



ACTIVITY 2.2

Deconstructing Standards Into Classroom-Level Achievement Targets: Practice for School Leaders

PURPOSE

The goal of state standards is to set priorities on what students need to know and be able to do. Sometimes standards are broken down into benchmarks or indicators to further define the standard. But have you ever looked at content standards, benchmarks, or indicators and still been confused about what they meant or found they weren't specific enough to guide daily instruction?

- What do I need to teach here? What has to come first in order for students to master this?
- How do I explain the target to students so they will understand?
- Will my colleagues interpret the target the same way I do?
- How do I best teach this so students can do well?

We've found that when content standards are not accompanied by what can serve as day-to-day classroom curriculum, it's helpful to "deconstruct," or break down, unclear standards to see what knowledge, reasoning proficiencies, skills, and/or products underpin student success. Classroom instruction and assessment are then built around these deconstructed learning targets.

Note: This activity is designed to provide an example of a process for deconstructing standards and classifying learning targets. It serves as only an introduction, an illustration of the value of the process. We recommend more in-depth practice than we can provide here.

TIME

1 hour

MATERIALS NEEDED

- Interactive whiteboards or flip charts, markers
- Copies of standards, benchmarks, or indicators, or whatever level of curriculum that seems vague or unclear to teachers

SUGGESTED ROOM SETUP

Tables and chairs set so teachers can discuss and record their work

THE PROCESS

1. Choose a standard, indicator, or benchmark that is unclear—where it isn't immediately clear what you might teach or where teachers might have different interpretations of

what the indicator might mean. For example, “Knows the binomial theorem” might mean

- a. Knowledge interpretations: (1) Knows it by sight—can pick it out of a list. (2) Can reproduce it when asked.
- b. Reasoning interpretations: (1) Can use it to solve a problem when instructed to do so. (2) Can choose the problems best solved using the binomial theorem. (3) Can write a problem that would require the binomial theorem to solve.

Each of these interpretations would have different implications for instruction. Which interpretation is correct?

2. For your chosen standard, identify whether it is, ultimately, a knowledge, reasoning, skills, or product learning target. Each of these is defined in the accompanying list (Figure 2.7), “Types of Achievement Targets.”

Figure 2.7 Types of Achievement Targets

Use this list to help you understand and identify the different kinds of classroom learning to be developed and assessed as students work toward achieving state standards:

Master Factual and Procedural Knowledge	Create Quality Products
Some to be learned outright	Writing samples
Some to be retrieved using reference materials	Term projects
	Artistic products
Use Knowledge to Reason and Solve Problems	Research reports
Analytical or comparative reasoning	Shop projects
Synthesizing	Science exhibits
Classifying	Acquire Positive Affect/Dispositions
Induction and deduction	Desire to learn/read/think critically
Critical/evaluative thinking	Positive attitude toward school
Demonstrate Mastery of Specific Skills	Good citizenship
Speaking a second language	Respect toward self and others
Giving an oral presentation	Flexibility
Working effectively on a team	Perseverance
Science process skills	

3. To help determine the *ultimate* target type of a particular benchmark, look for key words. Key words are shown in Figure 2.8, “Types of Achievement Targets: Key Words.” For example, identify the ultimate type of each of the following standards:
 - Identify words that have similar meanings (synonyms).
 - Use clear diction, pitch, tempo, and tone, and adjust volume and tempo to stress important ideas.

- Keep records of investigations and observations that are understandable weeks or months later.
- Identify that hypotheses are valuable even when they are not supported.
- Classify ideas from informational texts as main ideas or supporting details.
- Model a problem situation using physical materials.
- Write, simplify, and evaluate algebraic expressions (including formulas) to generalize situations and solve problems.
- Evaluate policies that have been proposed as ways of dealing with social changes resulting from new technologies.

(Answers: knowledge, skill, product, knowledge, reasoning, product, knowledge or reasoning, knowledge or reasoning)

Note: Key words won't always identify the ultimate target type of a standard, indicator, or benchmark. For example, what is the ultimate goal of "Knows the binomial theorem"? The word *knows* indicates that it's a knowledge target, but is it really ultimately a reasoning target? Since there may be ambiguity on ultimate type, the first job is to come to agreement on what the standard, benchmark, or indicator means.

Figure 2.8 Types of Achievement Targets: Key Words

Target Type	Explanation	Content Standards/ Benchmark Key Words	Examples
Knowledge/ Understanding	Some knowledge/ facts/concepts to be learned outright; some to be retrieved using reference materials	Explain, understand, describe, identify, recognize, tell, name, list, identify, give examples, define, label, match, choose, recall, recognize, select	Vocabulary Measurement concepts U.S. government structure
Reasoning	Thinking proficiencies; using one's knowledge to solve a problem, make a decision, plan, and so on	<i>Analyze:</i> components, parts, ingredients, logical sequence, steps, main idea, supporting details, determine, dissect, examine, order <i>Compare/contrast:</i> discriminate between/ among; alike and different, relate, distinguish between <i>Synthesize:</i> combine into, blend, formulate, organize, adapt, modify <i>Classify:</i> categorize, sort, group <i>Infer/deduce:</i> interpret, implications, predict/draw conclusions <i>Evaluate:</i> justify, support opinion, think critically, debate, defend, dispute, evaluate, judge, prove	Think critically Analyze authors' use of language Solve problems Compare forms of government Self-evaluation Analyze health information

Target Type	Explanation	Content Standards/ Benchmark Key Words	Examples
Skills	Behavioral demonstrations; where the doing is what is important; using one's knowledge and reasoning to perform skillfully	Observe, focus attention, listen, perform, do, question, conduct, work, read, speak, assemble, operate, use, demonstrate, measure, investigate, model, collect, dramatize	Read fluently Oral presentations Play an instrument Use laboratory equipment Conduct investigations
Products	Where the characteristics of the final product are important; using one's knowledge, reasoning, and skills to produce a final product	Design, produce, create, develop, make, write, draw, represent, display, model, construct	Writing Artistic products Research reports Make a map Personal fitness plan Make a model that represents a scientific principle

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4. Next, consider the knowledge, reasoning, and/or skills prerequisite to and underpinning competence of your selected standard, benchmark, or indicator. Ask yourself the following four questions:

- What does a student need to know and understand to attain mastery on this benchmark?
- What patterns of reasoning, if any, are required to attain mastery on this benchmark?
- On what specific performance skills, if any, must students attain proficiency to attain mastery on this benchmark?
- What products, if any, would students be proficient in creating if they were masters of this benchmark?

These form a hierarchy. If the ultimate type of target is *product*, then it has all four types of underpinnings: knowledge, reasoning, skills, and products as was seen in Figure 2.6. However, if the standard is ultimately a skill, then there will be only knowledge, reasoning, and skill underpinnings. Likewise, if the standard is ultimately reasoning, there will be only knowledge and reasoning underpinnings. And, like the nursery rhyme, knowledge stands alone. For examples of how this works, see Figures 2.9 through 2.12 on pages 44–45.

For example, you might decide that “Knows the binomial theorem” is a reasoning target. Therefore, it has knowledge underpinnings—knows what the binomial theorem is and when to use it. It also has reasoning underpinnings that need to be practiced—use the binomial theorem to solve problems, identify problems best solved using it, and so on. All these things should be incorporated into instruction.

Key Points to Remember

1. Not all benchmarks embody all types of learning targets. There is a hierarchy. Knowledge targets embody no reasoning, skill, or product underpinnings. Reasoning targets require knowledge but no skills or products. Skills targets require underlying knowledge and reasoning, but not products. Product targets might be underpinned by all four types of learning targets.
2. You are looking at what the benchmark requires students to know and be able to do, not how you will assess it. Because the import of this statement might not be immediately obvious, consider “Compare and contrast democracies with other forms of government.” This is a reasoning target. It requires
 - knowledge of what a democracy is and knowledge of other types of government—purposes and how power is acquired, used, and justified; and how government can affect people.
 - practice in comparing and contrasting—a reasoning target—using the knowledge of different forms of government.

You might assess these knowledge and reasoning underpinnings through an oral presentation (a skill). If you unpack the assessment, you get the following underpinnings:

- As earlier, the assessment requires knowledge of what a democracy is and knowledge of other types of government—purposes; how power is acquired, used, and justified; and how government can affect people.
- The assessment also requires knowledge of oral presentations, for example, the need to use language that fits the audience, have eye contact, organize the presentation in a way that the audience will understand (and the various options for this), and so on.
- As earlier, the assessment also requires practice in comparing and contrasting—a reasoning target—using the knowledge of different forms of government.
- But other reasoning proficiencies are involved in the assessment that are not required by the original standard, for example, choosing one’s particular presentation style, organization, and props from all those possible to serve the needs of the current presentation.
- There are also skills involved in the assessment that are not required by the standard itself: actually giving the oral presentation—modulating voice tone and speed, actually looking at the audience, actually manipulating props, and so on.

To summarize, an assessment developed to elicit the desired standards might require other knowledge, reasoning, skills, and/or products that are not actually part of the standard(s) being assessed. So when you unpack a standard, you might be tempted to list all these. But don’t. All this extra information is not required for the benchmark, just for the assessment. Any knowledge, reasoning, skill, or product that is required for the assessment that is not required for the standard is a potential source of bias that can distort one’s ability to determine student status on the learning target(s) under consideration. The effect of these extras needs to be minimized or you won’t know how students perform on the actual benchmarks under consideration.

Examples

“Drive with skill.” This is a skill-level target. Therefore, it has only knowledge, reasoning, and skill underpinnings.

Figure 2.9 Learning to Drive a Car

Knowledge/ Understanding	Know the law Understand informal rules of the road, e.g., courtesy Understand what different parts of the car do; read signs and understand what they mean Understand what “creating a danger” means Understand what “creating a hazard” means
Reasoning	Analyze road conditions, vehicle performance, and other driver’s actions, compare/contrast this information with knowledge and past experience, synthesize information, and evaluate options to make decisions on what to do next Evaluate “am I safe” and synthesize information to take action if needed
Skills	Steering, shifting, parallel parking, looking, signaling, backing up, and so on; fluidity/automaticity in performing driving actions
Products	None (undamaged car . . . ?)

“Distinguish fact from judgment and opinion; recognize stereotypes; compare and contrast historical information.” This is a reasoning level target. Therefore, it has only reasoning and knowledge underpinnings.

Figure 2.10 History Example

Knowledge/ Understanding	What facts are and how to identify them What opinions are and how to identify them What stereotypes are and how to identify them What it means to compare and contrast things The basis (bases) or criteria on which to compare and contrast (events, people, conditions, events, consequences)
Reasoning	Distinguish facts from opinions in the context of news reporting Recognize novel stereotypes; find the correct information on which to compare and contrast Compare and contrast the historical information specified on the bases specified
Skills	None required
Products	None required

Examples From State Standards

“Students will evaluate different interpretations of historical events.” This is a reasoning level target; therefore it has only knowledge and reasoning underpinnings.

Figure 2.11 Sample State Standard 1

Knowledge/ Understanding	Students must know and understand key features of each historical event and must understand each of the alternative interpretations to be evaluated. The teacher must determine if students are to know those things outright or if they can use reference materials to retrieve the required knowledge.
Reasoning	Evaluative reasoning requires judgment about the quality of each interpretation. Thus students must demonstrate both an understanding of the criteria by which one judges the quality of an interpretation and the ability to apply these criteria.
Skills	None required
Products	None required

“Students will use styles appropriate for their audience and purpose, including proper use of voice, word choice, and sentence fluency.” Writing is a product level target; therefore, it will have all four types of target underpinnings.

Figure 2.12 Sample State Standard 2

Knowledge/ Understanding	Writers must possess appropriate understanding of the concept of style as evidenced in voice, word choice, and sentence fluency. They need to know what voice, word choice, and sentence fluency are; why they are important; and the ways they can vary. They need to understand various audiences and purposes for text and how these might influence style. In addition, students must possess knowledge of the topic they are to write about.
Reasoning	Writers must be able to reason through voice, word choice, and sentence fluency choices for novel audiences and purposes. They also must figure out how to make appropriate voice, word choice, and sentence construction decisions while composing original text for various audiences and purposes.
Skills	Students will either write longhand or will compose text on a keyboard. Each requires its own kind of skill competence.
Products	The final evidence of competence will be written products that present evidence of the ability to write effectively for different audiences and purposes.

DIRECTIONS

Listed here are several more state benchmarks. Pick one where it is not immediately clear what you would teach or for which teachers might disagree. Determine the type of target each ultimately represents. Then analyze it for the knowledge/understanding, reasoning, skill, and/or product prerequisites (as appropriate; remember the hierarchy) needed to perform well on the benchmark. Ask yourself, “What would students need to know and understand to perform well? What reasoning, if any, does this standard require? What skills, if any, would the students need to practice? What products, if any, would students need practice producing?” Practice deconstructing as many as you need to understand the curriculum development task at hand.

1. **Reading, Comprehension Processes, Grades 2–3**—Relate critical facts and details in narrative or information text to comprehend text.
2. **Reading, Comprehension Processes, Grades 6–8**—Interpret text(s) from multiple perspectives (e.g., historical, cultural, gender, political).
3. **Writing, Rhetoric, Grades 4–5**—Convey meaning, provide important information, make a point, fulfill a purpose.
4. **Writing, Rhetoric, Grades 9–12**—Have an organizing structure that gives the writing coherence (e.g., weaves the threads of meaning into a whole).
5. **Social Studies, Political Science/Civics, Grades K–3**—Create and use surveys, interviews, polls, and/or tallies to find information to solve a real problem or make a decision; for example, create tally sheets to monitor frequency and amount of littering.
6. **Social Studies, Political Science/Civics, Grades 6–8**—Explain and apply tools and methods drawn from political science to examine political issues and/or problems.
7. **Science, Domain I, Inquiry, Grades 4–5**—Design and conduct simple investigations to answer questions or to test ideas about the environment.
8. **Science, Domain I, Inquiry, Grades 9–12**—Communicate and defend scientific explanations and conclusions.
9. **Science, Domain II, Grades K–3**—Explain how sanitary practices, vaccinations, medicines, and other scientific treatments keep people healthy.
10. **Science, Domain II, Grades 6–8**—Describe and exemplify how information and communication technologies affect research and work done in the field of science.
11. **World Languages, Cultures, Grades 4–5**—Identify and use appropriate gestures and other forms of nonverbal communication.
12. **World Languages, Comparisons, Grades 9–12**—Use knowledge of contrasting structural patterns between the target language and the student’s own language to communicate effectively.
13. **Music, Singing, Grades K–3**—Sing expressively with appropriate dynamics and phrasing.
14. **Music, Singing, Grades 6–8**—Sing expressively with appropriate dynamics, breath control, phrasing, and nuance, demonstrating understanding of text and style.

Ultimate type of target: 1 = reasoning; 2 = reasoning; 3 = product; 4 = product; 5 = reasoning and product; 6 = knowledge and reasoning; 7 = reasoning and skill; 8 = reasoning and skill or product; 9 = knowledge; 10 = knowledge; 11 = knowledge and skill; 12 = knowledge and reasoning; 13 = skill; 14 = skill