

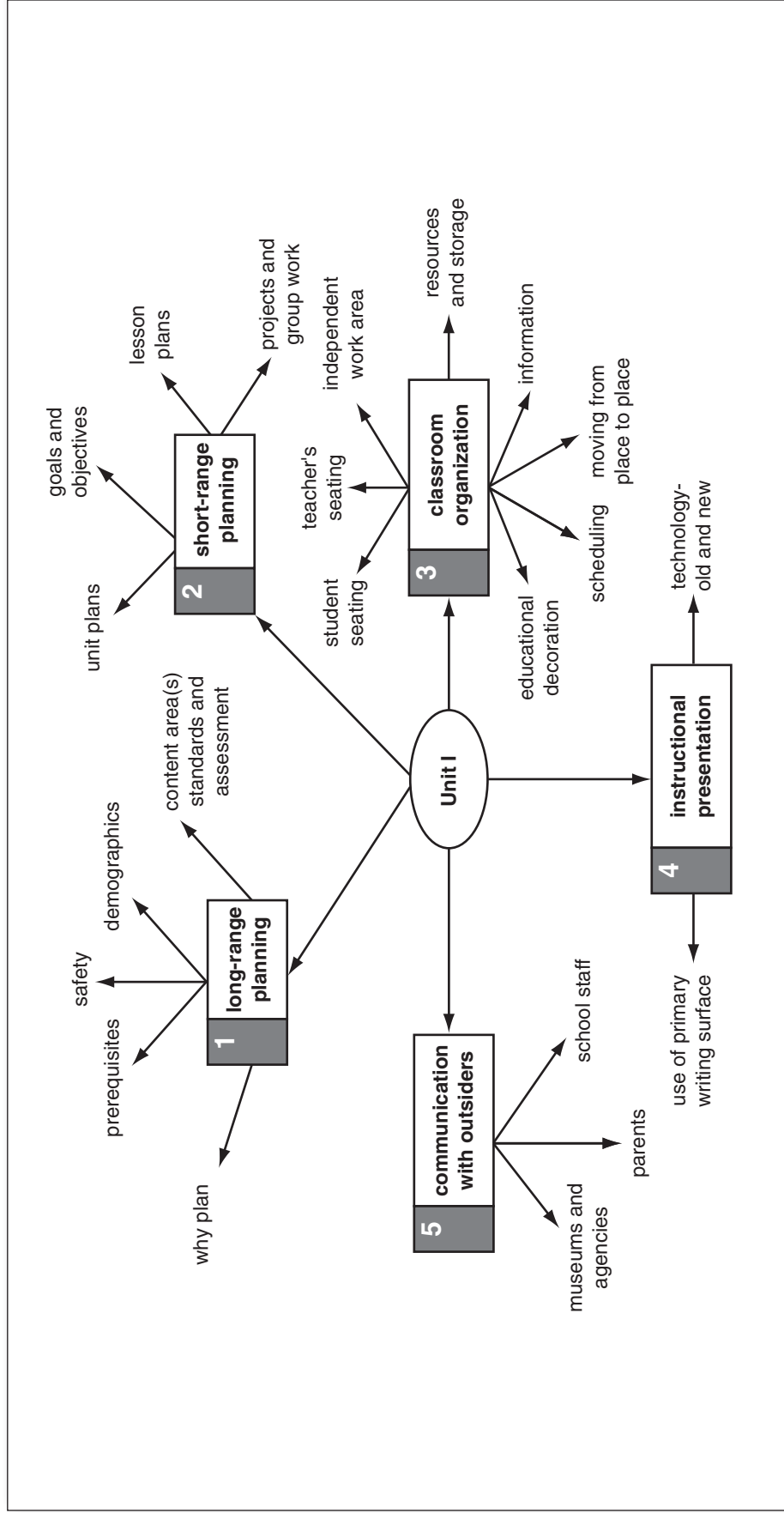
# UNIT I

## Instructional Organization

### UNIT I OUTLINE

- I. First: Long-Range Planning
  - A. Why Plan?
  - B. Three Prerequisites
  - C. Safety
  - D. Demographics
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- IV. Tomorrow: Instructional Presentation
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- V. Finally: Communication with "Outsiders"
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- VI. Conclusion

■ UNIT I CONCEPT MAP



## UNIT I PEP TALK ■

It's time to get organized! Whether you are preparing for student teaching or facing your first few years as a classroom teacher, instructional organization—which includes all four of the units in this book—will be the determining factor in your success or failure, your ease or stress, and your fulfillment as a professional educator. Yes, it is a big topic. No, it is nothing mystical or magical—it is just a matter of doing the things that effective teachers do.

First, let's talk *conceptualization*: This unit is about organizing and planning instruction in the classroom. We will focus here on the nuts and bolts of teaching, the processes that occur inside and outside the classroom that most directly enable students' learning. As a teacher, your primary goal is to create a rich learning environment in your classroom, one that provides many opportunities for your students to engage with content and peers, to study, and to grow.

Such an environment would contain a variety of materials and supplies, and especially inviting *spaces* that can be used flexibly for different purposes. Nicholson's (1973) classic *The Theory of Loose Parts* states that in any environment, both the degree of inventiveness and the possibility of discovery are directly proportional to the number and kind of variables in that environment. Some classroom environments do not work simply because they do not have enough "loose parts" to generate learning. It is having the loose parts that makes your classroom an inviting and stimulating place. Note, however, that we don't mean your classroom should resemble a junkyard! The loose parts work best when they are well organized. Your aim should be a classroom environment that is aesthetically pleasing to those who study and work there.

Second, *content*: Keep in mind that there is no single right way to go about your curriculum planning as a teacher. Your several million colleagues across the country do their planning in many, many different ways, some more effective, some less so. Also remember that the content of the curriculum can, and should, reflect the uniqueness of your school's locale and the multiple cultures of its patrons. That is to say that the *context* in which education occurs will vary from one place to the next. Fourth graders in an Illinois science class might be studying the prairie environment, while those in Florida would be studying wetlands. Both the *what* of the content and the *how* of the teaching should reflect a consideration of the needs and cultures of your local community.

And think about this classic point: According to Vygotsky (1978), learning occurs when your students interact in meaningful ways. Student-to-student interaction happens naturally in cooperative group work. As you develop your repertoire of teaching strategies, you will naturally want to learn how to use a variety of cooperative learning strategies in your teaching. This is something this book should help you do.

Tomorrow is all about *implementation*: Other teachers will tell you that their classes are different each year. Most teachers recognize that the effectiveness of instruction depends upon the particular students in their classes. Much also

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depends upon the circumstances of the moment. Thus, even though you have planned your lessons well, a lot of interactive planning often occurs right on the spot in response to students' interests or needs. Successful teachers are flexible enough to respond to each situation and take advantage of the "teachable moment."

And finally, *reflection*: All in all, classroom life is affected by myriad variables. The educational profession has to be among the most complex enterprises in all of society! No one formula for planning and managing a classroom possibly could be applicable in all, or even most, situations. There is no way you can predict every kind of student or every teaching situation with which you might have to cope. Yet, despite the constraints and challenges, teachers and students in different kinds of schools manage year after year to create communities where learning flourishes. Through thoughtful planning, you can anticipate and address many of the tasks and problems involved in enacting your classroom curriculum. Here is one piece of advice based upon our (your authors') own classroom experiences: *Be patient with the complexity and keep yourself open to learning on the job.*

### ■ FIRST: LONG-RANGE PLANNING

**Long-range planning** represents the big picture of your work in the classroom. With a solid perspective of this picture, planning the day-to-day activities comes much more easily. However, many teachers try to plan from one moment to the next, believing that they just don't have time to lay out the larger plan. Yet how many buildings are built without blueprints first being drawn? No, far from being an unnecessary exercise, putting together the long-range plan is one of those things that separates the professional from the wannabe.

#### Why Plan?

Just imagine facing a classroom of children—at any age level of your choosing—*without* a plan for what you are going to do! At the very least, having a plan is a way to reduce stress as you begin your day! And we would add that planning is good for the department of the teacher *and* good for the quality of the instruction.

Any teacher will tell you that planning takes place well before class time, perhaps as you drift off to sleep or in the haze of waking up or when showering. Ideas emerge when you are traveling to and from school—and that's why some of us keep a writing pad or a tape recorder handy wherever we are.

What goes into planning for instruction? Always in the back of your mind is who your students are and what their lives are like (demographics). Also very important: what you expect that they already should know. You also have to consider whether or not you have students with special needs. Then there is the matter of what your state or school system requires you to teach in terms of content, skills, and habits of mind (your local or state standards).

Plus, you need to think about the materials you have on hand and whatever else you will need. Then there is the time issue: how much time you will have

to spend on the lesson or unit. A further consideration is whether or not you can relate this content to other areas of the curriculum, so that you might integrate lessons. Sounds like it might be getting just a bit overwhelming, but don't worry, planning goes a step at a time specifically to ward off "overwhelming."

After you have settled these matters, you can write unit goals and the objectives for your lessons. Figure I.2 (see page 40) lists some guiding questions that will help you in planning. Lessons should be written to address the objectives, or learning outcomes, that you have set for your students. You will find more details about unit and lesson plans later in this unit.

### Three Prerequisites

There are three prerequisites to planning your classroom curriculum. First, it is best that you know your students—their cultural and economic backgrounds and their general family situation—as well as your students' ability levels, interests, maturity, prior knowledge and experience, and special needs or necessary accommodations. You may need to begin your long-range planning, however, *before* you know all this in the detail that you'd like. Regardless, your job is to design and enact a classroom program that will not only meet the needs of your students but also motivate them to want to keep learning.

Second, to plan the classroom curriculum, you will need to know the subject matter that you will teach, that is, the content. *Content* is the body of facts, concepts, skills, habits of mind, and so forth that represent what you will teach. For elementary teachers, it is likely that you will be ahead of your students to start with, but it is still necessary for you to study and update yourself on the content that you will be teaching. You should also review your state standards and local district or school curriculum guides.

*Know your students! To whatever degree possible, include whatever knowledge you have of your students in your planning.*

Third, you will need to be aware of what materials you have and what equipment is available. It makes a difference, for example, if you'll have an Internet-connected Smart Board in your classroom or still have to rely upon the chalkboard. Available technology, software, audiovisuals, science equipment, measuring tools, math manipulatives, library resources—all make a difference. And don't forget to consider your local community's resources, such as museums, zoos, nature centers, parks, guest speakers, and volunteers. And it makes a difference whether or not you have help from a teacher mentor or a teacher aide. You will find more about this in the section of this unit titled, *Tomorrow: Instructional Presentation*.

Finally, keep in mind that long-range planning is considered within a larger frame than the school day. One larger frame is the week, while another is the grading period—which could be six weeks, a quarter (nine weeks), or a semester. An example of framing instruction into a weekly schedule is the teacher who, on Monday, introduces the content that is to be addressed by Friday and the assignments students will complete by then. Assignments might include readings, searching for information online or in the library, and responding somehow in writing to the concepts and skills being studied.

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## Safety

Before we continue discussing each of the prerequisites, let's take a moment to consider a key element that must underlie all planning: *safety*. Safety has to be foremost in your mind, both inside and outside the classroom. Plan to engage your students in discussing safety early in the school year. They should be able to contribute suggestions in determining appropriate safety rules, and involving them fosters their investment in maintaining a safe environment. Post the resulting standards for safe behavior prominently in the classroom.

Safety has been described as simply using common sense in planning ahead. Of course, nothing you can do can guarantee that an accident will never happen in your classroom. The best practice is to think ahead and be prepared. For example, locate the fire extinguishers in your school and know how to use them (a practice "shot" is a good idea). Keep your classroom door free from obstructions and never store flammable material near the door. Know your school's procedures for handling student injuries. Unless circumstances offer no alternative, never treat injuries yourself. Excluding lifesaving measures, teachers may only stop bleeding and apply water (as to burns or acid spills).

Your liability as a teacher falls under *tort law*, where negligence or breach of contract or trust results in injury to another person or damage to property. A student generally acquires the status of an *invitee*, which means that no contractual basis exists for assumed risk on his or her part. The law assumes students do not know the potential dangers or appreciate the risks involved. Your responsibility as the teacher is related to the legal concept of *negligence*, which is about neglecting instruction, supervision, or proper maintenance of equipment and supplies. If there is no precedent or statute involved, then your actions or inactions as the teacher are to be measured against what a hypothetical *reasonably prudent individual* would have done under the same circumstances.

*The reasonable person is one who anticipates what might happen.*

When it comes to safety, the reasonable person is one who anticipates what might happen.

For older students, a good strategy is to work with the class to develop safety contracts that everyone in class will sign. These should be kept on file. A simple sample safety contract can be found in Figure I.3 (see page 41). Flinn Scientific offers middle school and high school sample contracts for science on this website: [www.flinnsci.com/Documents/miscPDFs/safety\\_contract\\_MS.pdf](http://www.flinnsci.com/Documents/miscPDFs/safety_contract_MS.pdf).

Keep in mind, however, that *such a document does not absolve you of responsibility*. While you will never be able to establish an absolutely injury-proof environment, *always* be conscientious about safety.

## Demographics

The primary prerequisite to planning your classroom curriculum is knowing your students. Part of this involves knowing about their backgrounds. *Demographics* have to do with socioeconomic status indicators. The demographic variables among your students, such as family income, parental education, mobility, and home language, are a few of the components that define a

demographic context and are what make each classroom unique. The demographics of your students are the givens, what you have to start with in your classroom, and there is not much you can do to change them. Remember, what students bring to school accounts for much of the variance in their academic performance. Your understanding of the demographics can enrich your perspective and help you better allocate your instructional time and resources.

Understanding a classroom's demographic context can help remove excuses and increase the positive stress when students are not performing in line with their favorable demographics. Often there is little pressure on some students to improve their achievement, as they already perform better than students in other schools in their area. With a little push, however, these students, with their advantaged demographic profile, can improve relatively quickly. If this is the situation in your classroom, what you have to do is up their positive stress.

Conversely, understanding a classroom's demographic context can also help decrease the negative stress when students are doing well despite a *disadvantaged* demographic profile. When students are doing better than their backgrounds would indicate, this tells you that they are making the right efforts, and this calls for celebrating! Thus, the demographic lens is another tool that can help you plan more appropriately for instruction. We will look at this again when we discuss sociograms.

### *Special Needs*

**Special needs** represents a category of students that includes everything from the learning disabled to the gifted. Inevitably you will have the opportunity sometime in your career to teach many kinds of students with special needs. Some students have specific disabilities, such as being visually or hearing impaired. Some may be normal in every other way except that English is not their first language. These children are variously called ESL (English as a Second Language), ELL (English Language Learners), or simply EL (English Learners). Other students with special needs may be cognitively or physically challenged.

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**Inclusive learning environments** represent a change in how students are to be taught in our schools today. Back in the "old days," students with special needs were segregated for specialized instruction. The preference today, however, is for teachers to provide appropriate instruction for *all* students through differentiating instruction in a heterogeneous classroom. Doing this will require time and patience: you may have to make *accommodations* for some students and *modifications* for others. Providing for the special needs of students will certainly be one of your biggest challenges as a teacher.

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**Inclusive learning environments** represent a preference for teachers to provide appropriate instruction for *all* students through differentiating instruction in a heterogeneous classroom.

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Such students may require that you use particular teaching strategies in a structured environment that supports their learning. You may want to learn more about teaching children with special needs by taking special education classes or workshops. The Internet has many websites devoted to teaching children with particular needs. For example, see the National Association for Gifted Children online at [www.nagc.org](http://www.nagc.org).

### *Classroom-Management Plan*

We will discuss classroom management in detail in Unit II. However, you need to understand right up front that effective classroom management begins with bringing a plan into class. This is not something to start thinking about once all the students have arrived. A key to effective classroom management is to first develop a plan for managing a classroom effectively.

*A key to effective classroom management is to first develop a plan for managing a classroom effectively.*

There is no one right way to manage a classroom, because every group of students is unique, but your aim should be to create a positive classroom climate, not one based upon fear of retribution. As you grow into your teaching, you will develop your own style of classroom management. Your style may also evolve and will likely remain a work in progress as you gain more experience with the new classes you teach. Thinking about your management plan requires that you seriously consider your values and beliefs about discipline and your social goals for your students.

Conceptualizing a management plan will enable you to better understand how you will teach and increase your confidence in your approach to classroom management. You will want to be proactive rather than reactive to student behavior. The plan can always be amended, and you will want to be flexible. Your management plan should include the following:

- A diagram of how you will arrange your classroom and perhaps the seating arrangements you will use during different kinds of activities, and why you chose the arrangement(s) you did
- What you believe regarding classroom management—this will be based upon your philosophy of education and would include what you know about your teaching style
- Classroom rules and how you will communicate them to your students and parents
- How you propose to manage students that misbehave and how you will encourage positive behavior in your classroom
- Classroom procedures—this includes generally how you will conduct your lessons and assessments

Your management plan also should include a consideration of the unexpected. Interruptions and unexpected events occur periodically, and you should be ready when they do. They range from fire drills, to students getting sick, to your own personal family emergencies. You should have contingency plans ready for such unexpected events.



Routines can help. Among the first tasks of a teacher each school year is to determine how the students will spend their time each day, that is, the daily routines and weekly classroom schedule. Middle school and secondary teachers, who typically deal with a bell schedule and whose students move from room to room, will already have most of the scheduling decisions made for them, but all teachers have to create routines for their classroom time.

We recommend that you make your daily agenda visible to your students each day, such as by using the chalkboard, whiteboard, or electronic Smart Board to display the tasks of the day. Students will be able to see what to expect as they come in. Further, by making a habit of doing this, you will tend to be more organized yourself.

You will also occasionally find that your lesson may move faster than you expected. This is generally not a problem in a self-contained classroom, but it is not so good for students in a seventh-grade class to have a bunch of extra minutes with nothing to do. Even experienced teachers sometimes end up short on their timing. When this happens, don't fill the time by letting students talk. Instead, plug in more instruction, such as a written reflection, a review, or even an educational game. Having available several minilessons for backup can also be helpful when your regular period is shortened, such as for an early dismissal due to weather or for a school assembly.

Remember that classroom management extends to instructional and noninstructional time. That is, whenever students are present—whether or not a planned lesson is underway—classroom management is still your responsibility. *Unit II: Classroom Management* will provide you with a thorough discussion of this critical topic.

### *Working With Parents*

Forging a positive parent–school relationship is very important to a child's development, and you should always remember that parents are the most important teachers in their children's lives. Often it is difficult, however, to get them engaged with their child's school. On the other hand, some parents may become overengaged, even meddling in matters that should only be your province as the teacher. Some parents will claim that teachers give lip service to their involvement but that they disregard their ideas. So you can see that working with parents can be complicated and challenging. It requires respect, humility, openness, and certainly a lot of tact.

*Working with parents requires respect, humility, openness, and tact.*

A way to get off on a good footing with parents is to visit with them in their homes or on neutral ground rather than at school. This can also be an opportunity for you to invite them into your classroom to observe. Also, it is an opportunity to find out what the parents know and can do that might support your classroom educational program. Perhaps you'll discover one who loves gardening and would help you with creating a school wildflower garden or nature trail. Maybe one of your parents can help with your class website, and so on. Parents can be a great help on field trips as drivers and chaperones, and you can hold brief training sessions with them so that they can help with group

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activities. Consider that your parents represent a huge resource pool for your classroom-instructional program.

One thing to remember when communicating to parents is to avoid education jargon. Terms like “constructivism,” “metacognition,” “cooperative learning,” and “multiple intelligences” are not in the vocabularies of most parents. Don’t try to snow them with your intelligence, just use plain talk and remember to maintain good eye contact and body language, such as favoring an open- rather than a closed-body position. As you get to know your students’ parents, you will better understand the community in which they live and its subcultures.

**TRY THIS: UNDERSTANDING  
YOUR SCHOOL (SOCIOGRAM)**

Creating a *sociogram* may provide you some insight into the relationships among students in your class or school. This is a tool that can be constructed in a number of ways. A sociogram is a mapping of the interrelationships within a group, conducted to reveal group structure (the pattern of friendships and subgroup affiliations). With an accurate sociogram, you can see how a child in your class relates to others. Referring to a sociogram can help you understand your class’s behavior and make better classroom-management decisions.

**How to Do It**

One way to create a chart of classroom relationships is to use what are called “negative questions” to find out about interpersonal resistance. For example, you could ask students to write down responses to the question, “Which three classmates do you like the least?” This would be called a “fixed negative nomination” technique. If the students were also asked to rank their classmates from most to least disliked, it would be called a “fixed rank, negative nomination” technique. Researchers have found that collecting data for this kind of sociogram sometimes elicits unfavorable emotional reactions from students. It is important to be sensitive in asking these questions and assure your students that you are gathering data to help you understand the class better. So, negative nomination information is useful for getting the big picture of your students as a group.

Of course, there is also a “positive nomination” technique. To go with this approach you ask your students questions about who they “like” or would “like to do” something with. An example would be, “Which three students would you most like to sit with?” What you do is to restrict their choices to only so many nominations, three in this example. You could ask a student to name the three other students in class who are their best friends, or the three students they would want to play a game with. This technique is called a “fixed positive nomination.”

It is interesting to compare sociograms constructed using each of these techniques. Your students who get a lot of positive nominations and few if any negative ones are typically considered popular, while those who receive a lot of negative nominations and few if any positive ones are typically considered unpopular or “rejected” (Sherman, 2000). Analyzing further, you can identify your class “stars” (both negative and positive ones), isolates, and “ghosts”—those who are not even acknowledged as being in the classroom. These are the students who haven’t received any positive nominations or any negative ones.

You can also identify group phenomena, such as mutual choices (pairs who chose each other), chains (when one nominates another who nominates another—usually leading to a “star”), triangles and circles (when a chain comes back on itself), and islands (when pairs or small groups are separated from the larger patterns and members are not nominated by anyone in other patterns). Mutual negative choices are a red flag, of course, and should never be placed in the same small group. So, you can see how a sociogram would be useful for grouping students into cooperative groups. Other red flags are patterns that potentially reveal threats to a positive classroom climate, such as overactive competition among students or the development of in-groups or cliques and out-groups.

As you might expect, there are commercial software programs available that take a lot of the work out of creating useful classroom sociograms. One inexpensive program is Walsh’s Classroom Sociometrics Program, available from [www.classroom-sociometrics.com](http://www.classroom-sociometrics.com).

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## Content Area(s) Standards and Assessment

Returning again to what you need to know to plan your classroom curriculum, you may recall that one of them is the subject matter. As you begin your planning, be sure to examine your state and national standards for the subject(s) at the grade level you teach, as well as your textbooks and supplemental materials. Standards for the fifty states can be downloaded at [www.academibenchmarks.com/](http://www.academibenchmarks.com/). Studying your state’s standards will help you determine what content you must address.

Some teachers find it helpful to extract the main ideas from their standards or curriculum framework and outline them or create a *concept map* (a *semantic web*). Figure I.4 (see page 42) is an example of a teacher-made concept map for Grade 5 science in the Virginia Standards of Learning curriculum framework (Board of Education, 2010). These concept maps can be drawn out by hand, of course, but the one in Figure I.4 was created by Inspiration® software (you can try it free for one month, [www.inspiration.com](http://www.inspiration.com)). This program is intuitive to use and creates maps that can be exported into many file formats. It is available for both Windows and Mac operating systems.

If you have a spare calendar or can generate one on your computer, you will find it is a helpful tool in planning. With a calendar you can visualize the time in the month or in the academic term and then map out what you want your students to be studying in a subject over the course of the semester or school year. Think of it as a process of merging your curriculum concept map to your time frame for delivery. Through this process of organizing your lessons, you’ll be able to roughly pace yourself as you teach. However, don’t let your plan and timeline become a rigid dictate for enacting your classroom curriculum. The plan should only be a rough guide. You must be sensitive to “conditions on the ground” and be ready to modify your plans and timeline as you judge from your ongoing assessments. Remember, you are meeting children’s needs and, to a reasonable extent, must “go with the flow.”

An assessment simply describes what data you will use to decide whether your lesson objectives have been achieved. This topic will be addressed in detail in Unit IV, but as with classroom management, it is something to consider as

part of your planning. Far from just happening when a lesson ends, a good assessment precedes instruction, continues throughout the lesson, and then shows up again when evaluating student progress.

Assessment must be based on your unit goals and lesson objectives. It is about gathering all the information that you will use to *evaluate* your students. Evaluation is the actual judgment you make as to the degree a student has achieved the objectives. Assessment is both *formative* and *summative*. Formative assessment should be embedded throughout your lessons. It helps you determine such things as the pace of the lessons and whether particular topics have already been learned or will need reteaching. Assessment can involve using scoring guides or *rubrics* for projects, written and oral reports, group work, and student journals. As to the summative assessment, it occurs at the end of the unit (or grading period) and can take many forms, typically involving a written test for older students, though it can be a portfolio of the work that a student accomplished during the time the unit was taught. *Unit IV: Assessment* will provide you with a complete explanation of how to go about assessing and evaluating your students.

## ■ SECOND: SHORT-RANGE PLANNING

Long-range planning provides the broader perspective of what you want to accomplish with your students and it *informs*, but does not organize, your day-to-day activities in the classroom. For that we take what you have set down in the long-range plan and use it as the guide for developing **short-range plans**, which might include unit plans and daily planning or lesson plans.

### Unit Plans

Unit planning begins with identifying the particular content to be taught and your goals for learning outcomes. *Goals* are about your purpose or aim. They relate to your *rationale* for teaching the particular content that your students will study.

Goals help set the stage for study and typically are written as broad statements. Often they are tied to state or national curriculum standards. It is important to always remember that your goals should go beyond the basic cognitive (knowledge) domain. Don't neglect to consider the affective and psychomotor domains (for more on this, you may wish to research the White House Conferences on Education). Note that other scholars have also created models for educational domains. So, using Yager and McCormack's (1989) domains, you will need to go beyond the knowledge (knowing and understanding) domain and also address the creative (imagining and creating), attitudinal (feeling and valuing), process (exploring and discovering), and application (using and applying or connecting) domains.

Your introductory lesson to the unit should be given extra attention. You will want this lesson to grab your students' attention and stimulate them to want to know more. There are many exciting ways to begin a new unit, but

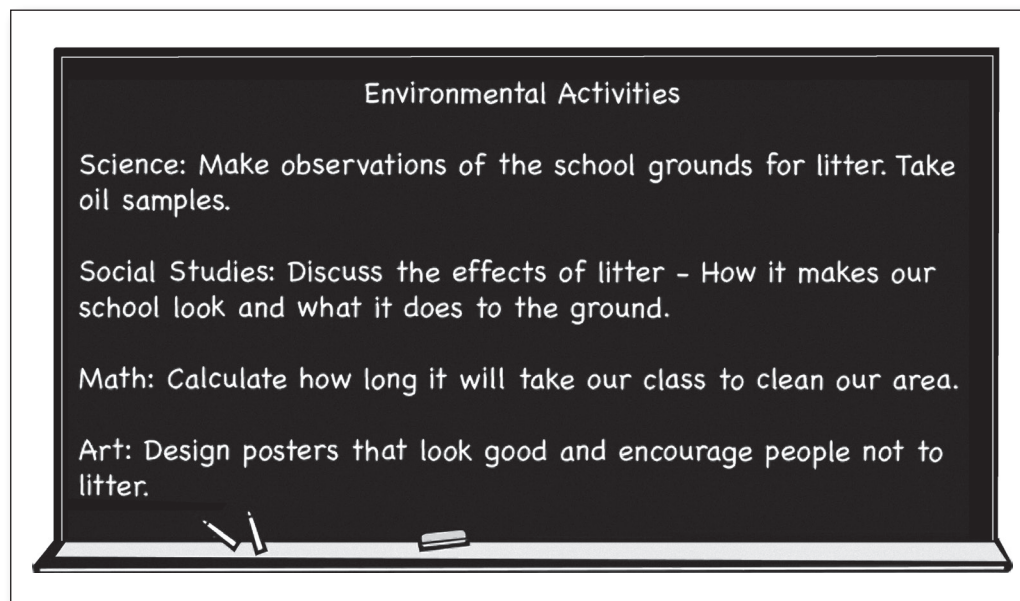
reading a chapter out of a textbook is not one of them. Likewise, you should give attention to your culminating lesson. You will want to wrap up your unit by helping students reflect upon and synthesize the content that they studied. If there is to be a final test or exam, you might also plan a review activity that is also fun. Framing a review in a game such as “Jeopardy!” is an example. Another way to wrap up a unit is for students to present individual or group projects. Depending on the project and the quality you expect, you might even consider culminating with presentations to other students, or to family and community members.

### *Single-Topic Units*

Probably the most typical way teachers plan their classroom curriculum is in terms of instruction in units organized around a single topic. This kind of organization generally reflects a daily schedule in which reading, math, science, social studies, and so forth are taught separately and divided from each other by assigned time periods. Many of us have been taught most often this way. Remember the unit on the Civil War? It is likely it was organized this way. Another example would be the math unit on fractions and the science unit on weather.

### *Thematic Units*

Thematic units use a single topic to address several subject areas.



Instruction through **thematic units** assumes students learn best when the curriculum is a coherent whole and when they can connect their studies to the real world. The challenge for the teacher is to integrate content from many

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subjects, all the while being specific enough to be practical yet broad enough to encourage creativity.

Instruction in a unit organized around a theme integrates, for example, reading, math, and science through the study of a broad area, like, for example, “energy” or “exploration.” The rationale for the thematic approach is that it demonstrates the interdisciplinary nature of learning itself. First among the reasons for using a thematic approach is that student interest and engagement are likely to increase. Thematic planning lets you use collaborative and cooperative learning, as well as classroom computers. Further, you end up with a more compact curriculum—with less content overlap and simpler organization of the content. This approach also expands both your assignment and your assessment options.

Often, thematic units are team taught, and several teachers work together to plan and teach the unit. Either way, you begin by selecting an appropriate theme reflecting the curriculum, student interests, experiences, issues, or problems. Identify the goals you wish students to accomplish by the end of the unit. These can be related to state and local standards and competencies. Select and organize content-rich and challenging activities to use. Activities will be broad based, integrating many subject areas.

When your unit is completed, it should be stored for later access. Probably it will first reside on your computer hard drive. We suggest you back up your hard drive regularly and also store a hard copy of it in a file folder in a filing cabinet, where it will be easy to find the next go round. Alternatively, a loose-leaf binder will do if that works for you. Either way, a hard copy will probably be helpful as a place to make notes for changes as you go, and it can later be used for making revisions on the electronic version. The hard copy in the file cabinet can be altered as your class and the content change and as different teaching resources become available.

**Single Topic Units**

Most typical. This kind of organization generally reflects a daily schedule in which reading, math, science, social studies, and so forth are taught separately and divided from each other by assigned time periods.

**Thematic Units**

Assumes students learn best when the curriculum is a coherent whole and when they can connect their studies to the real world. The rationale is that it demonstrates the interdisciplinary nature of learning itself.

**Goals and Objectives**

**Objectives** for a daily lesson plan are drawn from the broader goals of the unit plan but are more specific and often stated as learning outcomes that are achieved over a defined time period. In writing lesson objectives, consider first what you want your students to be able to do as a result of the lesson. Also consider the conditions students will work under to accomplish the

desired outcomes and the criteria you will use to judge a satisfactory attainment of the objectives—in other words, how your students will demonstrate that they have met the objectives of your lesson. Also consider if your students are ready for the new material or if first they will need some prerequisite knowledge or skills to succeed. This step allows you to factor in any needed preparatory work so that the necessary prerequisites are attained and students are able to meet the objectives. Finally, based on the unit goals, decide how many lessons will cover the unit and write a specific objective for each lesson.

While every education professor will have preferences for how you do lesson plans for his or her class, there really is no single right way to organize your units or lessons. Check to see if your school or school district requires a particular format. Many states will have sample lessons available that illustrate how to teach to their standards, so look for those to see if they are useful for your own classroom. You can always modify such lessons or the lessons you find that are suggested in textbooks. The format of the sample lessons might be useful as well as a guide for your own planning. We will consider a couple of different formats in this unit.

Usually lessons are planned in the context of a *unit of instruction*—a series of lessons organized around a theme or related concepts. In science, for example, a unit might be created on weather or mammals; in social studies, perhaps on Colonial America; in math, on fractions. So, we recommend you first conceptualize your unit. Begin by roughly sketching out what you want your students to learn in general: the unit goals.

In writing your goals, ask yourself why you are teaching this unit. What do you want your students to learn from it (knowledge, skills, attitudes, and appreciations)? How will you answer when a student asks, “Why do we have to learn this?” Consider giving an answer that tells them how learning whatever it is will benefit them now in their daily lives, rather than, for example, when they are in high school or college or working a job.

An example will illustrate how goals differ from objectives. A unit on biomes in science may have the following goal: “Students will understand and appreciate the diversity of plants and animals that make up each of the biomes.” The lesson objectives, however, will be more specific and contain indicators that will inform you if the student has achieved the objective, such as, “The student will define diversity in the words of others or in his or her own words,” or “The student will explain how maintaining the species diversity in a particular biome can be achieved.”

In general, units will have goals, which are more general statements of what is to be accomplished, while *lessons* within the unit will have more specific objectives.

When writing your goals, ask yourself how will you answer when a student asks, “Why do I have to learn this?”

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In general, **units** will have *goals*, which are more general statements of what is to be accomplished, while **lessons** within the unit will have more specific *objectives*.

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Elements common to most lesson plans include

- Objectives (sometimes combined with the state standards being addressed)
- Activities (read-alouds, investigations, role-plays, WebQuests, homework, etc.)
- Time estimates
- Materials needed
- Alternatives (for students who may be absent during a lesson, or for differentiating instruction for different ability levels or interests)
- Assessment

Sometimes teachers also include *prerequisites* that indicate what the students need to know or be able to do to achieve the objective(s). It is always important to consider prior knowledge and skills when you are planning instruction, since researchers have found that most learning, more than two-thirds, is dependent on how prepared the students are for the instruction.

Activities are the “meat” of your lessons and should be carefully planned. Don’t include activities just to keep students busy. Each activity should contribute to the students meeting the lesson’s objectives.

Using your calendar as a rough guide, you can write out or word process your units and lessons. Teachers vary a great deal as to the level of detail they create in their lesson plans, and this typically changes with years of experience as well. Some will use an outline with times indicated to help keep track, while others will write out detailed notes on the content. We recommend that you have a daily agenda prepared that can be shared with your students, and this will help you to make smooth transitions as you move through topics and activities.

Here are some variations on the writing of instructional objectives:

### *Gronlund Objectives*

Gronlund (1999) suggests beginning with a general statement and then giving specific examples of topics to be taught or behaviors to be observed. An example of an objective from a Gronlund perspective is,

The student can perform simple multiplication

- a. can define what multiplication means, in his or her own words
- b. can define relevant terms such as “multiplier” and “product”
- c. can solve problems of the type  $5 \times 4 = \underline{\hspace{1cm}}$ .

### *Mager Objectives*

Mager (1997) suggests writing very specific statements about observable outcomes. This type is called a *behavioral objective*. An example of this kind of objective is, “The student will name at least seven of ten state capitals.” While there are advantages and disadvantages to each approach, we will illustrate



most of our examples in this chapter using Mager's approach, since it is the most widely used and perhaps the most inclusive.

### *Eisner (or Expressive) Objectives*

Elliot Eisner (1997) proposes that not all instructional objectives should focus on a specific outcome and that some should focus on the learning process itself. This type of objective is called an expressive objective. Two examples are as follows:

- Students will walk on a trail in the woods.
- Students will use multiplication in everyday activities.

### *“TSW” Objectives*

TSW is an abbreviation commonly used by teachers in lesson plans. It stands for “The student will . . .” The next word that follows will be a verb that both identifies the desired learning outcome and the level of thought required (see Figure I.7, page 45). This is where Bloom's Taxonomy or another scheme of instructional domains, such as the one suggested by Yager and McCormack (1989), is useful. For example, the verbs *recall*, *describe*, *apply*, *analyze*, *predict*, *construct*, and *judge* are representative of Bloom, in order from the lowest level to the highest level.

The following are examples of properly written objectives:

- TSW list three characteristics of mammals.
- TSW draw the food pyramid.
- TSW explain the actions of the main character in the book.
- TSW name three conditions that led to the Great Depression.
- TSW solve ten multiplication problems (with two digit multipliers).
- TSW distinguish between elements and compounds.
- TSW compare the health care systems of the U.S. and Cuba.
- TSW label the bones of the torso.
- TSW define three of four vocabulary words.
- TSW order the layers of a soil profile from the ground downward.

Using Bloom's Taxonomy, try to identify the level of each of the preceding objectives (see Figure III.5, page 130).

Here are examples of poorly written objectives:

- TSW mix the ingredients in a bowl to make plaster of paris in class. [What makes this a poor objective? Because this is an activity, not an *outcome of instruction*.]
- TSW work in groups using magnets and other materials. [This is an activity.]
- The teacher will provide work sheets for students to review the story. [This is something that the teacher will do.]

### STYLES FOR WRITING OBJECTIVES

**Gronlund:** Begin with a general statement then give specific examples.

**Mager:** Write specific statements about observable outcomes.

**Eisner:** Items focus on the learning process.

**TSW:** "The student will . . ." followed by a verb that both identifies the desired learning outcome and the level of thought required.

Remember when you are writing your lesson objectives that your students are to be assessed at the end of the lesson or unit based upon them. For this task, a grading rubric is very useful. Rubrics are simply scoring guides that provide criteria that can help you to evaluate the quality of completed work. You create a rating scale consisting of preestablished performance criteria (Parkay & Stanford, 2003). Typically, the rubric is given to students at the time the assignment is given. For them, the listed criteria identify what their work must include for them to be successful. Figure I.5 (see page 43) provides an example of a grading rubric.

### Lesson Plans

As is the case with objectives and unit planning, **lesson plans** come in different varieties. Some schools adopt a style that all teachers are to follow. It may also be the case that in your student-teaching experience, there was (will be) a particular format that you were (are) supposed to follow. Of course, in these situations you will need to be sure to meet the expectations placed upon you. However, when it really comes right down to conceptualizing how you will teach something, the format must be something that works for you. We are not suggesting that you try to bamboozle anybody and slide your preferred lesson plan style by them. However, plan in a way that facilitates your work and then, if need be, you can write it out in a format that satisfies your other requirements. It will not be difficult to do because your plan will already have the necessary elements.

#### *Traditional Lesson Plans*

A traditional lesson plan is the generic format that is used in most introductory methods courses. It looks like this:

**GRADE LEVEL(S): 5**  
**SUBJECT(S): SOCIAL STUDIES/U.S. HISTORY**

#### **Description**

This unit begins with students identifying their ancestors, identifying their ethnic backgrounds, connecting historic events with the lives of their ancestors, and growing into their own unique personal identities, and leads to students developing a better

understanding of the U.S. as a melting pot. We will focus upon the concept of immigration and relate the past to the current issues of immigration in the U.S.

### **Goal**

The primary purpose is to foster an understanding that America is politically, ethnically, culturally, and economically a nation of immigrants. Study will focus on the motivations for immigration, the dangers of the journey to America, the challenges in adapting to a new world, and the development of a melting pot culture in this country.

### **Objectives (Days 1–5):The students will**

1. record and transcribe an interview of their families,
2. provide documentation of immigrant ancestors,
3. write an overview of the country after researching their country or countries of origin.

### **Materials**

The main resources will be family interviews, documents, records, and pictures. For interviews, students may use tape recorders, digital cameras, notebooks, and pens/pencils.

### **Procedure**

#### *Family Tree Activity*

Students will trace the family tree, if possible as far back as their ancestors who were immigrants.

- Diagram the family tree
- Place of birth
- Pictures (if available)
- What brought them to the U.S.
- Summary of their lives in the country of origin and in the U.S.
- Research the history of U.S. immigration
- Examples of customs, dress, music, religious traditions, etc.
- Written overview of the country of origin (2–3 pages)
- Family traditions that relate to ancestry
- Report will be written and shared orally

This assignment can be a resource throughout the school year in teaching the history of the U.S.

### **Assessment**

The oral presentations and reports will be graded using two teacher-created rubrics.

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Note that the objectives are written using behavioral verbs that indicate what the students will do (e.g., interview, seek, research, and write). Conceptualizing objectives in this way emphasizes student engagement in the lesson. Figure I.6 (see page 44) provides you with a traditional lesson plan template. Figure I.7 (see page 45) provides you with a list of behavioral verbs as suggestions.

Some traditional forms also include other sections, such as “anticipatory set,” “extensions,” and “modifications.” Another traditional lesson plan format is taken from Madeline Hunter’s planning model. The basic format for that model is illustrated below. Figure I.8 (see page 46) provides a template for using this lesson plan format.

### MADELINE HUNTER LESSON PLAN FORMAT

1. **Anticipatory set:** a brief activity or prompt that focuses student attention at the beginning of a lesson; can be a discrepant event, a handout, or focusing question
2. **Purpose:** the objective(s), what is to be learned and/or what students will be able to do
3. **Input:** procedure, what the teacher will do. Includes vocabulary and skills, etc.
4. **Modeling:** what you will show or demonstrate so that the students understand what is expected of them, what a finished product will look like
5. **Guided practice:** how you will lead the students step by step using the trimodal approach—hear/see/do
6. **Checking for understanding (CFU):** using questioning strategies to find out if the students have achieved the objectives and to help you pace the lesson
7. **Independent practice:** what students will do to practice on their own
8. **Closure:** how you will end the lesson; can be a review or summary or the “L” part of a K-W-L

#### *Learning Cycle Lesson Plans*

The **Learning Cycle** planning format is based upon a *constructivist* perspective on learning that can be traced back to John Dewey. In this view, ideas are not transmitted by teachers telling them to their students but are actively constructed by the students themselves. Among the founders of this view of learning were Piaget and Vygotsky, and from their theories, an instructional model emerged in the 1960s that would later be called the Learning Cycle. This format is most popular among science teachers but has relevance for other subjects as well. The original format for the Learning Cycle had only three steps (Exploration, Invention, Discovery), but the format evolved into five steps and most recently seven (Eisencraft, 2003). The purpose of changing the model to the 7E format is to remind teachers of the importance of eliciting students’ prior knowledge and the extending of concepts to the real world and to other areas where they may be relevant. Here are the steps with a brief description of each phase:

1. **Elicit:** You assess the students’ prior knowledge of the content, which can be a pretest or a K-W-L chart, or simply by conducting a talk with your class about what they know.

2. **Engage:** You do a demonstration or pose a problem that helps focus student attention to the topic, helps them make connections, and gives them a heads-up as to what they will be studying.
3. **Explore:** Now your students are at the center of the action as they seek information or collect data to solve a problem.
4. **Explain:** Here students report what they did and what answer(s) to the problem emerged while you introduce new vocabulary and use questions to assess their understandings of the concepts.
5. **Elaborate (or Expand):** You offer new information that adds to the study and you pose problems or issues that students solve or discuss by applying what they have learned.
6. **Evaluate:** Students self-assess, and you evaluate by whatever means you choose to find out what they have learned.
7. **Extend:** Here you help students connect newly acquired skills and knowledge to new situations within the subject area or to other subject areas.

Much research has been conducted on the effectiveness of the Learning Cycle approach and supports the conclusion that this planning model, compared against traditional approaches, results in better student achievement and retention of concepts, as well as improved attitudes, more sophisticated reasoning ability, and better performance of process skills (Gerber, Cavallo, & Merrick, 2001). Using a Learning Cycle format can help you develop a conceptual storyline that accommodates both selection and sequencing of teaching activities so that you avoid fragmented activities (Ramsey, 1993). But always remember, there is no one best lesson-planning model. Elements of the models presented here can be used to create a framework that best fits your own teaching philosophy. Figure I.9 (see page 47) provides a template for using the learning cycle format.

## Projects and Group Work

Social studies and science are subjects amenable for long-term, challenging projects, something that your students might take on over the course of several weeks. Such projects provide opportunities for students to work together to conduct investigations, and some projects can contribute to integrating your classroom curriculum.

An example of such a project is a project that involves students in building a catenary arch. The social studies connection is history, while the science is forces. A catenary arch is an arch that distributes the forces evenly throughout the curve of the arch. Once the keystone, or top piece of the arch, is put in place between the two ascending sides, the arch will support itself. Students would first research the meaning of the term, perhaps by doing an Internet search. The actual construction would begin with a drawing of the arch on paper.

Patterns made from the drawing would then be used to cut pieces from corrugated cardboard boxes. The pieces would be glued together with white school glue (or by using a hot-glue gun) and the arch assembled by stacking the pieces on top of each other, without glue or fasteners. You can view an example of a constructed arch at [www.coker.edu/educationdept/arches\\_of\\_the\\_world.htm](http://www.coker.edu/educationdept/arches_of_the_world.htm).

Another example of an integrative project would be to have students build a working greenhouse. The basic ingredients would include PVC pipe, PVC fittings, and plastic sheeting. After the construction is completed, students can plan investigations related to plant growth and life cycles by planting seeds and recording plant growth measurements. Visit this website to see a student-built greenhouse: [www.coker.edu/educationdept/tomatopage.htm](http://www.coker.edu/educationdept/tomatopage.htm).

There are a number of strategies that you can use to manage student group work. You can assign your groups and have each group commit to a contract that outlines what each member is responsible for and the consequence for not contributing to the group (i.e., they would have to leave the group or lose points). As a reminder, you can post the contract so the groups can refer to it when a group member is off task. Further, you can have the groups select a leader who will be held responsible for keeping the rest of the group on track. You could create added incentives by awarding bonus points to leaders whose group meets all the deadlines. Plan to meet with your group leaders periodically for them to report what progress they have made. The group leader can alternate daily or weekly depending upon the extent of the project, so that everyone will have a chance to be the leader.

Another management strategy is to give each group a pacing guide and have them fill in the due dates. Have the groups record what they are going to do during their class time and what each group member is responsible for. You can give points to the groups that accomplish their goals each day or week. Group projects also provide an opportunity to use student notebooks or journals. Have students write a reflection in their journals at the end of each day or week that describes what they have done and learned. You can use this as one way to assess the group's progress and understanding. This process also encourages the group members to communicate and reflect.

Sometimes disagreements will crop up if students are in groups with classmates that they do not like. While students should learn to work with others, you can avoid this predicament by using the sociogram you created at the beginning of the year in assigning groups. If you don't have a sociogram, you can have your students write down a list of, say, ten or fifteen students they would like to work with and one student that they do not want to work with. From the lists you can then assign groups that are more likely to work well together.

Each group should have a place in the classroom to store all of their project work. You can also do periodic checks of their cubbies or folders to monitor the groups' progress. Figure I.10 (see page 48) presents additional tips for managing groups.

## NOW: CLASSROOM ORGANIZATION ■

If you are a teacher who has a home-base classroom, as is typical of elementary teachers, among your first tasks each year is deciding how to organize the classroom space. Depending on the type of school furniture, you may have some options in how to arrange the desks and how to store and make materials and equipment accessible. Take a moment to consider the following questions:

- Given how you prefer everyone to interact, how should the classroom furniture be arranged—your own desk, the students' desks, tables and chairs, and so forth?
- What will work best for materials storage and independent or group work areas?

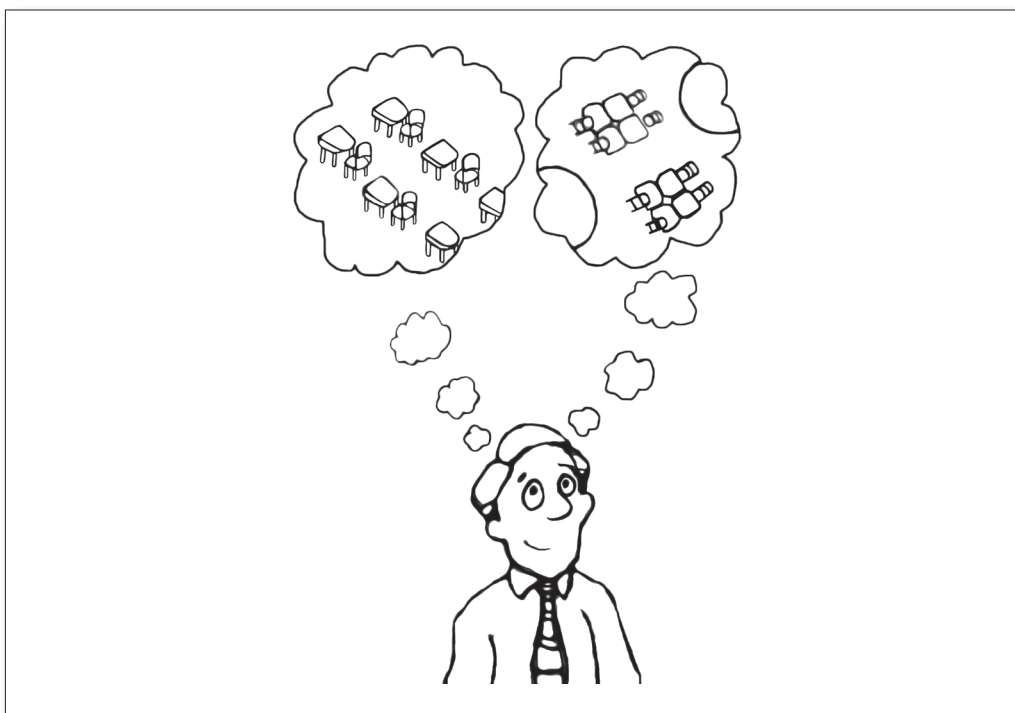
Even when they are empty, classrooms can be all kinds of spaces, and this is especially true for classrooms in elementary schools. Some of those are the traditional rooms not much different from what existed in the one-room schoolhouse, while others are organized in multiclass open spaces. These days many classrooms at all levels are located in transportable modules—"double-wides." Some classrooms have sinks and water. Some have nooks and crannies and even separate breakout rooms for preparation and storage. In some classrooms, students keep their books and belongings in their desks, while in others they use lockers or cubbies that may be located in the classroom or out in the hallway.

### Student Seating

A big advantage of self-contained classrooms is that teachers usually have some latitude in deciding details of how the room is to be organized. You may or may not have a choice as to what kind of seating your students will have. But small things like the type of furniture and how it is arranged can make a big difference in facilitating student learning. Slant-topped desks and desks or tables bolted to the floor would be an obstacle for many kinds of activities. Movable furniture and flat-topped desks offer more flexibility and more options for student interaction, and from a learning theory perspective, interaction is what it is all about.

Let's assume your students will have movable, flat-topped desks. Some teachers prefer student desks to be separate from each other and typically arrange them in rows facing a chalkboard or whiteboard. This traditional setup reflects a teaching style that emphasizes individual work. Alternatively, you could group four desks together or use tables instead of desks as workspaces. Desks in clusters would better facilitate students' conversations, cooperative learning, and your own movement around the classroom. On the other hand, having desks in the traditional rows and columns arrangement provides independent work spaces and a more structured atmosphere. Even if your intention is to eventually group student work desks, you may find it advantageous to begin with the row and column layout as a start.

Student seating can be flexible, organizing desks and tables to suit your instructional needs.



### Teacher's Seating

Consider, too, the location of your own desk in the classroom. What's the message to students when your desk is in the back versus the front of the classroom? Have you ever seen one in the center?

Even in the most activity-rich classroom, there will be times when your students will be working at their desks or in groups while you are at your desk. Certainly you won't want your desk placed in such a position that your back will be to your students! Find the spot and place your desk where you have the best view of your classroom.

Placement of the teacher's desk in the front of the room, and used as the place from which class is conducted, is rarely used. The placement of a desk between the student and teacher establishes a barrier between student and teacher. More typically, with the desk used primarily for administrative activities (rather than as a teaching station), it is positioned in a less conspicuous location.

### Independent Work Areas

*Centers* are special classroom workplaces. They are more common in elementary classrooms but are useful throughout preK–12 and are especially



helpful for teachers who differentiate instruction. Your classroom might have one or more subject-related centers, or a single center might be used for different subjects at different times. A math center will have measuring devices and various manipulatives. A science center can be supplied with materials that allow for independent or small-group investigations and study. There can be centers for reading and social studies too. You can guide your students to share responsibility with you for recording work done for center assignments.

Here is an example of a fourth-grade teacher who has a science and math center. It consists of a table and several shelves for storage. On one shelf is a terrarium housing a pair of anoles. Another shelf contains math manipulatives—Cuisenaire rods, pattern blocks, attribute blocks, Unifix cubes, number bars, chip trading materials, geoboards, and color cubes. Another shelf has materials used in both math and science, such as blank paper and graph paper, calculators, rulers, measuring cups, plastic beakers, a trundle wheel, meter sticks, spring scales, and an equal-arm platform balance. Science supplies in the center include microscopes, containers, eyedroppers, magnifiers, magnets, a collection of seashells and various other specimens, and reference books and data sheets for recording observations.

A center also can be created to complement a particular instructional unit. For example, if you are teaching a fifth-grade unit on insects, you could create a center featuring Peterson's *A Field Guide to Insects* (Borror & White, 1998), containers with various examples of insects, an ant farm (or butterfly hatchery), and magnifiers for students to examine different specimens. The center might also be decorated with colorful posters and include periodicals with features on insects (like *National Geographic Kids*), a computer connected to the Internet, and interactive games like Predator–Prey. If you are aiming for a differentiated classroom, be sure to provide reading materials at different levels.

Students can use a center if they are working on individual or group projects or working with computers, but that is not the only way to use centers. In some instances, you may want all students to gain particular experiences in small groups. This can be accomplished by creating several centers and then having assigned groups of students rotate through them during the same class time or on successive days. Figure I.11 (see page 49) illustrates one hassle-free procedure for moving groups of students from center to center (Novelli, 1995).

### Resource Storage/Availability

You have probably noticed that teaching requires *stuff* (remember *The Theory of Loose Parts?*). Some stuff will need to be stored much of the time. You may be fortunate to have an adequate storage area, but in many classrooms, space for storing materials and equipment is at a premium. Teachers often use cardboard file boxes or plastic containers and bins of different sizes to store materials. *Organizing* your materials for easy retrieval is a key to making teaching manageable.

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There are many ways to organize. For example, you might color-code your storage bins and label them clearly. You might want to use shelves so that each bin is accessible without requiring removal of the ones above. Whatever system you choose, don't be afraid to modify it so that it works for your particular situation and style.

In addition to storage space, there is a need for space in the classroom for students to temporarily house projects and work that is in progress. Access to the Internet is typically needed, requiring space for one or more computers and their peripherals—printer, scanner, external hard drive, and so forth.

Two points are significant: One is that the success of your classroom program can be facilitated by classroom design, and the second is that teaching requires *stuff* and *space*, for its doing and for its preparation, as well as space for storage. Hence you as teacher will contribute much *behind the scenes* to maintain a quality classroom program by handling logistics and organizing materials for use and for storage. One plus to all this is that being prepared will give you more confidence as you move through enacting your classroom curriculum.

*From rules to sign-up sheets, part of your overall organizational plan will include how to get information out to the students.*

### Communication

In any classroom, there is no shortage of information to be disseminated that is not part of the explicit curriculum. From rules to sign-up sheets, part of your overall organizational plan will include how to get information out to the students.

#### Class Rules

Ideally, class rules should be negotiated early on between you and your students (see Unit II). This process can begin with the question, "What rules can we all agree upon that will make our classroom life together more pleasant and supportive of everyone's learning?"

Typically, things go better in classroom life if students

- arrive to school (or class) on time;
- come to class prepared, with required books, paper/notebook(s), and pens or pencils to class;
- attend to personal needs before class time starts;
- turn off all cellular phones;
- do not eat or chew gum in class;
- stay seated unless given permission to stand and move;
- raise a hand if they want to speak;
- respect the person who "has the floor";
- use respectful language when speaking;
- respect the personal space of others;
- respect other's and school property;

- do not interfere with the learning of others;
- submit only work that represents academic honesty (meaning that the borrowed work of others is cited and referenced).

One K–8 school has only one schoolwide rule, which students call *the Big One*, which everyone memorizes. It states, “Treat yourself, others, and the environment with care.” Though we will discuss rules in detail in *Unit II: Classroom Management*, we want to mention here that rules of which the students are not aware are not rules at all. Whatever rules you ultimately use in class, it will be necessary that they are posted somewhere easily seen and that students know the rules of your classroom.

### Assignments

In the past, homework was often dry and boring stuff . . . “Read the chapter, answer questions 1–6 at the end of the chapter” or “Look up the vocabulary words in the glossary and write the definitions.” This kind of homework rarely challenges students and rarely results in meaningful learning. On the other hand, linking classroom instruction with the home can be motivating. There are many simple activities that students and their parents or guardians can conduct at home. Instructions can be provided on a take-home handout, or you can let the investigative teams come up with their own procedures. It is these kinds of activities that strengthen the connections between student, school, and home, and give a student’s caregivers opportunities to help and show interest in their child’s work.

One elementary teacher sends the students in her third-grade class home on Friday with a science activity packed in a ziplock baggie. Included in the baggie are the science materials, instructions for carrying out one or more investigations, a data sheet or worksheet, and a “Science Wizard Form” for the parent to verify that the student completed the activity at home. On Monday, the teacher recreates the activity that the student and parent have done at home. This teacher says that she receives immediate responses from most students because they have done the activity. Students are encouraged to discuss questions that came up at home. Examples of some take-home activities include exploring magnets or the properties of Alka-Seltzer (effervescence); building an aluminum-foil barge and then estimating the number of pennies that can be placed in it before it sinks; seed sorting and graphing; completing estimation activities; graphing and sorting gummy bears; and finding the center of gravity of a ball of clay.

If you are a secondary teacher, this theme can be adapted to your situation as well. It is not likely that you can prepare enough ziplock baggies for all of the students you will see in a day, but preprinted assignment/activity/investigation/research sheets (call it what you like) can always be on hand and in a convenient location. You may distribute these to students or establish a routine that students retrieve them on their own.

### *Sign-Up Sheets*

A sign-up sheet can be a useful way to recruit parent volunteers for your classroom. During your initial conference with your parents, have in plain sight a sign-up sheet with column headings such as

Name—Phone—E-mail—What I can do to help—When I can be available

Sign-up sheets can be used for many purposes, such as a sign-up list for bringing in classroom supplies, signing up for a field trip, scheduling parent-teacher conferences, creating snack sign-up, organizing a fundraiser, recruiting volunteers for work days, orchestrating a car pool schedule, and planning a class party.

### **Strategies for Moving From Place to Place**

Many middle and high schools operate on “bells,” and classrooms in these schools are departmentalized in areas of the school as to their subjects: math, science, English, social studies, and so on. Unlike elementary teachers, who are typically generalists, teachers in these schools specialize in one or more subjects, and students move at the bell from classroom to classroom. In these schools, the instructional day usually begins after a homeroom period in which announcements are made and attendance taken. Changing classes every fifty or so minutes occurs throughout the rest of the school day.

There are many variations on daily schedules. For example, the period around lunchtime might be longer and subdivided into thirty-minute or less periods for eating lunch. There are also many variations in middle school staffing and scheduling. For example, in one school, a core team of teachers is responsible for the main subjects, which are block scheduled. Within that large block of time, the teaching team and the students can allot the time as they choose. One advantage of this approach is that it enables each subject to get taught in an integrated fashion with other subjects.

However, within the classroom, there are also many instructional activities that require students to be up and out of their seats, and that is a good thing as it stretches the body and can focus and energize the mind if done right. If not done right, chaos may result and little or no learning may result.

Figure I.11 showed you an example for a middle school history class where the teacher has created five stations for different activities in the room. After announcements at the opening of the period, the three or four member student teams are assigned group names and then given the go to move to a station. After fifteen minutes, students are told to rotate in the fashion depicted in Figure I.11. For example, in one center, the Gammas might be at the classroom computer entering data they collected interviewing their neighborhood old-timers about their experiences during the Depression. The Thetas are at a second station and are using headphones and taking notes as they listen to taped recordings from an NPR special. The Omegas are working together to create and practice a skit based on a book that they have been reading together,

while the Betas are examining a photograph and comparing the objects in the photo to depictions on a map of the city. Meanwhile, the Alphas are measuring out a table on graph paper.

### Scheduling the Day in a Self-Contained Classroom

A big advantage of self-contained classrooms is that teachers usually have some latitude in deciding details of the daily and weekly schedule. In terms of scheduling, the professional wisdom is that “students become more engaged in their own learning when the daily routine is predictable and consistent” (Fisher, 1992, p. 57). Opening and closing routines and transitions throughout the day are especially important. One teacher, for example, begins his third-grade students’ day with sharing time and typically ends in the afternoon with a journaling activity. The routine that opens the day can serve as the “set” or advanced organizer for the day’s learning tasks.

*According to Fisher (1992), “Students become more engaged in their own learning when the daily routine is predictable and consistent.” (p. 57)*

Here is an example of a daily schedule a teacher created for her first-grade class:

- 8:40 am Settling-in time
- 9:00 Group meeting—community circle
- 9:30 Science and/or workshop
- 11:00 Snack and recess
- 11:20 Math
- 12:10 Specialist (art, music, physical education, etc.)
- 12:45 Lunch
- 1:30 Social studies and/or workshop
- 2:10 Shared reading
- 2:30 Independent and collaborative reading or second specialist
- 2:55 Group meeting, community circle
- 3:10 Dismissal

You can infer from this schedule what this teacher considers important in her classroom curriculum. Prime time for instruction is in the morning and early afternoon. You can also see what the teacher values pedagogically. Emphasized in this schedule are both individual and group activities. This primary teacher seems to do some subject integration in the classroom curriculum and uses methods such as projects and group work.

Another consideration is that student learning of some subjects can be improved when longer periods are provided for more intensive studies. This is the rationale for **block scheduling**, which has become a popular way to create longer periods of student engagement, such as for project work or science labs. An example of this would be to designate Mondays, Wednesdays, and Thursdays with hour-and-a-half periods while Tuesdays and Fridays would have the regular fifty-minute periods. In our experience, most students are flexible enough to handle some daily variation. The professional wisdom is to aim for a predictable schedule for students but not necessarily with the same exact routine every day.

Even teachers in self-contained classrooms don't have complete control over their days, however, because they often have to work around the schedules of others, including the specialist teachers (music, art, physical education, ELL program, gifted program, etc.). Further, teachers may be compelled by school or district policies to divide the teaching time in a particular way. Such constraints aside, however, the teacher's personal pedagogical priorities are revealed in his or her scheduling. Typically, elementary teachers schedule reading and math in the morning and science and social studies in the afternoon. It is in the afternoon that our bodies experience the *postprandial dip*—a low energy and low attention period that is part of everyone's diurnal metabolic cycle. In recognition of this natural down time, some countries even shut down commerce for afternoon siestas. The early afternoon is not a time your class is likely to be the most creative or excited about schoolwork. Another thing about instruction in the afternoon slot is that this is most often the time when schools schedule assemblies and parent-teacher conferences, and this is the slot that is cut off for half-days.

### **Educational Decoration: Avoiding Overstimulation**

Classrooms should not be overly decorated, especially with commercial products. Instead, have your students help you display their work around the room: their lab reports, sketches, concept maps, and so forth. This shows that you value their work and encourages them to take ownership and contribute to a positive classroom environment. Avoid, however, the tendency toward overstimulation. You likely have seen rooms that exemplify this—not a square inch of wall space is left exposed due to all of the posters, signs, charts, and other decorations. In such a setting the items displayed become nothing more than wallpaper from the students' perspective.

Whatever level you teach, the room to which students come to learn should be inviting and *comfortable*. Display those items to which you want your students to pay attention. Your classroom represents you, and that should represent a professional educator providing an environment conducive to learning.

A simple way to enhance the classroom environment is to add plants. The same plants can be a source of investigations. Dependable choices include

geranium, begonia, coleus, impatiens, spider plants, tradescantia, ivy, snake plants, nephthytis, pothos, Chinese evergreen, and philodendron. Hardy plants that can tolerate water are best for the primary classrooms because young students like to care for them often. If the room has good sun, you might try miniature roses, sensitive plants (*Mimosa pudica*), and dwarf and scented geraniums. African violets also make good classroom plants, and forcing daffodil or tulip bulbs is a great activity.

*Your classroom represents you, and that should represent a professional educator providing an environment conducive to learning.*

An aquarium can house aquatic plants and fish, or it can be used as a terrarium for many kinds of organisms. If your budget is tight, a terrarium can be made in a large jar, like a supersize pickle jar, or even in a two-liter clear plastic bottle. There are many interesting investigations involving plants. Using hydroponics is an example. A terrarium could be modified to model or simulate different ecosystems, such as a desert or wetland.

We need to point out that some animal-rights advocates claim that the educational benefits of having animals in the classroom are overstated and that the suffering of the animals involved is underestimated. What do you think about this issue?

## TOMORROW: INSTRUCTIONAL PRESENTATION ■

So far in this unit we have considered practical matters, such as scheduling, arranging the classroom, and managing student work. Now we want to stress that learning is a *social* process. Knowledge itself is a social construct that is influenced by the cultures of the classroom, family, and community. And don't think that a student reading a book in a corner is constructing knowledge in isolation. Rather, that student is engaged in a social process; the student is interacting with the authors and illustrators of the book, assimilating and accommodating while pondering the ideas encountered, the familiar and the new. We know from Vygotsky (1978) that learning happens in the *interactions*, student-to-student, student-to-adult, student-to-author, and so forth, and thus it is the *quality of these interactions* that you will want to consider as you develop your teaching. You will want to plan activities that optimize the interactions. Students will demonstrate their knowledge, skills, attitudes, and appreciations from what they write or say, as, for example, they consider the merits of different ways of solving a problem.

Vygotsky (1978) claimed that cognitive functions in general are internalizations of social actions. If you provide students access to appropriately nourishing experiences, such as opportunities to carry out investigations or to read a good science book, learning will come about naturally. The experience of the activity

*Learning is a social process. A student reading a book in a corner is not constructing knowledge in isolation. That student is engaged in a social process; interacting with the authors and illustrators of the book, assimilating and accommodating while pondering the ideas being encountered, the familiar and the new.*

itself (reading the book) does *not* produce the knowledge. Vygotsky and others argue that knowledge does not derive directly from experience per se, from the sensory data alone, but rather that the student *makes sense* of the experience, actively constructing knowledge through the interaction, through inquiring in the context of a particular cultural setting (reading the book). Thus we come back to Dewey's claim that we *learn by thinking*.

Since learning is a natural consequence of positive social interactions focused upon challenging problems and issues, you can do much to enhance students' opportunities for learning by attending to the cultural setting of your classroom. Your task is thus to facilitate students' engagement with each other and with the subject matter. As Chaillé and Britain (1991) point out,

Good environments for young students permit, encourage, and even necessitate interaction with others, from simple communicative interaction to the complex negotiation of conflicts. But social interaction is important not only because it is a part of life, but also because it actively contributes to students' theory building. (p. 9)

That is, their explanations and understandings. Unfortunately, the social interaction between students is often neglected in the classroom while attention is focused on the teacher–class interaction.

### **Use of the Primary Writing Surface**

At the time of this writing the primary writing surface for teachers in the U.S. is still one of two things, either an old-fashioned blackboard/chalkboard or its modern counterpart, the dry-erase board. Slowly overtaking these primary writing surfaces in use in classrooms is the **interactive whiteboard (IWB)**.

The oldest form of instructional technology is the slate, or blackboard, and it is one of the most basic forms of instructional media. The chalkboard/whiteboard helps you to emphasize key points. You can use the board to list assignment due dates and focus of the day's lesson. You can use the board to present a problem to the class that you will later address. You can use the board to present graphics, math problems, a vocabulary list, timelines, and so forth.

If you have a whiteboard, we recommend you use different colored markers to highlight important points or to create graphic organizers. You should try to write legibly and horizontally, making certain your writing is large enough for students to read from the most distant point in the room. You should be aware of any obstructions that may block your students' view of the board. If your students are taking notes, give them enough time to copy what's on the board, and don't erase anything while students are still copying. Though while you write on the board your back may be to the students, be careful to speak toward them, not toward the board. With practice, you'll be able to write while being attentive to the class.



The IWB is an electronic whiteboard writing surface that can capture writing electronically. The IWB is designed to allow interaction with a computer display. IWBs are becoming increasingly common in schools, and new skills and understanding are required to use them effectively in teaching. IWB is a versatile teaching tool and well worth the effort to learn to use.

*Though while you write on the board your back may be to the students, be careful to speak toward them, not toward the board.*

Many classrooms have an **overhead projector** (OHP)—or its electronic version, a **document camera**—a technology that has the advantage of letting you face your class as you do your presentation. The overhead projector is one of the few teaching tools that was actually invented for educational use rather than adapted from an entertainment device.

The OHP will show a series of images (overhead transparencies—OHTs) in sequence. Such a series of OHTs can relieve you from looking at your notes so you can pay more attention to your students. The OHP really allows you to be more spontaneous in your teaching without constantly turning your back to a chalk or whiteboard. When using an OHP in a presentation, you can use a piece of file folder or cardboard to mask part of the image you don't want your audience to see until you are ready to reveal it.

Further, the OHP can be used in novel ways, other than showing commercial or teacher-made slides, or for outlining lesson notes as the class progresses. One possibility is to use a photocopier to make an OHT from a book or magazine, such as a map. Another strategy would be to distribute a blank OHT to each student group and have them create a graph, drawing, or concept map related to the content. Data collected in an experiment could be graphed, or the plot of a story outlined or webbed. The finished transparencies could be displayed while a group spokesperson explains.

You can have a copy of the class rules on an OHT and have it ready to display when necessary. You can have instructions for a lab activity or for a center assignment on an OHT for frequent reuse.

Another advantage of the OHP is the flexibility it provides in an interactive presentation, where you may have to jump around. You can easily take OHTs out of sequence to review or to jump ahead in response to a question. Plus, you can write on and amend OHTs, easily keeping them up-to-date.

Some negatives of OHPs are that they are bulky and the bulbs can burn out. Plus OHTs can smear, and both commercial and teacher-made ones often fade or wear with use.

Some tips for using the OHP effectively:

- First position it for optimum image size and be sure it is focused before the class starts.
- Be sure all your students can see the screen. This done, you do not have to look at the screen again and can concentrate on the class.

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- If you need to point, use a pen or pointer and point to the OHT, not to the screen itself. Remember that you can also lay the pointer on the OHP so it stays pointing at the part you are focusing upon.
- Don't stand in front of the screen because some of the image will be projected onto you and that will be a distraction, plus there will be a large shadow on the screen.
- Remember to remove an OHT after you have finished with it and when you have moved on to talk about something else. It can be effective to switch off the OHP between sequences or to expound upon a point (though turning an OHP on and off seems to set you up for a burned-out bulb right in the middle of a presentation).

One thing that all three primary writing surfaces that we have discussed are capable of doing is expressing graphic organizers. Graphic organizers are one way for visual thinkers to work with content, and there are many expressions possible for visual ideas. Graphic organizers are variously called concept maps, mind mapping, semantic webs, brainstorm, idea showers, and visual organizers. An example in this unit is Figure I.4 (see page 42) illustrating the Grade 5 science content in Virginia schools. There are books, articles, and websites that can provide more examples. Other visual organizers include simple drawings, Venn diagrams, skill triangles, chain of events, K-W-L charts, and bar and pie graphs.

**Technology (the Old and the New)**

We have just considered some of the most useful educational technologies, the black-/whiteboard, the overhead projector, and the interactive whiteboard. Of course, there are many more tools available for the contemporary teacher.

*Document cameras* are devices that allow you to display magazine pages, books, graphics such as charts and maps, and even three-dimensional objects. Generally, the same suggestions that we made for the use of the OHP also apply to document cameras, especially the suggestion to use a piece of file folder or cardboard to cover part of a document so that only the aspect being discussed can be seen by the students. Three-dimensional objects show up more clearly when placed on a darker background rather than on white paper or directly on the platform. Glossy pages in books and magazines may produce a glare, but you can work with the settings to improve the image.

*LCD projectors* are used with a computer to project an image onto a screen or wall. Many classrooms have now been provided with this technology, which provides you more flexibility in the media that you can use in your classroom. One advantage of LCD projectors coupled with a computer is that you can access a large amount of text and a great variety of images from your computer to project for instruction. Further, you can project presentations made with software like Microsoft's PowerPoint or Apple's Keynote.

Our tips for PowerPoint/Keynote or web-based class presentations are the following:

- Begin your presentation with a title or main topic focus of the lesson.
- Continue with slides displaying key vocabulary and questions for student engagement, and highlighting main ideas.

- Telling a story is always engaging, so if you can arrange your slides to tell a story, you'll probably keep their attention.
- Engage your students in talking about the visuals, and talk to your students, not at them.
- Use the last slide as a discussion starter. Encourage your students to summarize and synthesize the content.
- Spice your presentations up by embedding animations, videos, and sound clips.
- Don't make the show too long and don't spend beyond a few minutes talking about each slide.
- Cite your sources and provide your references at the end, even though you might be tempted to neglect this when pressed by time—you never know when you might want to use the presentation again in the future, perhaps sharing with colleagues, so you want to know where you got your information and visuals.
- *Do not compile a presentation and then just read it off the screen to your class or audience.* Use your slides to highlight key points that you discuss further.

LCD projectors also allow you to project videos and films. Such media can help you present abstract ideas in an engaging and realistic way. Of course, if you have access to still and video cameras you can take photos and make movies of your students in action doing their projects or classwork, which can be shared with their parents and can be motivational or used to extend instruction. Consider why you plan to use a DVD and show only the part that applies to your lesson, not the entire program, unless it is necessary. Also, it is wise to pause the program at particular preselected scenes to engage students in analyzing what they are watching. One strategy is to prepare a number of questions that students could discuss or answer after watching. Before beginning the video, use an anticipatory set so your students have a notion as to what the video is about and so that they know what to look for as they watch.

There are always emerging technologies, and it will be a challenge just to keep up. It is likely that you will find, as have your authors, that once you have mastered one presentation technology, it will become obsolete and something new will take its place. There is much buzz as this is being written about the educational potential of iPods, iPads, Twitter, and other kinds of online applications. Simulations and electronic games are getting ever more interactive and realistic and offer much promise for classroom applications. Some see potential in social networking and in web-based collaborative writing and blogs. And then there is YouTube with its incredible inventory of videos, many specifically created for teaching some content or another.

However, here are two cautions: Whenever depending upon technology of any sort, always have a Plan B. You should know enough about your content to teach the lesson without the "crutches"—valuable as technology can be. Something can always go wrong or break down. However carefully you plan, you cannot anticipate every situation that may occur. Be prepared so that if you are left on your own in front of the class you can still carry through with a productive lesson.

*ALWAYS preview all instructional media before using them in class or online. Knowing the suitability of such material is the teacher's responsibility!*

And the second caution: Be sure that you preview all instructional media before you use them in class or online. If you do, you will be more familiar with the content and how it is presented. As you might guess, some teachers have found themselves quite embarrassed when mix-ups have occurred or inappropriate material has been presented to the class.

And again, always remember that effective teachers talk to their students, not to the visual aids.

## ■ FINALLY: COMMUNICATION WITH “OUTSIDERS”

“Outsiders” is not meant to sound as scary as it may seem. There are, however, a number of constituencies with whom you must interact other than your students. What you need to understand is that each group needs to be approached in a different way. Horace Mann, who pioneered the cause of schooling for all children in this country, was known to be a master at tailoring his remarks for maximum benefit whether he was speaking with educators, legislators, parents, or community members. This is a lesson that you should take to heart.

### School Staff

School staff include secretaries, custodians, cafeteria workers, social workers, people who used to be called truant officers, safety officers and crossing guards (who also may be volunteers or safety patrol students), and others. Some would list the principal and assistant principal in this list, that is, the administrators. These people provide for the physical plant and do all the work in the background that allows a school to operate. These are the people teachers often find themselves depending upon in a crunch.

School staff people, just like your fellow teachers, want to be appreciated and recognized for the work they do to help the school function. So, your attitude toward them should be appreciative and respectful, and you should cultivate positive professional relationships with them. Just remember that many of your colleagues and support people have families and other lives and want to balance work and family needs. Everyone has a life outside of school. By recognizing others' lives and supporting their need to juggle work and home, you are creating a relationship with your co-workers that communicates to them that you know they need that balance.

### Parents

We have already discussed working with parents in the context of you being their child's teacher. Parents, however, can contribute to your classroom in other ways, and you might want to keep this in mind as part of organizing for instruction.

Teachers frequently overlook the human resources their community offers. Students in your classroom may have relatives who work in various subject-related

fields or who have to use particular technologies or methods in their work. Some connections might even surprise you. For instance, examples of simple machines are to be found in the toolbox of a carpenter or plumber. There are always parents and community members who are willing and interested in helping students learn, and many willing to help with student investigations. Knowledgeable parents are a source of information about community resources and field study sites.

## Museums, Agencies

Try to break free of the idea that all instruction must occur on the top of a student's desk. Look outside the classroom window and consider how you can make what's out there a part of your classroom curriculum.

Every community has resources you can tap to enrich your classroom curriculum. Among the most underused resources of all is the great outdoors. School grounds are underutilized for academic learning as are the outdoors around schools—the neighborhoods, local parks and public spaces, footpaths and biking trails, and resources you might never have thought about, such as the farm owned by one of your students' grandparents. Your local community represents an even broader category of resources, with institutions such as a museum, library, theater, art gallery, visitor center, zoo, aquarium, arboretum, botanical garden, nature center, planetarium, children's museum, and parks and recreation department. These can be among your greatest allies in teaching. Museums, cultural centers, and public-service agencies are not just places where exhibits are stored; each represents a treasure trove of possibilities for investigations. Plus they have people with special expertise and hands-on resources for investigations.

Field trips are often among students' most memorable school experiences. They require advance planning and attention to detail, but a good field trip can enrich classroom life for days and weeks, before and after the trip. Field trips should be planned that fit naturally into the curriculum. For example, a visit to an aquarium or a saltwater marsh would be appropriate when teaching a unit about marine life or the oceans.

If you are new to a locale, you can find out about its resources by visiting the public library, or contacting the Chamber of Commerce, the local newspaper, a nearby museum or nature center, or faculty members in the field of study at a local community college.

In planning excursions you will need to be aware of school and district policies and regulations regarding field trips. There might be constraints as to the number of field trips per class per year, or a limit on the amount students' caregivers can be asked to pay for transportation, admissions, or other costs. Typically, a field trip request form must be submitted to your school administration for advance approval. Such forms ask you to indicate the date of the proposed trip, site address, and the name of an on-site contact. You may be required to provide a rationale that specifies your objectives and states how the field trip activities fit into the curriculum. There is considerable administrative input required in arranging a field trip, and those skills of communicating with the school staff will pay off when it comes time to put this all together.

We recommend you involve your students and their parents or guardians in planning trip logistics and in deciding which activities will take place. If your students are invested in the process, more will be learned and there will be fewer management problems. Most students recognize that excursions are special learning opportunities and are eager to cooperate. The countdown days before the trip can be used as a series of deadlines for getting tasks finished and getting everyone prepared for the special event.

You will probably want to solicit parents to participate as chaperones. At the elementary level, “room mothers” (or fathers) often can provide the extra support you need. You will have to send a notice about the trip home with students a week or more in advance, and most schools require a permission form signed by parents or guardians.

Field trip success is enhanced if you create an investigative atmosphere—one of excitement and expectancy of different possibilities and discoveries. It is hard to fail if students go off on the field trip with inquiring frames of mind, confident in their roles as observers, problem solvers, and data recorders. On the other hand, failure is almost assured if students head off on a field trip not knowing what they are responsible for doing.

*Field trip success is enhanced if you create an investigative atmosphere—one of excitement and expectancy of different possibilities and discoveries.*

The problems or questions that provide the focus for a field trip are established during pretrip activities. Some teachers have students keep logs or journals, and these are often very useful on field trips for sketching and recording observations. Depending on the field trip, other tools and materials also might be useful.

Figure I.12 (see page 50) provides a list of things frequently used to support students' observing and learning on school excursions.

Making a field collection is an educational and rewarding activity for students on field trips. Before collecting organisms, however, check with your county extension agent or a park agent regarding regulations that prohibit collecting particular plants or animals. Never collect rare, threatened, or endangered species. Generally, most insects will be OK to collect.

If you are going to be on private property, always get a landowner's written permission to visit or collect. A major rule should be that everyone picks up after him or herself: “Leave nothing but footprints.” Encourage students to show respect for wildlife, for example, by replacing logs, rocks, and so forth that they have moved back into their original position and, after having examined them, releasing organisms back into their natural habitats.

As we have mentioned, your school grounds and neighborhood are valuable as resources. One elementary school in Winnetka, Illinois, is located next to a forest preserve. A fifth-grade teacher in the school used the site for students to study native flora. She invited a local forester to help. This led to the beginning of a project for the class. The students learned to identify and remove alien plant species that had invaded the native prairie. The teacher and forester trained parent volunteers to take groups of students out on study and work expeditions periodically throughout the year. Each group was responsible for caring for an area in the preserve. The students' enthusiasm in tackling the project to restore the native flora led to a lot of worthwhile physical exercise and

environmental education, as well as helping restore the local natural ecosystem of the prairie.

Few schools may be so fortunate to be located adjacent to an area managed for nature, like the forest preserve. Regardless, there are many other valuable activities and investigations that can be done outdoors. Gardening is one of them. A school garden can offer lots of opportunities for lessons in both science and social studies, connecting with topics such as reproduction; growth; plants; the structure of flowers, seeds, leaves, stems, and roots; photosynthesis; capillarity; nitrogen-fixation; the water cycle and other biogeochemical cycles; food chains; trophic levels; parasitism; as well as local agricultural business, among others. There are many kinds of gardens: butterfly, rock, herb, vegetable, flower, desert, and so on. An example of a project would be an heirloom seed garden (note that seed catalogs often have interesting historical and scientific information), a project that could be tied into both social studies and science. Information and assistance is available in every part of the U.S. from land-grant university extension agents. Local garden clubs also may be willing to contribute.

A variation on the garden idea is a nature trail. In this case, what grows around your school is left undisturbed except for establishing a path through the area. Once a pathway is cleared, the plants that are indigenous to the area can be identified and labeled. In addition to seeing what is there, students can observe and record changes over time—both in writing and by photographs. Over the course of several years, these changes could be dramatic. A marker indicating the height of a sapling when initially measured would be interesting years later to another class.

## CONCLUSION ■

Planning for instruction has been our focus here. We've looked at how teachers can work with students to plan and manage an effective classroom curriculum. Your goal is to create an inviting place as your classroom, a place where students' interests and ideas are respected and are the starting point of program planning. We have addressed practical matters, such as safety, organizing the classroom space, scheduling, selecting tools and resources to support learning, and conducting excursions.

How you set up your classroom reflects what you think is important about the learning that is to go on there. Providing the right kind of time for learning is important too—students need time to investigate and to reflect through discussions, drawing and writing, and other process activities.

*How you set up your classroom reflects what you think is important about the learning that is to go on there.*

We also have mentioned the importance of working with students to establish reliable classroom routines. But remember that unit and lesson plans are meant to *guide*, not *bind*. Excitement about learning grows when routines give way to exploration and adventure, as in taking studies into the field and community. As a teacher you not only present a lesson, you create an environment where learning is invited to occur.

# Unit I Appendix

**Figure I.2** Example of Guiding Questions to Facilitate Planning Units and Lessons

## Guiding Questions for Planning

Think about the following:

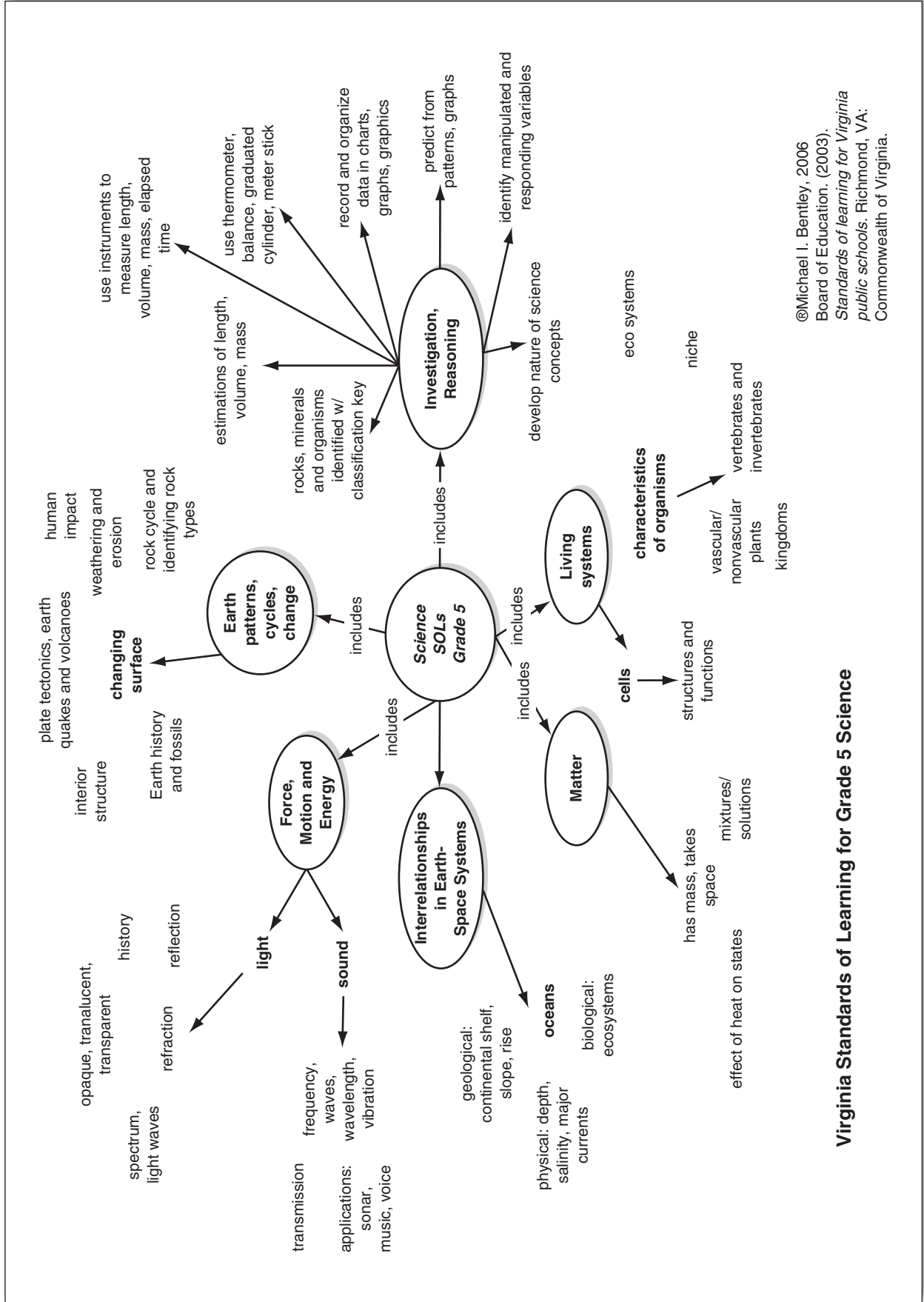
1. Where do you take your students? That is, what is the topic (theme, content, issue, or problem)? What is (are) its source(s)?
2. Why is this topic (theme, issue, problem) important? Why should students learn this? What, if any, influence will it have on their lives?
3. What do the students already know? How do their explanations or beliefs differ from those of the scholarly community?
4. What knowledge will students construct? What “big understanding(s)”? What major concept(s)? What important facts?
5. What processes and skills will students develop? What knowledge acquisition skills, thinking processes, manipulative or social skills?
6. What “habits of mind” will students develop? What attitudes and dispositions, what values?
7. What other parts of the curriculum can be naturally integrated with this content?
8. What resources are available?
9. How will students be engaged and stimulated to investigate the topic(s)?
10. What can be done so that students share their knowledge with peers?
11. How can students be motivated to apply and extend what they know?
12. How will I assess what they learned?
13. How will I evaluate my teaching? (Powell, Needham, & Bentley, 1994)



**Figure I.3** A Sample Student Safety Contract

<b>Safety Rules</b>	
1. Know the class emergency plan.	
2. Follow the teacher's instructions. Ask if you do not understand what to do.	
3. Do not taste, eat, drink, chew gum, or inhale anything used in science activities unless the teacher gives you permission to do so.	
4. Avoid touching your face, eyes, and mouth during science activities, and wash your hands after science activities.	
5. Always wear eye protection when using chemicals, glass, or flames and when there is a risk of eye injury.	
6. Tell the teacher if you see potential dangers or someone being unsafe.	
7. Notify the teacher immediately if you have an accident or an injury.	
<b>Safety Contract</b>	
I have reviewed these safety rules with my teacher and my parent/guardian. I agree to follow these rules and any additional instructions, written or verbal, given by the school and/or teacher.	
Student's Signature	Date
Parent's Signature	Date
Teacher's Signature	Date

Figure I.4 Example of a Teacher-Made Concept Map for Grade 5 Science in the Virginia Standards of Learning



©Michael I. Bentley, 2006  
 Board of Education. (2003).  
*Standards of Learning for Virginia public schools*. Richmond, VA: Commonwealth of Virginia.

Virginia Standards of Learning for Grade 5 Science

**Figure I.5** A Generalized Rubric for Grading a Student Assignment

Category	Needs work (1)	Satisfactory (2)	Proficient (3)
Understands concept	Contains inaccurate information	Mostly accurate Information, most is appropriate	Accurate and appropriate information
Originality and clarity	Not a clear and original presentation	Mostly clear and in student's own words	Information clearly presented and in student's own words
Mechanics of sentences	Few clear and complete sentences	Most sentences complete	Clear and complete sentences
Spelling	Many misspelled words	Mostly correct spelling	Correct spelling

**Figure I.6** Traditional Lesson Plan Template

Teacher: _____	Subject(s): _____
Grade(s) or Level(s): _____	Date: _____
<b>Description:</b> Content, subject matter, concept(s), skill(s), or state/district standards	
_____	
_____	
<b>Goal:</b> What students should know or be able to do as a result of the lesson.	
_____	
_____	
<b>Objectives:</b> What is to be learned. Use behavioral verbs. Your objectives need to be related to your assessment. _____	
_____	
_____	
<b>Materials:</b> _____	
_____	
_____	
<b>Procedures:</b> What students will do in the lesson. _____	
_____	
_____	
<b>Assessment:</b> _____	
_____	
_____	

**Figure I.7** Behavioral Verbs for Writing Objectives

A verb is an action word. In a lesson objective, the verb specifies an observable outcome of instruction. Sometimes you will see objectives written such as, "The student will understand such-and-such," but understanding cannot be observed. Hence, we recommend that you use verbs that specify what behavior or product will be observable as a result of the lesson.

Activate	Compare	Differentiate	Integrate	Question	Schedule
Adjust	Compute	Distinguish	Interpret	Rank	Score
Analyze	Complete	Draw	Introduce	Rate	Select
Appraise	Compose	Dramatize	Investigate	Recall	Sequence
Arrange	Conduct	Establish	Judge	Recognize	Simplify
Articulate	Construct	Estimate	List	Recommend	Sketch
Assemble	Contrast	Evaluate	Locate	Reconstruct	Solve
Assess	Convert	Examine	Manage	Record	Specify
Build	Coordinate	Explain	Modify	Relate	Summarize
Calculate	Count	Express	Name	Reorganize	Tabulate
Catalog	Criticize	Extrapolate	Order	Report	Theorize
Categorize	Critique	Formulate	Organize	Reproduce	Track
Change	Define	Generalize	Point out/to	Research	Translate
Cite	Demonstrate	Identify	Predict	Restate	Use
Classify	Describe	Infer	Prescribe	Restructure	Verify
Collect	Design	Illustrate	Produce	Revise	Visualize
Combine	Develop	Implement	Propose	Rewrite	Write

**Figure I.8** Madeline Hunter Lesson Plan Template

Date: _____
Grade level and subject(s): _____
Objectives: _____
Materials: _____
Anticipatory set: _____
Teacher procedure: _____
_____
_____
_____
Checking for understanding: _____
Guided practice: _____
_____
_____
_____
Independent practice: _____
_____
_____
_____
Closure: _____
Evaluation: _____
Accommodations for individual children's needs: _____
_____
_____
_____

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**Figure I.9** Learning Cycle Lesson Plan Template

Date: \_\_\_\_\_ Grade(s) or Level(s): \_\_\_\_\_

Elicit: \_\_\_\_\_

Engage: \_\_\_\_\_

Explore: \_\_\_\_\_

Explain: \_\_\_\_\_

Elaborate (or Expand): \_\_\_\_\_

Evaluate: \_\_\_\_\_

Extend: \_\_\_\_\_

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**Figure I.10** Strategies for Using Cooperative Learning Groups**Tips for Managing Group Work**

- Arrange student desks to allow discussion between students—think circular instead of straight lines.
- Early in the school year provide some explicit instruction in communication, conflict management, and leadership prior to assigning group work. Have students practice listening, taking turns, disagreeing politely, managing time, asking for help, being supportive, sharing feelings, keeping everyone involved, paraphrasing, expressing appreciation, making everyone feel important, and making eye contact.
- Design tasks to encourage all students in the group to contribute, with everyone having a stake in the learning of others in the group. This might be achieved by assigning a group grade or by assigning roles and dividing labor.
- Avoid providing opportunities for some students to hitchhike on the work of others in the group. This may be achieved by individual accountability, such as by questioning students at random or by having students share in the reporting back to the whole class.
- Use pairs whenever possible, avoid trios and groups larger than four; group members can self-select or you can use structured procedures for forming groups, for example, by counting off, by drawing a playing card, or by pairing up within categories (“Walk around and pair up with red as the category—those wearing red pair and those not wearing red pair”).
- Use a paired reading strategy for getting students to read texts—have partners take turns reading aloud to each other and, when they have completed the reading, have each pair talk about the reading, write in their journals, or prepare to report to another group. Pairs can rotate for another task (“Okay, identify a person in your pair as ‘A’ and the other as ‘B’—the As remain seated and the Bs move to a new ‘A’ to be your partner. Bs will share . . .”).
- Option display: A group works on a problem or issue, aiming to display (a) several options for solving the problem or addressing the issue, (b) the likely consequences of each option, and (c) the group’s overall recommendation.
- Best choice debate: Pairs prepare either a pro or con position on an issue; a “pro pair” and a “con pair” then meet to explain their position to each other and seek an agreement on an overall recommendation (similar to Johnson and Johnson’s [2009] constructive controversy method).
- Project work usually aims to produce a product; teams can be organized around an action project whose focus is taking action rather than studying; projects may be based on student interests; guidelines should include clear timelines and progress reports (tasks might involve interviewing, comparing opinions, making models, designing an ideal something, finding contrasting views, producing a graphic, creating a dramatic skit for another class, etc.).
- Allow students both to celebrate a group success and to consider how their work could have been improved. Students should ask questions like, “What contribution did each of us make?” and “How could our work together have been better?” (Jensen, Moore, & Hatch, 2002)



**Figure I.11** A Simple Procedure for Moving Groups Through Classroom Activity Centers

**Scheme for Moving Groups Through Five Stations**

1. Divide the class into groups (here, e.g., Alphas, Betas, Gammas, Thetas, and Omegas).
2. Create a framework such as the following with center names or numbers going across and days (or times) going down. Write group names on small cards (or use color-coded cards if you're using colors to differentiate groups). To start, assign one group to each station (going across) on Day 1 (or Time 1) by putting cards into place on a schedule board.
3. Explain the rotation schedule and have students take a practice run. Soon, with a quick glance, they will know exactly where they are supposed to be and what center is next.

	<b>Center 1</b>	<b>Center 2</b>	<b>Center 3</b>	<b>Center 4</b>	<b>Center 5</b>
<b>Time (Day) 1</b>	Alphas	Betas	Gammas	Thetas	Omegas
<b>Time 2</b>	Omegas	Alphas	Betas	Gammas	Thetas
<b>Time 3</b>	Thetas	Omegas	Alphas	Betas	Gammas
<b>Time 4</b>	Gammas	Thetas	Omegas	Alphas	Betas
<b>Time 5</b>	Betas	Gammas	Thetas	Omegas	Alphas

**Figure I.12** Items Typically Useful on Field Trips**Considering What to Take on Field Trips**

- A first aid kit
- Depending on season, insect repellent
- Maps (road maps, topographic maps, geological maps, etc.)
- Paper, pencils, colored pencils, or markers
- Tape recorders and blank tapes
- Field logs or journals
- Film or digital cameras—still or video
- GPS devices
- Cell/mobile phones (or not)
- Field guides (to historical sites, cities, or organisms such as insects, wildflowers, trees, birds, rocks and minerals, etc.)
- Plastic bags and/or containers—bug boxes, small cages, or collection jars
- Magnifiers, such as hand lenses or jeweler's loupes
- Microscopes
- Tweezers, scissors, probes (or dissecting kits)
- Nets (aquatic or insect)
- Compasses
- Flashlights
- Portable radio
- Binoculars



