

11

Definitions

CHAPTER OUTLINE

LET'S GET STARTED:

Definitions 206

Audience and Purpose
of Definitions 207

Legal, Ethical, and Societal
Implications of Definitions 208

Types of Definitions 209

Methods for Expanding
Definitions 210

Using Multiple Expansion
Methods 214

Placement of Definitions 216

STRATEGIES for Definitions 217

CHECKLIST for Definitions 218

Applications 218

LEARNING OBJECTIVES FOR THIS CHAPTER

- Research and write clear definitions
- Understand the legal, ethical, and societal implications of definitions
- Use the three types of definitions
- Use various methods to expand a definition, as the situation requires
- Place definitions in your document



LET'S GET STARTED

Definitions

MyWritingLab™

In your college major, you become familiar with technical or specialized terms that don't mean much to people outside the field. Think about a group of readers who don't know much about what you are studying. Without reading this chapter, make a list of five specialized terms or phrases used in your major, and write definitions of these terms or phrases that would be understandable to the readers you have selected. (Do not consult dictionaries or other sources in preparing these definitions.)

Questions to ask about the definitions you wrote as you review the material in this chapter:

- ▶ Do the definitions all answer the question “What is it?” or “What does it entail?” in a way that will make sense for these readers?
- ▶ Do the definitions use metaphors, references to history, or other devices that will make it easy for these readers to understand?
- ▶ Would the definitions benefit from the use of visuals?

At the end of this chapter, read through the definitions you wrote for this Let's Get Started exercise. Compare what you wrote to some of the types of definitions described in this chapter. Share your definitions with a student in class who is not in your major field of study. Revise your definitions based on what your student reader tells you and what you learned in this chapter.

Meaning and
importance of
definitions

Definitions explain terms or concepts that are specialized and may be unfamiliar to people who don't have expertise in a particular field. In many cases, a term may have more than one meaning or different meanings in different fields. Consider a word such as *atmosphere*: To a meteorologist, it would refer to the envelope of gases that surrounds a planet (“the Earth's atmosphere”); to a politician or office manager it would typically mean the mood of the country or the workplace (“an atmosphere of high hopes”); to a geologist it would have to do with the weather conditions in a

particular area (“the atmosphere of the Hawaiian forests is lush and volcanic”); to a physicist it would stand for a unit of pressure (“a standard atmosphere is 101,325 pascal”); and to a novelist it would be associated with the mood of a novel (“a gothic atmosphere”).

As you can see, precision is important, especially in specialized fields, in which field-specific terminology is common and undefined terms may prevent the overall meaning of a technical document from making sense. Engineers talk about *elasticity* or *ductility*; bankers discuss *amortization* or *fiduciary relationships*. In a technical document, these terms must be defined if people both inside and outside of those fields are to understand the meaning of the document as a whole. Imagine if a doctor continually used the words *myocardial infarction* in a patient brochure without ever defining the term. The fact that a myocardial infarction is the medical name for one form of *heart attack* would be lost on patients who might benefit from a clear understanding of the brochure.

AUDIENCE AND PURPOSE OF DEFINITIONS

Definitions make a document usable for an audience by answering one of two questions: “What, exactly, does it entail?” or “What, exactly, is it?” The first question spells out for audience members how they are affected by the item defined. For example, a person buying a new computer needs to understand exactly what “manufacturer’s guarantee” or “expandable memory” means in the context of that purchase. The second question spells out for your audience what makes an item, concept, or process unique. For example, an engineering student needs to understand the distinction between *elasticity* and *ductility*. Inside or outside any field, people have to grasp precisely what “makes a thing what it is and distinguishes that thing from all other things” (Corbett 38).

Audience
considerations

Consider the purpose of using particular terms in your document by answering the question “Why does my audience need to know it?” The level of technicality you use must match the audience’s background and experience. For a group of mechanical engineering students, your definition of a *solenoid*, for example, can be brief and to the point, and you can use highly technical language:

Purpose
considerations

A solenoid is an inductance coil that serves as a tractive electromagnet.

A highly technical
version

For general audiences, your definition will require language they can understand:

A solenoid is a metal coil that converts electrical energy to magnetic energy capable of performing mechanical functions.

A nontechnical
version

Unless you are certain that your audience can grasp the exact meaning, always define a term the first time you use it.

LEGAL, ETHICAL, AND SOCIETAL IMPLICATIONS OF DEFINITIONS

Definitions have legal implications

Precise definition is essential because you (or the organization, if you write a technical document on its behalf) are legally responsible for that document. The more clear and precise your definitions, the more confident both you and your readers can be that they share a mutual understanding of the document's meaning. For example, contracts are detailed (and legally binding) definitions of the specific terms of an agreement. If you lease an apartment or a car, the printed contract will define both the *lessee's* and *lessor's* specific responsibilities. Likewise, an employment contract or employee handbook will spell out responsibilities for both employer and employee. In preparing an employee handbook for your company, you would need to define such terms as *acceptable job performance*, *confidentiality*, *sexual harassment*, and *equal opportunity*.

Definitions have ethical implications

Definitions have ethical requirements, too. For example, the term *acceptable risk* had an ethical impact on January 28, 1986, when the space shuttle *Challenger* exploded 73 seconds after launch, killing all seven crew members aboard. (Two rubber O-ring seals in a booster rocket had failed, allowing hot exhaust gases to escape and igniting the adjacent fuel tank.) Hours earlier—despite vehement objections from the engineers—management had decided that going ahead with the launch was a risk worth taking, under the understood meaning of *acceptable risk*. This definition of *acceptable risk* was based not on the engineering facts but rather on bureaucratic pressure to launch on schedule. In this case, a faulty definition not only was ethically questionable but also cost lives. Agreeing on meaning in such cases rarely is easy, but you are ethically bound to convey an accurate interpretation of the facts as you understand them.

Definitions have societal implications

Clear and accurate definitions help the public understand and evaluate complex technical and social issues. For example, as a first step in understanding the debate over the term *genetic engineering*, we need at least the following basic definition:

Genetic engineering refers to [an experimental] technique through which genes can be isolated in a laboratory, manipulated, and then inserted stably into another organism. Gene insertion can be accomplished mechanically, chemically, or by using biological vectors such as viruses. (Office of Technology Assessment 20)

Of course, to follow the debate, we would need increasingly detailed information (about specific procedures, risks, benefits, and so on). But the above definition gets us started on the course to a healthy debate by enabling us to visualize the basic concept and mutually agree on the basic meaning of the term.

TYPES OF DEFINITIONS

Definitions fall into three distinct categories: *parenthetical*, *sentence*, and *expanded* definitions. When you define terms within a document, decide how much detail your audience actually requires in order to grasp your exact meaning: Do you need to quickly define a word in parentheses or in a sentence, or do you need to go into significant detail explaining a complex concept?

Three categories
of definitions

Parenthetical Definitions

Often, you can clarify the meaning of a word by using a more familiar synonym or a clarifying phrase in parentheses immediately after the word. This is known as a parenthetical definition and is used when a definition is relatively simple and doesn't need detailed elaboration, as in these two examples:

When to use
parenthetical
definitions

The *leaching field* (sievelike drainage area) requires crushed stone.
The trees on the site are mostly *deciduous* (shedding foliage at season's end).

Parenthetical
definitions

On a Web page or online help system, parenthetical definitions can be linked to the main word or phrase rather than placed in parentheses after the word. Readers who click on *leaching field*, say, would be taken to a window containing a brief definition.

Sentence Definitions

A slightly longer way to define a phrase is to use the "term-class-features" method to form a sentence definition. Begin by stating the term. Then indicate the broader class to which this item belongs, followed by the features that distinguish it from other items in that general grouping. Use a sentence definition when a concept requires further elaboration than a parenthetical definition could offer. Here are some examples:

When to use
sentence definitions

Term	Class	Features
A carburetor	is a mixing device	in gasoline engines that blends air and fuel into a vapor for combustion within the cylinders.
Diabetes	is a metabolic disease	caused by a disorder of the pituitary gland or pancreas and characterized by excessive urination, persistent thirst, and inability to metabolize sugar.
Stress	is an applied force	that strains or deforms a body.

Sentence definitions
(term-class-features)

The previous elements may be combined into one or more complete sentences:

A complete sentence definition

Diabetes is a metabolic disease caused by a disorder of the pituitary gland or pancreas. This disease is characterized by excessive urination, persistent thirst, and inability to metabolize sugar.

Sentence definitions are especially useful if you plan to use a term frequently and need to establish a working definition that you will not need to repeat throughout the document:

A working definition

Throughout this report, the term *disadvantaged student* will refer to all students who lack adequate funds to pay for on-campus housing, food services, and medical care, but who are able to pay for their coursework and books through scholarships and part-time work.

Expanded Definitions

When to use expanded definitions

Brief definitions such as parenthetical and sentence definitions are fine when your audience requires only a general understanding of a term or when a term is not particularly complex to define. For example, the parenthetical definition of *leaching field* on page 209 might be enough to prevent reader confusion without providing excessive detail, or the above sentence definition of *disadvantaged student* might be enough to get a simple concept across. However, a document that requires more detail (such as a public health report on groundwater contamination from leaching fields) or a highly complex term would call for an expanded definition.

Depending on audience and purpose, an expanded definition may be a short paragraph or may extend to several pages. For example, if a device, such as a digital dosimeter (used for measuring radiation exposure), is being introduced for the first time to an audience that needs to understand how this instrument works, your definition would require at least several paragraphs, if not pages.

METHODS FOR EXPANDING DEFINITIONS

An expanded definition can be created in any number of ways as described below. The method or methods you decide to use will depend on the questions you expect the audience will want answered, as illustrated in Figure 11.1.

As you read through the following sections, refer to the following sentence definition of the word *laser*, and consider how each expansion method provides further detail in a different way:

Sentence definition

A laser is an electronic device that emits a highly concentrated beam of light.

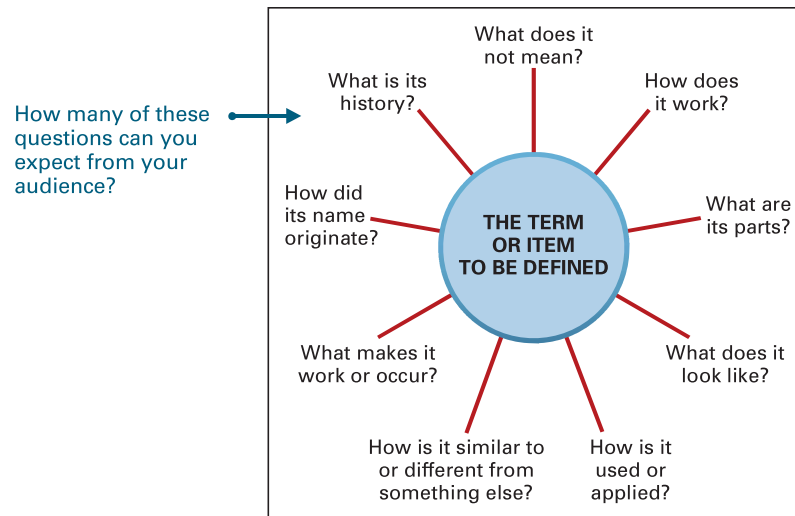


FIGURE 11.1
Questions to
determine the
best expansion
approach

Etymology

Sometimes, a word's origin (its development and changing meanings), also known as the word's etymology, can help clarify its meaning. For example, *biometrics* (the statistical analysis of biological data) is a word derived from the Greek *bio*, meaning life, and *metron*, meaning measure. You can use a dictionary to learn the origins of most words. Not all words develop from Greek, Latin, or other roots, however. For example, some terms are acronyms, derived from the first letters or parts of several words. Such is the case with the word *laser* (derived from *light amplification by stimulated emission of radiation*); therefore, to expand the sentence definition of *laser* on page 210, you might phrase your definition as follows:

"How did its name originate?"

The word *laser* is an acronym for *light amplification by stimulated emission of radiation* and is the name for an electronic device that emits a highly concentrated beam of light.

History

In some cases, the history of a term, concept, or procedure can be useful in expanding a definition. Specialized dictionaries and encyclopedias are good background sources. You might expand the definition of a laser by describing how the laser was invented:

"What is its history?"

The early researchers in fiber optic communications were hampered by two principal difficulties—the lack of a sufficiently intense source of light and the absence of a medium which could transmit this light

free from interference and with a minimum signal loss. Lasers emit a narrow beam of intense light, so their invention in 1960 solved the first problem. The development of a means to convey this signal was longer in coming, but scientists succeeded in developing the first communications-grade optical fiber of almost pure silica glass in 1970. (Stanton 28)

Negation

“What does it not mean?”

Some definitions can be clarified by explaining what the term *does not* mean. For example, the following definition of a laser eliminates any misconceptions an audience might already have about lasers:

A laser is an electronic device that emits a highly concentrated beam of light. It is used for many beneficial purposes (including corrective eye and other surgeries), not—as science fiction might tell you—as a transport medium to other dimensions.

Operating Principle

“How does it work?”

The following example not only defines what a laser is but also shows the operating principle behind it:

Basically, a laser [uses electrical energy to produce] coherent light: light in which all the waves are in phase with each other, making the light hotter and more intense. (Gartaganis 23)

Analysis of Parts

“What are its parts?”

Be sure to list all of the parts to create a complete picture, and, if necessary, define the individual parts as well, as in the following expanded definition of a laser:

A laser is an electronic device that emits a highly concentrated beam of light. To get a better idea of how a laser works, consider its three main parts:

1. [Lasers require] a source of energy, [such as] electric currents or even other lasers.
2. A resonant circuit...contains the lasing medium and has one fully reflecting end and one partially reflecting end. The medium—which can be a solid, liquid, or gas—absorbs the energy and releases it as a stream of photons [electromagnetic particles that emit light]. The photons...vibrate between the fully and partially reflecting ends of the resonant circuit, constantly accumulating energy—that is, they are amplified. After attaining a prescribed level of energy, the photons can

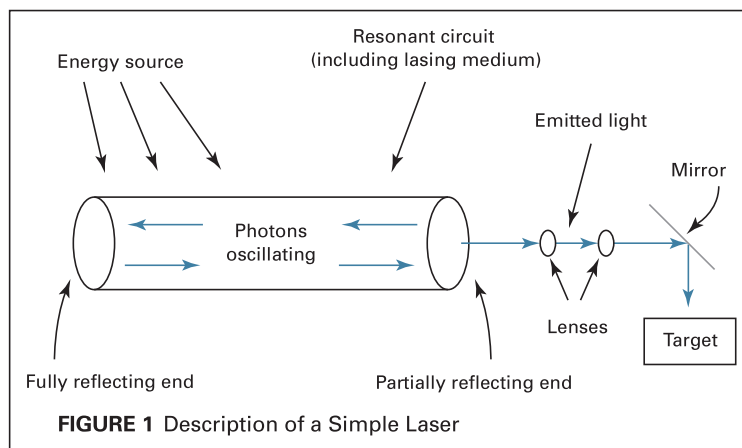
pass through the partially reflecting surface as a beam of coherent light and encounter the optical elements.

3. Optical elements—lenses, prisms, and mirrors—modify size, shape, and other characteristics of the laser beam and direct it to its target. (Gartaganis 23)

Visuals

Make sure any visual you use is well-labeled. Always introduce and explain your visual and place the visual near your discussion. If the visual is borrowed, credit the source. The following visual accompanies the previous analysis of parts:

“What does it look like?”



Source: Gartaganis, Arthur. "Lasers." Occupational Outlook Quarterly.

Comparison and Contrast

By comparing (showing similarities) or contrasting (showing differences) between new information and information your audience already understands, you help build a bridge between what people already know and what they don't. The following example uses both comparison and contrast to expand upon a more basic definition of a laser:

“How is it similar to or different from something else?”

Fiber optics technology results from the superior capacity of light waves to carry a communications signal. Sound waves, radio waves, and light waves can all carry signals; their capacity increases with their frequency. Voice frequencies carried by telephone operate at 1000 cycles per second, or hertz. Television signals transmit at about 50 million hertz. Light waves, however, operate at frequencies in the hundreds of trillions of hertz. (Stanton 28)

Required Conditions

“What makes it work or occur?”

In the following example, additional information on optics adds to the definition of a laser:

In order to emit a highly concentrated beam of light, the laser must absorb energy through the reflecting end of a resonant circuit, amplify the photons produced between the reflecting and partially reflecting end of the resonant circuit, and release the photons as a beam of light via a set of lenses, prisms, and mirrors.

Examples

“How is it used or applied?”

The following expansion using an example shows how laser light is used in medical treatment:

Lasers are increasingly used to treat health problems. Thousands of eye operations involving cataracts and detached retinas are performed every year by ophthalmologists.... Dermatologists treat skin problems.... Gynecologists treat problems of the reproductive system, and neurosurgeons even perform brain surgery—all using lasers transmitted through optical fibers. (Gartaganis 24–25)

USING MULTIPLE EXPANSION METHODS

Use as many expansion methods as needed

Depending on the complexity of what you need to define, you may need to combine multiple expansion methods, as in Figure 11.2.

Like a good essay, this multiparagraph definition is unified and coherent: Each paragraph is developed around one main idea and logically connected to other paragraphs. Transitions emphasize the connection between ideas. The level of technicality connects with the intended audience.

Because this definition deals with a vital community issue, the author uses multiple methods to ensure that readers have a solid basis for understanding the situation: A water reservoir is threatened by chemical seepage and depleted by drought. This definition forms part of the introduction to a report that analyzes the severity of the problems and explores possible solutions.

To understand the problems, readers first need to know what a water table is, how it is formed, what conditions affect its level and quality, and how it figures into town planning decisions. The concepts of *recharge* and *permeability* are vital to understanding the problem, so these terms are defined parenthetically. This audience has no interest in geological or hydrological (study of water resources) theory. Audience members simply need the broadest possible picture.

EXPANDED DEFINITION: WATER TABLE

The water table is the level below the earth's surface at which the ground is saturated with water. Figure 1 shows a typical water table that might be found in the East. Wells driven into such a formation will have a water level identical to that of the water table.

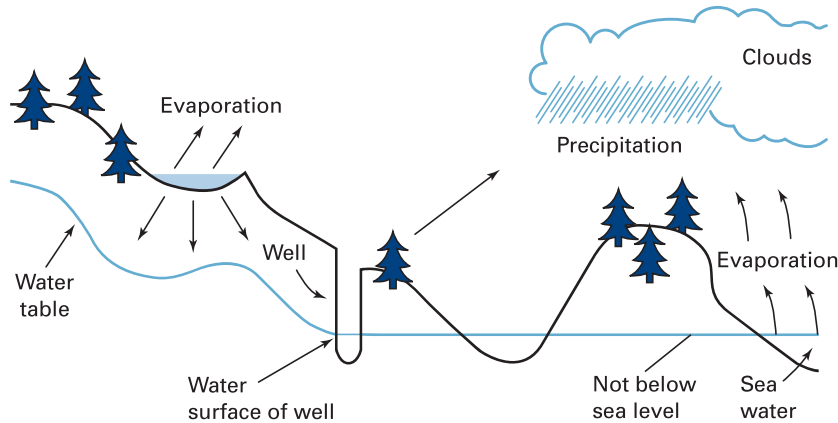


FIGURE 1 A Typical Water Table (Eastern United States)

The world's freshwater supply comes almost entirely as precipitation that originates with the evaporation of sea and lake water. This precipitation falls to earth and follows one of three courses: It may fall directly onto bodies of water, such as rivers or lakes, where it is directly used by humans; it may fall onto land, and either evaporate or run over the ground to the rivers or other bodies of water; or it may fall onto land, be contained, and seep into the earth. The latter precipitation makes up the water table.

Similar in contour to the earth's surface above it, the water table generally has a level that reflects such features as hills and valleys. Where the water table intersects the ground surface, a stream or pond results.

A water table's level, however, will vary, depending on the rate of recharge (replacement of water). The recharge rate is affected by rainfall or soil permeability (the ease with which water flows through the soil). A water table therefore is never static; rather, it is the surface of a body of water striving to maintain a balance between the forces that deplete it and those that replenish it. In areas of Florida and some Western states where the water table is depleted, the earth caves in, leaving sinkholes.

The water table's depth below ground is vital in water resources engineering and planning. It determines an area's suitability for wastewater disposal or a building lot's ability to handle sewage. A high water table could become contaminated by a septic system. Also, bacteria and chemicals seeping into a water table can pollute an entire town's water supply. Another consideration in water table depth is the cost of drilling wells. These conditions obviously affect an industry's or homeowner's decision on where to locate.

The rising and falling of the water table give an indication of the pumping rate's effect on a water supply (drawn from wells) and of the sufficiency of the recharge rate in meeting demand. This kind of information helps water resources planners decide when new sources of water must be made available.

FIGURE 11.2
An expanded definition

← Sentence definition

← Example

← Operating principle

← Comparison

← Operating principle

← Example

← Special conditions and examples

← Special conditions

PLACEMENT OF DEFINITIONS

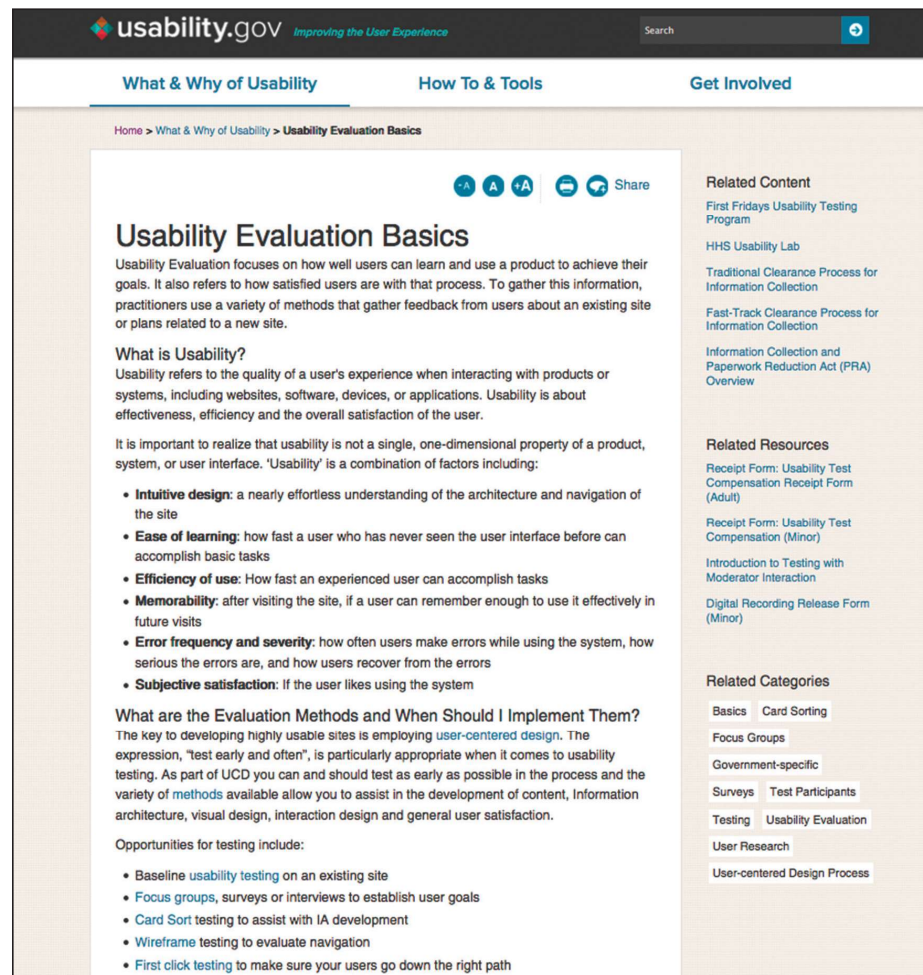
Placing printed definitions

Using hyperlinked definitions

Each time readers encounter an unfamiliar term or concept, that item should be defined in the same area on the page or screen. In a printed text, you can place brief definitions in parentheses or in the document's margin, aligned with the terms being defined. Sentence definitions should be part of the running text. Place an expanded definition either near the beginning of a long document or in an appendix (see page 312)—depending on whether the definition is essential to understanding the whole document or serves merely as a reference.

On a Web site, hyperlinks are a great way to make expanded definitions accessible because readers can click on an item, read about it, and then return to the original page. Figure 11.3 defines usability (“What is Usability?”) and

FIGURE 11.3
A hyperlinked
expanded
definition



Source: UsabilityNet

then provides expanded definitions via links at the bottom of the page (usability testing; focus groups; Card Sort; and so on). The previous Web page provides a thorough definition of “usability,” but the “user-centered designed” material is at a deeper level of detail; rather than disrupting the discussion of “usability,” the hyperlink allows readers to jump to it if they wish.



STRATEGIES for Definitions

- ▶ **Decide on the level of detail you need.** Definitions vary greatly in length and detail, from a few words in parentheses to a multipage document. How much does this audience need in order to follow your explanation or grasp your point?
- ▶ **Classify the item precisely.** The narrower your class, the clearer your meaning. *Stress* is classified as an applied force; to say that stress “is what . . .” or “takes place when . . .” fails to denote a specific classification. Diabetes is precisely classified as a *metabolic disease*, not as a *medical term*.
- ▶ **Differentiate the item accurately.** If the distinguishing features are too broad, they will apply to more than this one item. A definition of *brief* as a “legal document used in court” fails to differentiate briefs from all other legal documents (wills, affidavits, and the like).
- ▶ **Avoid circular definitions.** Do not repeat, as part of the distinguishing feature, the word you are defining. “Stress is an applied force that places stress on a body” is a circular definition.
- ▶ **Expand your definition selectively.** Begin with a sentence definition and select the best expansion strategy or combination of expansion strategies for your audience and purpose.
- ▶ **Use visuals to clarify your meaning.** No matter how clearly you explain, as the saying goes, a picture can be worth a thousand words—even more so when used with readable, accurate writing.
- ▶ **Know “how much is enough.”** Don’t insult people’s intelligence by giving needless details or spelling out the obvious.
- ▶ **Consider the legal implications of your definition.** What does an *unsatisfactory job performance* mean in an evaluation of a company employee: that the employee could be fired, required to attend a training program, or given one or more chances to improve (Performance Appraisal 3–4)? Failure to spell out your meaning invites a lawsuit.
- ▶ **Consider the ethical implications of your definition.** Be sure your definition of a fuzzy or ambiguous term such as *safe levels of exposure*, *conservative investment*, or *acceptable risk* is based on fair and accurate interpretation of the facts.



STRATEGIES *continued*

Consider, for example, a U.S. cigarette company's claim that cigarette smoking in the Czech Republic promoted *fiscal benefits*, defined, in this case, by the fact that smokers die young, thus eliminating pension and health care costs for the elderly!

- **Place your definition in an appropriate location.** Allow readers to access the definition and then return to the main text with as little disruption as possible.
- **Cite your sources, as needed.** See Appendix A.

CHECKLIST
for Definitions

MyWritingLab™

CONTENT

- ☐ Is the type of definition (parenthetical, sentence, expanded) suited to its audience and purpose?
- ☐ Does the definition adequately classify the item?
- ☐ Does the definition adequately differentiate the item?
- ☐ Will the level of technicality connect with the audience?
- ☐ Have I avoided circular definitions?
- ☐ Is the expanded definition developed adequately for its audience?
- ☐ Is the expanded definition free of needless details for its audience?
- ☐ Are visuals used adequately and appropriately?
- ☐ Are all information sources properly documented?
- ☐ Is the definition ethically and legally acceptable?
- ☐ Is the definition appropriately located in the document?



APPLICATIONS

GENERAL APPLICATION

MyWritingLab™

Choose a situation and an audience, and prepare an expanded definition specifically designed for this audience's level of technical understanding. Use at least four expansion strategies, including at least one visual. In preparing your expanded definition, consult no fewer than four outside references. Cite and document each source as shown in Appendix A.

TEAM APPLICATION

Divide into groups by majors or interests. Appoint one person as group manager. Decide on an item, concept, or process that would require an expanded definition for laypersons; some examples follow:

From computer science: an algorithm, binary coding, or systems analysis

From nursing: a pacemaker, coronary bypass surgery, or natural childbirth

Complete an Audience and Purpose Profile (page 46). Once your group has decided on the appropriate expansion strategies, the group manager will assign each member to work on one or two specific strategies as part of the definition. As a group, edit and incorporate the collected material into an expanded definition, revising as often as needed. The group manager will assign one member to present the definition in class.

GLOBAL APPLICATION

MyWritingLab™

Any definition you write may be read by someone who may not speak English as a first language. Locate an expanded definition on Wikipedia that may be difficult for a non-American or non-native English speaker to understand for one reason or another (use of idioms, use of abbreviations, use of American metaphors such as sports metaphors not used in other countries). Explain how the definition could be reworded so that most readers would be able to understand it.

DIGITAL AND SOCIAL MEDIA APPLICATION

MyWritingLab™

If you could convert your expanded definition from the General Application into a Web page or other digital document, which items would be best suited for hyperlinks?

MyWritingLab™

Visit Chapter 11, *Definitions*, in MyWritingLab to complete this chapter's applications, to explore this chapter's overview, checklist, and flashcards, and to test your understanding of the chapter objectives.