material
- Soft Tissue Grafts: Using grafted tissue to cover exposed roots or augment thin gums.

The steps for periodontal surgery will vary depending on the treatment and oral health of the patient. However, the basic steps are:

- Numb the area with local anesthesia
- Make incisions in the gum tissue to access the affected areas
- Perform the necessary procedure (e.g., removing tartar, placing grafts)
- Suture the gum tissue back in place

Typical materials used during periodontal surgeries are grafting materials. Common instruments used include:

- Scalpels
- Surgical curettes
- Sutures

Slides 26-27: Laser Therapy

In dentistry, laser therapy treats gum disease using laser technology to remove infected tissue and promote healing. The steps for laser therapy will vary depending on the treatment and oral health of the patient. However, the basic steps are:

- Numb the area with local anesthesia
- Use a dental laser to target and remove diseased gum tissue

Using a laser for dental treatment promotes the reattachment of healthy gum tissue.

The materials needed may vary depending on the patient's needs and oral health. However, no additional materials are often required. The primary instrument needed for laser therapy is the dental laser. The dentist, assistant and the patient must all wear protective eyewear while the laser is in use.

Slide 28: Oral Surgery Procedures

Oral surgery procedures are performed to address a variety of dental and oral health issues that require surgical intervention. These procedures range from extractions to more complex surgical treatments.

As a dental assistant, your role includes preparing the surgical area, assisting during the procedure, and providing post-operative care instructions to patients.

Slides 29-30: Extractions

Tooth extractions are crucial dental procedures that remove damaged, decayed, or impacted teeth, ensuring the overall health of the oral cavity. There are two types:

- Simple: Removal of visible teeth
- Surgical: Removal of teeth not easily accessible, like impacted wisdom teeth

The steps for performing a tooth extraction will vary based on the condition of the tooth, but the general steps will follow this pattern:

- Numb the area with local anesthesia
- Loosen the tooth using elevators
- Extract the tooth with forceps
- Suture the site (if needed) for surgical extractions

The materials needed may vary depending on the patient's needs and oral health. However, no additional materials are often required. Elevators and forceps are the primary instruments needed for tooth extractions. Sometimes, a surgical extraction requires the use of a surgical handpiece and surgical bur. The dentist will determine whether the extraction site needs sutures.

Slides 31-32: Dental Implants

Dental implants, a popular oral surgery procedure, offer a promising solution for missing teeth. These medical devices replace missing teeth with artificial titanium roots and crowns, which can significantly improve oral health and appearance.

The steps for dental implants are:

- Numb the area with local anesthesia
- Make an incision in the gum to expose the bone
- Drill a hole in the bone and placing the implant
- Allow time for osseointegration (bone healing around the implant)
- Attach an abutment and placing the crown

The materials needed may vary depending on the patient's needs and oral health. However, no additional materials are often required. The primary instruments needed for dental implants are surgical drills and an implant kit. The dentist will also need an implant kit and sutures. After osseointegration, an abutment connects the metal post with the dental crown.

Slides 33-34: Bone Grafting

Dental implants, a popular oral surgery procedure, offer a promising solution for those with missing teeth. These medical devices, which replace missing teeth with artificial titanium roots and a crown, can significantly improve your oral health and appearance.

The steps for dental implants are:

- Numb the area with local anesthesia
- Make an incision in the gum to expose the bone
- Drill a hole in the bone and placing the implant
- Allow time for osseointegration (bone healing around the implant)
- Attach an abutment and placing the crown

The desired bone grafting material is required for the patient. The main types of grafting include:

- Autograft: Bone from your own body
- Allograft: Tissue from another person
- Substitutes: Ceramic, plastic, or aluminum oxide

The primary instruments needed for bone grafting are surgical scalpels for making an incision and sutures to close the site and help promote healing.

Slide 35: Prosthodontic Procedures

Prosthodontic procedures focus on the restoration and replacement of missing or damaged teeth. These treatments aim to restore dental function, improve aesthetics, and enhance the patient's overall quality of life.

As a dental assistant, you play a vital role in preparing for prosthodontic procedures, assisting during the treatments, and educating patients on the care of prosthetic devices.

Slides 36-37: Dentures

Dentures are used to replace missing teeth with a removable appliance. There are two types:

- Complete Dentures: For patients who are missing all their teeth
- Partial Dentures: For patients who are missing a few teeth but have remaining natural teeth

Dentures often require multiple appointments to ensure proper fit. The basic steps of this procedure include:

- Taking impressions of the mouth
- Creating and fitting the denture base and artificial teeth
- Adjusting the dentures for proper fit and comfort

Dentures require several materials to capture an accurate impression of the oral cavity. Some materials you can expect to use in this procedure include:

- Denture base material
- Wax bite registration
- Impression materials

The primary instrument needed is an impression tray to hold the impression materials.

Slides 38-39: Veneers

Dental veneers can correct minor imperfections, like staining or small gaps between teeth. These restorations can be made in the office using composite resin or sent to the lab for more precision and durability.

The steps for dental veneers include the following:

- Preparing the tooth by removing a thin layer of enamel
- Taking impressions for custom veneers
- Bonding the veneer to the tooth with dental adhesive

Whether the dentist recommends composite, or porcelain veneers will determine your needed materials. Common materials used for dental veneers include:

- Composite
- Porcelain
- Bonding materials
- Impression materials

The primary dental instruments you need are the shade guide, dental adhesive, and impression trays. The shade guide helps you closely match the patient's natural tooth color to create a natural-looking smile.

Slide 40: Cosmetic Procedures

Cosmetic procedures focus on improving the appearance of teeth, gums, and overall smile. Treatments aim to address aesthetic concerns and boost patients' confidence.

The dental assistant's role is to prepare the room, assist during treatment, and provide the patient with home-care instructions for their new smile.

Slides 41-42: Teeth Whitening

Whitening procedures allow patients to lighten the color of their teeth to create a brighter, whiter smile. Many offices offer two options:

- In Office: Performed in the dental office
- Take Home: Custom trays and whitening gel used at home

The steps for in-office whitening include:

- Protecting gums with a rubber dam or barrier
- Applying a whitening gel or solution to the teeth
- Activating the gel with a light or laser (if used)
- Rinsing and assessing the results

The method of whitening determines the products you will use. An in-office treatment requires whitening gel and a rubber dam as a protective barrier. It prevents the whitening agent from contacting the gum tissue.

Dental Terminology Kit Curriculum

Instruments you may need for in-office whitening include a light or laser, whitening trays, and applicators. Every whitening product is different, so reading the instructions is crucial.

Name: _____ Class: _____

Common Dental Procedures Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

1. The goal of _____ dentistry is to maintain optimal oral health.
2. Another name for a dental cleaning is a _____.
3. Fluoride treatments strengthen _____ and reduce _____ of _____.
4. _____ protect molars and premolars from decay by sealing _____ and _____.
5. Restorative dentistry removes _____ and _____ damaged teeth.
6. Three common restorative procedures are _____, _____, and _____.
7. Which type of procedure treats tissues within the dental pulp and root canals?
8. Root canal therapy removes _____ or _____ pulp to relieve pain and save the tooth.
9. An _____ removes the tip of the root and infected tissues.
10. _____ procedures focus on treating gum disease and the supporting structures.
11. Scaling and root planing remove plaque and tartar from _____ the gumline.
12. List the three common types of gum surgery
13. _____ therapy treats gum disease using laser technology to remove infected tissue and promote healing.
14. Oral surgery focuses on various dental and oral health issues that require _____ intervention.
15. Extractions remove _____, _____, or _____ teeth.
16. Dental implants replace missing teeth with _____ teeth.
17. Bone grafting is an _____ surgery procedure.

18. Prosthodontics focuses on _____ and _____ missing or damaged teeth.
19. What are the two types of dentures?
20. What procedure improves the appearance of teeth by covering minor flaws?
21. Cosmetic procedures focus on improving the _____ of teeth, gums, and _____ smile.
22. Teeth whitening procedures _____ the color of the teeth to achieve a brighter smile.

Common Dental Procedures

Presentation Guide – Answer Key

Instructions: Complete the following information as you listen to presentation.

1. The goal of **preventive** dentistry is to maintain optimal oral health.
2. Another name for a dental cleaning is a **prophylaxis**.
3. Fluoride treatments strengthen **tooth enamel** and reduce **risk** of **decay**.
4. **Sealants** protect molars and premolars from decay by sealing **pits** and **fissures**.
5. Restorative dentistry removes **decay** and repairs **damaged teeth**.
6. Three common restorative procedures are **fillings, crowns,** and **bridges**.
7. Which type of procedure treats tissues within the dental pulp and root canals.

Endodontic

8. Root canal therapy removes **infected** or **damaged** pulp to relieve pain and save the tooth.
9. An **apicoectomy** removes the tip of the root and infected tissues.
10. **Periodontal** procedures focus on treating gum disease and the supporting structures.
11. Scaling and root planing remove plaque and tartar from **below** the gumline.
12. List the three common types of periodontal surgery

Flap surgery, bone grafts, and soft tissue grafts

13. **Laser** therapy treats gum disease using laser technology to remove infected tissue and promote healing.
14. Oral surgery focuses on various dental and oral health issues that require **surgical** intervention.
15. Extractions remove **damaged, decayed,** or **impacted** teeth.
16. Dental implants replace missing teeth with **artificial** teeth.
17. Bone grafting is an **oral** surgery procedure.
18. Prosthodontics focuses on **restoring** and **replacing** missing or damaged teeth.

19. What are the two types of dentures?

Complete and partial

20. What procedure improves the appearance of teeth by covering minor flaws? **Veneers**

21. Cosmetic procedures focus on improving the **appearance** of teeth, gums, and **overall** smile.

22. Teeth whitening procedures **lighten** the color of the teeth to achieve a brighter smile.

Lesson Eight – Common Dental Procedures

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on common dental procedures. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- *Common Dental Procedures Post-Test*
- *Common Dental Procedures Test – Answer Key*
- Dental Terminology Scenario Cards
- *You Determine the Dental Procedure – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Newest Dental Materials Research Project* and *You Determine the Dental Procedure* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Newest Dental Materials Research Project*, and *You Determine the Dental Procedure*.
3. Have the *You Determine the Dental Procedure – Answer Key* available.
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is being discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Common Dental Procedures Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which preventive procedure removes plaque and tartar from external tooth surfaces?
 - a. Sealants
 - b. Fluoride
 - c. Prophylaxis
 - d. None of the above
2. Which restorative treatment restores and protects damaged or weakened teeth?
 - a. Dental fillings
 - b. Dental crowns
 - c. Dental implants
 - d. Dental veneers
3. What type of procedure is root canal therapy?
 - a. Restorative
 - b. Endodontic
 - c. Oral Surgery
 - d. Cosmetic
4. Which type of procedures treat severe gum disease?
 - a. Restorative
 - b. Periodontic
 - c. Endodontic
 - d. Oral surgery
5. Which type of procedures focus on improving the appearance of teeth?
 - a. Restorative
 - b. Endodontic
 - c. Oral surgery
 - d. Cosmetic

Common Dental Procedures Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Which preventive procedure removes plaque and tartar from external tooth surfaces?
 - a. Sealants
 - b. Fluoride
 - c. Prophylaxis**
 - d. None of the above

2. Which restorative treatment restores and protects damaged or weakened teeth?
 - a. Dental fillings
 - b. Dental crowns**
 - c. Dental implants
 - d. Dental veneers

3. What type of procedure is root canal therapy?
 - a. Restorative
 - b. Endodontic**
 - c. Oral surgery
 - d. Cosmetic

4. Which type of procedures treat severe gum disease?
 - a. Restorative
 - b. Periodontic**
 - c. Endodontic
 - d. Oral surgery

5. Which type of procedures focus on improving the appearance of teeth?
 - a. Restorative
 - b. Endodontic
 - c. Oral surgery
 - d. Cosmetic**

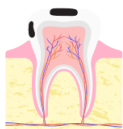
You Determine the Dental Procedure – Answer Key

Instructions: Review the following pictures of damaged teeth. Determine the best dental procedure to treat the condition and write it on the line to the right.

Damaged Tooth

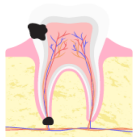
Treatment

Mild to Moderate Decay



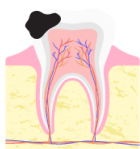
Filling

Moderate Decay and Abscess



Root Canal

Extensive Decay



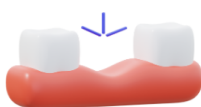
Crown

Extensive Decay and Abscess



Extraction

Missing Tooth



Dental Implant

Lesson Eight – Common Dental Procedures

Sources

10 most common dental procedures and how they work. Crescent Heights Dental Clinic. (2020, December 3). <https://www.crescentdental.ca/10-most-common-dental-procedures-and-how-they-work/>

Bird, D. L., & Robinson, D. (2021a). *Modern Dental Assisting*. Elsevier.

Tyler, L. (2009c). *Pearson's Comprehensive Dental Assisting*. Pearson.

Lesson Nine – Dental Instruments

Lesson Overview

In this lesson, students will gain understanding of the various dental instruments used in general dentistry. Participants will enhance their knowledge of dentistry and gain more insight into dental treatment.

Lesson Objectives

After completing this lesson, participants will be able to:

- Correctly name and recognize the most used dental instruments, including diagnostic, hand-cutting, restorative, and surgical tools
- Explain each dental instrument's purpose and specific use in various dental procedures

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Dental Instrument Identification</i> – Answer Key • <i>Dental Instruments Pre-Test</i>	1. Print/photocopy the <i>Dental Instruments Pre-Test</i> (one of each per learner). 2. Review the <i>Dental Instrument Identification</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Dental Instruments</i> slide presentation • <i>Dental Instruments Presentation Guide</i> • <i>Dental Instruments Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Dental Instruments Presentation Guide</i> (one of each per learner). 2. Prepare the <i>Dental Instruments</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Dental Instruments Post-Test</i> • <i>Dental Instruments Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Let's Talk Vocab</i> – Answer Key • <i>Preparing a Dental Tray</i> – Answer Key	1. Print/photocopy the <i>Dental Instruments Post-Test</i> (one of each per learner). 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Let's Talk Vocab</i> and <i>Preparing a Dental Tray</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Nine – Dental Instruments

FOCUS: Learning Basic Instruments

30 minutes

Purpose:

To help students understand basic dental instrument terminology and its use in patient care.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbooks – Teacher Guide
- *Dental Instruments Identification* – Answer Key
- *Dental Instruments Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Dental Instruments Identification* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Dental Instruments Identification* – Answer Key available and distribute the *Dental Instruments Pre-Test*.
3. Have students complete the pre-test and collect the tests once they are finished.
4. Have students follow along and fill in the *Dental Instruments Identification* activity in the workbook as you explain the information.

Name: _____ Class: _____

Dental Instruments Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not one of the specific parts of a dental instrument?
 - a. Handle
 - b. Shank
 - c. Working end
 - d. Blade
2. Which of the following is not a diagnostic instrument?
 - a. Burnisher
 - b. Periodontal probe
 - c. Explorer
 - d. Cotton pliers
3. _____ instruments allow the dentist to remove decay and smooth cavity walls and floors for tooth preparation.
 - a. Diagnostic
 - b. Hand cutting
 - c. Restorative
 - d. Surgical
4. _____ instruments are used to place, condense, shape, and finish restorative materials.
 - a. Diagnostic
 - b. Hand cutting
 - c. Restorative
 - d. Surgical
5. Which of the following is a low-speed attachment?
 - a. Contra angle
 - b. Elevator
 - c. Burnisher
 - d. None of the above

Dental Instruments Identification – Answer Key

Instructions: Identify the images of dental instruments and write their names next to their functions

Instrument	Instrument Name	Function
	Mouth Mirror	Used to view teeth and tissues in the oral cavity
	Dental Explorer	Used to examine teeth and detect cavities or calculus.
	Spatula	Aids in mixing dental materials, such as temporary cement
	Hand Piece	Used to prepare teeth for restorative procedures
	Forceps	Used to extract teeth

Lesson Nine – Dental Instruments

LEARN: Common Instruments Used in Dentistry

60 minutes

Purpose:

Participants will receive an introduction to common dental instruments used in a general dentist's office.

Materials:

- *Dental Instruments* slide presentation
- *Dental Instruments Presentation Guide*
- *Dental Instruments Presentation Guide* – Answer Key

Facilitation Steps:

Give each student the *Dental Instruments Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Dental Instruments

Slide 2: Introduction to Dental Instruments

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Correctly name and recognize the most commonly used dental instruments, including diagnostic, hand-cutting, restorative, and surgical tools
- Explain each dental instrument's purpose and specific use in various dental procedures

Slide 4: Instrument Design

Each instrument has three specific parts

- Handle: Area where the dentist holds the instrument
- Shank: The part that attaches the working end to the handle
- Working End: The part of the instrument that does the work; it can be a point, blade, or nib

It can be single or double ended. Double-ended instruments have two working ends.

Slide 5: Instrument Classification

Restorative instruments are classified into different categories:

- Diagnostic: Used to examine the health of the oral cavity
- Hand Cutting: Removes decay manually and smooths, finishes, and prepares tooth structure
- Restorative: Used to place, condense, and carve restorative dental material
- Surgical: Used for oral surgery procedures

Slide 6: Diagnostic Instruments

Diagnostic instruments are the most frequently used. They include:

- Mirror
- Explorer
- Cotton pliers

The dentist uses them to check a specific problem and thoroughly examine it.

Slide 7: Mirror

The mirror has a straight handle. The mirror surface can be flat or concave. It is used for:

- Indirect vision
- Reflecting light
- Retraction of the tongue and soft tissues

Slide 8: Explorer

The explorer serves many purposes in dentistry and is included in the setup for every procedure. All explorers have a thin, flexible working end with a sharp point. This point helps the dentist use tactile sensitivity to detect decay, calculus, and other discrepancies in the tooth.

Slide 9: Cotton Pliers

Cotton pliers carry, place, and retrieve small objects, like cotton pellets. They can be locking or nonlocking. Locking pliers have a mechanism that allows the handles to lock in the closed position. You must physically hold nonlocking pliers shut.

Slide 10: Periodontal Probe

The periodontal probe is often found on the opposite end of an explorer. It measures the sulcus or pocket depth of each tooth, which indicates the overall health of that area. The instrument has millimeter markings to identify the depth of the pocket. Areas with readings greater than three are less healthy.

Slide 11: Hand-Cutting Instruments

Hand-cutting instruments are used during restorative procedures. They allow the dentist to remove decay and smooth cavity walls and floors during tooth preparation.

Common hand-cutting instruments are:

- Excavator
- Chisel
- Hatchet

Slide 12: Excavator

The excavator is one of the most versatile dental instruments. Its working end is circular or shaped like a spoon. The spoon excavator removes soft dentin, debris, and tooth decay.

Slide 13: Chisel

A chisel is a straight or angled instrument with a single-beveled cutting edge. It breaks down enamel margins, forms sharp lines, and places retention grooves.

Common types of chisels include:

- Straight chisel
- Wedelstaedt

Slide 14: Hatchet

Hatchets resemble wooden hatchets. The sharp cutting edge is parallel to the long axis of the handle. These instruments are used to cut enamel and smooth the walls and floors of the tooth preparation. It may be beveled on one side or straight.

Slide 15: Restorative Instruments

Restorative instruments are used to place, condense, shape, and carve the restorative dental materials to replicate the normal anatomy of that tooth.

Common restorative instruments include:

- Amalgam carrier
- Condensers
- Burnishers

Most dentists use these instruments in a specific sequence because precise application of the dental material is necessary.

Slide 16: Amalgam Carrier

An amalgam carrier is a double-ended instrument with wells on either end. It carries and packs freshly mixed amalgam in the prepared tooth. Most amalgam carriers are designed to hold a large increment at one end and a smaller increment at the opposite end. The dental assistant uses the amalgam carrier to transfer the material to the dentist or directly places the amalgam into the prepared tooth.

Slide 17: Condensers

Condensers, also known as pluggers, have a flat working end that is either smooth or serrated; they come in varying sizes to accommodate the size of the preparation. The shank is angled so the dentist can reach all preparation areas.

Composite condensers are often Teflon coated so they do not stick or discolor the restorative material. The amalgam condenser condenses (pack down) freshly placed amalgam into the preparation.

Slide 18: Burnisher

Burnishers have a smooth working end. They are routinely used to smooth the surface of a restorative material by directing the material against the cavity wall and margin and for final contouring. The working end is available in many shapes to accomplish different tasks.

Common types include the following:

- Football
- Ball
- Acorn
- T-ball
- Beaver tail

Slide 19: Surgical Instruments

Surgical instruments help with various aspects of removing a tooth:

- Separate tooth from socket
- Retract surrounding tissue
- Loosen and elevate the tooth
- Extract tooth from socket

Common instruments include:

- Elevators
- Forceps
- Surgical curettes

Slide 20: Elevators

Elevators are available in many designs but perform the same basic function to reflect (separate) and retract the periosteum from the surface of the bone. Before a surgical forceps is placed around the tooth, the dentist uses a periosteal elevator to detach the gingival tissues from around the tooth's cervix (neck).

Common elevators include straight elevators and root tip picks.

Slide 21: Forceps

Extraction forceps come in many different shapes and designs. They can accommodate the oral surgeon's needs in grasping teeth with varying crown shapes, root configurations, and locations in the mouth.

The beaks of forceps are designed to grasp the tooth's crown firmly at or below the cervical line. The inner surface of the beaks may be plain (smooth finished) or serrated (rough finished) to provide additional grasping power for the tooth being extracted.

Universal forceps allow the surgeon to use the same instrument for the left and right sides of the same arch and for a specific tooth. Other forceps are specifically designed for the maxillary or mandibular teeth, as well as the right and left.

Slide 22: Surgical Curette

A surgical curette looks like a large spoon excavator. It is a double-ended, scoop-shaped instrument with sharp edges allowing scraping motion. After the extraction, the dentist uses a curette to scrape the sockets inside to remove diseased tissue or abscesses. Curettes come in varying sizes, and the shanks may be straight or angled to reach different areas of the mouth.

Slide 23: Dental Handpieces

The dental handpiece is the most frequently used instrument in dentistry. It operates on air pressure, which is supplied via a rheostat (peddle). Compressed air enters the handpiece when you press the rheostat, causing it to rotate. The harder you step on the rheostat; the more air is supplied and the faster the device turns. The two most common dental handpieces are the low-speed handpiece and the high-speed handpiece.

Slide 24: High Speed

The dentist will use the high-speed handpiece for most restorative procedures. It reaches up to 450,000 rpm. The high-speed handpiece does not have attachments; instead, it uses a rotary instrument (bur).

The dentist uses a high-speed handpiece for the following:

- Remove decay or faulty restorations
- Prepare tooth for a crown
- Add retention grooves
- Finish and polish restorations
- Section tooth

The bur rotates at incredibly high speeds, generating frictional heat on the tooth. This heat could damage the pulp, so a water coolant system must be used to keep the tooth cool.

Slide 25: Low Speed

The low-speed handpiece, also called a slow-speed or straight handpiece, reaches speeds that range from 10,000 to 30,000 rpms. It is extremely versatile, and the low-speed handpiece can be adapted into three versions with the addition of these attachments:

- Straight
- Contra-angle
- Prophy

Slide 26: Dental Handpieces Attachments

The straight attachment slides onto the low-speed motor and locks into place. It is mostly used for procedures that would take place outside of the oral cavity and often in the laboratory setting away from the patient. Common uses include trimming and contouring the following:

- Custom trays
- Provisional appliances
- Removable partials and dentures
- Orthodontic appliances

The contra-angle attachment slides directly onto the low-speed motor and locks into place. The angle of this attachment allows the dentist easier access to tooth surfaces. This attachment uses a locking system to hold latch-type rotary instruments, endodontic files, and mandrels. A contra-angle is used for:

- Removing soft decay
- Finishing a cavity prep
- Finishing and polishing restorations
- Adjusting restorations
- Root canal treatments

The prophylaxis attachment, or “prophy angle,” is used for the coronal polishing of teeth. It holds the prophy cup and the bristle brush. Most dental offices use a disposable prophy attachment that has a rubber cup or a bristle brush already in place.

Name: _____ Class: _____

Dental Instruments Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

1. Name the parts of a dental instrument.
2. What are the four categories of instrument classification?
3. What are diagnostic instruments used for?
4. A dental mirror is used for:
5. A dental explorer helps the dentist with _____ sensitivity.
6. Cotton pliers can be _____ or _____.
7. A _____ measures the sulcus or pocket depth of each tooth.
8. Hand-cutting instruments allow the dentist to _____ decay and smooth _____ and floors for tooth preparation.
9. What is the working end of an excavator shaped like?
10. A chisel is a _____ or _____ instrument with a single-beveled cutting edge.
11. The sharp cutting edge of a _____ is parallel to the long axis of the handle.
12. Instruments used to place, condense, shape, and finish restorative materials are called _____ instruments.
13. True or False: An amalgam carrier is often a double-ended instrument with wells on either end that carry freshly mixed amalgam to the prepared tooth.

14. What is another name for a condenser?
15. What are the common shapes available for a burnisher?
16. List what aspects of removing a tooth surgical instrument can help with.
17. What are the two primary functions of an elevator?
18. The surface of forceps may be _____ or _____.
19. The surgical curette is used _____ an extraction to clean the _____ of the socket and remove diseased tissue or an _____.
20. What makes a dental handpiece operate?
21. A high-speed handpiece reaches up to _____ rmp and creates friction requiring a _____.
22. What is another name for a low-speed handpiece?
23. What are the three attachments that can be used on a low-speed handpiece?

Dental Instruments Presentation

Guide – Answer Key

Instructions: Complete the following information as you listen to the presentation.

1. Name the parts of a dental instrument.

Handle, shank, and working end

2. What are the four categories of instrument classification?

Diagnostic, hand cutting, restorative, and surgical

3. What are diagnostic instruments used for?

Examine the health of the oral cavity. The dentist can check a specific problem and thoroughly examine it.

4. A dental mirror is used for:

Indirect vision, reflecting light, and retraction of the tongue and soft tissues

5. A dental explorer helps the dentist with **tactile** sensitivity.

6. Cotton pliers can be **locking** or **nonlocking**.

7. A **periodontal probe** measures the sulcus or pocket depth of each tooth.

8. Hand-cutting instruments allow the dentist to **remove** decay and smooth **cavity walls** and floors for tooth preparation.

9. What is the working end of an excavator shaped like?

A spoon

10. A chisel is a **straight** or **angled** instrument with a single-beveled cutting edge.

11. The sharp cutting edge of a **hatchet** is parallel to the long axis of the handle.

12. Instruments used to place, condense, shape, and finish restorative materials are called **restorative** instruments.

13. **True** or False: An amalgam carrier is often a double-ended instrument with wells on either end that carry freshly mixed amalgam to the prepared tooth.

14. What is another name for a condenser?

Plugger

15. What are the common shapes available for a burnisher?

Football, ball, acorn, T-ball, and beaver tail

16. List what aspects of removing a tooth surgical instrument can help with.

Separate the tooth from the socket, retract surrounding tissue, loosen and elevate the tooth, and extract the tooth from the socket

17. What are the two primary functions of an elevator?

Separate or retract the periosteum from the bone and detach gingival tissue from the neck

18. The surface of forceps may be **plain** or **serrated**.

19. The surgical curette is used **after** an extraction to clean the **inside** of the socket and remove diseased tissue or an **abscess**.

20. What makes a dental handpiece operate?

Air pressure

21. A high-speed handpiece reaches up to **450,000** rpm and creates friction requiring a **water coolant system**.

22. What is another name for a low-speed handpiece?

Slow-speed or straight handpiece

23. What are the three attachments that can be used on a low-speed handpiece?

Straight, contra-angle, and prophyl

Lesson Nine – Dental Instruments

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on dental instruments. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- *Dental Instruments Post-Test*
- *Dental Instruments Test – Answer Key*
- Dental Terminology Scenario Cards
- *Let's Talk Vocab – Answer Key*
- *Preparing a Dental Tray – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Let's Talk Vocab* and *Preparing a Dental Tray* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Let's Talk Vocab* and *Preparing a Dental Tray*.
3. Have the workbook page answer keys available.
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Dental Instruments Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not one of the specific parts of a dental instrument?
 - a. Handle
 - b. Shank
 - c. Working end
 - d. Blade

2. Which of the following is not a diagnostic instrument?
 - a. Burnisher
 - b. Periodontal probe
 - c. Explorer
 - d. Cotton pliers

3. _____ instruments allow the dentist to remove decay and smooth cavity walls and floors for tooth preparation.
 - a. Diagnostic
 - b. Hand cutting
 - c. Restorative
 - d. Surgical

4. _____ instruments are used to place, condense, shape, and finish restorative materials.
 - a. Diagnostic
 - b. Hand cutting
 - c. Restorative
 - d. Surgical

5. Which of the following is a low-speed attachment?
 - a. Contra angle
 - b. Elevator
 - c. Burnisher
 - d. None of the above

Dental Instruments Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Which of the following is not one of the specific parts of a dental instrument?
 - a. Handle
 - b. Shank
 - c. Working end
 - d. **Blade**

2. Which of the following is not a diagnostic instrument?
 - a. **Burnisher**
 - b. Periodontal probe
 - c. Explorer
 - d. Cotton pliers

3. _____ instruments allow the dentist to remove decay and smooth cavity walls and floors for tooth preparation.
 - a. Diagnostic
 - b. **Hand cutting**
 - c. Restorative
 - d. Surgical

4. _____ instruments are used to place, condense, shape, and finish restorative materials.
 - a. Diagnostic
 - b. Hand cutting
 - c. **Restorative**
 - d. Surgical

5. Which of the following is a low-speed attachment?
 - a. **Contra angle**
 - b. Elevator
 - c. Burnisher
 - d. None of the above

Let's Talk Vocab – Answer Key

Instructions: Fill in the table with the instrument's name that matches the description on the right.

Handle	Part of a dental instrument that the dentist holds
Hand Cutting	Instruments that remove decay, smooth and finish, or prepare tooth structure
Mouth Mirror	Reflects light, retracts the tongue and soft tissues
Amalgam Carrier	Carries freshly mixed amalgam to the tooth
High-speed Handpiece	Used for restorative procedures and spins at 450,000 rpms
Periodontal Probe	Used to measure the sulcus or pocket depth
Excavator	Working end shaped like a spoon
Elevator	Separates and retracts the periosteum from the bone surface
Hatchets	Cuts enamel and smooths the walls and floors or tooth preparations
Burnisher	Smooth working end instrument that smooths the surface of a restorative material
Diagnostic	Instruments that allow the dentist to thoroughly examine the health of the oral cavity
Shank	Attaches the working end to the handle
Forceps	Helps the dentist grasp teeth
Chisel	Breaks down enamel and helps form sharp lines
Explorer	Wire working end with a sharp point that helps with tactile sensitivity
Restorative	Instruments that restore a tooth by placing, condensing, shaping, and carving dental anatomy
Working End	Portion of the instrument with a specific function
Cotton forceps	Locking or nonlocking instrument that carries small objects
Condensers	Also known as pluggers
Low-speed Handpiece	Versatile handpiece used for procedures outside of the mouth
Surgical Curette	Resembles a spoon excavator, but used to scrape inside a tooth socket

Preparing a Dental Tray – Answer Key

Instructions: Every dental procedure has a tray set up. Use the blank tray below to write in the names of the instruments you may need for a patient who has an appointment for filling on tooth #3.



A large, light beige rectangular tray with rounded corners and a white border. Inside the tray, a list of dental instruments is written in black text, each on a yellow rectangular background. The list is as follows:

- Mouth Mirror
- Explorer
- Periodontal Probe
- Cotton Forceps
- Excavator
- Chisel
- Hatchet
- Amalgam Carrier
- Condenser
- Burnisher
- High-Speed Handpiece

Lesson Nine – Dental Instruments

Sources

Bird, D. L., & Robinson, D. (2021a). *Modern Dental Assisting*. Elsevier.

Tyler, L. (2009c). *Pearson's Comprehensive Dental Assisting*. Pearson.

Lesson Ten – Oral Health and Hygiene

Lesson Overview

In this lesson, students will learn the fundamental principles of maintaining oral health, the importance of good oral hygiene practices, and their impact on overall health.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify the components of good oral hygiene and their role in preventing oral health issues
- Understand proper techniques for brushing, flossing, and other oral hygiene practices
- Recognize common oral health problems and understand their causes and prevention strategies
- Know the role of preventive measures, such as fluoride treatments and dental sealants, in maintaining oral health

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Oral Hygiene Can Cause</i> – Answer Key • <i>Oral Health and Hygiene Pre-Test</i>	1. Print/photocopy the <i>Oral Health and Hygiene Pre-Test</i> (one of each per learner). 2. Review the <i>Common Issues Poor Oral Hygiene Can Cause</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Oral Health and Hygiene</i> slide presentation • <i>Oral Health and Hygiene Presentation Guide</i> • <i>Oral Health and Hygiene Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Oral Health and Hygiene Presentation Guide</i> (one of each per learner). 2. Prepare the <i>Oral Health and Hygiene</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Oral Health and Hygiene Post-Test</i> • <i>Oral Health and Hygiene Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Oral Health Cloud Collage</i> – Answer Key	1. Print/photocopy the <i>Oral Health and Hygiene Post-Test</i> for each participant. 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Oral Health Cloud Collage</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Ten – Oral Health and Hygiene

FOCUS: Understanding Oral Health and Its Impact on Overall Health

30 minutes

Purpose:

To help students understand basic dental terms related to oral hygiene and their use in patient care.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbooks – Teacher Guide
- *Oral Hygiene Can Cause* – Answer Key
- *Oral Health and Hygiene Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Oral Hygiene Can Cause* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Common Issues Poor Oral Hygiene Can Cause* – Answer Key available.
3. Distribute and have students complete the *Oral Health and Hygiene Pre-Test*.
4. Collect the pre-tests and have students follow along, filling in the *Common Issues Poor Oral Hygiene Can Cause* activity in the workbook as you explain the information.

Name: _____ Class: _____

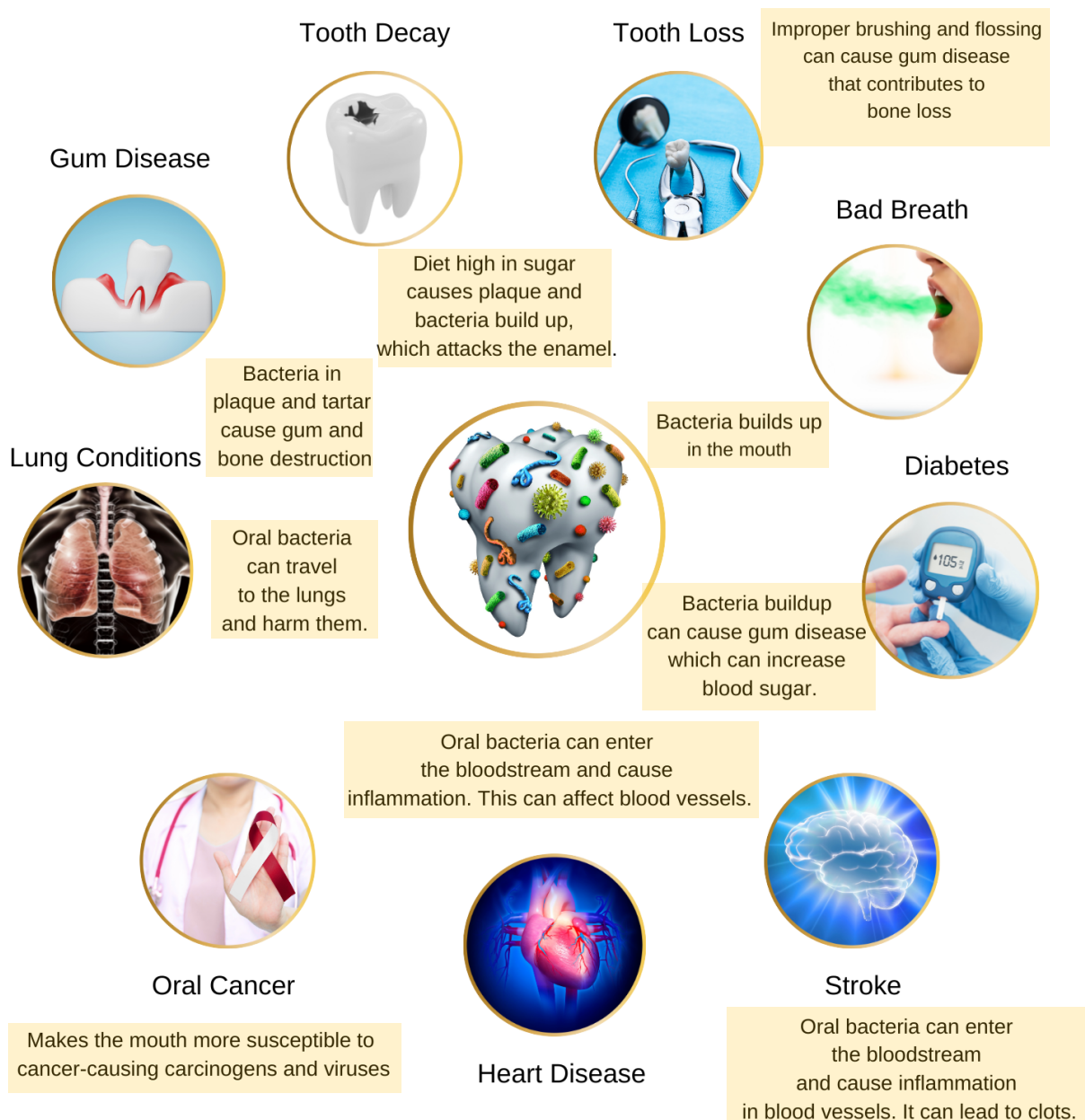
Oral Health and Hygiene Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Dental caries is a transmissible bacterial infection caused by which two bacteria?
 - a. Mutans streptococci and Lactobacilli
 - b. Mutans streptococci and Porphyromonas gingivalis
 - c. Lactobacilli and Porphyromonas gingivalis
 - d. Lactobacilli and streptococcus salivarius
2. What is another name for oral biofilm?
 - a. Gingiva
 - b. Saliva
 - c. Plaque
 - d. Mucous
3. What is an infectious disease involving inflammation of the periodontium?
 - a. Dental caries
 - b. Periodontal disease
 - c. Dry socket
 - d. Strep throat
4. Which of the following is not part of comprehensive preventive dentistry?
 - a. Nutrition
 - b. Patient education
 - c. Sealants
 - d. Composite restorations
5. What angle should you place the bristles of your toothbrush when using the Bass method?
 - a. 45-degree angle
 - b. 90-degree angle
 - c. 180-degree angle
 - d. 360-degree angle

Oral Hygiene Can Cause – Answer Key

Instructions: Write information about how these common issues are linked to poor oral hygiene underneath each circle.



Lesson Ten – Oral Health and Hygiene

LEARN: Oral Health and Hygiene

60 minutes

Purpose:

Participants will receive an introduction to oral health and hygiene.

Materials:

- *Oral Health and Hygiene* slide presentation
- *Oral Health and Hygiene Presentation Guide*
- *Oral Health and Hygiene Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Oral Health and Hygiene Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Oral Health and Hygiene

Slide 2: Introduction to Oral Health and Hygiene

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Identify the components of good oral hygiene and their role in preventing oral health issues
- Understand proper techniques for brushing, flossing, and other oral hygiene practices
- Recognize common oral health problems and understand their causes and prevention strategies
- Know the role of preventive measures such as fluoride treatments and dental sealants in maintaining oral health

Slides 4-6: Dental Caries

Dental caries, also called tooth decay, is an infectious and communicable disease. Although it affects humans of all ages, dental caries is the single most common chronic disease in children.

Before, the focus was on drilling out the decayed tooth structure to eliminate the disease. Today, we aim to prevent bacteria from building up in the mouth by using newer strategies to manage and prevent the condition.

Caries is a transmissible bacterial infection. The two primary groups of bacteria responsible for caries are the mutans streptococci (MS) and the lactobacilli (LB).

MS, a major disease-producing bacteria, is found in large numbers in dental plaque. LB in a patient's mouth indicates a high sugar intake. MS and LB, separately or together, are the primary reasons you develop caries.

The oral cavity of a newborn does not contain MS. However, these bacteria are transmitted through contact with their mother's saliva. Although it can come from other sources, mothers are the most common source of disease-causing MS because of the close contact that occurs between mother and child during the first few years.

Remember, caries is an infectious disease. When there is a higher number of caries-causing bacteria in the mouth, the risk of developing caries increases.

Oral biofilm, also known as plaque, is a colorless, soft, sticky coating made up of layers of microorganisms that stick to tooth surfaces, dental appliances, restorations of the teeth, oral mucosa, tongue, and alveolar bone.

Dental caries and gingival and periodontal infections are caused by microorganisms found in plaque. These microorganisms cling to the teeth and remain there unless removed with brushing and flossing.

Slide 7: Caries Process

For dental caries to form, three factors must be present simultaneously.

- Susceptible tooth
- A diet rich in fermentable carbohydrates
- Specific bacteria

Bacteria feed on fermentable carbohydrates from sugary substances and starches, like bread and potatoes. The bacteria produce acids as a by-product of their metabolism. Within five minutes of consuming sugar, bacteria produce acids as they digest your food. These acids can break through the hard enamel layer and dissolve minerals.

Saliva can help neutralize the acids and repair the damage if these acid attacks are short or infrequent. However, the more fermentable carbohydrates you consume, the more acid is produced, which increases the risk of decay.

Slide 8: Saliva

Saliva protects teeth in the following ways:

- Physical: Provides a cleansing effect by diluting and removing acid from plaque
 - Thick saliva is less effective than thinner saliva
- Chemical: Saliva contains calcium, phosphate, fluoride, and other minerals and proteins that neutralize acids after fermentable carbohydrates are eaten
- Antibacterial: Immunoglobulins work against bacteria

You need a good flow of saliva to help manage caries. Less saliva for any reason, including illness, increases the risk of developing tooth decay.

Slide 9: Managing Dental Caries

Even though the dentist removes decay from the tooth and places a filling, there is still a risk for further decay to that tooth. This is because a restoration does not affect bacteria living in the mouth.

Dental caries form when more bacteria and fermentable carbohydrates than saliva and fluoride are present in the mouth. The caries process can be interrupted or prevented in the following ways:

- Fluoride: Strengthens teeth against solubility and acid
- Antibacterial Rinses: Reduce the number of cariogenic bacteria in the mouth
- Fewer Fermentable Carbohydrates: Minimize the fast food, frequent snacking, and candy intake
- Increase Saliva: Saliva neutralizes acids; chewing sugarless gum can increase saliva flow

Slide 10: Periodontal Disease

Periodontal disease is an infectious disease process involving inflammation of the periodontium. These structures include:

- Gingiva: The gums
- Epithelial Tissue: Tissue near the base of the sulcus where the gingiva attaches to the tooth
- Sulcus: Space between the tooth and unattached gingiva
- Periodontal Ligaments: Connective fibers that connect cementum to the alveolar bone
- Cementum: Covers the tooth's root and anchors the tooth in the socket
- Alveolar Bone: Bone supporting the tooth in its position within the jaw

The periodontium is made up of structures that surround, support, and are attached to the teeth. Periodontal disease causes a breakdown of these supporting tissues, resulting in attachment loss and alveolar bone deterioration.

Slide 11: Periodontal Disease Causes

Biofilm: Also called plaque, is a colorless, sticky, soft substance comprising communities of microorganisms that stick to the tooth surface and oral structures. It cannot be removed by rinsing the mouth. Bacteria found in biofilm cause inflammation by producing enzymes that destroy periodontal tissues.

Calculus: Also called tartar, is a hard, stonelike material that sticks to the tooth. It is porous, giving plaque another place to grow. Because it is hard, it can only be removed by a trained dental professional.

Poor Oral Hygiene: Improper brushing and flossing increase the risk of periodontal disease. When plaque is not removed from the tooth's surface, it builds up, creating plaque and calculus.

Smoking: Tobacco use creates a greater loss of attachment, periodontal pocket depths, bone loss, calculus, and tooth loss. Treatment is less effective.

Diabetes: People with diabetes are three times more likely to have bone and attachment loss.

Medication: Some drugs can decrease salivary flow

Slide 12: Periodontal Disease Symptoms

These are the most common signs and symptoms found in patients with periodontal disease:

- Bleeding gums while brushing or flossing
- Red, swollen, tender gums
- Loose or separated teeth
- Pain or pressure while chewing
- Pus around the teeth or gums

Slide 13: Types of Periodontal Disease

Gingivitis is inflammation of the gingival tissue. It is one of the easiest conditions to treat and maintain. While common symptoms include redness, swelling, and bleeding, changes in gingival contour may also occur.

Sometimes, gingivitis is associated with puberty, pregnancy, and using birth control medication. It can be painless or go unnoticed until a dentist recognizes the signs and urges you to improve your daily hygiene habits. With better brushing and flossing, gingivitis can be reversed.

Periodontitis is more severe and occurs when inflammation moves from the gum tissue to the supporting tissues of the teeth. The connective tissue at the base of the periodontal pocket is destroyed as the disease worsens.

Slide 14: Preventive Dental Care

Preventive care is crucial for preventing caries and periodontal disease. Developing good oral health begins at birth. When a baby's first tooth appears, parents should begin brushing it morning and night. By their first birthday, babies should visit the dentist.

Slide 15: Comprehensive Preventive Dentistry

A comprehensive preventive dental care plan includes the following components:

- Nutrition: Discussion of nutrition with the dental team
- Patient Education: Providing information that motivates patients and helps them develop good oral hygiene
- Plaque Control: Daily removal of bacterial plaque from teeth
- Fluoride Therapy: Professional treatment, at-home treatment, and consuming fluoridated water
- Sealants: Applied to difficult-to-clean occlusal surfaces of teeth

Slide 16: Plaque Control Program

Patients cannot remove all plaque on their own, which is why hygiene appointments are crucial. However, they can keep it under control with routine brushing and flossing.

The goal is to remove plaque at least once daily. After it's been removed, it takes 24 hours to form again. A wide variety of oral hygiene products are available. The dental team and the patient decide which products work best for them.

Slide 17: Toothbrushes

- Two basic types: manual and automatic
 - Manual: May be natural or nylon. Nylon is preferred because they have rounded ends, making it safer
 - Automatic: Have larger handles and a rechargeable battery. Some features include a timing device, circular motions, and ultrasonic action.

No matter which type of toothbrush is used, dentists recommend a soft-bristled brush because it adapts to the contours and is gentler on the tissues. Replace a toothbrush as soon as it shows signs of wear, like frayed bristles.

Slide 18: Toothbrushing

- A toothbrush only removes plaque when it is used properly
- The Bass method is the recommended technique
 - Bristles get placed at 45-degree angle to the tooth surface
 - Start at the most distal tooth in the arch
 - Use a back-and-forth motion to brush

Slide 19: Preventive Dental Care

Toothpaste contains ingredients designed to remove food particles and stains. Most products contain fluoride and flavoring to create a fresh and clean feeling.

Mouth Rinses also contain fluoride. Rinsing after meals and snacks is recommended when toothbrushing isn't possible.

Dental floss removes plaque and debris from between the teeth. It comes in many colors and

flavors, in waxed and unwaxed versions. Floss before brushing because:

- After plaque is removed, fluoride in toothpaste can reach the surfaces better
- The mouth may feel clean after brushing and patients will not floss

Name: _____ Class: _____

Oral Health and Hygiene Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

1. _____ caries is an infectious and communicable disease. It is the most common chronic disease in children.
2. What are the two bacteria present when a cavity forms?
3. What is another name for plaque?
4. What are three things that must be present simultaneously to complete the caries process?
5. _____ saliva increases the risk of tooth decay.
6. The caries process can be interrupted with several methods of intervention, which include:
7. Which structures or tissues are involved when a patient has periodontal disease?
8. What are the three causes of periodontal disease?
9. Bleeding gums while _____ and _____ is a symptom of periodontal disease.
10. The types of periodontal disease are _____ and _____.
11. Good oral health begins at _____.

12. List the five components of comprehensive preventive dentistry.
13. The goal is to remove plaque at least _____.
14. Which type of toothbrush do dentists recommend?
15. What is the recommended method for brushing your teeth?
16. Should you floss before or after brushing?

Oral Health and Hygiene

Presentation Guide – Answer Key

Instructions: Complete the following information as you listen to the presentation.

1. **Dental** caries is an infectious and communicable disease. It is the most common chronic disease in children.

2. What are the two bacteria present when a cavity forms?

Mutans streptococci and Lactobacilli

3. What is another name for plaque?

Oral biofilm

4. What are three things to be present simultaneously to complete the caries process?

Susceptible tooth, diet rich in fermentable carbohydrates, and specific bacteria

5. **Less** saliva increases the risk of tooth decay.

6. The caries process can be interrupted with several methods of intervention, which include:

Fluoride, antibacterial rinse, fewer fermentable carbohydrates, and more saliva

7. Which structures or tissues are involved when a patient has periodontal disease?

Gingiva, epithelial attachment, sulcus, periodontal ligaments, cementum, and alveolar bone

8. What are three of the main causes of periodontal disease?

Biofilm, calculus, and poor oral hygiene

9. Bleeding gums while **brushing** and **flossing** is a symptom of periodontal disease.

10. The types of periodontal disease are **gingivitis** and **periodontitis**.

11. Good oral health begins at **birth**.

12. List the five components of comprehensive preventive dentistry.

Nutrition, patient education, plaque control, fluoride therapy, and sealants

13. The goal is to remove plaque at least **once daily**.

14. Which type of toothbrush do dentists recommend?

Soft-bristled brushes

15. What is the recommended method for brushing your teeth?

The Bass method

16. Should you floss before or after brushing?

Before because fluoride toothpaste is more effective after removing plaque from the surface

Lesson Ten – Oral Health and Hygiene

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on oral health and hygiene. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- *Oral Health and Hygiene Post-Test*
- *Oral Health and Hygiene Test – Answer Key*
- Dental Terminology Scenario Cards
- *Oral Health Cloud Collage – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Oral Health Cloud Collage* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Oral Health Cloud Collage*.
3. Have the answer key for the workbook page available.
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Oral Health and Hygiene Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Dental caries is a transmissible bacterial infection caused by which two bacteria?
 - a. Mutans streptococci and Lactobacilli
 - b. Mutans streptococci and Porphyromonas gingivalis
 - c. Lactobacilli and Porphyromonas gingivalis
 - d. Lactobacilli and streptococcus salivarius
2. What is another name for oral biofilm?
 - a. Gingiva
 - b. Saliva
 - c. Plaque
 - d. Mucous
3. What is an infectious disease involving inflammation of the periodontium?
 - a. Dental caries
 - b. Periodontal disease
 - c. Dry socket
 - d. Strep throat
4. Which of the following is not part of comprehensive preventive dentistry?
 - a. Nutrition
 - b. Patient education
 - c. Sealants
 - d. Composite restorations
5. What angle should you place the bristles of your toothbrush when using the Bass method?
 - a. 45-degree angle
 - b. 90-degree angle
 - c. 180-degree angle
 - d. 360-degree angle

Oral Health and Hygiene Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Dental caries is a transmissible bacterial infection caused by which two bacteria?
a. Mutans streptococci and Lactobacilli
b. Mutans streptococci and Porphyromonas gingivalis
c. Lactobacilli and Porphyromonas gingivalis
d. Lactobacilli and streptococcus salivarius
2. What is another name for oral biofilm?
a. Gingiva
b. Saliva
c. Plaque
d. Mucous
3. What is an infectious disease involving inflammation of the periodontium?
a. Dental caries
b. Periodontal disease
c. Dry socket
d. Strep throat
4. Which of the following is not part of comprehensive preventive dentistry?
a. Nutrition
b. Patient education
c. Sealants
d. Composite restorations
5. What angle should you place the bristles of your toothbrush when using the Bass method?
a. 45-degree angle
b. 90-degree angle
c. 180-degree angle
d. 360-degree angle

Oral Health Cloud Collage – Answer Key

Instructions: Use the following table to match the definition with the correct word found in a cloud.

Word From the Cloud	Definition
Lactobacilli	Bacteria in the mouth that indicates high sugar intake
Toothpaste	Contains ingredients designed to remove food particles and stains
Oral Biofilm	Another name for plaque
The Caries Process	Requires three things to be present at the same time
Patient Education	Providing information that motivates patients and helps them develop good oral hygiene
Soft-bristled	Type of toothbrush dentists recommend
Mouth Rinses	Used after meals and snacks when toothbrushing is not possible
Fluoride	Strengthens teeth
Periodontal Disease	Infectious disease involving inflammation of the periodontium
Caries	A transmissible bacterial infection
Gingivitis	Inflammation of gingival tissue; easy to treat
Saliva	Physical, chemical, and antibacterial protection for teeth
Periodontitis	Inflammation of supporting structures that destroys connective tissue near the periodontal pocket
Plaque	A colorless, soft, sticky layer of microorganisms
Antibacterial Rinses	Reduces the number of cariogenic bacteria in the mouth
Preventive Dental Care	Form of dentistry crucial for preventing caries and periodontal disease
Sealants	Applied to difficult-to-clean occlusal surfaces of the teeth
Bleeding Gums	A symptom of periodontal disease
Mutans Streptococci	Major disease-producing bacteria

Flossing	Removes plaque and debris from between the teeth
Bass Method	Recommended technique for toothbrushing

Lesson Ten – Oral Health and Hygiene

Sources

Bird, D. L., & Robinson, D. (2021a). *Modern Dental Assisting*. Elsevier.

Tyler, L. (2009c). *Pearson's Comprehensive Dental Assisting*. Pearson.

Lesson Eleven – Pain Control in Dentistry

Lesson Overview

In this lesson, students will learn the fundamental principles of pain control in dentistry, including local anesthetic and IV sedation.

Lesson Objectives

After completing this lesson, participants will be able to:

- Describe the different types of pain control methods used in dentistry and their appropriate applications
- Demonstrate knowledge of the administration techniques for local anesthesia and sedation
- Understand the dental assistant's role in supporting pain control measures and ensuring patient comfort

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Dental Terminology Student Workbooks • Dental Terminology Student Workbook – Teacher Guide • <i>Labeling Parts of a Dental Syringe</i> – Answer Key • <i>Pain Control in Dentistry Pre-Test</i>	1. Print/photocopy the <i>Pain Control in Dentistry Pre-Test</i> (one of each per learner). 2. Review the <i>Labeling Parts of a Dental Syringe</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Pain Control in Dentistry</i> slide presentation • <i>Pain Control in Dentistry Presentation Guide</i> • <i>Pain Control in Dentistry Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Pain Control in Dentistry Presentation Guide</i> (one of each per learner). 2. Prepare the <i>Pain Control in Dentistry</i> slide presentation for viewing.	60 minutes
REVIEW	• Dental Terminology Student Workbooks • Dental Terminology Student Workbook – Teacher Guide • <i>Pain Control in Dentistry Post-Test</i> • <i>Pain Control in Dentistry Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>Common Treatments Using Dental Anesthesia</i> – Answer Key	1. Print/photocopy the <i>Pain Control in Dentistry Post-Test</i> (one of each per learner). 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Common Treatments Using Dental Anesthesia</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Eleven – Pain Control in Dentistry

FOCUS: Understanding an Anesthetic Syringe

30 minutes

Purpose:

To help students understand basic dental terms related to pain control and their use in patient care.

Materials:

- Dental Terminology Student Workbook
- Dental Terminology Student Workbooks – Teacher Guide
- *Labeling Parts of a Dental Syringe* – Answer Key
- *Pain Control in Dentistry Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Labeling Parts of a Dental Syringe* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Labeling Parts of a Dental Syringe* – Answer Key available.
3. Distribute the *Pain Control in Dentistry Pre-Test* and have students complete it.
4. Collect the pre-tests and have learners complete the *Labeling Parts of a Dental Syringe* activity in the workbook as you explain the information.

Name: _____ Class: _____

Pain Control in Dentistry Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. What form of topical anesthetic is available?
 - a. Liquid
 - b. Candy
 - c. Gum
 - d. Powder

2. What is the minimum time a topical anesthetic must stay on the surface?
 - a. 45 seconds
 - b. 30 seconds
 - c. 15 seconds
 - d. 10 seconds

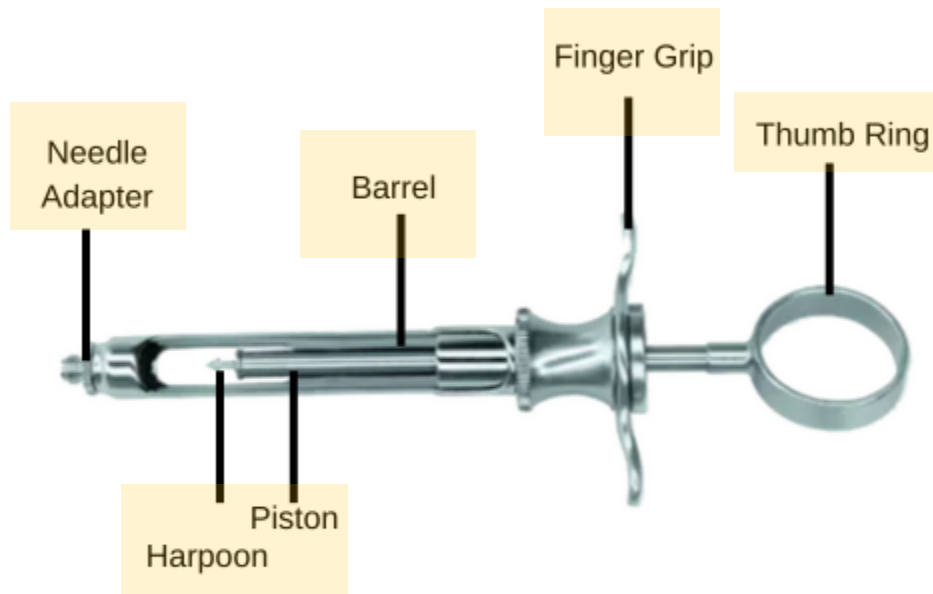
3. The color-coded band on a local anesthetic cartridge is how far from the end of?
 - a. 1 mm
 - b. 2 mm
 - c. 3 mm
 - d. 4 mm

4. Inhalation sedation combines which two gasses?
 - a. Nitrogen and hydrogen
 - b. Nitrogen and oxide
 - c. Nitrous oxide and hydrogen
 - d. Nitrous oxide and oxygen

5. What is the best way to administer general anesthesia?
 - a. In the patient's home
 - b. In the dental office
 - c. In a hospital setting
 - d. None of the above

Labeling Parts of a Dental Syringe – Answer Key

Instructions: Label each part of the syringe below.



Lesson Eleven – Pain Control in Dentistry

LEARN: Pain Control Techniques

60 minutes

Purpose:

Participants will receive an introduction to pain control methods used in a general dentist's office.

Materials:

- *Pain Control in Dentistry* slide presentation
- *Pain Control in Dentistry Presentation Guide*
- *Pain Control in Dentistry Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Pain Control in Dentistry Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Pain Control in Dentistry

Slide 2: Introduction to Pain Control in Dentistry

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Describe the different pain control methods used in dentistry and their appropriate applications
- Demonstrate knowledge of the administration techniques for local anesthesia and sedation
- Understand the dental assistant's role in supporting pain control measures and ensuring patient comfort

Slide 4: Anxiety and Pain Control

Anxiety and pain control involve using different psychological, physiologic, and chemical methods to prevent and treat preoperative, operative, and postoperative anxiety and pain.

Dentists use many methods to manage anxiety and pain in the dental office. Those methods include:

- Topical anesthesia
- Local anesthesia
- Inhalation sedation
- Antianxiety agents
- Intravenous (IV) sedation
- General anesthesia

Anesthesia is the word for a temporary loss of feeling or sensation, and anesthetics are the drugs used to achieve this temporary loss.

Slide 5: Topical Anesthetic

The primary purpose of topical anesthetic is to numb a specific area where the dentist will inject. The active ingredient is either benzocaine or lidocaine.

These products are available in the form of

- Ointments
- Liquids
- Sprays
- Patches

Each method has a slightly different application process. Today, most dental offices use a gel-type numbing agent. To be effective, it must remain on the injection site for a minimum of 15 to 30 seconds.

Slides 6-12: Local Anesthetic

Local anesthetic agents are dentistry's most frequently used form of pain control. They provide safe, effective, and reliable anesthesia for most dental treatments.

Local anesthesia is administered by injecting the solution near the nerve where treatment occurs. The local anesthetic agent temporarily blocks the nerve's ability to generate an impulse.

Once the dentist injects it, the anesthetic spreads into the nerve, blocking its normal action. It causes the patient to feel numb in the area. The loss of feeling becomes reversed as the bloodstream carries the drug away, causing feeling to return to the area.

Each local anesthetic cartridge has a combination of the following:

- **Local Anesthetic Drug:** The drug used depends on the treatment, the patient's health, and the dentist's preference
- **Sodium Chloride:** Makes the solution have the same water concentration as bodily fluids
- **Distilled Water:** Supplies an added volume of solution

One thing a dentist must consider when choosing a local anesthetic is how long the patient needs to remain numb. They must also consider induction, which is the time it takes for the solution to effectively block nerves, and duration, which is the time from induction until the temporary loss of feeling is gone.

The duration of the local anesthesia will depend on the type of injection, the type of anesthetic, the amount of anesthetic, and the location of the injection.

- **Short Acting:** Approximately 30 minutes
- **Intermediate Acting:** Approximately 60 minutes
- **Long Acting:** Approximately 90 minutes

Vasoconstrictors are chemicals added to the anesthetic to slow the drug's uptake into the bloodstream and increase its duration.

- Blood vessels constrict
- Absorption into the cardiovascular system slows
- Local anesthetic toxicity is minimized because the vasoconstrictor lowers the blood level of the anesthetic
- Anesthetic lasts longer by decreasing blood flow to the area
- Bleeding decreases

A small amount of vasoconstrictor is added to each solution in the ratio of vasoconstrictor-to-anesthetic solution of 1:20,000, 1:50,000, 1:100,000, or 1:200,000. The smaller the ratio, the higher the percentage of vasoconstrictors.

The location and the innervation of the tooth or teeth to be anesthetized will determine where topical anesthetic is placed and the type of injection to be given.

Several injection techniques are used for maxillary and mandibular treatment. Different methods must be used because the maxilla is more porous.

Injection:

- **Maxillary Injections:**
 - **Local Infiltration:** Done by injecting the anesthetic directly into the soft tissue area of the nerve endings affecting a specific site
 - **Field Block:** Occurs when the dentist injects the anesthetic near a larger terminal nerve branch, affecting a larger surface area of the treatment area
 - **Nerve Block:** Happens when the local anesthetic is injected close to a main nerve trunk
- **Mandibular Injections:**
 - **Inferior Alveolar Nerve Block:** Obtained by injecting the anesthetic solution near the branches of the inferior alveolar nerve close to the mandibular foramen
 - **Buccal Nerve Block:** Provides anesthesia to the buccal soft tissues closest to the mandibular molars
 - **Incisive Nerve Block:** Given when the mandibular anterior teeth or premolars require anesthesia.

Local anesthetic comes in a glass cartridge. It has a rubber or silicone stopper on one end and an aluminum cap with a rubber diaphragm on the other. These cartridges are supplied in blister packs, which have been sterilized and stored in a sealed environment.

A color-coding system designed by the American Dental Association Council on Scientific Affairs created standardization system. This was introduced so that the dental team could easily identify various types of concentrations of anesthetic. Each anesthetic cartridge has a colored band that is placed 3 mm from the stopper end, with black lettering that follows U.S. Food and Drug Administration (FDA) labeling guidelines.

Anesthetic needles have a two-part plastic covering. The outer plastic has two parts connected to maintain sterility. If this seal is broken, the needle should not be used.

The cartridge end of the needle is the shorter end. It fits through the syringe's threaded tip and punctures the anesthetic cartridge's rubber diaphragm. The protective plastic cap covers this part.

The needle hub is made of self-threading plastic. It attaches the needle to the threaded tip of the syringe.

The needle guard protects the injection end of the needle and is 1 inch (short needle) or 1 5/8 inches (long needle) in length. The short needle is often used for infiltration anesthesia, and the long needle is used for block anesthesia. This end of the needle is beveled (angled).

Slides 13-14: Inhalation Sedation

Inhalation sedation, also called nitrous oxide/oxygen (N₂O/O₂) analgesia, has been a safe and effective sedation method since 1844. Horace Wells was the first dentist to use these gases on his patients.

N₂O/O₂ sedation produces stage I anesthesia/analgesia by combining N₂O and O₂ gases. The patient inhales these gases through a nosepiece and immediately feels the effect.

N₂O can be toxic if used improperly. N₂O is used only during patient treatment. It is never used unnecessarily or for recreational purposes, which could lead to abuse of this substance.

N₂O and O₂ gas cylinders are color-coded: green for O₂ and blue for nitrous oxide. Both cylinders should be kept upright, away from heat, and chained to the wall (or portable unit) to prevent them from falling on the valve stem, which could cause them to explode.

Parts of the nitrous system include:

- Control Valves: Control the flow of each gas
- Flow Meter: Indicates the rate of flow of the gas
- Reservoir Bag: Where the two gases are initially combined
- Gas Hose: Carries the gases from the reservoir bag to the nosepiece
- Nosepiece: Nasal inhaler through which the patient breathes the gases. Masks are supplied in varying sizes for adults and children

The N₂O/O₂ system must have a scavenging system. This system reduces the N₂O released into the treatment room, which escapes into the atmosphere and is then inhaled.

Slide 15: Antianxiety Agents

Antianxiety drugs or anxiolytics are drugs given to patients to relieve anxiety. These drugs may be prescribed to induce a varying level of sedation, from minimal to moderate, and for deep sedation from IV sedation or general anesthesia. Antianxiety agents can be administered orally, intravenously, or by inhalation (gases). Before administering any of these drugs, the dentist must have specialized training and credentialing.

Patients may receive these drugs in the following situations:

- Patients is very nervous about upcoming treatment
- The procedure itself is long or difficult
- A patient with an intellectual disability patient is receiving treatment
- Very young children are having extensive treatment

The most common oral drugs used for sedation and control of are short-acting oral sedation. Benzodiazepines are a classification of drugs widely, with diazepam often prescribed. Other drugs in this category include triazolam (Halcion) and lorazepam (Ativan). When taking these drugs, the patient will be instructed to take the drug orally 30 to 60 minutes before the appointment. Patients must be informed that these drugs cause drowsiness and that they should have someone to drive them to and from their appointments.

Slides 16-17: Intravenous (IV) Sedation

IV sedation is completed only by an individual trained and certified in this area. Oral and maxillofacial surgeons and periodontists are two dental specialists who often take this additional training. Specialty offices frequently hire a registered nurse to administer and monitor these procedures. Some states offer training to dental assistants to monitor and remove IV lines.

Before the administration of IV conscious sedation, the patient must have a physical examination, give their medical history, and sign consent forms. Parental or guardian informed consent is required for children. Baseline vital signs, assessment of level of consciousness and motor function, oximetry (blood O₂ concentration), and electrocardiogram (ECG) are completed and recorded. The patient's weight should be recorded for dose determination.

IV conscious sedation creates a minimally depressed level of consciousness. They can keep their airways open and respond to physical or verbal stimulation. Specific antianxiety drugs are administered directly into a vein in the forearm or hand throughout the procedure at a slower rate, providing deeper stage I analgesia. A tourniquet is wrapped around the upper arm to make the veins bigger in the lower arm by restricting blood flow. Before a small butterfly needle is inserted into the large vein on the top of the hand, the skin is cleansed with an antiseptic. Tape keeps the needle in place, and the tourniquet is released.

The IV line should constantly be monitored to ensure no vein inflammation or pain at the insertion site or that the needle has become dislodged and is leaking fluid under the skin. IV lines can clot or crack. Frequent checking of the line helps prevent these problems.

The patient is monitored continuously throughout the procedure and the recovery phase. Physiologic measurements should be taken and recorded at 15-minute intervals. These measurements include:

- Level of consciousness
- Respiratory function
- Oximetry
- Blood pressure
- Heart rate
- Cardiac rhythm

In an emergency, an oxygen tank, suction, and a defibrillator must be available immediately and used as needed.

Slides 18-19: General Anesthesia

General anesthesia is a controlled state of unconsciousness that includes losing protective reflexes, including keeping the airway open and responding to physical stimulation or verbal command.

General anesthesia is achieved by combining N₂O/O₂, halothane, or enflurane and IV drugs, such as thiopental and methohexital. General anesthesia is mostly done in a hospital or outpatient clinic, and the necessary equipment is used to administer and manage an emergency. Anesthesiologists are physicians who specialize in this form of anesthesia.

Various antianxiety drug combinations can produce different levels of consciousness and unconsciousness, which are called stages of anesthesia. There are four stages.

Stage I: Analgesia is when a patient is relaxed and fully conscious. They can keep their mouths open on their own and follow directions. The patient experiences a sense of euphoria and less pain. Vital signs are normal.

Stage II: Excitement is the stage during which the patient becomes less aware of their surroundings and may start to become unconscious. They may become excited, unmanageable, and nauseous; they may vomit. Excitement is an undesirable stage.

Stage III: General anesthesia begins when the patient becomes calm after stage II. The patient feels no pain or sensation and soon becomes unconscious. This anesthesia stage can only be achieved when an anesthesiologist is available in a controlled environment such as a hospital.

Stage IV: Respiratory failure or cardiac arrest occurs when the lungs and heart slow down or stop functioning. If this stage is not reversed quickly, it can be fatal.

Once the procedure is finished, the dental team monitors the patient closely until normal reflexes return. The patient should respond to their name and be able to move the limbs, turn the head, and speak normally. The patient should not be left alone during the recovery phase.

Slide 20: Documentation

It is crucial to keep accurate records of pain and anxiety analgesia. Always document the following items:

- Patient's medical history
- Preoperative and postoperative vital signs
- Type of anesthesia used
- How much inhalation sedation was provided
- Start and end time of anesthetic administration
- Peak concentration administered
- Postoperative time in the recovery phase (how many minutes)
- Negative reactions or patient complaints

Name: _____ Class: _____

Pain Control in Dentistry

Presentation Guide

Instructions: Answer the following questions as you go through the presentation.

1. List the methods dentists use to manage anxiety and pain.
2. What is the active ingredient in topical anesthetic?
3. What is the most frequently used form of pain control in dentistry?
4. Every local anesthetic cartridge has a combination of the following:
5. True or False: A vasoconstrictor does not constrict the blood vessels.
6. What are the three maxillary injection techniques for local anesthetic?
7. Who designed the color-coded system used for local anesthetic cartridges?
8. How many parts are there to a disposable local anesthetic needle covering?
9. List the parts of the needle.
10. When was nitrous oxide/oxygen first used on dental patients?
11. What color is the nitrous tank?

12. List the three ways antianxiety agents can be administered.
13. Who can administer intravenous (IV) sedation?
14. How often must you check the physiologic measurements of a patient while under intravenous (IV) sedation?
15. General anesthesia is a _____ state of consciousness. It includes the _____ of ability to keep the airway open and respond to _____ and _____ stimulation.
16. Which stage of general anesthesia is the most dangerous?

Pain Control in Dentistry

Presentation Guide – Answer Key

Instructions: Answer the following questions as you go through the presentation.

1. List the methods dentists use to manage anxiety and pain.

Topical anesthesia, local anesthesia, inhalation sedation, antianxiety agents, intravenous (IV) sedation, and general anesthesia

2. What is the active ingredient in topical anesthetic?

Benzocaine or lidocaine

3. What is the most frequently used form of pain control in dentistry?

Local anesthetic

4. Every local anesthetic cartridge has a combination of the following:

Drug, sodium chloride, and distilled water

5. True or **False**: A vasoconstrictor does not constrict the blood vessels.

6. What are the three maxillary injection techniques for local anesthetic?

Local infiltration, field block, and nerve block

7. Who designed the color-coded system used for local anesthetic cartridges?

American Dental Association (ADA) Council on Scientific Affairs

8. How many parts are there to a disposable local anesthetic needle covering?

Two parts

9. List the parts of the needle.

Cartridge end, needle hub, and injection end

10. When was nitrous oxide/oxygen first used on dental patients?

1844

11. What color is the nitrous tank?

Blue

12. List the three ways antianxiety agents can be administered.

Orally, intravenously, and inhalation

13. Who can administer intravenous (IV) sedation?

An individual with training and certification

14. How often must you check the physiologic measurements of a patient while under intravenous (IV) sedation?

Every 15 minutes

15. General anesthesia is a **controlled** state of consciousness. It includes the **loss** of ability to keep the airway open and respond to **physical** and **verbal** stimulation.

16. Which stage of general anesthesia is the most dangerous?

Stage IV

Lesson Eleven – Pain Control in Dentistry

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on pain control in dentistry. Once the student activities are complete, a Post-Test will be given.

Materials:

- Dental Terminology Student Workbook
- *Pain Control in Dentistry Post-Test*
- *Pain Control in Dentistry Test – Answer Key*
- Dental Terminology Scenario Cards
- *Common Treatments Using Dental Anesthesia – Answer Key*

Facilitation Steps:

1. If you have not already, review the *Common Treatments Using Dental Anesthesia* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages *Common Treatments Using Dental Anesthesia*.
3. Have the answer key for the workbook page available.
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is being discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Pain Control in Dentistry Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. What form of topical anesthetic is available?
 - a. Liquid
 - b. Candy
 - c. Gum
 - d. Powder
2. What is the minimum time a topical anesthetic must stay on the surface?
 - a. 45 seconds
 - b. 30 seconds
 - c. 15 seconds
 - d. 10 seconds
3. The color-coded band on a local anesthetic cartridge is how far from the end of?
 - a. 1 mm
 - b. 2 mm
 - c. 3 mm
 - d. 4 mm
4. Inhalation sedation combines which two gasses?
 - a. Nitrogen and hydrogen
 - b. Nitrogen and oxide
 - c. Nitrous oxide and hydrogen
 - d. Nitrous oxide and oxygen
5. What is the best way to administer general anesthesia?
 - a. In the patient's home
 - b. In the dental office
 - c. In a hospital setting
 - d. None of the above

Pain Control in Dentistry Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. What form of topical anesthetic is available?
a. Liquid
b. Candy
c. Gum
d. Powder
2. What is the minimum time a topical anesthetic must stay on the surface?
a. 45 seconds
b. 30 seconds
c. 15 seconds
d. 10 seconds
3. The color-coded band on a local anesthetic cartridge is how far from the end of?
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c. 3 mm
d. 4 mm
4. Inhalation sedation combines which two gasses?
a. Nitrogen and hydrogen
b. Nitrogen and oxide
c. Nitrous oxide and hydrogen
d. Nitrous oxide and oxygen
5. What is the best way to administer general anesthesia?
a. In the patient's home
b. In the dental office
c. In a hospital setting
d. None of the above

Common Treatments Using Dental Anesthesia – Answer Key

Instructions: Place a checkmark in the column to match the anesthetic with the treatment.

Treatment	Local	IV Sedation	General Anesthesia
Dental Fillings	☒	☐	☐
Simple Extraction	☒	☐	☐
Surgical Extraction	☒	☒	☐
Root Canal	☒	☐	☐
Gum Surgery	☒	☐	☐
Crown Prep	☒	☒	☐
Crown Insert	☒	☐	☐
Bone Grafting	☒	☒	☒
Scaling and Root Planing	☒	☐	☐
Jaw Surgery	☒	☐	☒
Porcelain Veneers	☒	☐	☐
Prophylaxis	☐	☐	☐
Teeth Whitening	☐	☐	☐

Lesson Eleven – Pain Control in Dentistry

Sources

Bird, D. L., & Robinson, D. S. (2021b). Anesthesia and Pain Control. In *Modern Dental Assisting* (13th ed., pp. 515–527). essay, Elsevier.

Tyler, L. (2009a). Anesthesia and Pain Control. In *Comprehensive Dental Assisting* (pp. 421–428). essay, Pearson.

Lesson Twelve – Dental Radiology

Lesson Overview

In this lesson, students learn the knowledge and skills required to perform dental radiographs safely and effectively. This lesson focuses on the principles of radiology, the types of dental radiographs, and radiation safety protocols.

Lesson Objectives

After completing this lesson, participants will be able to:

- Describe the uses of dental imaging
- Name the parts of the dental x-ray machine and tube
- Discuss radiation safety
- Identify the different types of dental radiographs and their specific uses in diagnosing oral conditions

Lesson at a Glance

Activity	Materials	Preparation	Approximate Class Time
FOCUS	• Dental Terminology Student Workbooks • Dental Terminology Student Workbook – Teacher Guide • <i>Types of Dental X-rays</i> – Answer Key • <i>Dental Radiology Pre-Test</i>	1. Print/photocopy the <i>Dental Radiology Pre-Test</i> (one of each per learner). 2. Review the <i>Types of Dental X-rays</i> activity in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes
LEARN	• <i>Dental Radiology</i> slide presentation • <i>Dental Radiology Presentation Guide</i> • <i>Dental Radiology Presentation Guide</i> – Answer Key	1. Print/photocopy the <i>Dental Radiology Presentation Guide</i> (one of each per learner). 2. Prepare the <i>Dental Radiology</i> slide presentation for viewing	60 minutes
REVIEW	• Dental Terminology Student Workbook • Dental Terminology Student Workbook – Teacher Guide • <i>Dental Radiology Post-Test</i> • <i>Dental Radiology Test</i> – Answer Key • Dental Terminology Scenario Cards • <i>This or That X-ray</i> – Answer Key	1. Print/photocopy the <i>Dental Radiology Post-Test</i> (one of each per learner). 2. Distribute Dental Terminology Scenario Cards. 3. Review the <i>Dental Assisting National Board Assignment</i> and <i>This or That X-ray</i> activities in the Dental Terminology Student Workbook – Teacher Guide (found here).	30 minutes

Lesson Twelve – Dental Radiology

FOCUS: Key Images in Dental Radiology

30 minutes

Purpose:

Take the *Dental Radiology Pre-Test* to help students understand basic dental terms related to dental radiology and exposure.

Materials:

- Dental Terminology Student Workbooks
- Dental Terminology Student Workbooks – Teacher Guide
- *Types of Dental X-rays* – Answer Key
- *Dental Radiology Pre-Test*

Facilitation Steps:

1. If you have not already, review the *Types of Dental X-rays* activity in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have the *Types of Dental X-rays* – Answer Key available.
3. Distribute the *Dental Radiology Pre-Test* and have learners complete it.
4. Collect the pre-tests and have learners complete the *Types of Dental X-rays* activity in the workbook as you explain the information.

Name: _____ Class: _____

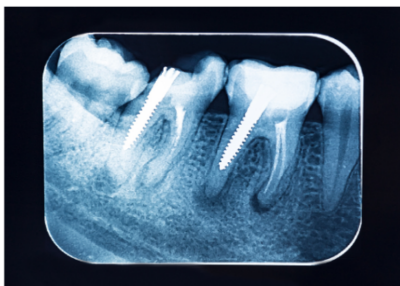
Dental Radiology Pre-Test

Instructions: Select the best answer to the following multiple-choice questions.

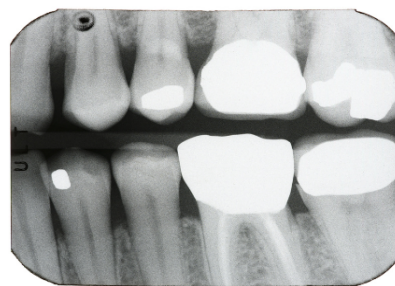
1. Which best describes a bitewing image?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
2. Which best describes a panoramic image?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
3. Which best describes a periapical image?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
4. Which best describes a full-mouth series?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
5. What is the ALARA concept?
 - a. As Low as Reasonably Associated
 - b. As Low as Reasonably Achievable
 - c. As Long as Radiation Ascends
 - d. As Long as it's Really Appropriate

Types of Dental X-Rays – Answer Key

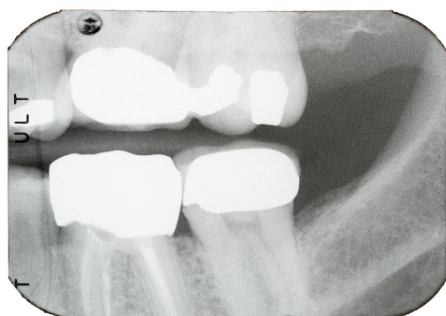
Instructions: List the teeth that are in each type of dental x-ray. Identify what type of image it is.



Periapical of the lower right molars
 #32 - Mandibular Right 3rd Molar
 #31 - Mandibular Right 2nd Molar
 #30 - Mandibular Right 1st Molar
 #29 - Mandibular Right 2nd Pre-Molar



Left Pre-Molar Bitewing
 #11 Maxillary Left Canine
 #12 Maxillary Left 1st Pre-Molar
 #13 Maxillary Left 2nd Pre-Molar
 #14 Maxillary Left 1st Molar
 #15 Maxillary Left 2nd Molar
 #18 Mandibular Left 2nd Molar
 #19 Mandibular Left 1st Molar
 #20 Mandibular Left 2nd Pre-Molar
 #21 Mandibular Left 1st Pre-Molar
 #22 Mandibular Left Canine



Left Molar Bitewing
 #13 Maxillary Left 2nd Pre-Molar
 #14 Maxillary Left 1st Molar
 #15 Maxillary Left 2nd Molar
 #16 Maxillary Left 3rd Molar (Missing)
 #17 Mandibular Left 3rd Molar (Missing)
 #18 Mandibular Left 2nd Molar
 #19 Mandibular Left 1st Molar
 #20 Mandibular Left 2nd Pre-Molar



Maxillary Right Premolar Periapical
 #3 Maxillary Right 1st Molar
 #4 Maxillary Right 2nd Pre-Molar (Missing)
 #5 Maxillary Right 1st Pre-Molar
 #6 Maxillary Right Canine

Lesson Twelve – Dental Radiology

LEARN: Key Concepts of Dental Radiology

60 minutes

Purpose:

Participants will receive an introduction to dental radiology, including types of dental x-rays and safety protocols.

Materials:

- *Dental Radiology* slide presentation
- *Dental Radiology Presentation Guide*
- *Dental Radiology Presentation Guide – Answer Key*

Facilitation Steps:

Give each student the *Dental Radiology Presentation Guide*. They should complete the information as the slide presentation is shared. Share the following information as you show the slide presentation.

Slide 1: Dental Radiology

Slide 2: Introduction to Dental Radiology

Slide 3: Goals and Objectives

The goals and objectives of this lesson are:

- Describe the uses of dental imaging
- Name the parts of the dental x-ray machine and the x-ray tube
- Discuss radiation safety
- Identify the different types of dental radiographs and their specific uses in diagnosing oral conditions

Slide 4: What Are Dental Radiographs?

X-rays, also known as radiographs, provide the dentist access to the areas within and between the teeth. Because they offer a complete view, dental X-rays are crucial to a thorough diagnosis and treatment plan. They help dentists observe the health of teeth, including the roots, the jaw position, and the structure of facial bones. They will help your dentist identify and treat dental issues before they worsen.

Slide 5: What Are Dental X-Rays Useful?

Dental x-rays help the dentist locate:

- Decay between teeth
- Secondary decay beneath fillings
- Cysts and tumors
- Bone loss and periodontal disease
- Tooth position to help determine implant placement, braces, or dentures
- Supernumerary teeth
- Congenitally missing teeth
- Abscesses

Many types of dental x-rays help the dentist create a picture of a patient's oral health. The most used include bitewings, periapical, and panoramic images. Each one provides different information about the mouth.

Slide 6: Types of Dental Radiographs

Dentists use a variety of dental x-rays to capture the complete picture of a patient's oral health.

- Intraoral radiographs (inside the mouth)
 - Bitewing
 - Detects interproximal decay and bone levels
 - Periapical
 - Shows the entire tooth from root to crown
 - Occlusal
 - Used to see large areas of the jaw
- Extraoral radiographs (outside the mouth)
 - Panoramic
 - Captures the whole mouth in a single image
 - Cephalometric
 - Used for planning orthodontic treatment

Slide 7: Bitewings

Bitewings show the crowns and interproximal areas of the maxillary and mandibular teeth on a single image. They also show the areas of crestal bone level. A dentist uses these x-rays to detect interproximal tooth decay. They are useful in detecting early carious lesions that are not visible during a visual exam.

Slide 8: Periapicals

A periapical image shows the entire tooth from the occlusal surface or incisal edge to about 2 to 3 mm beyond the apex. You can see the periapical bone. These images are used to diagnose pathologic conditions of the tooth, root, and bone, as well as tooth formation and eruption. Periapical views are necessary in endodontics and in oral surgical procedures.

Slide 9: Full Mouth Series

A full mouth series (FMX) is a complete set of images that includes periapicals (PA) and bitewings (BW).

- Contains periapical (PA) and bitewing (BW) images
- The average adult has 18 to 20 images
 - 14 PA's
 - Four to six BWs

How many images depends on the dentists' preference and the number of teeth present.

Slide 10: Occlusal

The occlusal technique examines large areas of the upper or lower jaw. It is so named because the patient bites or "occludes" the entire film. The occlusal technique is also used when large areas of the maxilla or mandible must be radiographed, such as these:

- Locate retained roots of extracted teeth
- Locate supernumerary unerupted or impacted teeth
- Locate salivary stones in the duct of the submandibular gland
- Locate maxillary or mandibular jaw fractures
- Examine the area of a cleft palate
- Measure changes in the size and shape of the maxilla or mandible

Slide 11: Panoramic

A panoramic image is a full view of the upper and lower jaw in a single image. They are used to locate impacted teeth, detect jaw lesions, and observe eruption patterns. Instead of placing the receptor in the patient's mouth, it rotates around the head.

Slide 12: 3D Imaging

Cone beam computed tomography (CBCT) is a digital image that allows the dentist to look at the head and neck in 3D. Until this technology was invented, images were only viewed in 2D.

When the image is taken, the arm rotates around the patient's head, similar to a panoramic image.

3D images are useful for:

- Implant placement
- Exposing impacted teeth
- Endodontic assessment
- TMJ evaluation
- Orthodontic evaluation
- Pathology evaluation

Slides 13-15: Radiation Safety and Protection

Patient protection begins before any radiation exposure. The first step in limiting the amount of radiation exposure is following the proper prescription or order for dental radiographs. The dentist uses their professional judgment to determine how often and how many radiographs a patient needs.

The second pre-exposure step is to use the proper equipment. Every dental x-ray tubehead must have aluminum filters, a lead collimator, and a position-indicating device.

Patients are directly exposed to radiation, and it's vital to take steps to protect them. Protecting them begins with placing the thyroid collar and the lead apron.

- **Lead Apron:** When properly placed, the lead apron starts at the neck and covers the reproductive and blood-forming tissues. This shield protects the patient from radiation and is mandated by many states.
- **Thyroid Collar:** Often a continuation of the lead apron, the thyroid collar is placed around the neck to protect the thyroid gland. It may be connected to the lead apron or a separate piece.

Film speed identifies how much radiation is needed to produce the image when using film-based receptors. Faster film speeds require less radiation exposure.

Adjusting the exposure factors limits the amount of radiation a patient receives. This includes adjusting the kVp, mA, and time controls to ensure an accurate image is captured, reducing the need for additional exposures.

As the operator, the dental assistant must use proper protection measures to avoid occupational radiation exposure. Failure to follow any radiation protection rules may result in chronic radiation exposure. Following all rules and regulations prevents radiation exposure and any resulting side effects.

Operators can protect themselves by following these guidelines:

- Avoid standing in the direct line of the primary beam
- Stand behind a lead barrier or wall with adequate drywall thickness
 - If a barrier is unavailable, stand at a right angle to the beam
- Stand at least six feet from the x-ray machine

The ALARA concept is a principle of radiation protection that recommends keeping radiation doses to a minimum. Use correct exposure controls, a lead apron and thyroid collar, and proper techniques to avoid retakes.

Slides 16-20: Radiographic Equipment Control Panel

The control panel is the source of power for the x-ray machine. It is home to the master switch, an indicator light, selector buttons, and an exposure button. The exposure button is typically outside the x-ray area for additional protection for the operator during exposure. Selector buttons allow you to change the settings, like exposure time, milliamperage, and kilovoltage.

Master Switch

The master switch turns the power on and off. When the control panel has power, an orange indicator light will be lit. Typically, the x-ray machine stays on all day because of how often it's used. Leaving it on is safe because it does not produce radiation unless the exposure button is pressed. When this happens, a red emissions indicator light shows that x-rays are emitted from the tubehead.

Exposure Button

The exposure button controls when x-rays are and are not being produced. An internal timer controls how long x-rays are generated each time and only when the exposure button is pressed. Exposure time is measured in impulses, which are fractions of a second. For example, 60 impulses are one second.

Milliamperage Selector

The milliamperage (mA) of dental x-ray equipment measures the power of the electricity moving through the tungsten filament. The mA selector button allows you to change the settings, altering how many electrons are produced. As you increase mA, more electrons are available to generate more x-rays.

Kilovoltage Selector

The kilovoltage selector controls the beam's penetrating power. Typical dental x-ray machines operate at 70 to 90 kVp.

The X-ray tubehead includes a metal housing to protect the X-ray tube and the position-indicating device (PID) that directs the beam toward the subject. Other parts of the tubehead include the following:

- **Insulating Oil:** Absorbs heat to prevent overheating
- **Tubehead Seal:** Made from leaded glass or aluminum to hold the oil in place and filter the x-ray beam
- **Lead Collimator:** Restricts the size of the beam to a 2-inch opening
- **X-ray Tube:** Where the x-rays get produced
- **Transformers:** Alter the voltage of the electrical current

X-rays are produced within the tube, travel out of the position indicating the device, and interact with matter.

X-Ray Tube

Within the metal housing lies the source of x-ray generation: the glass tube. It measures six inches long and one inch around. The tube is a vacuum that allows electrons to flow easily between the cathode and anode.

Cathode (negative electrode)

The cathode is made of a tungsten filament and a molybdenum focusing cup. It creates the electrons that will generate x-rays. When the x-ray machine has power, the filament gets heated by electricity, causing it to release electrons. As the filament becomes hotter, it releases more electrons.

An electron cloud hovers over the focusing cup until the exposure button gets pressed. Then the circuit is completed, and electrons travel across the cathode, hitting the anode.

Anode (positive electrode)

The anode is the electrons' target. It has a tungsten target and a copper stem, with the copper helping to remove excess heat.

Position Indicating Device

The PID is lined with lead and used to direct the X-ray beam at the film. The opening is positioned near the patient's face and could be cylindrical or rectangular.

The control panel powers the tubehead with wires protected by the extension arm. It helps move the tubehead 360 degrees horizontally for easy positioning.

Digital sensors are the modern standard for capturing dental radiographs. These electronic devices replace traditional film and offer immediate image viewing.

Though digital technology is becoming more prevalent, traditional x-ray film is still used in some practices. It involves capturing images on photographic film that requires processing in a darkroom.

Traditional film comes in different sizes for various uses:

- 0: Posterior teeth in children
- 2: Posterior teeth in older children and adults (standard size)
- 3: Longer and narrower; used for bitewings in adults, but not common
- 4: Occlusal films

Digital sensors also have sizes:

- 0: Kids ages eight and under
- 1: Kids eight and up
- 2: For adults

Slides 21-22: Legal Considerations

The Consumer-Patient Radiation Health and Safety Act is a federal law that requires anyone using x-rays to take dental radiographs to be trained and certified according to individual state policies.

Requirements for certification in dental radiography vary from state to state. Some states require Dental Assisting National Board (DANB) certification, and other states may require other testing. Because each state deals with dental radiography differently, it is your responsibility to become informed about the requirements of the state you practice in.

Dental Terminology Kit Curriculum

Before taking a radiograph, the patient must give informed consent. They must be provided with all the pros and cons of having and refusing them. Other information that must be given for informed consent includes:

- Number and type of radiographs
- Alternative diagnostic tools that may provide the same information
- Consequences of not having them taken
- Person taking them

After reviewing this information, the patient must agree or refuse.

Patients have the right to refuse dental radiographs. However, it sometimes makes it more difficult to form an accurate diagnosis. The dentist must decide if they can determine the extent of the condition without having a complete picture of the problem.

Dental professionals must make every effort to educate patients about the importance of dental radiographs. The patient record should document which radiographs were recommended and which were refused. The dentist must decide whether to proceed without radiographs.

Name: _____ Class: _____

Dental Radiology Presentation Guide

Instructions: Complete the following information as you listen to the presentation.

1. List four primary reasons dentists use dental radiographs.

2. What do dental x-rays help the dentist locate? List four of the eight given in the presentation.

3. Which type of x-rays are placed inside the mouth?

4. _____ show the crowns of the maxillary and mandibular teeth on a single image.

5. How far beyond the apex should you see on a periapical image?

6. How many total images are in a full mouth series?

7. How many occlusal images are there?

8. A _____ image is used to locate impacted teeth, detect lesions in the jaw, and observe eruption patterns.

9. What does CBCT stand for?

10. What is used during radiation exposure to protect the patient?

11. An operator can protect themselves from radiation by standing at least _____ feet away from the x-ray machine.
12. What is the ALARA concept?
13. What are three of the buttons found on the control panel?
14. The _____ includes the metal housing that protects the x-ray tube and the PID.
15. A _____ inside the tube head contains a _____ cathode and a _____ anode.
16. Which part of the x-ray machine protects the wires connecting the control panel to the tubehead?
17. What are image receptors?
18. What is the purpose of the Consumer-Patient Radiation Health and Safety Act?
19. What is informed consent?

Dental Radiology Presentation Guide

– Answer Key

Instructions: Complete the following information as you listen to the presentation.

1. List four primary reasons dentists use dental radiographs.

To view areas within and between teeth, the root structure, the jaw position, and the structure of facial bones

2. What do dental x-rays help the dentist locate? List four of the eight given in the presentation.

Decay between teeth, decay beneath fillings, cysts and tumors, bone loss and periodontal disease, tooth position, supernumerary teeth, congenitally missing teeth, and abscesses

3. Which type of x-rays are placed inside the mouth?

Intraoral

4. **Bitewings** show the crowns of the maxillary and mandibular teeth on a single image.

5. How far beyond the apex should you see on a periapical image?

2-3 mm

6. How many total images are in a full mouth series?

18 to 20

7. How many occlusal images are there?

Two – maxillary and mandibular

8. A **panoramic** image is used to locate impacted teeth, detect lesions in the jaw, and observe eruption patterns.

9. What does CBCT stand for?

Cone Beam Computed Tomography

10. What is used during radiation exposure to protect the patient?

Lead apron and thyroid collar

Adjusting exposure factors

11. An operator can protect themselves from radiation by standing at least **six** feet away from the x-ray machine.

12. What is the ALARA concept?

As Low as Reasonably Achievable (expose the patient to as little radiation as possible)

13. What are three of the buttons found on the control panel?

Master switch, exposure buttons, and selector buttons

14. The **tubehead** includes the metal housing that protects the x-ray tube and the PID.

15. A **glass vacuum tube** inside the tubehead contains a **negative** cathode and a **positive** anode.

16. Which part of the x-ray machine protects the wires connecting the control panel to the tubehead?

Extension arm

17. What are image receptors?

Component that captures the image

18. What is the purpose of the Consumer-Patient Radiation Health and Safety Act?

Requires anyone operating dental radiation to be trained and certified protect patients.

19. What is informed consent?

Giving the patient all necessary information so they can make a decision whether to have radiographs taken or not.

Lesson Twelve – Dental Radiology

REVIEW: Student Activities and Post-Test

30 minutes

Purpose:

Participants will engage in student activities based on dental radiology and take a Post-Test.

Materials:

- Dental Terminology Student Workbook
- *Dental Radiology Post-Test*
- *Dental Radiology Test – Answer Key*
- Dental Terminology Scenario Cards
- *This or That X-ray – Answer Key*

Facilitation Steps:

1. If you have not already, review the *This or That X-ray* and *Dental Assisting National Board Assignment* activities in the Dental Terminology Student Workbook – Teacher Guide (found [here](#)).
2. Have students complete the workbook pages. *This or That X-ray* and the *Dental Assisting National Board assignment*.
3. Have the *This or That X-ray – Answer Key* available.
4. Instruct students to take a few minutes to complete the Post-Test.
5. Have students self-check their answers as you share from the answer key.

Dental Terminology Scenarios

Two dental terminology scenarios relating to this lesson are provided in the workbook to complete. Use the Dental Terminology Scenario Cards to help determine what is discussed in each scenario.

Small Group Challenge:

1. Have students work in five small groups to discuss the scenario and key questions. During the small group discussion, students may complete the workbook scenario pages.
2. Bring the class together and share answers to the key questions. Student answers will vary.
3. For a variation, have half of the small groups discuss Scenario 1 and the other half discuss Scenario 2. Then, share as a whole group.

Think – Pair – Share:

1. Divide the class into pairs. Display the first scenario on a document presenter or read it to the class.
2. Have each pair discuss the points of view listed in each scenario. Pairs should discuss the dental terms used to answer the questions. Use the Dental Terminology Scenario Cards to help understand the scenario and learn new terminology.
3. Call the class back together and share some insights into points of view.

Independent Study:

Assign the scenario pages in the workbook to complete as a written exercise.

Name: _____ Class: _____

Dental Radiology Post-Test

Instructions: Select the best answer to the following multiple-choice questions.

1. Which best describes a bitewing image?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
2. Which best describes a panoramic image?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
3. Which best describes a periapical image?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
4. Which best describes a full-mouth series?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
 - d. It is the upper and lower jaw on a single image
5. What is the ALARA concept?
 - a. As Low as Reasonably Associated
 - b. As Low as Reasonably Achievable
 - c. As Long as Radiation Ascends
 - d. As Long as it's Really Appropriate

Dental Radiology Test – Answer Key

Instructions: Select the best answer to the following multiple-choice questions.

1. Which best describes a bitewing image?
 - a. It shows the crowns of the maxillary and mandibular teeth on a single image**
 - b. It shows the entire tooth from crown to root in a single image
 - c. It is a series of 18-20 images that create a comprehensive picture of the mouth
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2. Which best describes a panoramic image?
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This or That X-ray – Answer Key

Instructions: Read the scenarios below and decide which type of x-ray best suits the situation.

Choose from the following:

- Bitewings
- Periapical
- Occlusal
- Panoramic
- CBCT
- Full mouth series

Scenarios

1. Mrs. Gomez brought her 12-year-old son, Jacinto, into your office for an examination. During the examination, Dr. Voight explained to Mrs. Gomez that Jacinto's maxillary canine teeth had not erupted into the mouth and may be impacted in the palate.
Type of X-ray: **Occlusal or panoramic**
Reason: **Both of these are the best at showing impacted teeth**
2. Carla is a new patient who wants to know everything wrong in her mouth and improve her oral health. She describes some discomfort in the area of teeth #18 and #19. Dr. Voight must see a complete picture of the mouth and a more detailed image.
Type of X-Ray: **Full Mouth Series**
Reason: **A full mouth series includes a detailed x-ray of every tooth in the mouth, including bitewings**
3. Caesar is an existing patient. He is in the office today because of discomfort near tooth #6. He is confident it is this tooth because he felt a crack when he bit down on an almond yesterday. No other teeth seem to be bothering him at this time.
Type of X-Ray: **Periapical**
Reason: **A periapical will get the entire crown of the tooth and the apex so Dr. Voight can tell if there is something wrong with the root**
4. Maggie is in the office for a consultation because she wants dental implants. Dr. Kennelly told her before that she has some bone loss where the tooth is missing. Dr. Kennelly needs a special x-ray to give her a clear picture of how much bone loss Maggie has and whether an implant will work for not.
Type of X-Ray: **CBCT**
Reason: **It produces a 3D image that will give him an idea of what the jawbone looks like**

Lesson Twelve – Dental Radiology

Sources

Bird, D. L., & Robinson, D. S. (2021). Extraoral Imaging. In *Modern Dental Assisting* (pp. 638–647)., Elsevier.

Bird, D., & Robinson, D. (2021a). Foundations of Radiography, Radiographic Equipment, and Radiation Safety. In *Modern Dental Assisting* (pp. 548–552), Elsevier.

Bird, D. L., & Robinson, D. S. (2021). Intraoral Imaging. In *Modern Dental Assisting* (pp. 596–605), Elsevier.

Bird, D. L., & Robinson, D. S. (2021). Legal Issues, Quality Assurance, and Infection Prevention. In *Modern Dental Assisting* (pp. 577–578), Elsevier.

Tyler, L. (2009). Dental Radiography. In *Comprehensive Dental Assisting* (pp. 445–451). essay, Pearson.