for a learning-goal approach to school, a valuing of improvement toward mastery, and a commitment to the effort-based strategies required to attain it—outcomes that will contribute to increased achievement.

In addition, Strategies 1 and 2 act as *enabling strategies* for Strategies 3 and 4: They prepare students to respond effectively to feedback and to engage in accurate self-assessment and productive goal setting. In Strategy 3, the role of feedback is to show students where they are now with respect to where they are headed. If students don't have a clear vision of their destination, feedback does not hold much meaning for them. In the case of Strategy 4, good self-assessment mirrors good feedback; the student is self-diagnosing and self-prescribing. Self-assessment, Black and Wiliam (1998a) note, is an indispensable condition for effective learning (p. 25), which cannot be done well without accurate understanding of the intended learning outcome. While it may be tempting to regard Strategies 1 and 2 as less important than later strategies, they are the foundation on which students develop self-reliant learning capabilities.

Chapter 2 Learning Targets

At the end of Chapter 2, you will know how to do the following:

1. Share different types of learning targets with students so they have a clear vision of the intended learning
   - Convert learning targets into student-friendly language
   - Identify rubrics suited for formative use
   - Convert rubrics to student-friendly language
   - Introduce the concepts of quality represented in a rubric to students
2. Monitor student awareness of the intended learning
3. Use strong and weak examples effectively to deepen conceptual understanding and to make standards of quality clear

Prerequisite: Clear Learning Targets

The term *learning targets* refers to any statement of what students are to know and be able to do as a result of instruction. These statements of intended learning take many forms, such as *content standards*, *Common Core State Standards*, *benchmarks*, or *objectives*. Learning targets range from simple to complex, a feature sometimes called *grain size*. They can be written at the pebble-sized lesson level ("Represent addition on a number line," CCSS Mathematics, 2010b, p. 48), at the rock-sized outcome of a unit

of study ("Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations," CCSS Mathematics, p. 50), or at the boulder-sized culmination of a year's study ("Reason abstractly and quantitatively," CCSS Mathematics, p. 47).

Types of Learning Targets

Learning targets fall into one of four categories: knowledge, reasoning, skill, and product (Chappuis, Stiggins, Chappuis, & Arter, 2012, pp. 44–58).

- Knowledge-level learning targets represent factual knowledge (knowing from memory), procedural knowledge (knowing how to execute a series of steps), and conceptual understanding (being able to explain a concept). Because *knowledge* as defined here includes procedural knowledge and conceptual understanding, we do not consider all knowledge targets to be "low-level."
- Reasoning-level learning targets define thought processes students are to learn to execute, such as *predict*, *infer*, *compare*, *hypothesize*, *critique*, *draw conclusions*, *justify*, and *evaluate*.
- Skill-level targets require a real-time demonstration or physical performance. The *skills* category can be confusing, as we commonly talk about problem-solving skills (a reasoning target), reading skills (also reasoning targets), thinking skills (reasoning targets, again), and so on. This category is not set up to change how you use the word *skills*, but it is the term we use to identify a small set of content standards that have a performance of some type at the heart of the learning. Some subjects have no skill targets as part of their curriculum, and others have quite a few, such as world languages, physical education, and fine and performing arts.
- Product-level targets are just what they sound like: The content standard as written calls for the creation of a product, and the evaluation of learning will be of the qualities of the product. We often have students create products to demonstrate other types of learning targets, in which case what should be evaluated is the intended learning, not the qualities of the product.

Figure 2.1 shows examples of targets classified by type. For a more detailed explanation of target types, see Chapter 3 in *Classroom Assessment for Student Learning* (Chappuis et al., 2012).

Figure 2.1

Examples of Learning Target Types

These examples are drawn from district-level curriculum guides throughout the United States.

Knowledge-level targets	Know that plants and animals need certain resources for energy and growth Comprehend vocabulary Explain the important characteristics of U.S. citizenship
Reasoning-level targets	Use statistical methods to describe, analyze, evaluate, and make decisions Analyze fitness assessments to set personal fitness goals Compare and contrast points of view from an historical event
Skill-level targets	Use simple equipment and tools to gather data Read aloud with fluency and expression Use kinesthetic awareness, concentration, and focus in performing movement skills
Product-level targets	Construct physical models of familiar objects Create a scripted scene based on improvised work Write arguments to support claims

Clear learning targets guide instruction, assignments, formative assessments, and summative assessments. Learning targets determine how we track achievement and, ultimately, how we figure grades. Classifying them prior to instruction offers several benefits. First, it helps us know how to structure the lesson. Second, it clarifies which activities and assignments will best lead to mastery of the target. Third, the type of target determines which assessment method or methods will yield the most accurate achievement data.

For example, let's say you are planning to teach the learning target "Knows how to measure cardiorespiratory fitness." Does this mean "Knows the steps in measuring cardiorespiratory fitness" (a knowledge target) or "Measures own cardiorespiratory fitness accurately" (a skill target)? If you classify it as a knowledge target, you will likely teach the steps and assess whether students know them, which could take the form of a written response test item. If you classify it as a skill target, you will likely teach the steps and provide opportunities for students to practice executing them. Your assessment will be a performance assessment, rather than a written response, as each student demonstrates his or her ability to carry out the steps accurately.

Personal communication can yield accurate information about achievement of knowledge and reasoning targets. With skill targets, when the skill is a communication skill, such as "Converses with a host family in the target language," personal communication is the medium of the performance assessment, so it could be said that personal communication is the method of choice. However with a skill target such as "Performs CPR correctly," talking about it will not yield accurate achievement information. Personal communication is not a good match for product targets.

Deconstructing Complex Content Standards

If you are using complex content standards such as the Common Core State Standards as the basis for your curriculum, you may need to deconstruct the standards to identify the lesson-level learning targets that form the scaffolding for the overall attainment of the content standard. There are several ways to accomplish this deconstruction, but the first step always is to classify the content standard according to target type. Figure 2.2 shows an example with a content standard beginning with the word "Understands." In this case, it is the word "understands" that needs to be clarified and then classified. Figure 2.3 shows a high school biology teacher's deconstruction of content

> "Deconstructing standards is the process of breaking a broad standard, goal, or benchmark into smaller, more explicit learning targets that can be used to guide daily classroom instruction."
>
> *Chappuis, et al., 2012*

Figure 2.2

FAQ: What Kind of a Target Is "Understands"?

When learning targets begin with the word "Understands," such as "Understands the concept of diversity," you and your colleagues must decide how you will define *understands* in your context and at your grade level. Will you ask students to explain the concept of diversity, a knowledge-level target? Or will you ask students to go beyond the knowledge level to do something with the concept? If you choose "go beyond," you will want to specify the pattern(s) of reasoning (compare and contrast? analyze and draw conclusions? evaluate?) you will teach to move conceptual understanding into some form of application.

standards into lesson-level learning targets that guide his instruction. For more information on deconstructing complex content standards, see Chappuis et al. (2012, pp. 60–68).

Figure 2.3

Deconstructing Biology Standards **FOR EXAMPLE**

1. *Describe the structures of viruses and bacteria*

   The word "describe" in this standard is tricky. Do they really want students to *describe* a capsid or flagellum? Or do they want them to identify structures on a diagram (a vastly more probable assessment)? I expect the students to be able to identify basic bacterial and viral structures on a simple diagram. To ensure that the benchmark is covered as completely as possible, they also need to describe the function of several structures as well. As written, this is knowledge/understanding. They should also use this information to compare and contrast the two. (Most students think they are the same thing.)

2. *Recognize that while viruses lack cellular structure, they have genetic material to invade living cells*

   The reading of the content standard is the teaching of it. This standard is, in a peripheral way, addressing the notion of whether or not viruses are alive. While they do not possess every characteristic of life (a requirement to be considered alive by the standard definition), they do have characteristics that are distinctly lifelike (specifically genetic material). Modern science does not have a consensus on this issue, so it lends itself well to having students evaluate the problem and propose a solution. This content standard is knowledge/understanding, but the analysis of the life status of viruses is reasoning.

3. *Relate cell parts/organelles to their function (limited by clarification document to cell membrane, cell wall, chloroplast, Golgi apparatus, mitochondria, nucleus, ribosome, and vacuole)*

   This content standard is knowledge/understanding. It asks students to effectively define a variety of cell structures. Later in the class, students are expected to be able to connect the functions of the organelles to each other and to the processes we learn later on. For now, simple definitions are sufficient.

4. *Compare and contrast plant and animal cells*

   This is the first standard in this unit that explicitly requires reasoning. Primarily, students are expected to list the organelles specific to plants and animals. In some cases, they may be expected to explain why the cells differ (for example: why don't animals have cell walls or why do plants have larger vacuoles?).

Source: Used with permission from Andy Hamilton, West Ottawa Public Schools: Holland, MI. Unpublished classroom materials.

Strategy 1: Provide a Clear and Understandable Vision of the Learning Target.

Once you have identified lesson-level learning targets, there are three basic ways to communicate them to students. The first is to simply share the intended learning for the lesson: "Today we're going to learn how to read decimals to the tenths place and put them in order." The second is to convert the learning target into student-friendly language and then share it: "Today we are working on summarizing, so we'll be learning how to make a brief statement of the main ideas of what we have read." The third is to convert a rubric into student-friendly language and then introduce the concepts of quality represented. Which path you choose depends in large part on the type of learning target you are teaching to (Figure 2.4). For *knowledge* and some *reasoning* targets—those you can assess using selected response or short answer formats—you can create a student-friendly definition. For other *reasoning* targets, as well as *skill* and *product* targets—those you will assess with a performance assessment—you will need to find or create a student-friendly rubric.

Figure 2.4

Making Targets Clear to Students: Three Options

Provide a clear and understandable vision of the learning target.

- Share the learning target "as is"
- Convert the target into language students understand, then share it
- Convert the rubric into student-friendly language, then introduce the concepts represented

Sharing Straightforward Targets "As Is"

When I taught fourth grade, I might have begun a math lesson with this introduction:

> "Okay students, it's time for math. Take out your math books (rustle, rustle), your *math* books. Remember, we've been studying decimals. Turn to page 142 and read the first half of the page. When you have finished, send your table leader up to get your materials because we are going on a decimal hunt."

What did I tell my students? The subject (math), the topic (decimals), the resource (p. 142), and the activity (going on a decimal hunt). What did I not tell them? The *learning target*: "We are learning to read decimals and put them in order." I am sure most of my students didn't spend time inferring the intended learning from the information I provided, so if they had an activity-completion orientation to their work, I caused it or at least enabled it. How hard would it have been for me to share the target as well? And because targets from my lips also are not targets in their heads, I could have had students write the learning target at the top of their papers along with the other heading information we are so careful to insist on. Then as we were engaged in the activity, I could have moved around the room asking individuals, "Why are we going on a decimal hunt?" When they offered answers such as "Because you told us to" or "Because it's for a grade," I could ask them, "What is the intended learning?" By repeating this exercise often, students learn that the answer to why we are doing something has to do with what they are supposed to be mastering.

Sharing targets "as is" as a stand-alone strategy works well for many knowledge targets and for straightforward procedural skill targets, such as "Today we're learning how to prepare microscope slides" or "Today we're learning how to make slip correctly."

Converting Targets to Student-Friendly Language

Converting targets to student-friendly language is especially well suited to reasoning targets. Consider the reading learning target, "Summarizes what is read." Does every student who reads that phrase know what it means to summarize? If the summaries your students write are almost as long as the passage itself, you can be sure they have missed the essence of *summarize*: *brief*. They need to know that *summarize* has two working parts: *brief* and *main*. Actually most students don't miss *brief*, they usually miss *main*. A student-friendly definition might look like this: "I can summarize text. This means that I can make a brief statement of the main ideas or important events in what I read."

Consult Your Curriculum

Consult your own curriculum documents when creating student-friendly definitions to ensure that your interpretations represent the intent of the content standards you are translating.

Here is a process you can use to turn learning targets into statements your students will understand. This process takes a little time, so it's best to remember that not all content standards need

to be translated. For example, "We are learning to use a balance beam to weigh things accurately" will most likely work fine as is.

1. Identify the word(s) and/or phrase(s) needing clarification. Which terms will students struggle with? Imagine stating the target in its original form to your class. Then envision the degree of understanding reflected on faces throughout the room. At which word did they lose meaning?
2. Define the term(s) you have identified. Use a dictionary, your textbook, your state content standards document, or other reference materials specific to your subject. If you are working with a colleague, come to agreement on definitions.
3. Convert the definition(s) into language your students are likely to understand.
4. Turn the student-friendly definition into an "I" or a "We" statement: "I am learning to _____," or "We are learning to _____." Run it by a colleague for feedback.
5. Try the definition out with students. Note their response. Refine as needed.
6. Let students have a go at this occasionally, using learning targets you think they could successfully define and paraphrase. Make sure the definition they settle on is congruent with your vision of the target.

Figure 2.5 shows an example of this process applied to the second-grade learning target, "Makes inferences from informational/expository and literary/narrative text."

A second example, in Figure 2.6, defines a middle school reasoning learning target: "Generalizes information beyond the text." Although the context here is language arts, this reasoning proficiency plays an important role in other subjects such as mathematics, social studies, and science. It is a good idea to work with your colleagues in other content areas when you are translating reasoning learning targets to student-friendly language. Most patterns of reasoning are used across disciplines, and having a common definition for each gives students opportunities to learn, build proficiency, and apply what they have learned in multiple contexts.

Teachers of younger students may want to use a combination of words and pictures to make the meaning of the targets clear to them. Figure 2.7 shows an example of kindergarten music targets written this way.

Figure 2.5

Student-Friendly Language: *Inference*

FOR EXAMPLE

1. Learning target: "Makes inferences from informational/expository and literary/narrative text" (Grade 2)
2. Word to be defined: inference
3. Definition: conclusion drawn based on evidence and logic
4. Student-friendly definition: a guess based on clues
5. Student-friendly target: I can make inferences from what I read. This means that I can make guesses based on clues given in the text.

Notice that for second graders, you may not want to define informational/expository and literary/narrative text in the statement. If you want to define those terms, you may want to create separate statements, e.g., "I can read informational text. This means I can read books and articles that tell me facts." And, "I can read literary text. This means that I can read stories."

Figure 2.6

Student-Friendly Language: *Generalize*

FOR EXAMPLE

1. Learning target: "Generalizes information beyond the text" (Grades 6–8)
2. Word to be defined: generalize
3. Definition: to make a broad statement based on observations of specific cases
4. Student-friendly definition: identify similarities in specific examples and make one statement that applies to all of them and to others like them
5. Student-friendly target: I can generalize information beyond the text. This means that I can find how several examples are alike and make a statement that is true for them and is also true for other cases like them.

When Not to Convert the Language

For some content standards, defining all of the terms will derail the learning. Sometimes when students do not understand the vocabulary at the outset learning it will be a central part of the lesson. Take, for example, the learning target, "Understand literary devices." You can list the literary devices students will be learning—similes, metaphors, alliteration, onomatopoeia, and so forth—but the point of the learning is that they be able to define them

Figure 2.7

Student-Friendly Learning Targets for Kindergarten Music

FOR EXAMPLE

		Kindergarten Music Targets
K1	Language of Music	I can tell when music is fast or slow. This means I know when music is fast like a  or slow like a  .
K2		I can tell when music is loud or soft. This means I know when music is loud *(f)* like a  or soft *(p)* like a  .
K3		I can recognize high and low sounds: When music is high it sounds like a baby bear.  When music is low it sounds like a papa bear. 
K4		I can hear the different ways voices are used. This means I know when someone is using their voice to: Whisper  Sing  Speak  Shout 

Source: Used with permission from Jill Meciej, Community Consolidated School District 93, Bloomingdale: IL.

Use Professional Judgment

Not every learning target needs to be translated into student-friendly language. And learning targets don't always have to be shared at the outset of the lesson, as when beginning instruction with a discovery learning experience.

and identify them. The student-friendly version might be, "We are learning to identify similes and metaphors in what we read." Another example is the learning target, "Understand the binomial theorem." You may want to define what "understand" will look like: Identify it? Define it? Explain it? Know when to use it? However, you would leave the phrase "binomial theorem" alone, because learning it is at the heart of the lesson.

Video 2.1: Making Targets Clear to Students: Kindergarten

"I Can . . ." or "I Am Learning to . . ."

Instead of "I can . . ." statements, some teachers like to phrase the targets students are working on as "We are learning to . . ." (or "I am learning to . . .") statements. When students have demonstrated evidence of mastery for the target, they convert it into an "I can . . ." statement, staple it to the evidence, and place it in a folder they can use when sharing what they have learned. This idea is explained more fully in Strategy 7 in Chapter 7.

Video 2.2: Making Targets Clear to Students: Grade 4

Watch Videos 2.1 and 2.2 for examples of how elementary teachers help students understand a learning target.

Ways to Share Learning Targets with Students

Third-grade teacher Amy Meyer puts the learning targets on the assignment page itself and then makes sure to include the student-friendly definition in the writing prompt (Figure 2.8).

You can also let students discuss the meaning of a learning target and write it in terms that are clear to them. This can work as a quick "anticipatory set" activity, or it can be the focus of an in-depth exploration. For example, middle school language arts teacher Jessica Hendershot has her students record the "adult" version of the indicator (learning target) they will be working on in their writing journals. They discuss in small groups what they think the indicator means, and she then facilitates a whole-class discussion to create one common definition. High school science teacher Stephanie Harmon begins each unit by "dissecting" the targets with students (the science equivalent of deconstructing), which students then record in their academic notebooks and refer to throughout the unit (Figure 2.9).

Figure 2.8

Targets Printed on the Assignment **FOR EXAMPLE**

Name _____ **Date** _____

I can comprehend what I read by reflecting on important information.

I can summarize main ideas in a text.

Title _____

What do you think is the most important thing you learned from reading this book?

_____

_____

_____

Tell why you think it is important.

_____

_____

_____

Summarize what this book was about. (Squish up the main ideas or most important points about the topic.)

_____

_____

_____

Source: Used with permission from Amy Meyer, third-grade teacher, Worthington City Schools: Worthington OH. Unpublished classroom materials.

Watch Video 2.3 for an explanation of how Ms. Harmon dissects learning targets with her students.

Video 2.3: Dissecting Learning Targets With Students

If you are working with standards that you have deconstructed, the list of learning targets you created can form the basis for student-friendly targets you give students. High school biology teacher Andy Hamilton has his students record the daily learning targets in a weekly log, which typically look like "I can" statements, but without the "I can" (for brevity). Figure 2.10 shows how he has deconstructed two content standards into lesson-level learning targets and then turned them into student-friendly statements.

AP calculus teacher Jennifer McDaniel hands out a "target table" at the beginning of each unit of study. The target table has five columns: Learning Targets,

Figure 2.9

From the Classroom

Strategy #1: Dissecting the Learning Target

What We Do

At the beginning of each unit, I give the students a copy of the unit's learning targets. We take a bit of time to dissect the targets – circle the critical vocabulary and underline the verb(s). We talk about what each learning target will require and what we may do to help us show mastery of the target. As we continue through the unit, we begin each day's learning experience by identifying the learning target being addressed in the lesson.

This dissection becomes a part of their academic notebooks. It is particularly helpful in putting critical vocabulary into the context of the learning and helps students shape their questions as we move through the unit. In addition, everything we do is connected to the learning target that it addresses. Every formative assessment and summative assessment is organized around the learning targets. Students quickly learn that the learning targets are central to our class.

Impact on Learning

Students take ownership of their learning. They know what is expected and how each day's experience is connected to the learning targets. They can talk about what they need to know and do in order to achieve mastery. The dissection helps student focus on content-specific vocabulary and what they must do (from the identified verbs) in order to show mastery.

What My Students Say

"I used to focus on my grades. All that mattered was an A. Now I realize that if I focus on the learning, the grade takes care of itself." Rebekah P., 11th grade student

Source: Used with permission from Stephanie Harmon, science teacher, Rockcastle County High School: Mt. Vernon, KY. Unpublished classroom materials.

Video 2.4: Making Targets Clear to Students: AP Calculus

Working Log, Strengths, Challenges, and Green/Yellow/Red (Figure 2.11). In the Working Log column, students note the activities and resources they are using to master the target. In the Strengths column, students identify what aspects of the target they have mastered. In the Challenges column, they note the difficulties they encounter, and in the Green/Yellow/Red column, they assess their learning progress. Ms. McDaniel and her students use the target tables to guide their study and review throughout the unit.

Watch Video 2.4 to hear Ms. McDaniel and her students share their thoughts about the value of clear targets.

Figure 2.10

Content Standards→Learning Targets→ Student-Friendly Targets **FOR EXAMPLE**

Content Standard: Explain that some structures in the modern eukaryotic cell developed from early prokaryotes, such as mitochondria, and in plants, chloroplasts

Learning Targets: The wording of this standard implies knowledge/understanding. In fact, reading the standard effectively teaches it to you. I expect my students to explain a little more about how those structures developed. This standard requires an understanding of the vocabulary terms *prokaryote* and *eukaryote* primarily, with *mitochondria* and *chloroplasts* being secondary vocabulary terms (you don't actually need to know what a chloroplast or mitochondrion is to learn the standard). Students should be able to describe the pieces of evidence that lead scientists to the conclusion that the standard is true.

Student-Friendly Targets:

- I can define *prokaryote* and *eukaryote* and give examples of each.
- I can describe where mitochondria and chloroplasts come from.
- I can describe the evidence that explains where mitochondria and chloroplasts come from.

Content Standard: Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport)

Learning Targets: If you were to limit the scope of this standard to only what is written, students would simply have to describe that cell membranes are selective—that is, they let some things in and out but not others. I expect my students to do a lot more with this standard. They should be able to distinguish between types of membrane transport and describe what would happen in a variety of scenarios. As written, the content standard is knowledge/understanding, but it lends itself well to reasoning learning targets.

Student-Friendly Targets:

- I can define *osmosis*, *diffusion*, and *active transport*.
- I can predict what will happen when cells are placed in a variety of solutions.
- I can determine if a process is *osmosis*, *diffusion*, or *active transport* based on how materials are moving into or out of a cell.

Source: Used with permission from Andy Hamilton, West Ottawa Public Schools: Holland, MI. Unpublished classroom materials.

Figure 2.11

Target Table: Introduction to Limits — **FOR EXAMPLE**

Learning Targets	Working Log	Strengths	Challenges	Green/Yellow/Red
I can estimate a limit using a numerical table.	• Aug 10, # 1-8 • Aug 14, # 1-3 • Aug 16, # 1-3	• Easy to determine limit	• I find there is nothing challenging about using a numerical table.	Green
I can justify a limit algebraically: factoring, rationalizing, LCD.	Factoring • Aug 10, # 1, 2 • Aug 14, # 1 • Aug 15, # 1, 2 • Aug 16, # 1 Rationalizing • Aug 10, # 3, 4 • Aug 14, # 2 • Aug 15, # 3 • Aug 16, # 2 LCD • Aug 10, # 5, 6 • Aug 14, # 3 • Aug 15, # 4 • Aug 16, # 3	• I think LCD problems are the easiest. • I'm good at rationalizing. • After factoring the problem is a piece of cake.	• Some problems or factoring can be hard to factor (Aug 16 # 1). • Easy to target negative signs on LCD problems.	Red Yellow Green  I am here . . .
I can determine a limit from a graph.	• Aug 14, # 1-12 • Aug 16, # 4-11	• It is a very quick way to find a limit. • Easy to do in general.	• Graphs with symptopes can be a bit confusing at times.	Green

Source: Used with permission from Jennifer McDaniel, Clay County Schools: Manchester, KY. Unpublished classroom materials.

Using Rubrics to Communicate Learning Targets

In general, more complex reasoning targets are most accurately measured with written response assessment; skill and product targets are most accurately measured with performance assessment. With both methods, we use a rubric to evaluate the response, performance, or work. Examples of learning targets requiring assessment with a rubric include the following:

- Plan and conduct a simple scientific investigation.
- Make sense of problems and persevere in solving them (CCSS Standards for Mathematical Practice, 2010b, p. 6).
- Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams (CCSS for Mathematics, Grade 7, Statistics and Probability, 8b, p. 51).