Designing & Teaching Learning Goals & Objectives

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CLASSROOM STRATEGIES **THAT** WORK

CONTENTS

Italicised entries indicate resource sheets.

Table 2.1 Learning Goals and Activities/Assignments

Subject	Learning Goals	Activities/Assignments
Science	Students will understand: • The sun is the largest body in the solar system. • The moon and earth rotate on their axes. • The moon orbits the earth while the earth orbits the sun.	Students will watch the video on the relationship between the earth and the moon and the place of these bodies in the solar system.
English	Students will be able to: • Sound out words that are not in their sight vocabulary but are known to them.	Students will observe the teacher modeling sounding and blending strategies.
Mathematics	Students will be able to: • Solve equations with one variable.	Students will practise solving 10 equations in cooperative groups.
Social studies	Students will understand: • The defining characteristics of the barter system.	Students will describe what Australia might be like if it were based on the barter system as opposed to a monetary system.

Exercise 2.1
Learning Goals vs. Activities and Assignments

Following are statements from different subject areas. Some are more clearly learning goals; others are more clearly activities or assignments. After each statement, identify whether it is better classified as a learning goal or an activity or assignment.

1. Students will be able to recognise the protagonist, theme and voice of a piece of literature.

   _____

2. Students will produce a book report on a book of their choice, including a table of contents, with proper pagination and format throughout.

   _____

3. Given a set of coordinates, students will be able to graph the slope of a line.

   _____

4. Students will compare and describe the slopes of two lines.

   _____

5. Students will understand the differences and similarities between metamorphic, igneous and sedimentary rock.

   _____

6. Students will understand how the Borgia family influenced the Renaissance.

   _____

7. Students will be able to explain how the problems created by World War I contributed to causes of World War II.

   _____

8. Students will produce a play dramatising the problems created by World War I and how they contributed to causes of World War II.

   _____

9. Students will understand that matter is made up of atoms and that atoms, in turn, are made up of subatomic particles.

   _____

10. Students will write an essay describing the relationships among atoms and subatomic particles.

    _____

Table 3.2 Abbreviated Scale Involving Learning Goals at Different Levels of Difficulty

Score 4.0	More complex learning goal
Score 3.0	Target learning goal
Score 2.0	Simpler learning goal
Score 1.0	With help, partial success at score 2.0 content and score 3.0 content
Score 0.0	Even with help, no success

We consider a more detailed form of this scale in chapter 4 (table 4.2, page 67). Briefly though, the scale depicted in table 3.2 requires three learning goals. The target learning goal is the goal initially designed by the teacher for the whole class. It is placed in score 3.0 position on the scale. A more complex goal is placed in the score 4.0 position, and a simpler goal is placed in the score 2.0 position. Score 1.0 and score 0.0 don't require new goals; they involve students' successful performance (or lack of performance) *with help*.

To effectively use the scale, it is necessary to write goals at different levels of complexity. This is where the New Taxonomy can be of value. As table 3.1 shows, it involves four levels of complexity:

- Level 4—Knowledge Utilisation
- Level 3—Analysis
- Level 2—Comprehension
- Level 1—Retrieval

Retrieval goals require the recognition and recall of basic information and the execution of procedures. The level 1 learning goal in table 3.1 requires students to retrieve knowledge; they must recognise or recall basic details about the solar system.

Comprehension goals involve identifying the critical features of knowledge. At this level, students must be able to articulate and represent the major ideas and supporting details regarding knowledge. The level 2 learning goal in table 3.1 requires students to explain the critical features of the solar system.

Analysis goals involve reasoned extensions of knowledge. They are sometimes referred to as "higher order" because they require students to make inferences that go beyond what was directly taught. The level 3 goal in table 3.1 requires students to identify similarities and differences between two related planets. This information would not be obvious when studying planets in isolation; students would more likely have to infer similarities and differences between planets.

Knowledge utilisation goals require students to use new knowledge in the context of a robust task. Robust tasks are the venue in which individuals use knowledge to address real-world issues. The level 4 goal in table 3.1 requires students to engage in a real-world task: investigating the development of knowledge regarding the solar system.

Assessment tasks for problem-solving goals typically require fairly extensive constructed-response formats.

Experimenting Goals and Tasks

Experimenting goals require students to generate and test hypotheses about a specific physical or psychological phenomenon. A critical feature of experimenting goals is that the data are newly collected by the student. That is, students must use data that they have generated. Table 3.16 depicts experimenting goals and tasks involving declarative and procedural knowledge.

Table 3.16 Experimenting Goals and Tasks

Type of Knowledge	General Statement of Knowledge	Goal Statement	Sample Task
Declarative Knowledge (Information)	Generalisations proposed during a recent meeting, summit or parliamentary session	Students will be able to propose a solution to a problem currently being debated or considered based on knowledge of the debate and solutions proposed.	Federal governments often list dealing with the states as one of their prime problems. The states often have powers that the federal government does not, in certain areas. How might the structure of the federation be revised to accommodate these concerns? To solve this problem, use what you know of the ideas and positions argued for during this debate.
	Information about gender relations	Students will be able to test the idea that girls and boys tend to be friends with people of the same gender.	Write down observations about who girls and boys play with at recess. Look at your observations and those of your neighbour, and determine if it is true or false that girls and boys tend to be friends with people of the same gender.
	Details about a specific technological innovation	Students will be able to generate and test a hypothesis that demonstrates an understanding of the possible impact of a recent technology on society.	Select a development in technology that has occurred in the last twenty years. For example, you might select the iPod. Based on what we have discussed about how such changes impact society, develop a hypothesis about how that technology has had an impact on people's lives. Then gather information that will directly test your hypothesis.
	Principles of design in art	Students will be able to generate and test a hypothesis regarding design principles and their effects on the viewer.	Select three different visual structures that, according to the design principles we've been studying, can have effects on the viewer such as a sense of balance, anxiety or rhythm. Create simple drawings that you believe exemplify each structure, and find out if you are successful in communicating what you intend. For example, survey your classmates to find out which drawing represents which effect. Decide, based on the results, if you can improve your design.

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Another cooperative structure that lends itself to a classroom organised around goals is *peer tutoring*. There are a number of models of peer tutoring (see O'Donnell, 2006 for a discussion of the various approaches), but the one that appears to apply best to the discussion in this chapter is *structured tutorial interaction* (King, Staffieri & Adelgais, 1998). Within structured tutorial interaction, tutors are instructed to interact with a tutee using a specific sequence of activities. Specifically, tutors are taught to explain what they know about a particular topic, explain why they know the information is accurate, and then try to help their tutees make linkages to what they already know.

Results of studies on this approach indicate that it is particularly effective in developing an understanding of complex information that requires inferences and application. Thus, structured tutorial interaction would be particularly useful for score 3.0 and 4.0 content for many learning goals. Tutors should be volunteer students who have demonstrated score 3.0 or score 4.0 competence early in a unit. For example, some students might demonstrate score 3.0 or score 4.0 competence in the learning goals for a unit at the very outset. These students can act as peer tutors for those students who are having difficulty with specific learning goals. As described in the next section, over the course of the year, more and more students will demonstrate score 3.0 or 4.0 competence for learning goals early in the sequence of instruction. Indeed, some students might complete the entire curriculum well before the year is over. These students can volunteer to be peer tutors or can work on advanced content.

Continuous Improvement in Learning

Perhaps the most powerful aspect of a classroom organised around learning goals is that students can move at their own pace. As described previously, after students have demonstrated score 3.0 or score 4.0 competence for the learning goals in a particular unit, they can volunteer to act as peer tutors for students who are having difficulty reaching that level within the time constraints of the unit. It is very important that peer tutoring be a volunteer activity.

Those students who do not elect to volunteer can begin working on other learning goals that will be addressed in subsequent units. For the most part, this would be done on an independent study basis. The teacher would provide resources and guidance for these "fast track" students, but the pace of their development would be left up to them. Students could elect to work on learning goals that will be the topic of the next unit or learning goals that will be the topic of units during the next term or even the next semester. If a student demonstrates score 3.0 or 4.0 competence on all the learning goals that form the curriculum for the entire year, he can begin addressing learning goals for the content at the next year level.

Obviously, if an entire school is organised in this fashion, the transition to content that is at higher year levels is made relatively easy. Descriptions of how such a schoolwide system would operate are provided in *Classroom Assessment and Grading That Work* (Marzano, 2006) and in *Formative Assessment and Standards-Based Grading* (Marzano, upcoming). However, even if a teacher is the only one in her school who organises her classroom around learning goals, accommodating students who demonstrate competence in year-level learning goals early in the year simply requires her to consult the curriculum for the next year.

If a teacher operates in a self-contained classroom where he is responsible for (let's say) English, mathematics, science and social studies, then a student who demonstrated score 3.0 or 4.0 competence in all learning goals for one subject area (mathematics, for example) can begin working on learning goals for another subject area in which he is not ahead of the classroom pace (English, for example). If a student completes all learning goals for all four subject areas, he begins working on goals at the next year level and/or volunteers as a peer tutor.