# Chapter 19: Definitions and Descriptions

## Objectives

Upon completion of this chapter, readers will be able to do the following:

1. Differentiate between technical definitions and technical descriptions by identifying their unique characteristics, such as length and function within a document.
2. Create effective technical definitions by selecting appropriate details, choosing the right length for your audience, and placing them correctly within a document.
3. Organize technical descriptions using the most appropriate strategy—chronological, spatial, or general-to-specific—based on the subject you’re documenting, whether it’s a process, object, or system.
4. Avoid common problems in technical definitions, such as circular or synonymous language, ensuring your content is appropriate for your audience.

## Technical Definitions

When you think of the word "definition," what comes to mind? If you're like most people, you think of a dictionary's contents. What, then, does a dictionary definition contain?

Typically, dictionary definitions include a word's

1. Standard spelling
2. Syllable breaks
3. Pronunciation
4. Part of speech
5. Meaning
6. Current and archaic usage
7. Etymology
8. Synonyms/antonyms
9. Variant spellings
10. Variants including suffixes

If you've used a dictionary before, then none of these items should surprise you. Not all dictionaries are the same, though. While all dictionaries contain lists of words, their contents can be markedly different. A children's dictionary, for example, is much simpler and shorter than a "collegiate" dictionary, which is shorter and simpler than an unabridged dictionary, which pales in comparison to the Oxford English Dictionary, a two-volume monster that comes with a reinforced bookstand and its own magnifying glass.

All these different dictionaries share several characteristics, though, which are characteristics of any technical definition:

1. Their authors focus on a particular audience.
2. Their contents describe the object of attention.
3. Their contents clarify ambiguity.
4. their readers can use the contents to communicate across expertise levels; and
5. their readers can use the contents to solve problems.

At least one of these ideas should sound familiar. For example, focusing on a particular audience...that may have been mentioned before in this very class.

As far as the other four elements go, the temptation is to say, "Well, yeah, of course. That's what a definition does." The trick, though, is to include the right information, structure it the right way, and build a good definition. That's what we'll talk about next.

A technical definition should explain what a thing is. But what does "explain what a thing is" actually mean? How long does the explanation have to be? And where does the explanation go?

The answers to these questions depend on the characteristics listed above and the noun (person, place, thing, idea, or process) you're defining, and we see the answers expressed in terms of content, length, and placement.

### Descriptors

Let's talk descriptors that can be used in writing a definition. Here's a partial list of possible items you can use to define a noun:

* physical characteristics (a thing's color, shape, size, material, smell, taste, texture, and so on)
* uses
* functions
* operation (how it works, but not how to work it--that's what goes in instructions)
* effects
* origins
* analogies ("It tastes like chicken," for example)
* specific examples
* pictures
* diagrams

Choose appropriate descriptors based on the situation at hand.

### Details

The kind of detail you'd include in a technical definition will vary. As with everything you write, you should consider your audience’s needs very carefully. Who is your audience? What is the audience like? What kind of language would you use? What medium would the audience respond to best? What kind of words will the audience respond to best? In short, analyze your audience carefully and tailor the content to that audience.

For example, try defining the special steel used in the crumple zone of a car's frame. (A crumple zone is an area of a car that's designed to get squished in a crash and absorb all the kinetic energy, thereby making the passengers safer.)

Define the steel in this part of the car for three different audiences: you, a car manufacturer, and a car buyer.

For you, if I defined the steel as *boron-doped high-austenite steel that undergoes a martensitic transformation in a crash*, that might mean nothing because the information is too detailed. However, if I defined the steel in a modern car's crumple zone as *relatively soft steel that suddenly stiffens up when it's put under stress*, then you'd probably understand just fine.

For a modern car manufacturer, though, neither of those definitions would be detailed enough. The manufacturer needs to know specifics about how much boron went into the steel, how ductile (bendable) the steel is, how much stress the steel can take before it stiffens or breaks, and how quickly the steel stiffens when it's put under stress. For this audience, write a highly detailed, highly technical definition.

A car buyer, on the other hand, may not care what kind of steel goes into a car's crumple zone. A car buyer does want to know is if the car's National Highway Traffic Safety Administration (NHTSA) crash test ratings are good.

Consider the object, process, or thing you’re documenting. Some nouns don’t need certain descriptors.

As an illustration of necessary details for a particular subject, let's consider the same example again: the steel used in a car's crumple zone.

High-austenite steel is relatively ductile; its manufacturing process includes cold rolling, annealing, and quenching; and car manufacturers use high-austenite steel in crumple zones because this steel gets harder and stiffer under pressure, thus protecting drivers.

All these properties make sense when we're talking about metal. In contrast, saying that a certain piece of high-austenite steel has a mottled gray appearance, makes a clang in the key of C-sharp, or tastes like chocolate chip cookies probably isn't relevant to anybody.

### Length

As we've already mentioned, the audience's need for information dictates the amount of information to provide. If the audience both needs and wants more information, write in a super-detailed manner. On the other hand, if the audience only needs or wants the basics, keep the definition short and only include necessary information.

As an illustration of length, let's consider a dictionary definition.

A person who consults the Oxford English Dictionary (OED) most likely wants detailed information about the ways a word has been used over centuries. Accordingly, the OED definition should be long and full of examples.

In contrast, a middle-school student looking up how to pronounce or define a word doesn’t want to read about the word’s etymology and usage, just basic information.

### Placement

The audience's need for information and the type of information you're defining will also drive where you place definitions. Four major options for placing definitions include

* independent sentences
* dependent clauses
* parenthetical asides
* separate sections

If you're using relatively simple terms and have a knowledgeable audience, use simple, short definitions that fit within an ordinary sentence. If the definition is a bit more complex and/or your audience needs a bit more information, use a parenthetical statement. If you're defining complicated or detailed information, even to a knowledgeable audience, insert full paragraphs or subsections.

Depending on the nature of the document that contains a definition, you'll refer readers to entire sections, such as footnotes, a glossary in the back of a textbook, or appendices at the end of formal proposals and reports (*hint, hint* on this last part).

In a separate sentence: *Peanut butter is a paste made from ground peanuts.*

In a dependent clause: *Jim's Steakhouse uses wide-mouth Mason jars, like those used for preserving homemade jam, as water glasses.*

In a parenthetical statement: *Siamese cats—easily identifiable by their blue eyes, triangular-shaped heads, incessant yowling, and self-entitled attitudes—come from Southeast Asia.*

### Problems

When you write technical definitions, pay special attention to avoiding these three problems:

* audience-inappropriate content/language
* circular definitions
* synonymous definitions

#### Audience-Inappropriate Material

Analyze your audience and give them what they need, in a way they can understand it.

#### Circular Definitions

Some bad definitions depend on the reader already knowing what the defined thing is/does.

Here's an example:

Super chlorination is a swimming pool chemistry technique that enables operators to achieve breakpoint chlorination.

What is breakpoint chlorination?

\*sigh\*

#### Synonymous Definitions

Other bad definitions substitute one synonym for another. Here's an example:

Chloramines are another name for combined chlorine.

What is combined chlorine?

Here's a revised version:

Chloramines are molecules of free chlorine (the chemically active form of chlorine that sanitizes, oxidizes, and disinfects pool water) that met an organic substance, chemically bonded to the organic substance, became chemically neutral, and began to give off a foul odor.

## Technical Descriptions

Technical descriptions are like technical definitions. Technical descriptions can be stand-alone documents, whereas technical definitions are always components of a larger document. Furthermore, technical descriptions

* are usually longer than technical definitions,
* contain more detail,
* focus on functionality,
* often describe complicated subjects with multiple parts, and
* contain technical definitions.

Since technical descriptions are longer and more detailed than technical definitions, descriptions contain two major sections: introductions and body sections.

### Introduction

The contents of a technical description's introduction are similar to the contents of a formal letter. In the first paragraph, you need to

* identify the thing to be described
* provide some basic background information (purpose of writing, context of writing)
* give a brief overview of the thing to be described (what is it like, what is its purpose)
* preview the rest of the document

### Body

After the Introduction, a technical description's content will vary, depending on your audience and the thing being described. Any technical description's body paragraphs will have some common themes.

### Background

The body paragraphs provide more detailed background information. Just as a formal letter’s body contains subject details, a technical description’s body contains background details. Tailor the content to your audience and subject.

### Parts/Characteristics

The body paragraphs also include details about the various parts that make up the thing being described. If the thing is a physical object, list and describe the various parts that make up the whole. If the thing is a place, what makes it different from or like other places? If the thing is a process, what are its necessary conditions and its various stages/steps?

### Visuals

A technical description's body can also include visual materials (and, conceivably, audio materials if the description is multimedia) These can be (i.e., pictures, tables, diagrams, charts, graphs).

### Specifications

In technical writing, the word **"specifications"** has two common meanings:

1. **Technical Specifications**: A list—often in table format—of critical technical details about a product, component, or system. These specs are part of a **technical definition** and are frequently used in **technical descriptions**, such as data sheets or product documentation.
2. **Visual Specifications (with Callouts)**: These are annotated images that show a product or part with **callouts**—lines or arrows with labels—to identify key components. This type of specification is often used alongside descriptions to provide readers with a clear, visual breakdown of how something is structured.

⚠️ **Important Clarification**: **Specifications ≠ Descriptions**

Specifications are often part of a description but cannot function as complete explanations on their own.

Why This Distinction Matters

Let’s put this in context:

You’ve just bought the newest AI-integrated SmartHome entertainment hub—top-tier, voice-activated, syncs with your AR glasses, and can adjust your lighting, music, and TV settings based on your mood.

You unbox it and find just one document inside: a diagram of the remote with lines pointing to buttons. One is labeled "Adaptive Mode."

But…

* What does *Adaptive Mode* do?
* Does it adjust screen brightness? Volume? Suggest movies?
* What happens if you press it twice?
* Does it learn from your preferences or reset every time?
* Is it compatible with other devices?

Without a **description**—a narrative that defines what the feature does and how it behaves—those specifications are nearly useless. You’re left guessing what will happen when you press that button, and that’s frustrating (especially if it overrides your saved settings or accidentally cancels your VR cinema night).

### Takeaway for Writers and Designers

As a technical communicator, remember:

* **Specifications (tables or callout diagrams) are critical for clarity.**
* **Descriptions explain how things work, behave, or interact over time.**
* Readers—especially users working across digital and physical environments—need *both* to fully understand and confidently use a product.

Whether you're documenting a smart appliance, a software interface, or an industrial tool, provide your reader stuck with detailed information that tells them **what it does**, **when to use it**, and **what to expect**.

#### Food for Thought

**🧠 Activity: What Does This Button Do?**

**Objective:** Help technical writing students understand the importance of both **visual specifications** (with callouts) and **written descriptions** in technical documentation.

Step 1: Choose a Device or App

Select a common device, app, or interface you use daily. Examples:

* A smart TV remote
* A video game controller
* A smartwatch screen
* A fitness app dashboard
* A social media “Reels” editor
* A self-checkout screen at a grocery store

Step 2: Create a Visual Specification

Take or find an image of the interface and **annotate it with callouts** labeling key features (e.g., buttons, toggles, sliders, icons). This part mirrors a **visual specification.**

Step 3: Write a Description

Then, for one of the labeled parts (e.g., a button labeled “Auto Mode”), write a **short technical description** that answers:

* What does this do?
* When should the user press it?
* What happens after it’s pressed?
* Are there limitations or conditions?

### 🧑‍🏫 Example for Class Discussion

**Visual Specification:** A diagram of a modern **smart thermostat** interface with the following callouts:

* "Mode" button
* "Schedule" icon
* "Fan" toggle
* "Eco" symbol
* Temperature up/down buttons

**Written Description Example (for "Eco" symbol):**

**Eco Mode:** The Eco symbol enables energy-saving settings that automatically adjust heating and cooling targets to reduce power consumption. When active, your system may allow a broader temperature range than usual (e.g., 67–78°F instead of 70–74°F). This mode is ideal when you're away or trying to reduce utility costs. It can be disabled anytime via the “Mode” button. Eco Mode also affects the fan schedule, potentially limiting air circulation.

Do you like these thought exercises? Try this.

You are designing a new **voice-activated smart appliance**. Create a labeled visual (mockup or sketch is fine), then write a description for one mysterious feature (e.g., a button called “ZenShift” or a light called “PulseTrack”). Make sure your description helps users *understand what it does, when to use it, and what happens next.*

### Organization

Long technical definitions need their own organization strategies, just as any piece of writing does, but technical descriptions usually rely on one of three organization schemes:

* general-to-specific
* spatial
* chronological

Your choice of an organization strategy will depend on the kind of thing you're describing. In general, you'll always want to go from general to specific, for you need to begin by defining the thing and then proceed by breaking it down thematically. What that theme is, though, depends on the nature of the thing being described.

#### General-to-Specific

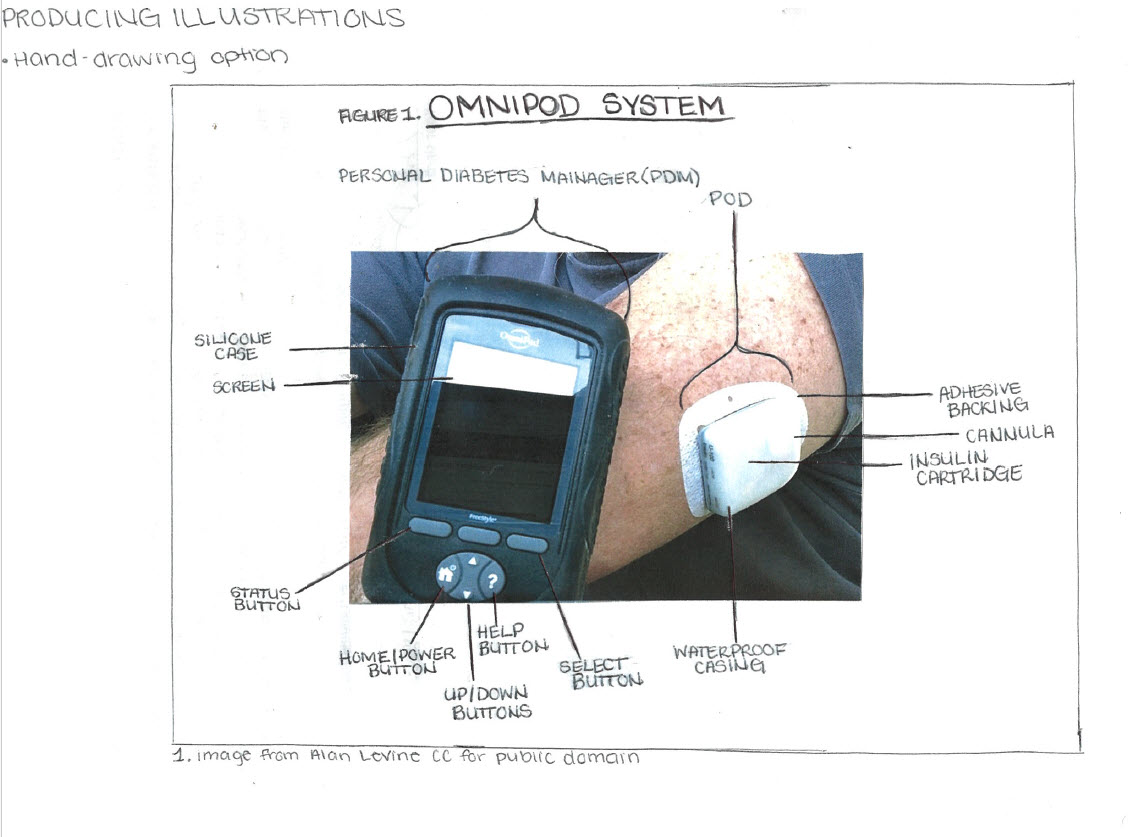
For example, let's say you're documenting a bicycle. Simply naming pieces would not provide context.

Okay...here's the front wheel, and here's the seat, and here's the handlebars...ooh! My favorite part, the chain guard!

A logical scheme might be to begin with major systems—frame, wheels, gears, brakes—and then describe how the systems work together or go into more detail about the parts that compose each of these systems.

#### Spatial

What about describing the construction of an Omnipod Personal Diabetes Manager (PDM) System? You'd likely want to describe how the parts fit together, so a spatial organization scheme would make sense, complete with a diagram of the parts.



*Description of the Omnipod System. Created by Michelle Smith-Biggs. Used with permission.*

#### Chronological

But what about describing a process, like smelting iron? Giving a tour of the factory wouldn't make much sense, would it?

Here's the blast furnace, and over here is the rock crusher. And then on this side, we've got the mold-making shop and a pile of spare wheelbarrow tires.

No... you’d want to proceed chronologically, step-by-step, through the process.

First, dump trucks haul in raw ore and pour it into this bin. Then we use a bucket loader to transfer the ore into this machine, where we pulverize it. Then we load the crushed ore into these crucibles and roast the ore until the iron melts out. From that point, we...

You get the idea.

As you can see, creating definitions and descriptions begins with careful thought as to audience, purpose, and context, like all technical communication.

## Attribution

This chapter is revised from the first edition of *Open Technical Communication*, Chapter 2.14: “[Technical Definitions and Descriptions](https://alg.manifoldapp.org/read/open-technical-communication/section/0e32dfec-aaa1-4e98-ae0f-31ba85423f11)” by Jonathan Arnett, which is openly available under a Creative Commons Attribution license.

## AI Assistance Notice

Some parts of this chapter were brainstormed, drafted, and/or revised in conversation with ChatGPT 4o and Google Gemini 2.5 Flash. All AI-generated content was reviewed and revised as needed by a human author.