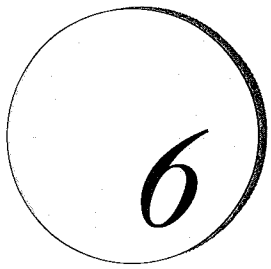


Putting It All Together

As explained in the introduction to this manual, one of the primary uses of the Dimensions of Learning model is as a structure for planning units of instruction. At the end of the chapter for each dimension, a process for unit planning is explained and examples are provided of a social studies unit about the state of Colorado. Units of study planned using the Dimensions of Learning model might be short—that is, implemented over a period of only three or four days—or long—extending over two or more weeks. The length will be influenced by a number of factors, including how much knowledge is being targeted, the age of the students, and the level of interest of the students. This section, "Putting It All Together," addresses how a teacher might integrate five issues that must be considered in relationship to one another for a unit to truly be effective. The issues are (1) the content that will be covered, (2) how students will be assessed, (3) how grades will be assigned, (4) how instruction will be sequenced, and (5) how conferences will be used.

Content

Whether a unit is short or long, deals with mathematics or social studies, or is targeted for the first grade or the twelfth grade, the planning process requires the curriculum planner to consider each of the five dimensions. The primary questions that have been identified for each dimension include the following:

Content

Dimension 1

What will be done to help students develop positive attitudes and perceptions?

- Are there any goals or concerns related to students' attitudes and perception
  - in general?
  - related to this specific unit?
- What will be done to address these goals or concerns?
- Specifically, will anything be done to help students
  - feel accepted by teachers and peers?
  - experience a sense of comfort and order?
  - perceive tasks as valuable and interesting?
  - believe they have the ability and resources to complete tasks?
  - understand and be clear about tasks?

Dimension 2: Declarative

What will be done to help students acquire and integrate declarative knowledge?

- What declarative knowledge will students be in the process of acquiring and integrating? As a result of this unit, students will know or understand. . . .
- What experiences or activities will be used to help students acquire and integrate this knowledge?
- What strategies will be used to help students construct meaning for, organize, and/or store this knowledge?

Dimension 2: Procedural

What will be done to help students acquire and integrate procedural knowledge?

- What procedural knowledge will students be in the process of acquiring and integrating? As a result of this unit, students will be able to...
- What strategies will be used to help students construct models for, shape, and internalize the procedural knowledge?

Dimension 3

What will be done to help students extend and refine knowledge?

- What knowledge will students be extending and refining? Specifically, students will be extending and refining their understanding of. . . .
- What reasoning process will students be using?

Dimension 4

What will be done to help students use knowledge meaningfully?

- What knowledge will students be using meaningfully? Specifically, students will be demonstrating their understanding of or ability to. . . .
- What reasoning process will students be using?

Dimension 5

What will be done to help students develop productive habits of mind?

- Are there any goals or concerns related to students' habits of minds
  - in general?
  - related to this specific unit?
- What will be done to address these goals or concerns? Specifically, will anything be done to help students
  - be accurate and seek accuracy?
  - be clear and seek clarity?
  - maintain an open mind?
  - restrain impulsivity?
  - take a position when the situation warrants it?
  - respond appropriately to others' feelings and level of knowledge?
  - persevere?
  - push the limits of their knowledge and abilities?
  - generate, trust, and maintain their own standards of evaluation?
  - generate new ways of viewing a situation that are outside the boundaries of standard conventions?
  - monitor their own thinking?
  - plan appropriately?
  - identify and use necessary resources?
  - respond appropriately to feedback?
  - evaluate the effectiveness of their actions?

The entire unit plan for the Colorado unit, in which each of the primary questions for each dimension is answered, can be found at the end of this chapter.

Although these questions are presented in a step-by-step sequence, planning is, in reality, rarely a linear process. A person planning a unit might start with Dimension 4, then plan Dimensions 2 and 3, and then, because of decisions made in Dimensions 2 and 3, go back and change decisions initially made in Dimension 4. Perhaps the only fairly consistent approach to planning is that the questions related to attitudes and perceptions (Dimension 1) and habits of mind (Dimension 5) are answered last. This is because many of the goals and concerns in these dimensions are not apparent until Dimensions 2, 3, and 4 have been planned.

Even though there is great variation in the order in which people plan the dimensions, it is critical to the planning process to ask and answer the questions for each dimension. This guarantees that each part of the learning process is carefully considered during planning. However, it would be a mistake to conclude that each dimension has an equal role in each unit. Sometimes when you are asking yourself the questions related to a particular dimension, you will decide that nothing or not much will be done to address that dimension during the unit. Because of the specific focus of a unit, one dimension might dominate or be deemphasized. Below are explanations of three models of planning, each representing a different focus and, therefore, a different emphasis on the individual dimensions.

Model 1: Focus on Knowledge

When using Model 1, the teacher focuses on Dimension 2, acquiring and integrating declarative and procedural knowledge. This means that specific concepts, generalizations/principles, skills, or processes are the focus of the unit. Everything that happens in the classroom "serves" these learning goals. Thus, the teacher selects extending and refining activities (Dimension 3) and tasks that require students to use the identified knowledge meaningfully (Dimension 4). The planning sequence for this model might include the following steps:

Step 1

Identify the declarative and procedural knowledge (Dimension 2) that will be the focus of the unit.

Step 2

Create extending and refining activities (Dimension 3) that will reinforce and deepen students' understanding of the declarative and procedural knowledge identified in Step 1.

Step 3

Design a task that requires students to use knowledge meaningfully (Dimension 4). The targeted knowledge should be the declarative and procedural knowledge identified in Step 1.

Model 1 has these general characteristics:

- The knowledge identified in Dimension 2 is selected because the planner considers it to be important for all students or because it is important knowledge related to district or state standards and benchmarks.
- When declarative knowledge is the focus, concepts and generalizations/principles (as opposed to discrete facts) should be identified. When the focus is on procedural knowledge, important declarative knowledge that is related to those procedures also should be identified.
- Both Dimension 3 and Dimension 4 tasks are means of enhancing students' understanding of, or proficiency with, the identified knowledge.
- Usually, only one task that requires students to use knowledge meaningfully (Dimension 4) is included in the units, and the teacher makes sure that students know that the task requires them to use the knowledge identified in Step 1.

Model 2: Focus on Issues

When using this model, you focus on Dimension 4, the meaningful use of knowledge. Specifically, you identify an issue related to the general theme of the unit and decide what kind of task might be associated with the issue. For example, if there is an issue about how or why something happened, then historical investigation becomes the focus of the unit. If there is a phenomenon to be studied, then experimental inquiry becomes the focus of the unit, and so on. Once you have identified the issue and its related task, you identify the declarative and procedural knowledge (Dimension 2) and any extending and refining activities (Dimension 3) needed to complete the task. Work in Dimensions 2 and 3 supports the task that you have selected. The planning process for Model 2 might be represented in this way:

Step 1

Identify an important issue and its related task that requires students to use knowledge meaningfully (Dimension 4).

Step 2

Identify the declarative and procedural knowledge (Dimension 2) needed to complete the task.

Step 3

Identify the extending and refining activities (Dimension 3) needed to enhance students' understanding of the declarative and procedural knowledge.

Model 2 has these general characteristics:

- The unit contains only one task that requires students to use knowledge meaningfully. In the primary grades, an extending and refining activity (Dimension 3) may be used instead because this kind of activity is often more appropriate for young students.
- The identified declarative and procedural knowledge is selected because students need that knowledge to complete the identified Dimension 4 task.
- Extending and refining activities might be deemphasized because the Dimension 4 task will serve to enhance students' understanding of, and proficiency with, the identified knowledge.

Model 3: Focus on Student Exploration

Model 3 most closely resembles the developers' original concept of the workings of the Dimensions of Learning framework. As in Model 1, you first identify the declarative and procedural knowledge (Dimension 2) that will be highlighted in the unit. You also identify the extending and refining activities (Dimension 3) that will reinforce that knowledge. In a departure from both models 1 and 2, however, you do not identify a task that requires students to use knowledge meaningfully (Dimension 4) but ask students to select their own tasks, or projects, for making meaningful use of knowledge. Your job is to assist students in choosing a project and to encourage them to explore issues and interesting questions that arise naturally in the unit. In effect, students have the freedom to study issues that are beyond the scope of the declarative and procedural knowledge you have identified. The only requirement is that students use important knowledge in ways that are meaningful to them. Using this model, the planning process might be delineated in the following way:

Step 1

Identify the declarative and procedural knowledge (Dimension 2) to be highlighted in the unit.

Step 2

Identify extending and refining activities (Dimension 3) that will deepen students' understanding of the declarative and procedural knowledge.

Step 3

Identify ways to help students select tasks in which they use knowledge meaningfully (Dimension 4).

Model 3 has these general characteristics:

- The types of tasks or projects undertaken by students are very diverse.
- A greater portion of class time is devoted to these projects (Dimension 4) because students develop their own projects.

Assessment

Dimensions of Learning can help teachers identify and clarify what they will teach—the content of a unit of instruction. In addition, Dimensions of Learning can be a powerful model for organizing classroom assessment.

What to Assess

Traditionally, classroom assessment has been focused exclusively on the acquisition of information and skills—declarative and procedural knowledge as represented in Dimension 2. The Dimensions of Learning model suggests that, in addition to the content-specific knowledge of Dimension 2, other types of information and skills are important for students to learn and can be assessed, specifically the information and skills involved in Dimensions 3, 4, and 5. In other words, the bias of the Dimensions of Learning model is to assess Dimensions 2, 3, 4, and 5 as opposed to just the information and skills in Dimension 2. Why?

First, even if we could agree that only content-specific information and skills (Dimension 2) are important, most educators would admit that they want students to have more than a surface-level grasp of important declarative and procedural knowledge. Thus, it is important to teach students processes that

help them to extend and refine that knowledge—that is, go into more depth, make new connections, have new insights, and correct misconceptions. The Dimension 3 complex reasoning processes accomplish this purpose but must be taught and assessed if students are to learn and use them.

Similarly, most people recognize the necessity for students to apply important information and skills to real-life settings and problems. Again, the Dimension 4 complex reasoning processes provide an opportunity for students to do this. They, too, must be taught and assessed if students are to value them and learn to use them.

Finally, most people concur that having certain dispositions makes it more likely that students will learn content more effectively and function more successfully in the world. The habits of mind in Dimension 5 are the kinds of dispositions that many people believe students need in order to learn effectively in school and to succeed in life. Again, these habits of mind can and must be taught and assessed if students are to learn them.

Dimension 1, it might be noticed, has not been mentioned in this discussion of assessment. Although the different aspects of Dimension 1 may be assessed, primarily through teacher observation or student self-assessment, most people refrain from such assessment because the elements are largely attitudinal.

To summarize, then, we recommend that the various components of Dimensions 2, 3, 4, and 5 be taught and assessed for the many reasons discussed above.

Assessment Techniques: Tools and Techniques for Collecting Data

One of the keys to effectively assessing Dimensions 2, 3, 4, and 5 in the classroom is to have a wide variety of assessment techniques. Here we consider five types of assessment that all classroom teachers can use: (1) forced-choice items, (2) essay questions, (3) performance tasks and portfolios, (4) teacher observation, and (5) student self-assessment. The utility of these five types of assessment for each dimension is depicted in Figure 6.1. As Figure 6.1 illustrates, some types of assessment are much more flexible than others in the number of dimensions they address.

FIGURE 6.1

TYPES OF ASSESSMENT FOR DIFFERENT TYPES OF KNOWLEDGE

	Forced-Choice Items	Essay Questions	Performance Tasks/Portfolios	Teacher Observation	Student Self-Assessment
Dimension 2: Specific Declarative Knowledge	x	x	x	x	x
Dimension 2: General Declarative Knowledge		x	x	x	x
Dimension 2: Specific Procedural Knowledge	x	x	x	x	x
Dimension 2: General Procedural Knowledge		x	x	x	x
Dimension 3 & 4: Complex Reasoning Processes		x	x	x	x
Dimension 5: Habits of Mind			x	x	x

Forced-Choice Items

As described by assessment expert Richard Stiggins (1994), forced-choice items are those found in what we think of as conventional, objective tests. They include multiple-choice items, true/false items, matching exercises, and short, fill-in-the-blank items. The student is asked to select or give the correct or best answer.

Although forced-choice items can be used to assess declarative knowledge—from the general (concepts and generalizations) to the specific (facts about people, places, events)—they are best suited for information at the factual level and when simple recall or recognition of information is the goal. For procedural knowledge, such items are appropriate for assessing whether students have mastered basic algorithms such as adding or subtracting.

Essay Questions

Essay questions have been used by classroom teachers for many years. They are effective for assessing both declarative and procedural knowledge (Dimension 2) as well as the complex reasoning processes (Dimensions 3 and 4). Relative to Dimension 2, essay questions are appropriate for assessing students' understanding of general levels of declarative knowledge (concepts and generalizations, big ideas and their relationships) as well as determining

students' proficiency with procedural knowledge (by having students explain or critique a procedure). When a complex reasoning process is applied to declarative knowledge in an essay, students must demonstrate an understanding of the declarative knowledge as well as competence in using the reasoning process.

Performance Tasks and Portfolios

Good essay questions are closely related to performance tasks. In fact, an essay question that uses one of the Dimension 3 or 4 reasoning processes is a type of performance task. Performance tasks require students to construct responses that demonstrate that they can analyze and/or apply knowledge. As indicated in Figure 6.1, performance tasks may be used to assess declarative and procedural knowledge (Dimension 2), complex reasoning processes (Dimensions 3 and 4), and habits of mind (Dimension 5). In addition, performance tasks promote student engagement, a deeper understanding of the content being studied, and an opportunity for students to meaningfully apply that content knowledge.

A model for constructing performance tasks based on the Dimensions of Learning model includes the following steps adapted from *Assessing Student Outcomes* (Marzano, Pickering, & McTighe, 1993):

1. Identify important declarative or procedural knowledge that will be assessed in the task. (Dimension 2: Declarative knowledge should be at the concept, generalization, or "big idea" level of generality.)
2. Structure the task around one of the complex reasoning processes in Dimensions 3 or 4. (This may not be necessary when procedural knowledge from Dimension 2 is selected. Instead, the skill or process may be placed in a real-life, real-use context.)
3. Write a first draft of the performance task, incorporating the information identified in steps 1 and 2.
4. Identify dispositions from the habits of mind (Dimension 5) to include in the task. Revise the task to include them.
5. Identify specific aspects of communication, information processing, and/or cooperation/collaboration, if desired, and build them into the task.

The performance task shown in Figure 6.2 was developed using the above steps. (These steps were adapted from a task from *Assessing Student Outcomes.*) To make the task most effective as an assessment tool, rubrics should be provided for students. (For a discussion of rubrics, see the upcoming section "The Important Role of Judgment.") General rubrics for all the dimensions can be found in the book *Assessing Student Outcomes.*

FIGURE 6.2

DEFINITIONAL INVESTIGATION TASK

Grade-level range: Junior high—high school

Although the term Third World is often used by newscasters, economists, and authors, its meaning is unclear to many people. There is no common understanding of precisely what the Third World is or where the term originated. In your small group, locate descriptions of, or allusions to, the Third World or to another regional term of your choice (e.g., underdeveloped nations, the Far East) that provide information or insights into the characteristics represented by the terms and an explanation of why the term is used.

Construct a definition of the term, and determine if its characteristics focus primarily on political, sociological, topographical, or religious distinctions. Use a consensus process to reach agreement on the definition. You will present your findings in a panel discussion format, so be prepared to defend your definition. You will be assessed on and provided rubrics for the following:

Declarative Knowledge (Dimension 2): Social Studies

1. Your ability to distinguish differing definitions of regions: those based primarily on politics, sociological elements, topography, religions, etc.

Complex Reasoning Process (Dimension 3/4): Definitional Investigation

1. Your ability to define or describe something for which there is no readily available or accepted definition.
2. Your ability to develop and defend a logical and plausible resolution to the confusion, uncertainty, or contradiction about the concept.

Habit of Mind (Dimension 5): Critical Thinking

1. Your ability to take a position when the situation warrants it.

Portfolios are intimately tied to performance tasks. In fact, they usually contain products from a series of performance tasks. They also might contain examples of various stages of a particular performance task to show development and growth. An important aspect of a portfolio is the student's description of the process of creating a product, why certain decisions were made, and a judgment about his or her own effort. Portfolios are often accompanied by exhibitions, that is, presentations or defenses of student work.

Teacher Observation

Perhaps the most direct way of collecting assessment data is to informally observe students. To do this, a teacher commonly makes notes as he observes students demonstrating their understanding of information or their use of a skill. This is done unobtrusively as students engage in classroom activities. As depicted in Figure 6.1, teacher observation can be used to assess Dimensions 2, 3, 4, and 5. Recording data over an extended period of time (e.g., a quarter or a semester) gives a teacher enough information to reliably judge each student's performance on any of the four dimensions that are the focus of assessment.

Student Self-Assessment

This technique is particularly powerful because the assessment data comes directly from students. Usually students are given specific questions, probes, or rubrics to guide them in their self-assessment. They might write their responses to questions or probes in a learning log or journal. They might also respond to surveys and questionnaires. Self-assessments can be used to gather assessment data for any and all of the dimensions of learning. They are particularly appropriate for the habits of mind from Dimension 5 because many of the habits are not easily observed but must be inferred by the teacher.

The Important Role of Judgment

With the exception of forced-choice items, the assessment techniques described above cannot be reduced to responses that can be scored as correct or incorrect. Therefore, teachers using this expanded array of assessment techniques must shift their perspective from one of adding up the number of correct responses a student obtains to one of making judgments about a student's level of performance on specific types of information and skill. One of the best tools for making these types of judgments is a rubric, a set of criteria that describes the characteristics of performance at difference levels of competency. A rubric provides a scale, usually represented by numbers (e.g., 4, 3, 2, and 1 for a 4-point scale) or descriptive terms (e.g., advanced, proficient, developing or basic, and novice). Rubrics provide a structure for making judgments about students' levels of performance. This is especially true for essays, performance tasks, portfolios, teacher observations, and student self-assessments.

Teachers and students who use rubrics attest to their power to improve student performance. Rubrics answer the question that students ask, "What's expected of me?" Grant Wiggins, director of programs for the Center on Learning, Assessment, and School Structure, in describing the usefulness of

rubrics, suggests that they are like road signs. Rubrics provide information that lets students know where they are, where they need to be, and what they need to do to get from where they are to where they need to be. Rubrics help students self-assess, self-correct, and be more self-reliant.

The rubrics shown in Figures 6.3 and 6.4 can be used to assess students' performance relative to declarative knowledge, procedural knowledge, complex reasoning processes, and habits of mind. They can be tailored to assignments and tasks by substituting assignment- or task-specific language for the generic terms.

FIGURE 6.3

GENERIC RUBRICS FOR DECLARATIVE AND PROCEDURAL KNOWLEDGE

Declarative

4 Demonstrates a thorough understanding of the important information; is able to exemplify that information in detail and articulate complex relationships and distinctions.

3 Demonstrates an understanding of the important information; is able to exemplify that information in some detail.

2 Demonstrates an incomplete understanding of the important information, but does not have severe misconceptions.

1 Demonstrates an incomplete understanding of the important information along with severe misconceptions.

Procedural

4 Carries out the major processes/skills inherent in the procedure with relative ease and automaticity.

3 Carries out the major processes/skills inherent in the procedure without significant error but not necessarily at an automatic level.

2 Makes a number of errors when carrying out the major processes and skills important to the procedure but still accomplishes the basic purpose of the procedure.

1 Makes so many errors when carrying out the process and skills important to the procedure that it fails to accomplish its purpose.

FIGURE 6.4

RUBRIC FOR THE COMPLEX REASONING PROCESS "COMPARING" ADAPTED FROM GENERIC PROCEDURAL KNOWLEDGE RUBRIC

4 Carries out the steps in the process of comparing completely, accurately, and effectively, and with relative ease and automaticity.

3 Carries out the steps in the process of comparing effectively and without significant error, but not necessarily at an automatic level.

2 Makes a number of errors when carrying out the steps of the process of comparing, but still accomplishes the basic purpose of the comparison.

1 Makes so many errors when carrying out the steps important to the process of comparing that it fails to accomplish its purpose.

Note: *The generic procedural knowledge rubric may be similarly adapted to any and all of the Dimension 3 and 4 complex reasoning processes.*

RUBRIC FOR THE HABIT OF MIND "RESTRAINS IMPULSIVITY"

4 Carefully considers a situation to determine whether more study is required before acting. When further study is required, gathers thorough and detailed information before acting.

3 Considers a situation to determine whether more study is required before acting. When further study is required, gathers sufficient information before acting.

2 Considers, in a cursory manner, whether more study is required before acting. When further study is required, gathers some information before acting.

1 Does not consider a situation to determine whether more study is required before acting.

Note: *See Marzano, Pickering, & McTighe (1993) Assessing Student Outcomes, for rubrics for all of the Habits of Mind.*

Grading

Once decisions have been made about the criteria for students' levels of performance on specific dimensions and the types of assessment tools that will be used, the next concern is how to assign grades.

To do this, teachers must stop thinking of a grade as a compilation of scores on tests, assignments, and activities to which points are assigned, and begin to think in terms of levels of performance on (1) the important declarative and procedural knowledge (Dimension 2) specific to a class or subject area, (2) the particular Dimension 3 and 4 complex reasoning processes students are learning and using in the classroom, and (3) the habits of mind (Dimension 5) that have been addressed.

For example, within a unit of study on Colorado (which has been used in the planning sections throughout this manual), the teacher might address a great deal of knowledge (identified in Dimension 2), which can be clustered under the following benchmarks:

Students will...

> ***Benchmark 1:*** understand the interactions of human and physical characteristics of a regions
>
> ***Benchmark 2:*** understand the reasons for human movement within and among regions
>
> ***Benchmark 3:*** be able to use thematic maps

Students' abilities to engage in complex reasoning processes and to exhibit habits of mind (skills which may or may not be identified in benchmarks within a district) are also addressed in the unit. Specifically, students use three complex reasoning processes—classifying, inductive reasoning, and experimental inquiry—in the Colorado unit. In addition, the teacher has targeted two creative thinking habits of mind (persevere and push limits) and one self-regulated thinking habit of mind (plan appropriately).

Figure 6.5 shows a sample page from a grade book that might be kept by a teacher using this unit of study. This type of grade book is manageable when the declarative and procedural knowledge is organized under specific benchmarks. If benchmarks are not used, only the most important pieces of knowledge should be included in the grade book; recording separate grades for each piece of knowledge would not be realistic. Each portion of the grade book is explained below.

FIGURE 6.5

SAMPLE PAGE FROM A GRADEBOOK

Assignment Key:					
	A. *Quiz*	E. *Quiz*	I.		
	B. *Induction Task*	F. *Exper. Inq. Task*	J.		
	C. *Reg. cake (HW)*	G. *Unit Test*	K. Student Self-Assessment		
	D. *Classify Task*	H. *Map Assign (HW)*	L. Observations		

Standards/Benchmarks:		*Geo S1B2 humans/ physical environment*	*Geo S2B5 human movement/ regions*	*Geo S6B1 use thematic maps*	*Dim 3 & 4 complex reasoning*	*Dim 5 habits of mind*
Students						
Al Einstein	A	3				
	B	3			3	
	C	3				
	D		3		3	
	E		3			
	F	3	3		3	2
	G	4	3	2		
	H			1		
	I					
	J					
	K	4	3	2	3	3
	L	4 [4]	3, 3+ [3]	2 [2]	[3]	2, 2 [2]
Marie Curie	A	2				
	B	3			2	
	C	2				
	D		1		2	
	E		1			
	F	2	2		1	1
	G	1	1	1		
	H			1		
	I					
	J					
	K	3	2	2	2	2
	L	2 [2]	1, 1 [1]	2 [1]	2 [2]	2, 2 [2]
George Carver	A	4				
	B	3			2	
	C	4				
	D		4		4	
	E		4			
	F	4	3		3	3
	G	4	3	3		
	H			4		
	I					
	J					
	K	4	4	4	3	4
	L	3 [4]	3, 4, 3 [3]	4 [4]	3 [3]	4, 4 [4]

The assignment key at the top of the grade book can be used by the teacher to list the various assessment techniques, activities, and assignments used for grading. A page from our sample grade book has room for ten items, student self-assessment, and teacher observations. Eight items have been filled in on this sample page.

A. Quiz
B. Induction Task
C. Regional cake assignment (Homework)
D. Classify Task
E. Quiz
F. Experimental Inquiry Task
G. Unit Test
H. Map Assignment (Homework)
I. _____
J. _____
K. Student Self-Assessment
L. Observation

At the top of each column (where assignments are recorded in more conventional grade books) are categories of knowledge for which grades are recorded during this unit. The first three columns are for three of the benchmarks from the unit; these are followed by a column for complex reasoning processes (Dimensions 3 and 4) used in the unit and a column for habits of mind (Dimension 5) used in the unit.

Note that in this marking period the teacher gave two graded homework assignments, two quizzes, two Dimension 3 tasks, one Dimension 4 task, and a unit test. Each box below each benchmark has room for the teacher to enter a number reflecting his or her judgment about an individual student's performance on a specific assessment, activity, homework assignment, and so on. For example, consider Al Einstein's scores for the first benchmark. This box has a number of rows, each preceded by a letter. The letter in each row represents the assignment, the test, or the event for which the teacher has made judgments about Al's performance. The number represents the teacher's judgment about Al's performance on each of the assessments for each applicable benchmark, reasoning process, or habit of mind.

Note that most of the assessments address more than one benchmark. For example, consider assessment *F*, the Experimental Inquiry Task. The task provides assessment information for students' performance on two content benchmarks, the complex reasoning process, and the habits of mind targeted in the unit.

Row *K* is used to record the individual student's self-assessment for his or her performance relative to each dimension. (The teacher enters this into the grade book at the time of a teacher/student assessment conference. During

the conference, each student provides the teacher with his or her personal judgment and the evidence for those judgments.)

Row *L* is used to record the teacher's informal observations on the student's performance relative to each dimension. For example, the teacher assigned a score of 2 on one occasion and a score of 3 on the other occasion.

Numbers ranging from 1 to 4 are used throughout the grade book. These refer to the levels of performance achieved by the student during a single assignment that related to the declarative or procedural knowledge, Dimension 3 or 4 processes, and habits of mind. (Sample rubrics were presented earlier in this section that might be used to assess students' performance relative to the different dimensions.) What does a teacher do, however, when a single assignment or test relates to more than one component in a category of declarative or procedural knowledge (e.g., understanding the concepts of topography, natural resources, climate, and culture are all components of "understanding interactions between human and physical systems") or more than one complex reasoning process or habit of mind (e.g., a single task could assess both comparing and inductive reasoning)? The rubric shown in Figure 6.6 can be used to summarize performance on multiple aspects of a category of declarative or procedural knowledge, multiple complex reasoning processes in Dimensions 3 and 4, or multiple habits of mind.

FIGURE 6.6

RUBRIC SUMMARIZING PERFORMANCE ON MULTIPLE COMPONENTS

4	Advanced performance in some of the components of this objective
3	Proficient performance in the majority of components of this objective
2	Proficient or higher performance in some components of this objective
1	Basic or lower performance in the majority of components within this objective

At the end of the grading period, the teacher assigns a score representing the student's performance for each type of knowledge assessed. This is entered in the white box in the lower portion of each column of the grade book. This score is not intended to be an average of all of the student's scores for that type of knowledge. Many educators believe that it does not matter how long it takes for students to learn the targeted knowledge. The score is intended to reflect the level of performance the student has attained during the grading period.

Once the teacher has assigned a score for each type of knowledge being assessed, more than likely she must combine these into an overall grade. Each type of knowledge might be weighted according to its importance. For example, the declarative and procedural knowledge pieces might be given a weight of 2, the complex reasoning processes a 2, and the habits of mind a 1. The student's scores (representing levels of performance) are multiplied by the assigned weight in order to calculate quality points. The quality points are then added; the sum of the quality points is divided by the sum of the weights to arrive at an average score, as shown in Figure 6.7. Finally, the student's average score is converted into a grade based on the following conversion:

3.26-4.00	=	A
2.76-3.25	=	B
2.01-2.75	=	C
1.50-2.00	=	D
1.49 or below	=	F

FIGURE 6.7

CALCULATING SCORES

Sample Student: Al Einstein			
	Student's Scores	Weight	Quality Points
Content benchmark score 1	*4*	× *2*	*8*
Content benchmark score 2	*3*	× *2*	*6*
Content benchmark score 3	*2*	× *2*	*4*
Complex reasoning score	*3*	× *2*	*6*
Habits of mind performance	*2*	× *1*	*2*
Total		*9*	*26*
Al Einstein's average score for the quarter: 26 divided by 9 = 2.89			
Al Einstein's grade for the quarter: B			

Using a single overall letter grade is not the ideal for several reasons. First, the apparently arbitrary nature of cut-off scores is a weakness in many respects. Second, a single grade does not provide specific information on performance in the variety of areas it represents. Finally, a single letter grade

is an oversimplification of the complex array of information and skills presented, learned, and assessed in a course of study. However, letter grades have a wide appeal and carry with them a particular mystic: People seem to think they mean more than they actually adequately represent. Nonetheless, letter grades probably are here to stay for a while. For a fuller discussion of grading issues, see Marzano and Kendall (1996), *A Comprehensive Guide to Designing Standards-Based Districts, Schools, and Classrooms*. In conclusion, judgments about students' levels of performance on specific benchmarks can be used to assign letter grades in a manner that conveys information to students about specific dimensions of learning.

Sequencing Instruction

A unit of instruction based on Dimensions of Learning quite obviously encompasses many different activities. Students, for example, are engaged in projects based on Dimensions 3 and 4; teachers and students are meeting individually and in small groups; and students sometimes are out of the classroom gathering resources. Given the variety of activities, day-to-day classes also might vary. We recommend that teachers think of instruction in terms of at least two different types of classes: presentation classes and workshop classes.

Presentation Classes

Presentation classes are geared toward Dimensions 2: acquiring and integrating knowledge. Classes devoted to this dimension tend to be more teacher directed. This does not mean that the teacher "dictates" or "lectures" while the students "listen attentively." Nor does it mean that the teacher necessarily "presents" information. Presentation classes include guest speakers, films, and even field trips; information is being "presented" to students in some way. As you can see in Chapter 2, many strategies in Dimension 2 emphasize inquiry and encourage students to actively participate in learning. The general direction of learning, however, is still guided by the teacher.

Although presentation classes certainly differ from subject to subject, certain instructional techniques are used frequently in all presentation classes.

- *Stimulating interest:* Providing some personal anecdote or interesting story to help students become interested in the activity designed to help them acquire and integrate knowledge (Dimension 2).

- *Stating goals:* Explicitly identifying the purpose or goal of the activities that will be used.
- *Making linkages:* Demonstrating how the learning activities relate to what has occurred in previous classes or, better yet, having students make these linkages.
- *Demonstrating:* Clearly explaining or modeling key aspects of the activities that will be used.
- *Providing closure:* Asking students to make summary statements and evaluations about the learning experience.

It is important to note that these five techniques should not be thought of as a "lesson design"—steps that must be used in all presentation classes and performed in a set order. It is also important to note, however, that these five aspects of presentation classes should be systematically addressed.

Workshop Classes

In contrast to presentation classes, the flow of activity in workshop classes is more student directed. This is because workshop classes focus on extending and refining knowledge (Dimension 3) or using knowledge meaningfully (Dimension 4). Workshop classes are a perfect vehicle for helping students to design and work on complex reasoning tasks. You might think of the differences between presentation and workshop classes in this way: During presentation classes the teacher "carries the ball" and students react to what the teacher does; during workshop classes, the students carry the ball and the teacher reacts to what the students do. Workshop classes are commonly divided into three parts: the mini-lesson, the activity period, and the sharing period.

The Mini-Lesson

As its name implies, the mini-lesson is short (five to ten minutes). It commonly, but not necessarily, occurs at the beginning of the workshop and, for the most part, is a vehicle for providing guidance and assistance to students as they work on two types of tasks: those that help them to extend and refine knowledge and those that require them to use knowledge meaningfully.

During a typical mini-lesson a teacher might

- model some strategy or technique that students can use as they work on their projects (e.g., a specific aspect of decision making to help students in their decision-making project); and

- demonstrate or explain resources that students can use in the projects (e.g., preview a book or article that students can use in their decision-making projects).

The mini-lesson, then, is a time for the teacher to provide whole-class support and guidance for student projects.

The Activity Period

The activity period typically lasts between twenty and forty-five minutes. During this time, students work independently or in cooperative groups on their projects. The teacher acts as a coach or guide while students work on their projects. The teacher's main vehicle for doing this is conferencing, which is discussed later in this chapter.

The Sharing Period

The sharing period usually is quite short, perhaps lasting only five to ten minutes. Although it can occur at any time, the sharing period frequently is at the end of the workshop. Students commonly share

- what they learned from the mini-lesson or activity period,
- new insights they have had, and
- perplexing issues they are facing in their projects.

If students are expected to include demonstrations with their projects, then the sharing period is quite long. This usually occurs at the end of a unit.

Integrating Presentation and Workshop Classes

It is important to integrate presentation and workshop classes into a unit of study. Further, all of the presentation classes should not be scheduled at the beginning of the unit and all of the workshop classes at the end. Rather, within a four-week unit of study, presentation and workshop classes might be distributed as shown in Figure 6.8. In this example, there is a gradual shift from an emphasis on presentation classes to an emphasis on workshop classes. In other words, there is a gradual shift from an emphasis on Dimension 2 (acquiring and integrating knowledge) to an emphasis on Dimension 3 (extending and refining knowledge) and Dimension 4 (using knowledge meaningfully). Dimension 1 (positive attitudes and perceptions) and Dimension 5 (productive habits of mind) permeate both presentation and workshop classes. It is the careful sequencing of presentation and workshop classes that makes a unit of study a holistic learning experience, with teacher and students trading off control of learning and the two types

of classes supporting each other at strategic points. The four questions below will help you properly sequence your classes and integrate the five dimensions of learning:

1. **What strategies and activities will be used to support Dimensions 1 and 5?**

   For example, the teacher planning the unit on Colorado decided to use the following strategies and activities to support Dimensions 1 and 5:

   - Work on more frequently restating and rephrasing questions (Dimension 1).
   - Give students the opportunity to apply knowledge to regions of their choice (Dimension 1).
   - Verbally reinforce students when they push their limits or persevere (Dimension 5).
   - Help students learn how to plan; have them reflect on planning in their learning logs (Dimension 5).

2. **How many days of the unit will be devoted to presentation classes, and when will they occur?**

   To answer this question, you must determine

   - how to sequence the direct and indirect learning experiences in the presentation classes, and
   - where to build in time for students to practice skills and processes.

FIGURE 6.8

SEQUENCE OF CLASSES

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	P	P	P	P	P
Week 2	W	P	P	P	W
Week 3	W	P	W	W	W
Week 4	P	W	W	W	

To illustrate, the teacher planning the unit on Colorado might sequence the presentation and workshop classes as shown in Figure 6.9. The circled letter *P* signifies presentation classes; *W* signals workshop classes. She has decided to use the presentation format for the entire first week, during which she will introduce key concepts from the unit and the procedural knowledge related to reading maps. During the second week, she will present generalizations and facts about the Colorado Gold Rush; she will also include two workshop classes. During the third and fourth weeks, the number of presentation classes decreases as the number of workshop classes increases.

FIGURE 6.9

SEQUENCE OF CLASSES: COLORADO UNIT

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	topography, natural resources—read text (P)	construct models and shape for reading physical maps, natural resource maps (P)	• See film—begin both pictographs • climate—read text assign regional cakes (P)	culture, read text, and presentations (P)	culture, read text, and presentations; learn note-taking strategy (P)
Week 2	induction task—demonstrate steps, do some together as class (cakes start coming in this week) (W)	topography, etc. influence culture—discussion using graphic organizer; present information on important people from Colorado history. (P)	topography, etc. influence settlement patterns—read text, handout—use organizer (quiz) (P)	guest speaker on Gold Rush, students use timeline for notes. (P)	classifying task—students already know how to classify, but I will review steps before they start (quiz) (W)
Week 3	introduce experimental inquiry task—teach steps of process—demonstrate planning; students begin work (W)	field trip (P)	experimental inquiry: students work on task, I conference (W)	induction task—students work with newspapers in groups, I conference (W)	• experimental inquiry task—students work on project, I conference, demonstrate planning • review map reading, homework (W)
Week 4	renewable, nonrenewable, etc. film, concept attainment, graphic organizer (P)	experimental inquiry—students work, I conference (W)	experimental inquiry—I will conference (W)	student presentations of results from experimental inquiry task (W)	unit test

3. How many workshop classes will be needed in the unit?

An important issue to consider is what you will be doing during the mini-lessons. If, for example, you want students to learn a new complex reasoning process to carry out a Dimension 3 or 4 task, then you need enough time to introduce and model the process. As indicated in Figure 6.9, the teacher has determined that nine periods will be workshop classes.

4. **What sequence of presentation and workshop classes will provide an integrated unit of instruction?**

   Students need a certain amount of knowledge before they can effectively direct their own projects. This is why most presentation classes occur at the beginning of the unit—so students can acquire that knowledge. The number of presentation classes diminishes as students start using the knowledge they have acquired to pursue projects in workshop classes. Periodically, students may need small doses of information—presentation classes—to be able to continue their projects, but as Figure 6.8 shows, over the four weeks of a typical unit there is a gradual shift from an emphasis on presentation classes to an emphasis on workshop classes.

   In determining the sequence of classes for a unit, you should make sure each class builds on the previous classes and stagger the two types of classes so that you have ample time to give students guidance on their projects. One notable side benefit of properly staggered classes is that students do not have a chance to become bored with the same old routine.

Conferences

Conferences provide the opportunity and format for teacher and students to interact on a more personal basis and break the pattern of teacher as leader and presenter of information and student as follower and receiver of information. In conferences, teacher and student become coinvestigators, colearners.

A conference may last anywhere from three or four minutes to ten or fifteen minutes. The teacher may meet with one student or a small group of students; group conferencing can help the teacher rotate through the class relatively frequently. Although every conference has one basic function—to establish a line of communication between teacher and student—it is useful to think about two different focuses that might be used: projects and assessment.

Project Focus: When a conference focuses on projects, its purpose is to provide guidance for students' work on their Dimension 3 or 4 projects. In project conferences, the teacher and student discuss progress on the project and any problems the student might be having. They also jointly plan next steps for the project.

Assessment Focus: The purpose of the assessment conference is for teachers and students to share their perceptions about how students are doing related to each of the dimensions addressed in the unit. If students have been self-assessing, they report their evaluations to the teacher during the assessment conference. If the teacher and student disagree on their assessment of the student's performance, they try to reconcile those differences during the assessment conference. This type of teacher/student interaction can be a very powerful and empowering learning experience for both the student and the teacher.

In Conclusion

This chapter has addressed important issues that influence the planning and implementation of a unit of study. The sample unit on Colorado, which has been used throughout this manual, was again used to illustrate major points in this chapter. What follows is the entire Colorado unit plan. We recommend that you look through this unit plan to get a clearer, more holistic picture of the planning process.

As you review this sample unit, you will recognize many of the pages as those that appeared in the planning sections at the end of the chapters on each Dimension. You will notice that, although only one page for declarative knowledge was shown in the planning section for Dimension 2 (page 92), in the entire unit there are a number of pages for declarative knowledge, which reflects the quantity of declarative knowledge included in this unit.

Keep in mind that this is a sample unit that focuses on a single content area: social studies. This type of unit was created as a sample unit so that simple examples could be presented to illustrate complex ideas from the Dimensions of Learning model. You should not infer that we are recommending that you use only units like the Colorado Unit. Hopefully, we have made it clear that the planning process lends itself to interdisciplinary units and units that are both shorter and longer than the sample Colorado Unit.

Finally, remember that the Dimensions of Learning model does not have to be used to plan units of study. Educators should use the model, and the resources associated with it, to set and achieve their goals for student learning. The purpose of any model is to help people understand something that is very complex. Because there are few things as complex as human learning, the Dimensions of Learning model is offered as a tool for educators to help them better understand the process of learning. If this understanding is achieved, the ultimate goal of the model should be realized: the enhancement of student learning.

Geography Standard 1, Benchmark 2(D): Understand the interactions among humans and their physical environment within a region

Concepts: Topography, natural resources, climate, culture.

Facts describing Colorado will be used as examples of each of these concepts.

Generalizations/Principles: Topography, natural resources, and climate influence the culture of a region.

Cause-effect examples from Colorado (e.g., Mountains and snow influence winter sport culture.)

Facts: Descriptions of how Molly Brown, Zebulon Pike, Alfred Packer interacted with their physical environments

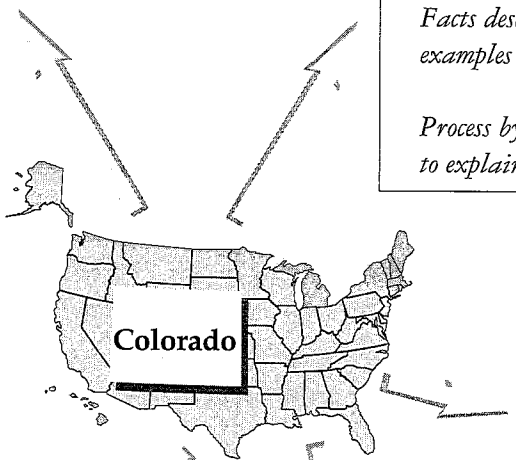
Vocabulary Terms: tourism, plateau

Geography Standard 3, Benchmark 2(D): Understand characteristics and locations of renewable and nonrenewable resources

Concepts: Renewable resources, nonrenewable resources, flow resources

Facts describing Colorado's resources will be used as examples of each of these concepts.

Process by which fossil fuels are created will be used to explain a nonrenewable resource.



Geography Standard 2, Benchmark 5(D): Understand the reasons for human movement within and among regions

Generalizations/Principles: Topography, natural resources, and climate influence settlement patterns

Cause-effect examples from Colorado (e.g., Mountains stopped some pioneers, which then caused cities such as Denver and Colorado Springs.)

Other declarative knowledge not related to benchmarks:

Time sequences: The story of the Colorado Gold Rush, 1859-1900

Geography Standard 6, Benchmark 1(P): Use thematic maps

Knows how to read and interpret a physical map

Knows how to read and interpret a natural resource map

Dimension 1 Planning Guide

Unit: *Colorado*

Are there any goals or concerns related to students' ***attitudes and perceptions*** • in general? • related to this specific unit?	What will be done to address these goals or concerns?	
	Specifically, will anything be done to help students. . .	Describe what will be done.
I think I have been in a rut lately when responding both to students' incorrect answers and to their correct or thoughtful answers. *The last field trip was not fun for anyone; it seemed unorganized and many rules for bus behavior were forgotten.*	**Classroom Climate** ☑ feel accepted by teachers and peers? ☑ experience a sense of comfort and order?	*I am going to work on slowing down and giving students a chance to answer my questions; I need to do more restating and rephrasing of the questions.* *I will go over the rules of bus behavior and the general rules for field trips; I think I'll have students generate some additional rules and suggestions for making the field trip successful.*
Students might be getting tired of studying Colorado.	**Classroom Tasks** ☑ perceive tasks as valuable and interesting? ❑ believe they have the ability and resources to complete tasks? ❑ understand and be clear about tasks?	*The assignments will give students the opportunity to apply knowledge to regions of their choice.*

Dimension 2 Planning Guide: Declarative Knowledge

Unit: *Colorado*

What ***declarative knowledge*** will students be in the process of ***acquiring and integrating***? As a result of this unit, students will know or understand. . .	What ***experiences*** or ***activities*** will be used to help students acquire and integrate this knowledge?	What strategies will be used to help students ***construct meaning*** for, ***organize***, and/or ***store*** this knowledge?	Describe what will be done.
Concept: Topography *—Natural and artificial features including land forms, bodies of water, roads, bridges, etc.* *Facts describing Colorado's topography will deal with the Rocky Mountains, sand dunes, rivers, plains, plateaus, canyons.*	*Text, pp. 8-10* *Film: "From Sea to Shining Sea"* *Read physical maps* *Independent study: Regional cake*	*K-W-L* *Physical/pictographic representation*	*On a class K-W-L chart, we all will generate the K and the W related to topography. We will then read the text, watch the film, and read physical maps. After each experience, we will fill out the L of the chart. We will use the information from the K-W-L to start a class pictograph of examples of topography.* *Each student will make a cake depicting topography from a region of his or her choice. Students will find information independently. After the regional cake assignment, as a class, we will add to our pictograph.*
Concept: Natural Resources *—Materials found in nature that are useful, necessary, or attractive* *Facts describing Colorado's natural resources will deal with snow, gold, soil, sunshine, forests, oil, mountains.*	*Film: "From Sea to Shining Sea"* *Read natural resource maps* *Field Trip: Argo Gold Mine*	*3-minute pause* *Uses all senses* *Pictograph*	*Several times during the film, I will stop and ask students to identify one type of natural resource. After the film, I will ask them to try to create mental pictures of examples of natural resources and identify what they see, smell, feel, etc. We then will start our pictographs of natural resources, a class one and individual ones. After reading the natural resource maps, we will add information to the pictographs.* *During the field trip, students will have their pictographs with them so they can add examples of the natural resources that we observe.*

Dimension 2 Planning Guide: Declarative Knowledge

Unit: *Colorado*

What ***declarative knowledge*** will students be in the process of ***acquiring and integrating***? As a result of the unit, the student will know or understand. . .	What ***experiences*** or ***activities*** will be used to help students acquire and integrate this knowledge?	What strategies will be used to help students ***construct meaning*** for, ***organize***, and/or ***store*** the knowledge?	Describe what will be done.
Concept: Climate *—Patterns of weather including temperature, rainfall, etc.* *Facts describing Colorado's climate such as four seasons, very hot and very cold periods, large snowfall, low humidity.*	*Read text, p. 13* *Discuss handout*	*3-minute pause*	*This will be a review for most students; climate is a concept learned in earlier grades. We will read the pages in the text and a handout I received from the local television station discussing weather and climate in general and in Colorado. I will stop students periodically and simply ask them to verbalize what they understand about climate.*
Concept: Culture *—Beliefs, customs, values, recreation, housing, etc. of a group of people.* *Facts describing Colorado's culture will be used*	*Read text, pp. 3-7* *Presentation*	*Reciprocal teaching* *Notetaking using graphic organizer*	*Because culture is a new concept for them and because it is so abstract, we will begin by reading and discussing the information, using the reciprocal teaching strategy. I will guide students through the notetaking strategy to ensure that they record notes and then develop an organizer about what we have learned. I will then do a presentation showing my collection of pictures and souvenirs that depict various aspects of culture from other countries. I will help students add to their notes and continue to develop their organizers, making sure they are including critical characteristics of culture.*

Dimension 2 Planning Guide: Declarative Knowledge

Unit: *Colorado*

What ***declarative knowledge*** will students be in the process of ***acquiring and integrating***? As a result of the unit, the student will know or understand. . .	What ***experiences*** or ***activities*** will be used to help students acquire and integrate this knowledge?	What strategies will be used to help students ***construct meaning*** for, ***organize***, and/or ***store*** the knowledge?	Describe what will be done.
Generalization: Topography and natural resources influence the culture of a region. *Cause-effect examples from Colorado: Mountains and snow influence winter sport culture, etc.*	*Discussion* *Field Trip: Argo Gold Mine*	*Graphic organizer*	*We will use several copies of a blank graphic organizer to make connections between topography, natural resources, climate, and culture for Colorado, then do the same for several other regions of the students' choice. On the field trip, we will fill out the organizer for Colorado. Back in class, students will work in groups to fill it out for other regions.*
Generalization: Topography, natural resources, and climate influence settlement patterns. *Cause-effect scenarios from Colorado's history will be used as examples along with examples from other regions*	*Text, pp. 12-16* *Discussion* *Handout*	*3-minute pause* *Advance organizer questions*	*The text and handout discuss the connections between topography, natural resources, and climate and settlement patterns by telling stories of how the mountains contributed to the settlement of Colorado Springs and Denver, how gold caused mining towns to thrive, and how the climate contributed to resort towns emerging when so much snow attracted skiers. Students will receive advance organizer questions to focus them as they read each scenario. They will answer the questions during 3-minute pauses.*

Dimension 2 Planning Guide: Declarative Knowledge

Unit: *Colorado*

What ***declarative knowledge*** will students be in the process of ***acquiring and integrating***? As a result of the unit, the student will know or understand. . .	What ***experiences*** or ***activities*** will be used to help students acquire and integrate this knowledge?	What strategies will be used to help students ***construct meaning*** for, ***organize***, and/or ***store*** the knowledge?	Describe what will be done.
Concept: Renewable resources —*Can be replaced (e.g., timber, soy beans)* ***Concept: Nonrenewable resources*** —*Cannot be replaced (e.g., minerals, fossil fuels)* ***Concept: Flow resources*** —*Must be used when and where they occur (running water, sunshine)* *Facts describing Colorado's resources will be used*	*Discussion* *Film: "Sources of our Resources"*	*Inquiry model—concept attainment* *Graphic organizer*	*Using the concept attainment strategy, I will provide students with examples and nonexamples of each of the three types of resources to see if they can figure out the characteristics of each.* *We will then view the film and verify or correct the characteristics of the three types.* *We will develop a concept graphic organizer together on the overhead, focusing on examples from Colorado. I will then make a copy for each student.*

Dimension 2 Planning Guide: Declarative Knowledge

Unit: *Colorado*

What ***declarative knowledge*** will students be in the process of ***acquiring and integrating***? As a result of the unit, the student will know or understand. . .	What ***experiences*** or ***activities*** will be used to help students acquire and integrate this knowledge?	What strategies will be used to help students ***construct meaning*** for, ***organize***, and/or ***store*** the knowledge?	Describe what will be done.
Time sequence: The story of the Colorado Gold Rush, 1859-1900	*Guest speaker*	*Use all senses* *Timeline graphic organizer*	*Mr. Jacobs, a great storyteller and historian, will come to share the story of the Colorado Gold Rush. Each student will use a timeline to record the major events.* *When we go on the field trip to the Argo Gold Mine, we will be at the site of part of the actual story. I will ask students to create mental images and report what they see, hear, smell as they picture the events of the story.*
Vocabulary terms: Tourism, urban, rural, plateau	*Class discussion*	*Vocabulary strategy*	*For each vocabulary term, students will work in groups and go through the steps of the vocabulary strategy. They will then take turns presenting to the class the images and experiences they used to exemplify the terms.*

Dimension 2 Planning Guide: Procedural Knowledge

Unit: *Colorado*

What ***procedural knowledge*** will students be in the process of ***acquiring and integrating***? As a result of this unit, students will be able to. . .	What will be done to help students ***construct models*** for, ***shape***, and ***internalize*** the knowledge?	Describe what will be done.
read and interpret physical maps.	*Note: These strategies will be used to teach both types of maps.*	*I will talk through the steps of reading a map, demonstrating the steps with each type. I will give them a set of written steps for reading any map.*
read and interpret natural resource maps.	*Think-aloud* *Set of written steps* *Practice with variations* *Internalizing is not a goal.*	*Working in groups, students will receive several variations in format (taken from different textbooks) for both physical and natural resource maps. There will be questions for the group and then for individual students to answer as a way of becoming familiar with each variation. This assignment also will reinforce the learning of the concepts of topography and natural resources.*

Dimension 3 Planning Guide

Unit: *Colorado*

What knowledge will students be ***extending and refining***? Specifically, they will be extending and refining their understanding of. . .	What reasoning process will students be using?	Describe what will be done.
Topography, natural resources, and climate influence settlement patterns in a region.	❑ **Comparing** ☑ **Classifying** ❑ **Abstracting** ❑ **Inductive Reasoning** ❑ **Deductive Reasoning** ❑ **Constructing Support** ❑ **Analyzing Errors** ❑ **Analyzing Perspectives** ❑ **Other** _____	*So far we have been focused on understanding how topography, natural resources, and climate influence the "appearance" of settlements. Shift your focus now and examine how these factors influence the "disappearance" of settlements. You will be given descriptions of situations where populations thrived and then disappeared (e.g., Anasazi Indians, several ghost towns, dinosaurs, and the "dust bowl") and the reasons for their demise. Classify each description according to whether the reasons for the disappearance had more to do with topography, natural resources, or climate. If more than one possible reason is given, you may have to place the example in more than one category.*

What knowledge will students be ***extending and refining***? Specifically, they will be extending and refining their understanding of. . .	What reasoning process will students be using?	Describe what will be done.
Topography, natural resources, and climate influence the culture of a region.	❑ **Comparing** ❑ **Classifying** ❑ **Abstracting** ☑ **Inductive Reasoning** ❑ **Deductive Reasoning** ❑ **Constructing Support** ❑ **Analyzing Errors** ❑ **Analyzing Perspectives** ❑ **Other** _____	*Several times during this unit we will, as a class, select articles from "USA Today" that reflect the culture of a place with which we are unfamiliar. Based on what we learn from the article about the culture of the place (e.g., issues or problems people face, their celebrations), we will try to induce specific facts about the topography, natural resources, and climate of the location.*

Dimension 4 Planning Guide

Unit: *Colorado*

What ***knowledge*** will students be ***using meaningfully***? Specifically, they will be demonstrating their understanding of and ability to. . .	What reasoning process will they be using?	Describe what will be done.
The concepts of topography, natural resources, climate, and culture *Topography, natural resources, and climate influence settlement patterns.*	❑ **Decision Making** (selecting from seemingly equal alternatives or examining the decisions of others) ❑ **Problem Solving** (seeking to achieve a goal by overcoming constraints or limiting conditions) ❑ **Invention** (creating something to meet a need or improve on a situation) ☑ **Experimental Inquiry** (generating an explanation for a phenomenon and testing the explanation) ❑ **Investigation** (resolving confusions or contradictions related to a historical event, a hypothetical past or future event, or to the defining characteristics of something) ❑ **Systems Analysis** (analyzing the parts of a system and how they interact) ❑ **Other** _____	*We have discussed in class that Colorado's population is growing very rapidly. In fact, compared to many other states, a relatively large number of people who live in Colorado moved from somewhere else. There are actually not that many "Colorado natives." Why have so many people moved to Colorado, and why is the population still growing so rapidly?* *One explanation is that aspects of the topography, natural resources, climate, and culture attract people to Colorado. Let's find out if that helps explain it. If it is true, we should be able to trace people's reasons for moving to Colorado to these characteristics of the state.* *Set up an activity—for example, surveys or interviews—that would help to determine to what extent people have moved to Colorado because of factors related to topography, natural resources, climate, and culture. You will need to set up the activity, plan for analyzing your results, and be ready to report your findings to the class. Any member of your group may be asked to explain what you found out about the influence of each concept you are considering: topography, natural resources, climate, and culture.*

Dimension 5 Planning Guide

Unit: *Colorado*

Are there any goals or concerns related to students' ***habits of mind*** • in general? • related to this specific unit?	What will be done to address these goals or concerns?	
	Specifically, will anything be done to help students. . .	Describe what will be done.
	Critical Thinking ❑ be accurate and seek accuracy? ❑ be clear and seek clarity? ❑ maintain an open mind? ❑ restrain impulsivity? ❑ take a position when the situation warrants it? ❑ respond appropriately to others' feelings and level of knowledge?	
It's that time of year. Students are really slacking off. Energy is low; only the minimum is being done—even from my good students	**Creative Thinking** ☑ persevere? ☑ push the limits of their knowledge and abilities? ❑ generate, trust, and maintain their own standards of evaluation? ❑ generate new ways of viewing a situation outside the boundaries of standard conventions?	*I am going to try to energize them a little bit by verbally reinforcing students when they push their limits or persevere. I think it is time to give out a few certificates of achievement when students exhibit these habits.*
Students know you should plan before you begin, but they do not consistently or efficiently do this. The experimental inquiry task will be dependent on careful planning and follow-through.	**Self-Regulated Thinking** ❑ monitor their thinking? ☑ plan appropriately? ❑ identify and use necessary resources? ❑ respond appropriately to feedback? ❑ evaluate the effectiveness of their actions?	*I am going to give students a planning form to keep on their desks. I will use it to lead some discussions about planning and then to demonstrate how to use the form. Every few days I am going to have students write in their learning logs about how their planning is going.*