Developing Instructional Objectives

In terms of designing lesson plans to promote an aligned and balanced curriculum, you will have to determine appropriate instructional methods and activities, select relevant materials and resources that support them, and identify or create assessments that help your students master content standards. All of these components feed into the development of instructional objectives for your lesson plans.

Learner Performances

Let’s begin with looking at what you will want your students to do once they have completed your instruction. As you already know, the skills and knowledge your students are required to master are outlined in your content standards. Understanding how those standards influence the activities, materials, and assessments you use warrants some exploration. Consider the three different science objectives, presented in Chapter 3 (see Figure 1).

<table>
<thead>
<tr>
<th>Grade 4</th>
<th>Grade 8</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe and evaluate the properties of several minerals.</td>
<td>Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history.</td>
<td>Investigate and analyze the processes responsible for the rock cycle by analyzing the origin, texture and mineral composition of rocks.</td>
</tr>
</tbody>
</table>

*Figure 1. Analyzing content standards.*

In a content standard or objective, you will generally find two types of elements: **knowledge** and **skills**. Elements of content knowledge are the subject-specific facts, concepts, and procedures one must know in order to demonstrate the standard. Content knowledge is represented by the nouns in the standard or objective. In the examples in Figure 1, the **content knowledge** is:

- Grade 4: properties of minerals
- Grade 8: rocks, fossils, ice cores, and Earth’s geologic history
- Grade 12: the rock cycle; and origin, texture, and mineral composition of rocks

These curricular elements are the basic content addressed in your lessons. In this science example, the basic content addressed in all three grades is related to rocks and minerals, but the facts, concepts, and procedures become more complex as the students mature and progress through the science curriculum.
After identifying the content knowledge, you must determine what your students will do with that content. What skills must they demonstrate using that knowledge? Do they simply have to recall or define it or will they apply content knowledge in some unique way? A content standard or objective will indicate the type of skill required by the use of a verb. In the examples in Figure 1, the skills are:

- Grade 4: describe and evaluate
- Grade 8: interpret
- Grade 12: investigate and analyze

These types of skills are very different and, when combined with the content knowledge, help you to determine what it is your students should be able to do. If the skills in your content standard are related to identifying or remembering information, the instructional and assessment activities will be different than if your students have to evaluate or predict outcomes based on content knowledge. When developing lessons aligned with your content standards, it is critical to know what level of skill performance is required of your students. Based on that information, then, you need to assure that your students have opportunities to both 1) develop those skills during your instructional activities and 2) demonstrate those skills during your assessments. One mistake often made by inexperienced teachers is to design activities and assessments at a skill level that is lower than that dictated by the content standard and subsequently assessed on high-stakes assessments. When this happens, students may be aware of content-specific knowledge, but they can’t apply it at an appropriate skill level. Adequately covering the content standard does not mean simply exposing students to facts, concepts, and procedures. Students must be provided with opportunities to apply their knowledge at appropriate skill levels.

**Taxonomies for learner performances**

Since the late 1950s, educators have been using the work of Benjamin Bloom and his colleagues (Bloom, Englehardt, Furst, Hill, & Krathwohl, 1956) to describe the demands that different skills place on their instruction and assessments. Using what is often referred to as “Bloom’s Taxonomy,” can help you determine the skill demands of different content standards and subsequently develop instructional and assessment activities that are well matched to those skill demands. Although recently, a group of educational theorists and practitioners returned to Bloom’s Taxonomy and proposed a revision (Anderson & Krathwohl, 2001), the original version continues to be widely used so we will use it to guide our
discussion. Bloom’s Taxonomy organizes cognitive skills into a hierarchy of six categories or skills (see Figure 2).

Figure 2. Bloom’s taxonomy of cognitive skills.

Skills are provided for each level of the hierarchy and include verbs such as choose, list, and recall at the “knowledge” end of the hierarchy and criticize, evaluate, and justify at the “evaluation” end of the hierarchy. Some sample skills for each level of the hierarchy include:

- **Knowledge**: choose, define, label, list, match, name, relate, tell, recall
- **Comprehension**: compare, contrast, demonstrate, explain, rephrase, summarize
- **Application**: apply, build, choose, develop, interview, organize, select, solve
- **Analysis**: analyze, categorize, classify, compare, conclude, contrast, simplify
- **Synthesis**: compose, create, design, invent, predict, propose, solve

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Evaluation: criticize, defend, determine, dispute, evaluate, justify

In general, as you go up the taxonomy, you move from more concrete skills to more abstract thinking and reasoning skills. Often, when we talk about higher-order thinking skills, we are referring to skills at the top of the hierarchy (e.g., analysis, synthesis, and evaluation). It’s important to note that content standards at every grade level will include skills from all levels of the hierarchy. Skills of higher cognitive demand are not reserved for higher grades. In reviewing the science standards in Figure 1, note that the fourth grade standard includes the skill to evaluate—the highest category of skill performance in Bloom’s Taxonomy. However, the facts, concepts, and procedures a fourth grade student is required to evaluate will be different than those of a student in the eighth or twelfth grade. Examples of activities related to geography and world history at six different skill levels are provided in Figure 3.

<table>
<thead>
<tr>
<th>Skill Level</th>
<th>Sample Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Students recognize countries on a map or recall the capitals of those countries.</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Students give examples of a “third world” nation or one whose government is not democratic.</td>
</tr>
<tr>
<td>Application</td>
<td>Students list countries and classify them by an organizing characteristic, such as population, geographic region, or size.</td>
</tr>
<tr>
<td>Analysis</td>
<td>Students determine the most critical characteristics that have led to the rise and fall of past civilizations.</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Based on their study of world history, students hypothesize steps a country must take to become an influential world leader.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Students use data to determine how steps in their hypothesis can positively and negatively impact different segments of the population in that country.</td>
</tr>
</tbody>
</table>

*Figure 3. Sample Activities Organized by Bloom’s Skill Level*

**Performance Conditions**

The second part of an instructional objective describes the conditions under which your students will perform the skills required by your content standards, including necessary materials and resources.
This is a critical consideration when determining both your instructional activities and the materials and resources you use, as your instruction should allow your students to practice skills and develop knowledge in a manner similar to how they will be assessed. While assessment activities are implied by content standards, you often have options as to how those standards are demonstrated. Also, be sure to consider how your students will be assessed beyond your classroom. High-stakes tests, such as end-of-course exams or college-entrance exams, are one way students are assessed outside of your classroom. But students are assessed in many other ways that may not be as formal or obvious, such as when they are working in a group, seeking employment, or making personal choices. In order for your students to use their acquired skills and knowledge outside of your classroom, they require varied opportunities to demonstrate them in your classroom. Performance conditions identify equipment, supplies or other resources, including technologies, which are allowed during the assessment of student skills. They also include any time limits or other constraints imposed upon students as they are demonstrating the skill.

Performance Criteria

The third part of an instructional objective describes the criteria for a successful performance. Criteria clearly describe what acceptable performance looks like. You have probably written reports where you were given directions such as “your report should include five sources and no grammatical or factual errors.” Criteria can be conveyed through rubrics, checklists, or as in this example, a simple list of what an acceptable answer should include. When shared with students before embarking on an activity, students can set goals for their own performances and can continue to monitor their performances throughout the assessment, whether creating a web page, writing an essay, or preparing a presentation for the class. They can also determine the essential elements of complex projects, making the project seem more approachable even to struggling students. Determining the required skill level of a content standard will help you design more appropriate assessments.
Apply to Practice: Creating instructional objectives

1. Select a content standard that your students will be required to master.
2. Convert the standard to an instructional objective by adding specific learner performances.
3. Carefully consider the specific conditions under which students will be asked to perform and the criteria that will be applied to determine if the performance is successful.
4. Exchange objectives with a peer; offer suggestions to each other for improvement, remembering that the primary goal is to write an objective that clearly communicates the instructional conditions under which learners will successfully achieve and demonstrate the performance.

References
