part TWO

Communication
OBJECTIVES

After completing this chapter, you should be able to do the following:
- Spell and define key terms
- Discuss the purposes of teeth
- Identify and describe the parts and tissues of a tooth
- Explain the differences between primary dentition and permanent dentition
- Describe the dental arches and the dental quadrants
- List the four types of teeth and their surfaces
- Name and describe the three tooth numbering systems
- Discuss the dental chart and how it relates to the dental office administrator

KEY TERMS

- edentulous
- crown
- clinical crown
- root
- enamel
- dentin
- dentinoenamel junction
- dentinal tubules
- dentinal fibril
- cementum
- cementoenamel junction
- periodontal disease
- pulp
- apical foramen
- primary dentition
- deciduous dentition
- resorbed
- exfoliated
- wisdom teeth
- mixed dentition
- permanent teeth
- secondary teeth
- succedaneous
- maxillary arch
- mandibular arch
- midsagittal plane
- midline
- posterior
- anterior
- diastema
- Universal Numbering System
- Palmer Notation System
- International Numbering System

OUTLINE

Purposes of Teeth
- Speech
- Mastication
- Esthetics

Parts of a Tooth

Dentition
- Primary Dentition
- Mixed Dentition
- Permanent Dentition

Arches

Quadrants

Anterior and Posterior Teeth

Types of Teeth
- Incisors
- Canines
- Premolars
- Molars

Tooth Numbering Systems
- Universal Numbering System
- Palmer Notation System
- International Numbering System

Tooth Surfaces

Dental Charting

Chapter Summary
A familiarity with dental terminology related to the function, form, and purposes of teeth is a necessity for dental administrative personnel to answer general questions posed by patients regarding teeth and they require. Dental administrative assistants are often responsible for addressing patient concerns over the telephone and need to be able to answer general clinical questions confidently and correctly. Additionally, they must be able to read the patient’s clinical chart and understand the treatment completed for billing purposes. Errors made in billing as a result of an inaccurate reading of the treatment performed can lead to problems with insurance companies and patients and a loss in revenue for the dental practice.

Thus, the study of teeth and their make-up, as well as the terminology used by dental professionals in relation to teeth, is discussed in this chapter. This chapter focuses on fundamental terms common to all general and specialty dental practices. Specifically, terms related to the purposes of teeth, the parts and tissues of teeth, dentition, arches and quadrants, types of teeth, tooth numbering systems, tooth surfaces, and dental charting are presented here. Studying the terms presented in this chapter is much like learning a new language. For some of you, the dental profession is a new world and understanding the language of the profession may seem daunting. However, correctly using dental terminology is crucial in effectively carrying out your duties.

**PURPOSES OF TEETH**

Educating patients on the value of healthy, functioning teeth is partly the responsibility of the administrative assistant. Although the clinical staff are well trained in this regard, administrative assistants too should understand how a healthy smile contributes to one’s quality of life. Teeth serve many purposes throughout a person’s life, three of which we will discuss here: speech, mastication, and esthetics.

**Speech**

The role teeth play in the formation and development of speech can be easily identified in the person who is without front teeth and, as a result, has a lisp. Other oral structures, such as the tongue and lips, also contribute to speech progress, but the teeth contribute directly to the formation of words in conjunction with these structures.

Speech is produced by the force of air from the lungs, through the voice box (larynx), and together the palate, tongue, lips, and teeth shape the air into sounds or speech. When making the “b” sound, for example, the lips come together to make this sound. Some letters in the English language require that contact between the tongue and teeth are made to pronounce the sound correctly. A lack of teeth in the mouth creates difficulties in this area. The pronunciation of sounds, specifically consonants, such as s, z, x, d, n, l and th, requires tongue-to-tooth contact. An edentulous individual would be unable to make these sounds. Edentulous means to be without teeth. An individual can be partially edentulous, some teeth are missing, or in complete edentulism, all teeth are missing.

Difficulties pronouncing speech sounds correctly can also result from malpositioned teeth in the mouth, a widening tongue caused by edentulism, and problems with the position of the upper jaw and lower jaw.

**Mastication**

Without teeth, the process of chewing, or mastication, of food would be impossible. Mastication breaks down food and is the first step in the process of digestion. The
four different types of teeth found in the mouth assist in the act of mastication, through tearing, grinding, gnashing, and cutting. Later in this chapter, we will discuss the different types of teeth and their role in the process of mastication.

Esthetics

One of the first things we notice about other people is their smile. A smile, whether bright and healthy-looking or not, can affect a person’s sense of well-being and self-confidence. The condition of teeth and the lack of teeth that one has can affect self-esteem. Ideally, teeth should be healthy, fully functioning, clean in appearance, with minimal space between them, and of an appropriate size for one’s facial features.

PARTS OF A TOOTH

A tooth is made up of many parts and tissues. The two main parts of a tooth are the crown and the root. The crown is the part of the tooth that is above the gumline unless the tooth is impacted or unerupted. The crown of each tooth varies in size, depending on the location of the tooth in the mouth and its purpose. The surface of the crown, the part that is visible and accessible during routine dental examination, is referred to more specifically as the clinical crown. The anatomical crown is the part of the tooth that is covered by enamel. The root of the tooth is the portion that is not normally visible and that lies below the gumline in the mouth. Teeth generally have one to three roots, depending on the type of tooth. For example, a molar has two or three roots, whereas an incisor will have only one. Figure 4-1 shows the parts of two types of teeth found in the human mouth.

Tissues of the tooth include enamel, dentin, cementum, and pulp. Pulp is found in the center of the tooth and contains its blood supply and nerves. The enamel, dentin, and cementum are layers that surround the pulp of the tooth. These tissues, which make up all teeth, are illustrated in Figure 4-1. Use this diagram as a reference as you read the description of each tissue below.

![Diagram of a tooth showing parts](image_url)
Enamel is the hard, outer tissue that covers the crown of the tooth. Enamel is made up of mostly calcified inorganic matter, such as calcium hydroxyapatite, and a small amount of organic matter, such as enamel matrix, as well as water. Enamel is the hardest material in the body. Given the amount of chewing, crushing, and grinding of food that that is required of teeth, enamel must withstand great force. The combination of the strength of enamel and softness of the dentin underneath it, as well as the cushioning support of the gums, provides the support for teeth to endure such force. However, as strong as it is, enamel is also brittle and can still chip or break and theoretically is incapable of self-repair.

If you look at your teeth and those of others, you will notice that the color or shade varies. That is, some people have whiter teeth, whereas others have yellow or gray shades to their teeth. The variations in shades are actually a result of the degree of translucency of the enamel. Underneath the enamel in teeth is a layer of a material called dentin. The translucent properties of enamel allow light to pass through which actually reveals the color of the dentin beneath the enamel. The combination of enamel and dentin affect the overall color of teeth. There are, however, other contributing factors to tooth coloring, such as disease, antibiotic use, drug use, and external staining caused by certain foods and liquids such as tea, coffee, red wine, or blueberries and tomato sauce. Other factors include cigarette smoking, decay, restoration on the teeth, and color variations in dentin. Furthermore, as a person gets older, teeth tend to reveal changes in color, which is a result of an increase in the translucency of the enamel.

Dentin comprises a large part of the tooth and is the main tissue surrounding the pulp. Most commonly it is yellow material that lies below the enamel and cementum and gives teeth their bulk. Dentin is covered by enamel in the crown and by cementum in the root. The dentin in teeth is not an exposed tissue, unless the tooth has been cut open or the enamel has been worn through but is visible on a radiograph. The surface of the enamel that joins to the dentin is termed the dentinoenamel junction. Dentin contains microscopic S-shaped tubes, called dentinal tubules, that extend from the pulp canal to the enamel of the crown and the cementum of the root. Within the dentinal tubules lie fibers, termed dentinal fibril, that assist the dentin in providing nourishment to the tooth and transmitting pain stimuli. Dentin consists of about 70% inorganic material and 30% water and organic substances.

Cementum covers the root of the tooth and consists of about 55% inorganic material. The main purposes of cementum are to provide protection for the tooth and to ensure that it remains in its socket. Microscopic fibers, called Sharpey’s fibers, aid the attachment of the tooth to the periodontium, and cementum provides a rough surface for these fibers to adhere to. The cementum covering the root of the tooth meets the enamel covering the crown of the tooth at a point called the cementoenamel junction (CEJ). The CEJ can be found at the neck of the tooth. When the dental hygienist is determining the extent of gum recession, an indication of periodontal disease or aggressive toothbrushing, the measurement between where the gum tissue ends and where the CEJ begins is determined using a probing instrument.

At the center of the tooth is the pulp. Dentin provides the boundaries for the pulp cavity, which is made up of the pulp chamber, in the crown, and the pulp canal, in the root. Pulp is a soft tissue that contains the nerves and blood supply of the tooth. At the base of the tooth’s root is a small opening, termed the apical foramen. The term apical refers to the apex, or tip end, of the root of a tooth; foramen refers to the small opening in the apex of the root. The pulp of the tooth serves very important purposes, which Box 4-1 outlines.

DENTITION

Dentition is the arrangement of teeth in the jaw. Throughout the human life, two dentitions, or sets of teeth, are present at different times.
Primary Dentition

Primary dentition, also referred to as “baby teeth,” is the first set of teeth that a human possesses. The primary teeth can also be termed the deciduous dentition, which refers to the fact that primary teeth are shed, or fall out, and replaced by permanent teeth. The primary dentition consists of 20 teeth, when they are all fully erupted. Beginning at the age of approximately 6 months, the primary dentition starts to erupt, and this process continues over a 2-year period, until all primary teeth have erupted. There is no exact age at which a child’s teeth will erupt, as developmental stages for children are different. For this reason, an approximate time is often given to parents who inquire about when they can expect their child’s teeth to erupt or fall out. As the permanent teeth begin to erupt, the roots of the primary teeth are resorbed, this term referring to the wearing away or absorption of the root of the primary teeth caused by pressure from the permanent teeth erupting. The crown of the tooth is exfoliated or shed and replaced by the permanent tooth.

Mixed Dentition

The process of shedding the primary teeth begins when a child is about 6 or 7 years old and continues over about a 6-year period. At age 12 years, all or most of the permanent teeth have replaced their primary teeth, with the exception of the third molars, or wisdom teeth, which may never fully erupt or erupt later, in the teen to early adult years. Wisdom teeth are so called because they erupt when the person is entering early adulthood. Because both primary and permanent teeth are present in the oral cavity at the same time during this 6-year period, this stage of dentition is referred to as mixed dentition.

Permanent Dentition

Permanent teeth and secondary teeth are terms used to refer to adult dentition. Once all primary teeth have exfoliated, they are replaced by permanent, or succedaneous, teeth. “Succedaneous” refers to the fact that these teeth succeed or follow the primary teeth, occupying the space they previously had. There are 32 teeth in the permanent dentition. The first, second, and third molars in the permanent dentition are the only teeth that are not succedaneous. The primary molars are replaced by the premolars or bicuspids in the permanent dentition. Figures 4-2 and 4-3 show the permanent and primary dentitions, respectively.

ARCHES

There are two dental arches in the mouth: the upper arch and the lower arch. The upper dental arch is referred to as the maxillary arch, and the lower arch is referred
The maxillary arch is so named because the bone in which the upper teeth are set is the maxilla or maxillary bone. The maxilla is attached to the frontal bones and the skull and, as a result, is fixed in place and cannot move. Contrary to this, the mandibular arch, or the mandible, in which the lower teeth are set, does move.

**FIGURE 4-2 Permanent dentition.** Reprinted with permission from Woelfel JB, Scheid RC. Dental anatomy: its relevance to dentistry. 6th ed. Baltimore, MD: Lippincott Williams & Wilkins, 2002: p. 4, Fig. 1-2.

**QUADRANTS**

In anatomy, body reference planes are used to indicate the locations of structures of the human body. Reference planes are imaginary lines that are used to divide the body into sections. The reference plane that runs longitudinally (up and down) and separates the right and left sides of the body is referred to as the midsagittal plane. This reference plane, also known as the midline, is the most commonly used one in the dental environment in reference to teeth. The upper and lower arches are divided by the midline into right and left sides, creating four sections, or quadrants, of the dentition. Each quadrant in the adult dentition contains eight teeth, and each quadrant in the primary dentition contains five teeth. The importance of the quadrants will become evident later in this chapter, when we review the numbering systems used for teeth. Each quadrant is abbreviated as follows: quadrant 1 (Q1), quadrant 2 (Q2), quadrant 3 (Q3), or quadrant 4 (Q4). Below are the names of the four quadrants:

- Quadrant 1 (Q1)
- Quadrant 2 (Q2)
- Quadrant 3 (Q3)
- Quadrant 4 (Q4)

**checkPoint**

5. What are the two dental arches?
ANTERIOR AND POSTERIOR TEETH

Anterior and posterior are terms used to refer to the location of teeth in the oral cavity. Teeth are **posterior** if they are toward the back of the mouth and **anterior** if they are toward the front of the mouth. Anterior teeth are the teeth visible from the front of the mouth. These teeth include the first three teeth from the midline in each quadrant, which are the central incisors, lateral incisors, and canines. Posterior teeth include the premolars and molars. Figures 4-2 and 4-3 show anterior and posterior teeth.

- Q1—maxillary right quadrant
- Q2—maxillary left quadrant
- Q3—mandibular left quadrant
- Q4—mandibular right quadrant

**FIGURE 4-3** Primary dentition. Reprinted with permission from Woelfel JB, Scheid RC. Dental anatomy: its relevance to dentistry. 6th ed. Baltimore, MD: Lippincott Williams & Wilkins, 2002: p. 2, Fig. 1-1.
TYPES OF TEETH

As noted earlier in this chapter, mastication is one of the purposes of teeth. Not all food that humans eat requires the same amount of force or effort from our teeth. For example, eating a salad may require us to chew, but not to tear the food, like we may need to do if we were eating beef jerky! There are four types of teeth found in the adult dentition. Beginning from the front of the anterior portion of the mouth and moving posterior, they are incisors, canines, premolars, and molars. Use Figures 4-2 and 4-3 as a reference for understanding as you read through this section on the types of teeth found in the adult dentition.

**Incisors**

There are eight incisors in the adult dentition: two central incisors and two lateral incisors in the maxillary arch and two central incisors and two later incisors in the mandibular arch. Central incisors are front and center in the dentition, the first tooth in each quadrant from the midline. Lateral incisors are beside (lateral to) the central incisors, the second tooth in each quadrant from the midline. The central incisors ideally should be close together but sometimes have a gap between them. This gap is called a **diastema**.

There are four main functions of incisors in the adult dentition:

1. Maintaining esthetic appearance and provide support to the upper and lower lips
2. Assisting in speech
3. Cutting food
4. Aiding in guiding the mandible in closing the teeth together

**Canines**

There are four canines in the adult dentition, two in the maxillary arch and two in the mandibular arch. The canine is the third tooth in the quadrant from the midline. The canines are considered to be the cornerstones of the dental arches because they sit at the corners of the arch. The canines are the longest teeth in the permanent dentition and are often referred to as cuspids or eyeteeth. Pictures of vampires often portray very long canines, contributing to the use of the slang term “fangs” in reference to canine teeth. Animals also have prominent canine teeth, which they use for tearing food. For animals, canine teeth are essential to their survival in the wild. For human beings, the canines serve three main functions:

1. Cutting, piercing, or shredding food
2. Providing support to the upper and lower lips
3. Providing support and anchors for dental appliances, such as bridges, partials, and orthodontic appliances

**Premolars**

There are eight premolars in the adult dentition, two in each quadrant. They are the fourth and fifth teeth in the quadrant from the midline. The premolars are so named because they replace the primary molars found in the primary dentition. They are also referred to as bicuspid. There are four main functions of premolars in the adult dentition:

1. Chewing food
2. Assisting canines in cutting food
3. Supporting the corners of the mouth and cheeks to keep them from sagging
4. Assisting in maintaining the vertical proportions of the face
Molars

There are 12 molars in the permanent dentition. In each quadrant, there are three molars: the sixth, seventh, and eighth teeth from the midline. Molars are the largest and strongest teeth in each dental arch. The last molar in the dental arch is named the wisdom tooth. Unfortunately, the wisdom tooth has garnered a negative reputation among dental patients for creating crowding and being difficult to keep clean, particularly to floss. Dentists commonly surgically remove wisdom teeth. Often, because little space is available for the tooth to erupt, much discomfort results as the tooth attempts eruption. All of the molars provide a large part of the chewing surfaces used in mastication, and not having all or some permanent molars can create problems for patients. The molars have four main functions:

1. Chewing and grinding food in mastication
2. Assisting in maintaining the vertical proportions of the face
3. Maintaining alignment among all other teeth in the dental arch
4. Maintaining support for cheeks and keeping the chin at a proper distance from the nose

TOOTH NUMBERING SYSTEMS

All dental team members must help maintain accurate patient records. To identify a tooth in a patient’s chart that has just been treated and to maintain accurate and consistent records, dental team members must use a common numbering or coding system. For example, if a patient receives root canal therapy on a tooth, that information must be recorded in the patient’s chart. Instead of writing “maxillary left first molar root canal therapy,” it would be more efficient to use a tooth numbering system and abbreviation guide. In this section, we will introduce three tooth numbering systems used throughout the world in dental offices. As not all dental offices use the same system, it is best to be familiar with all three. The tooth numbering systems are the Universal Numbering System, the Palmer Notation System, and the International Numbering System. Each system is different in how the teeth in the adult and primary dentitions are numbered.

Universal Numbering System

The Universal Numbering System is the tooth numbering system most often used in the United States and was adopted for use in 1975. All dental insurance providers accept and recognize the Universal Numbering System. This numbering system uses the format of numbering each tooth in the adult dentition with the numbers 1 to 32. It begins with the maxillary right third molar as number 1 and follows the maxillary arch to the left third molar as number 16, and then drops down to the mandibular arch on the same side, with the left mandibular third molar as 17, and follows the mandibular arch around to the right third molar, which is number 32. Figure 4-4 A and B provides an example of this numbering system, using the permanent and primary dentitions. The Universal Numbering System for the primary dentition uses the alphabet, letters A through T, for identification of the 20 primary teeth, beginning with the maxillary right second molar as letter A and following the maxillary arch to the left second molar as letter J, then dropping down to the mandibular arch on the same side, with the left mandibular second molar as the letter K, and following the mandibular arch around to the right second molar, which is T.

Palmer Notation System

The Palmer Notation System is a tooth numbering system that uses brackets to represent the quadrant of the tooth, with the tooth number appearing inside the bracket. Each tooth in the adult dentition is numbered from 1 to 8 in each quadrant, starting

checkPOINT

6. Name the types of teeth.
FIGURE 4-4  Universal numbering system.  
A) Permanent dentition.  B) Primary dentition.  
Reprinted with permission from Woelfel JB, Scheid RC. Dental anatomy: its relevance to dentistry. 6th ed.  
Baltimore, MD: Lippincott Williams & Wilkins, 2002: pp. 80, 262; Figs. 3-1, 9-1.

with the central incisor as tooth 1 and moving away from the midline to the third molar, which is number 8. Each quadrant is assigned a bracket to represent it, as follows:

- \( \mid \) represents the maxillary right quadrant
- \( \mid _- \) represents the maxillary left quadrant
- \( \mid ^\prime \) represents the mandibular right quadrant
- \( \mid ^\prime _- \) represents the mandibular left quadrant

For example, the maxillary right canine would be identified as \( 3\mid \). For the primary dentition, the same bracketing system is used to denote in which quadrant the tooth
is located, but letters A through E are used to represent the five teeth found in each quadrant. For example, starting with the tooth closest to the midline and moving posterior, the central incisor is labeled A, the lateral incisor B, and so on, with the second being labeled E.

**International Numbering System**

The **International Numbering System** (Federation Dentaire Internationale) assigns each primary and permanent tooth a two-digit number. The first digit signifies the quadrant of the tooth and the second signifies which tooth in the quadrant. In the permanent dentition, each tooth in a quadrant is numbered 1 through 8, starting with the tooth closest to the midline. For example, tooth 13 is the maxillary right canine, and tooth 33 is the mandibular left canine. In the primary dentition, each tooth in a quadrant is numbered 1 through 5, starting with the tooth closest to the midline (the central incisor) as number 1 and ending with the second molar as tooth number 5. The quadrants in the International Numbering System are labeled as follows:

1. **Permanente dentition, maxillary right**
2. **Permanente dentition, maxillary left**
3. **Permanente dentition, mandibular left**
4. **Permanente dentition, mandibular right**
5. **Primary dentition, maxillary right**
6. **Primary dentition, maxillary left**
7. **Primary dentition, mandibular left**
8. **Primary dentition, mandibular right**

Note that the quadrants in the permanent dentition are assigned numbers 1 through 4 and the quadrants in the primary dentition are assigned numbers 5 through 8. The numbers in the range 11–48 are permanent teeth, and numbers in the range 51–85 represent primary teeth. For example, a tooth with the number 51 represents a primary tooth in the maxillary right quadrant (5) and a central incisor (1). If this system seems confusing, consult Table 4-1, which shows all three numbering systems.

It is important to note how the international system requires that teeth numbers be spoken. In the Universal System, tooth 17 is said as “tooth seventeen.” The International System requires that tooth 17 is said as “tooth one-seven.” That is, each digit is pronounced individually and not as part of a double-digit number. This is important to remember because tooth one-seven (maxillary right second molar) is a different tooth from tooth seventeen (maxillary left second molar).

The remainder of this chapter and this textbook will use the Universal Numbering System.

**TOOTH SURFACES**

Not only are individual teeth uniquely identified, but the surfaces of each tooth are also uniquely identified. When a patient receives treatment for a tooth, such as a restoration (filling), there are particular surfaces of the tooth that the dentist restores. To accurately and proficiently record the treatment, knowledge of both the tooth numbers and surfaces is necessary for the dental administrative assistant.

Each tooth in both the adult dentition and primary dentition has five surfaces. The surfaces each have a name, which are as follows:

1. Facial or labial (vestibular or buccal)
2. Lingual
3. Incisal (occlusal)
4. Mesial
5. Distal
**TABLE 4-1 Tooth Numbering Systems**

<table>
<thead>
<tr>
<th>Tooth Name</th>
<th>Universal System</th>
<th>FDI System</th>
<th>Palmer System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Right</td>
<td>Left</td>
<td>Right</td>
</tr>
<tr>
<td><strong>Permanent dentition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maxillary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central incisor</td>
<td>8</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Lateral incisor</td>
<td>7</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Canine</td>
<td>6</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>First premolar</td>
<td>5</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Second premolar</td>
<td>4</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>First molar</td>
<td>3</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Second molar</td>
<td>2</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Third molar (wisdom tooth)</td>
<td>1</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td><strong>Mandibular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central incisor</td>
<td>25</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td>Lateral incisor</td>
<td>26</td>
<td>23</td>
<td>42</td>
</tr>
<tr>
<td>Canine</td>
<td>27</td>
<td>22</td>
<td>43</td>
</tr>
<tr>
<td>First premolar</td>
<td>28</td>
<td>21</td>
<td>44</td>
</tr>
<tr>
<td>Second premolar</td>
<td>29</td>
<td>10</td>
<td>45</td>
</tr>
<tr>
<td>First molar</td>
<td>30</td>
<td>19</td>
<td>46</td>
</tr>
<tr>
<td>Second molar</td>
<td>31</td>
<td>18</td>
<td>47</td>
</tr>
<tr>
<td>Third molar (wisdom tooth)</td>
<td>32</td>
<td>18</td>
<td>48</td>
</tr>
<tr>
<td><strong>Primary dentition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maxillary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Incisor</td>
<td>E</td>
<td>F</td>
<td>51</td>
</tr>
<tr>
<td>Lateral Incisor</td>
<td>D</td>
<td>G</td>
<td>52</td>
</tr>
<tr>
<td>Canine</td>
<td>C</td>
<td>H</td>
<td>53</td>
</tr>
<tr>
<td>First molar</td>
<td>B</td>
<td>I</td>
<td>54</td>
</tr>
<tr>
<td>Second molar</td>
<td>A</td>
<td>J</td>
<td>55</td>
</tr>
<tr>
<td><strong>Mandibular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Incisor</td>
<td>P</td>
<td>O</td>
<td>81</td>
</tr>
<tr>
<td>Lateral Incisor</td>
<td>Q</td>
<td>N</td>
<td>82</td>
</tr>
<tr>
<td>Canine</td>
<td>R</td>
<td>M</td>
<td>83</td>
</tr>
<tr>
<td>First molar</td>
<td>S</td>
<td>L</td>
<td>84</td>
</tr>
<tr>
<td>Second molar</td>
<td>T</td>
<td>K</td>
<td>85</td>
</tr>
</tbody>
</table>

FDI, Federation Dentaire Internationale.
The names in parentheses in this list are the ones used specifically for posterior teeth. Some of the surfaces are so named as a result of their relation to other structures in the oral cavity and the direction that the surface faces. As we review each surface, this explanation will become clear. Each of the surfaces is given an abbreviation to represent the surface. The reason for this is for conciseness in charting and in correspondence with external agencies, such as insurance companies and other dental offices. For example, if a patient requires a restoration on the maxillary right first molar on the mesial, occlusal, and lingual surfaces of the tooth, this would be recorded in the chart as 3 MOL. As a dental administrative assistant, you must be able to recognize and properly interpret this abbreviation. When a restoration such as the one in our example is charted, the letters of each surface are pronounced separately; for example, 3 MOL is pronounced “three, M – O – L.” The following are definitions of each surface name to assist you in understanding where the surfaces exist on each tooth:

- **Facial (labial or buccal):** On anterior teeth, the names facial and labial are used. The facial surface is that surface of the tooth closest to the face; the labial surface is named in reference to the surface that is closest to the lip. It is referred to as the front of the tooth on an anterior tooth. On a posterior tooth, the name buccal is used to refer to the surface that is closest to the cheek.
- **Lingual:** The lingual surface of the tooth is the surface closest to the tongue.
- **Incisal (occlusal):** On an anterior tooth, the main biting or chewing surface is referred to as the incisal edge. On a posterior tooth, the main chewing surface is referred to as the occlusal surface.
- **Mesial:** The mesial surface is the surface of the tooth that is toward the midline.
- **Distal:** The distal surface of the tooth is the surface furthest away from the midline.

If you imagine a box with a closed top, you can count the four sides of the box and include the top as a fifth side, the bottom of the box would represent the roots. Now imagine a molar in place of the box, and you can see how there are five sides to a tooth. Figure 4-5 provides examples of the surfaces found on a molar. Anterior teeth, although thin and shaped differently from posterior teeth, also have five sides,
with the sides being much thinner. If you picture a rectangular box standing on end and replace this image with an incisor or a canine, you can see how these teeth also have five sides. Figure 4-6 shows the surfaces of teeth in reference to the above definitions. As you review the diagram, go over the surface definitions again to reinforce your understanding.

DENTAL CHARTING

As a dental administrative assistant, you should be able to read and interpret the dental chart and the charting notations that the dental assistant, hygienist, or dentist records in the patient’s chart. To accurately charge for services rendered and maintain a correct dental report of the patient’s treatment, it is critical to pay particular attention to the methods of treatment recording in the dental office. Each dental office may be different in the methods chosen for recording. That is, one dental office

FIGURE 4-6  Tooth surfaces. Reprinted with permission from Woelfel JB, Scheid RC. Dental anatomy: its relevance to dentistry. 6th ed. Baltimore, MD: Lippincott Williams & Wilkins, 2002: p. 84, Fig. 3-3.
may use the Universal Numbering System for tooth identification, another may use the International Numbering System, and still another may use the Palmer Notation System. Unfortunately, tooth numbering systems are not something that can be learned over night, and, as such, efforts must be made to differentiate among them.

It is important for the dental administrative assistant to know that a patient’s tooth has been extracted or that a fixed bridge has been placed in a patient’s dentition. For example, if a representative from a patient’s insurance company were to contact the dental office and ask when the patient had a tooth extracted, you must
be able to find the information in the patient’s clinical chart and confirm the information with the notes recorded on the day of the extraction. Figure 4-7 is an example of an anatomical chart with charting examples, and Figure 4-8 is an example of a geometric chart with charting examples. The purpose of this section is to familiarize you with another area of the patient chart. The accurate charting of the patient treatment is the responsibility of the dental assistant, who is thoroughly trained and highly skilled in this area. As we progress through the textbook, you will be introduced to other areas of the patient chart, which will help weave all the information together.

**FIGURE 4-8** Geometric chart. Reprinted with permission from Wilkins EM. Clinical practice of the dental hygienist. 9th ed. Baltimore, MD: Lippincott Williams & Wilkins, 2005: p. 101, Fig. 6-4.
The anatomical chart is named in reference to the way the teeth are represented on the chart. They are shown in a very lifelike representation, from the grooves in the occlusal and incisal surfaces to the number and shape of the roots of the teeth. The geometric chart is named in reference to the shape of the geometric shape used to represent each tooth and the five surfaces. Note the detail provided by the anatomical chart.

Chapter Summary

This chapter focuses on dental terminology that you must be most familiar with as you embark on your career in the dental profession. Specifically, this chapter provides an introduction to the morphology of the tooth, the numbering systems of teeth that may be encountered in the dental office, as well as a brief introduction to the patient’s clinical chart. Without a basic clinical introduction to the practice of dentistry through terminology, reading and interpreting treatment rendered and completing billing procedures would be a frustrating task.
Review Questions

Multiple Choice

1. The root of the tooth is
   a. the portion of tooth that lies above the gumline.
   b. the anchor of the tooth.
   c. the portion of the tooth that lies below the gumline.
   d. the most important part of the tooth.

2. Tooth number 15 in the Universal Numbering System is the
   a. maxillary right second premolar.
   b. maxillary right second molar.
   c. maxillary left first molar.
   d. maxillary left second molar.

3. Tooth number 28 in the International Numbering System is the
   a. mandibular left third molar.
   b. maxillary left third molar.
   c. mandibular right third molar.
   d. maxillary right third molar.

4. The mesial surface on a posterior tooth is the surface of the tooth that is
   a. furthest from the midline.
   b. closest to the midline.
   c. on the chewing surface.
   d. toward the cheek.

5. The following are functions of premolars except
   a. chewing food.
   b. assisting the molars in cutting food.
   c. supporting the corners of the mouth.
   d. keeping the cheeks from sagging.

6. The imaginary line used to separate the right and left sides of the dental arches is called the
   a. quadrant.
   b. midline.
   c. dental arch.
   d. maxillary.

7. The lower arch is termed the
   a. maxillary.
   b. mandibular.
   c. dentition.
   d. quadrant.

8. The dentinal tubules transmit pain stimuli and provide nourishment to the tooth.
   a. true
   b. false

9. The main biting or chewing surface on a posterior tooth is termed the
   a. incisal edge
   b. occlusal surface
   c. labial surface
   d. mesial surface

10. The hard, outer tissue that covers the crown of the tooth is termed the
    a. crown
    b. enamel
    c. dentin
    d. pulp

Critical Thinking

1. What is the difference between the anatomical crown and the clinical crown of a tooth?

2. How are the different shades of teeth explained?

3. How would you relieve the anxiety of a patient who is concerned with her son’s permanent dentition not erupting when the guidelines say it should?

4. What is the purpose of understanding and interpreting clinical charts in the administrative area of the dental office?

Hands-On Activity

1. For the following teeth: 8, 16, 20, 27, describe (1) where the tooth is located; (2) name the surfaces of the tooth; and (3) provide the name of the tooth.

2. Develop a patient handout that describes the types of teeth found in the permanent dentition and the purpose of each one.

References
