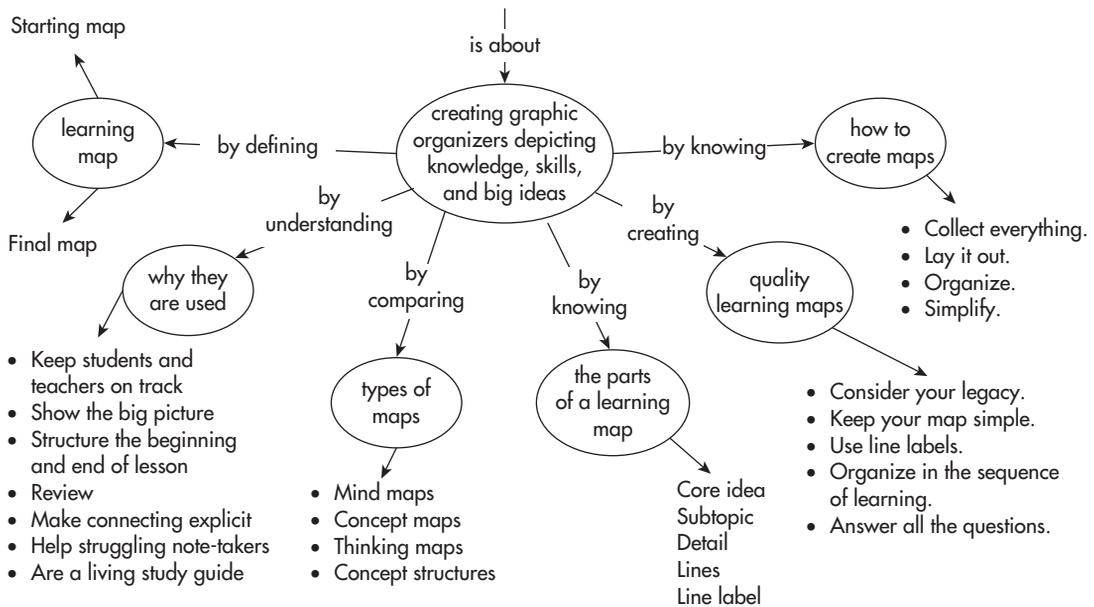


## Chapter 4: Learning Maps



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# 4

## LEARNING MAPS

*A good map is both a useful tool and a magic carpet to faraway places.*

—Author unknown

**D**uring the first half of my twenties, I lived in the heart of the Canadian Rockies, in Jasper, Alberta, my favorite part of the world. Surrounded by beautiful mountains, I was consumed by a desire to stand on some of the major peaks. I usually went into the backwoods to mountaineer every weekend, and I rock climbed after work on the cliffs just outside of town.

One climb was up Mount Andromeda, a wall of ice and snow that towers above the Columbia ice fields. My climbing partner and I had to hike some distance across the ice fields to get to the start of the climb. Roped together, we walked across the glacier with our ice axes in hand, ready in case one of us should fall into a crevasse.

Poking his ice ax ahead of himself as he walked, like a soldier walking through a minefield, my climbing partner discovered a crevasse that blocked our progress. Certain he could jump across it, he asked me to feed him about 15 feet. He leapt into the air, but the gap was wider than he thought, and in less than a second the rope between us tightened, and he went hurtling into the crevasse. I jumped on my ax to try and stop him before he hit the icy bottom.

I stuck the wide end of my ax into the ground and did my best to drag us to a stop. The extra 15 feet had sent him into the crevasse

quickly, and I was pulled across the ice at a frightening pace. A park warden who was watching us through binoculars as we went across the glacier told me later that I looked like I was water skiing as I skipped across the ice. Quickly, though, I pulled us to a stop and my partner used his ice climbing gear to get back up to the surface.

People who look for ominous signs about the future might have seen my fellow climber's dive into the bowels of the glacier as a pretty clear indication that that day was not our day, but we decided to keep going. We started the actual climb about two hours late. Near the top, we realized that there was a cloud at the summit, and on top we couldn't see more than a few feet ahead of us. Most troubling, we couldn't see our route back down the mountain. After stumbling around in the cloud on the backside of the mountain, we decided that going on was too risky, so we tied ourselves to some rocks on a little ledge and settled in for the night.

After a restless night, we awoke to clear skies and a beautiful but unrecognizable landscape. We were tired, cold, running out of food, and, clearly, lost. We decided to hike down the edge of the mountain since we had to try to get somewhere, and eventually we landed in a valley. About midmorning we watched a rescue helicopter fly overhead, missing us completely. Being lost started to feel a little more frightening.

We edged our way across the valley, not sure what direction we were going, hoping to find a landmark that could help us get out. After a few hours, we came to a cliff at the end of the valley, and more than 1,000 feet down I could see a huge sheet of ice with the distinctive markings of the Saskatchewan Glacier. As soon as I saw the glacier, I knew we would be able to follow it back to the highway. We weren't lost anymore. Now we could get home.

Chances are you've been lost a few times in your life and know what it feels like. When lost, we feel helpless. We don't know which way to turn. We walk around in circles. Sometimes when people are lost, they just give up and hope that someone will find them. And people don't have to climb a mountain to get lost. Too many students get lost in schools all the time. Like my friend and me on the back of Mount Andromeda, they look up from what they are learning and don't know where they are. And, as a result, they may give up.

One way to avoid getting lost is, of course, consulting a map. If my friend and I had remembered to bring a topographical map, we could have used it to find the valley, identified our exit, and made our way home. A map would have been an incredibly helpful tool. Learning maps, in exactly the same way, can be incredibly helpful in the classroom. Learning maps help students stay on course and make it easier for them to learn.

## Learning Maps

A learning map is a graphic organizer that highlights the knowledge, skills, and big ideas that students should get from a lesson, unit, or course. The map depicts the most important information to be learned and how the different pieces of learning are connected. A learning map is a visual cue for the advance organizer (the introduction of learning at the start of a lesson) and post organizer (the summary discussion at the end of a of a lesson), and a living study guide that students and teachers complete after each new learning.

In this chapter I will focus on using learning maps to depict what will be learned in a unit, but learning maps can also be used to organize and visually depict the information to be learned in a course or lesson. Learning maps are two-dimensional depictions of information that usually include (a) a core idea, often the name of the unit; (b) subtopics (usually surrounded by shapes such as ovals, rectangles, squares, or stars); (c) details; (d) lines that show the relationship between the different parts of the map; and (e) line labels that explain the relationship between the core idea and the subtopics. My colleague Keith Lenz, whose *Unit Organizer Routine* (Lenz, Bulgren, Schumaker, Deshler, & Boudah, 2005) introduced me to learning maps, suggests that maps also include a paraphrase of the core idea of the unit.

I suggest creating two types of learning maps: starting maps, which usually only include the core idea, paraphrase, and supporting details (see Figure 4.1), and ending maps, which are constructed throughout the unit as details are added and finished when the unit is completed (see Figure 4.2).

Like the climber's topographical map, a learning map points out the most important features of the landscape. On learning maps, the landscape is the knowledge, skills, and big ideas to be learned in a class. The learning map highlights the most important information students need to learn and provides students with guideposts for following the sequence of instruction.

## Why Learning Maps Are Useful

**Seeing Supports Learning.** In his book *The Back of the Napkin: Solving Problems and Selling Ideas With Pictures* (2008), Dan Roam illustrates how helpful visual learning can be with a legendary story about the founding of Southwest Airlines:

Herb Kelleher was a lawyer from New Jersey who decided that the big open spaces of his wife's native Texas looked like

Carrie Hochgrebe learns about learning maps.



Video 4.1  
[www.corwin.com/  
highimpactinstruction](http://www.corwin.com/highimpactinstruction)

Figure 4.1 Sample Learning Map for a Sentence Writing Unit—Starting Map

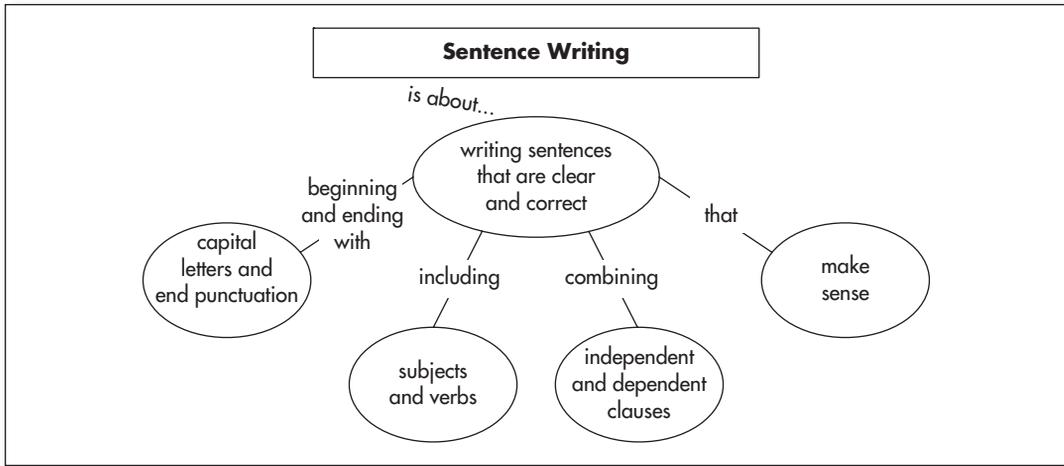
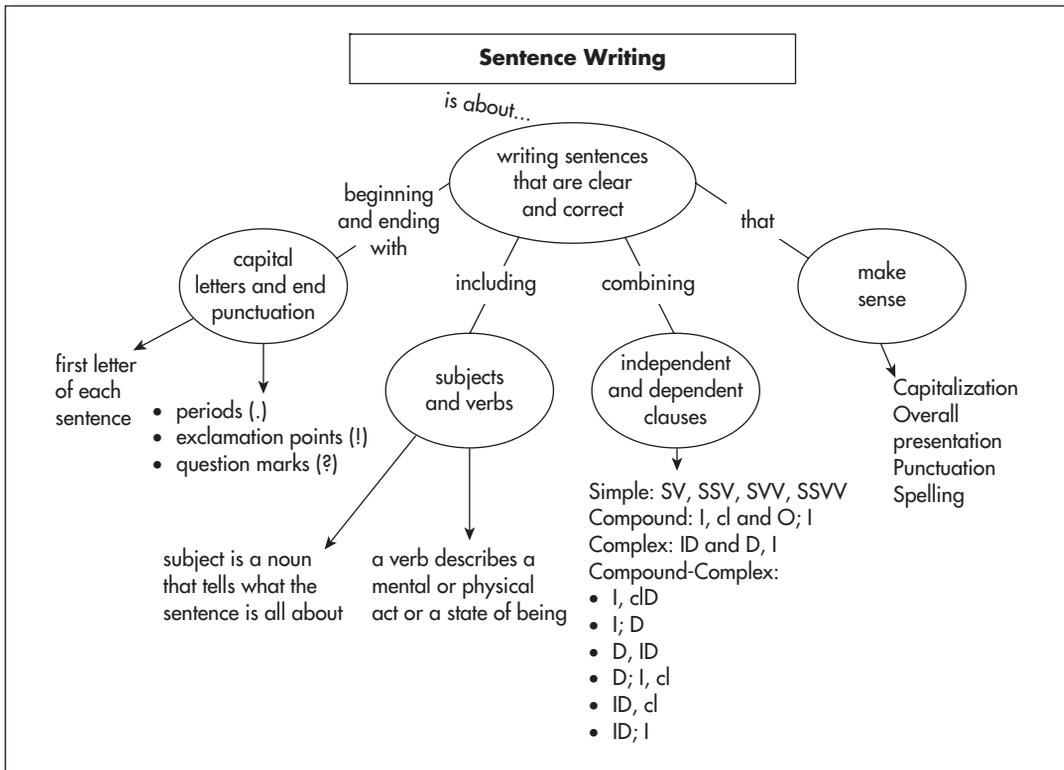


Figure 4.2 Sample Learning Map for a Sentence Writing Unit—Ending Map



a good place to set up business, so he packed up the family and headed to San Antonio.

One afternoon in 1967, Kelleher was sitting at the prestigious St. Anthony Club, helping his client Rollin King finish up the paperwork that would close Rollin's failed airline. But Rollin wasn't through with the airline business. He picked up a napkin and sketched a triangle on it. As he wrote San Antonio, Houston, and Dallas on each of the three points, Rollin explained another crazy idea to Herb—an idea that four years later became Southwest Airlines.

Rather than running a small airline that serviced small towns, why not run a small airline that serviced big cities—the three biggest boomtowns in Texas, in fact? Because it flew to only three cities, the airline would not come under regulation of the Texas Civil Aeronautics Board, thus freeing it up to financially operate pretty much as it pleased. And by flying to Dallas' otherwise deserted Love Field, it would offer a far easier commute for Dallas-based business travelers.

Southwest legend has it that Herb agreed with Rollin on two things: first, that the idea was crazy, and second that the idea was brilliant. On its own, the simple map illustrated the fundamental operating principles of the company that Herb and Rollin agreed to start that evening: fly short routes between busy cities, avoid hubs, and where possible fly into smaller, secondary airfields. One napkin; one good idea; one profitable airline. (pp. 120–121)

Southwest Airlines might have been launched without the sketch on the back of the napkin, but there is plenty of evidence that visual depictions of information such as Rollin King's drawing significantly enhance understanding. In *Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School* (2008), John Medina, the director of the Brain Center for Applied Learning Research at Seattle Pacific University, generalizes from the existing research: "Vision is probably the best single tool for learning anything. . . . Put simply, the more visual the input becomes, the more likely it is to be recognized—and recalled" (p. 233). Learning maps enhance student learning by providing a picture of what students will learn.

**They Show the Big Picture.** Teachers who have used learning maps report that seeing the entire unit laid out on one page helps them make decisions about how to differentiate learning. They can look over the unit from start to finish and pinpoint where they may need

to modify instruction to increase the likelihood that all children will learn. As one teacher explained in a workshop, “the map gives me the whole gestalt. It helps me get a much clearer idea of what and how I need to teach.”

What helps teachers also helps students. When students see the unit displayed on one page at any point in the unit, they can see what has been learned and what remains to be learned, all in one shot. And as a result, they can estimate what they need to do and how long it will take them to master the unit’s knowledge, skills, and big ideas. The map also becomes a visual reference point for much of the learning that happens in the class, especially the advance and post organizers for each day’s lessons.

**They Keep Students and Teachers on Track.** I have interviewed dozens of teachers after they have used learning maps, and they almost always report that they like them because they keep them on track. Learning maps are daily reminders of what should be taught and what should be emphasized, and many teachers have told me those daily reminders are very helpful.

Again, the benefits teachers experience are also experienced by students. Like road maps, learning maps give students a turn-by-turn, or at least idea-by-idea, picture of what will be learned in each lesson. When teachers use learning maps fluently, every day, students get a chance to picture what they have learned and what they are about to learn, and for many students that kind of scaffolding is very important.

**They Structure the Beginning and Ending of Lessons.** Many studies have been conducted to show that the first and last information we experience is the easiest to remember. Psychologists studying these phenomena refer to the primacy and recency effect (Atkinson & Shifrin, 1968; Ebbinghaus, 1913; Glanzer & Cunitz, 1966; Murdock, 1962; Terry, 2005). I include more on this topic later in this chapter.

In the classroom, this means that the first few minutes and the last few minutes of a class are extremely important for introducing and reinforcing student learning. There is also ample evidence to suggest that advance organizers and post organizers, in part because of the primacy and recency effect, enhance student learning (Lenz, 1987; Marzano, Pickering, & Pollock, 2001). Learning maps provide a picture of the unit that teachers can use to begin and end lessons in a way that best supports student learning.

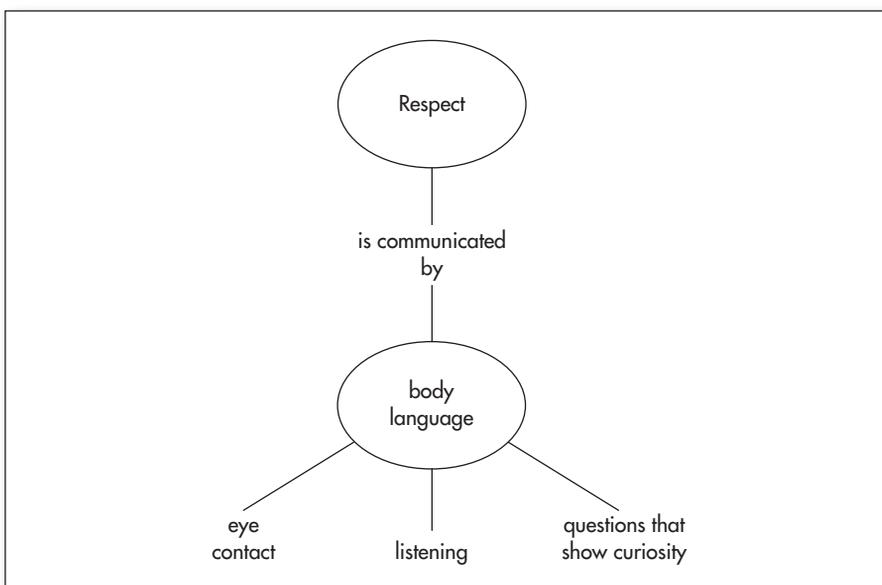
**They Serve as a Mechanism for Repeated Review.** When teachers begin and end each day’s lesson by discussing the learning map,

students are able to take stock of how well they understand what is being learned in a unit. In Chapter 5, I describe many ways in which teachers can prompt students to review the learning depicted on the map. Whether the map is used individually or with other students, learners benefit by reviewing the learning depicted on the map.

**They Make Connections Explicit.** When my colleague at the University of Kansas Center for Research on Learning, Keith Lenz, studied the characteristics of students who are at risk for failure, he found that many of these students did not see the connections between the knowledge, skills, and big ideas they were learning. For students who struggle in school, each day can bring just another piece of unrelated stuff to be experienced or perhaps endured. Therefore, teachers need to do what they can to organize what they teach so that students see the connections between the knowledge, skills, and big ideas being learned.

Learning maps are designed to show how everything being learned is connected. In the learning maps throughout this book and described below, the maps explicitly show the connections between various words on the map. The line label “is communicated by” in the map in Figure 4.3, for example, makes it clear how body language, respect, and the details are related.

**Figure 4.3** Learning Map



Teachers can help students see how various aspects of learning are connected by creating maps that explicitly show connections and by pointing out those connections during learning experiences.

**They Help Struggling Note-Takers.** Students who are at risk for failure often have not mastered the complex task of taking notes. For some students who have been diagnosed as having learning disabilities, for example, distinguishing between important and unimportant information is a daunting task, and students often either try to write down every bit of information that is taught or give up, overwhelmed by the challenge. In addition, in heterogeneous classrooms with diverse learners, slow note-takers present a significant challenge for teachers. If the teachers move the learning at a pace that most students can handle, some students will be left behind, but if the teachers allow enough time for all students to keep up with notes, intensity will be lost, and some students will become bored or off task.

Learning maps accommodate learner needs by providing a scaffold for note taking. Although a learning map does not replace notes, it does provide a format for all students to record information about what they are learning, and with teacher guidance, students can be sure they are recording the most important information. In extremely diverse classrooms, teachers can create a fill-in-the-blanks form of the learning map so that every student can complete the map quickly.

**They Serve as a Living Study Guide.** In some learning settings, teachers give students study guides a few days before the end of a unit so that the students can prepare for the final test. Learning maps can provide a similar support for students, but they are created with students throughout the unit, not simply handed out at the end. In addition, since students interact with the map by taking notes, using it in discussions and activities, reviewing it during advance and post organizers, using it to monitor and check learning, referring to it to stay organized and focused during class, and frequently using it as the starting point to create their own maps, the map becomes a central part of learning. For all these reasons, a map that is built throughout the unit has a greater impact on retention of ideas than a teacher-constructed study guide handed out at the end of a unit.

## Types of Maps

Many authors have written about the power of mapping as a part of learning. Mapping models include clustering (Rico, 2000), mind maps (Buzan, 1993; Margulies, 2001), concept maps (Novack, 1998), thinking