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### Readings and Resources

| Reading 1 | “Long-Term Journey That Transformed a District,” by A. Johnson and J. L. Johnson | 93 |
| Resource 1 | Curriculum Mapping Software Programs: Thoughts and Questions to Consider | 107 |
| Resource 2 | Template for a Professional Development Plan | 113 |
| Resource 3 | Sample Professional Development Implementation Plan | 115 |
| Resource 4 | Coaching Questions for Developing a Quality Month or Unit Map | 117 |
| Resource 5 | Critical Documents in the Curriculum Mapping Process | 119 |
| Resource 6 | Steps in the Curriculum Mapping Process | 121 |
| Resource 7 | District or Building Assessments to Determine Next Steps | 123 |
| Resource 8 | Curriculum Mapping Implementation | 125 |
| Resource 9 | Discussion Questions for Supplementary Video Segments | 133 |
Getting Results with Curriculum Mapping

Introduction
As the world moves forward into the 21st century, information access is growing exponentially; demanding jobs are requiring more education and knowledge of technology than ever before; and teachers are being bombarded by an overwhelming number of textbooks that contain more information than can possibly be covered in a single school year. As they think about and plan for their classes and lessons, educators need to focus on this question: What do students need from my class to be successful at the next level in their lives? At the same time, educators must realize that this question cannot possibly be answered in isolation, because a good education is the composite effort of an entire series of teachers a student meets from the first day of prekindergarten to graduation day years later. No teacher acts alone; every teacher plays some role in preparing a child for the future. To unify and focus their efforts, therefore, they need to communicate.

Curriculum mapping can be the vehicle for opening up the lines of communication among all educators within a school system. Encouraging teachers and school leaders to have conversations within their own building as well as with other schools in their district will lead to a greater sense of collegiality. Such conversations will help educators focus on more than what takes place in their own individual classrooms.

A curriculum map is a working document that illustrates exactly what is taking place in classrooms. Maps reveal what is being taught over the course of a year, within a unit of study, and even down to a specific lesson. Often, a map for a lesson will include essential questions, the content that will be covered, skills students will demonstrate if they understand the content, assessments, and activities.

Heidi Hayes Jacobs—president of Curriculum Designers, Inc., director of the Center for Curriculum Mapping, and this program’s consultant—views mapping as integral to improving instruction.

“Mapping is a procedure for finding out what teachers actually do with their students through the course of the calendar school year. It’s a way of collecting data based on the lessons, units, and annual curriculum plans that serve as a reality check,” says Jacobs.

She adds, “Rather than looking at what teachers are supposed to do with kids, we deal with what they really do. But more than anything, [a curriculum map is] a communication tool between teacher and student and between teacher and teacher to look at kids’ experience over the long haul—not only through the course of one year but over the entire K–12 journey.”
A key question educators ask is this: How will we know we’re getting results with curriculum mapping? The question brought this response from Jacobs during an interview for this video program:

It will be because there is a direct relationship in improvement, in student performance, in achievement, that we can see and measure over a reasonable period of time. Mapping is a tool to make that happen. And specifically, one of the most important advanced strategies is that we learn how to disaggregate assessment data of all kinds—criterion-referenced tests, standardized tests, portfolio work, classroom performance tests, or quizzes—whatever forms of assessment we have. We can figure out what kids need on the basis of that analysis, and then formally, cumulatively, and collaboratively revise our maps, K through 12, both vertically and across grade levels, and monitor the work.

The research bears out that this approach—the combination of assessment review, formal mapping and alignment, and ongoing monitoring and communication—is instrumental and key in terms of improving student performance.

Jacobs speaks from her experience working in schools. “My experience is that teachers actually don’t know what’s going on down the hall, even with colleagues they’ve worked with for 20 years. There are virtual grand canyons between buildings. So, in reality, we need to communicate better if we’re going to improve instruction. Let’s start off with what we do as a way to get better and grow and grow.”

Mapping curriculum is analogous to developing a road map for a personal journey. The curriculum mapping process can lead a teacher to examine areas of a subject never seen before and to discover gaps as students go through a subject area from start to finish. By clearly articulating what skills students are expected to demonstrate at each grade level and tightly aligning those skills to the content that is presented, mapping allows teachers to see their role in a student’s journey through education. Mapping a preK–12 course enables teachers at each grade level to see how to scaffold skills to build on the work students have done prior to their course. It also allows educators to consider when to incorporate the higher-order thinking skills necessary for students to succeed at the next level. In other words, a complete map will help teachers see the steps they will need to take to help students reach the final destination. Successful curriculum mapping requires a team of educators who can envision the goal or end point of a course of study and then determine the most effective route to it.
Strong, effective leadership is the keystone in a successful curriculum mapping program. But district leaders who are willing to commit resources and time to the curriculum mapping effort are only one piece of the leadership puzzle. Teacher leaders are also crucial, because it is their persistence and coaching that will create buy-in from other teachers and sustain the mapping effort as it progresses from year to year.

Building that cadre of dedicated teacher leaders is the critical first step in a successful curriculum mapping endeavor. These teachers become building-level coaches who lead study groups, answer questions, and offer support as maps are developed. They also work at the district level, helping to develop action plans for using the data generated by the different facets of curriculum mapping. Approaching curriculum mapping in this way increases the likelihood that it will be perceived as the teacher-driven process that it truly is, not as a top-down directive. This approach gives teachers ownership over the maps they create and the data generated from those maps. Teachers can then make the data-driven decisions most likely to bolster student achievement in their classes. And the maps become a yearlong tool that can assist teachers in planning instruction for future classes.

Undertaking a curriculum mapping project usually begins with several essential questions:

- What is the purpose of curriculum mapping?
- Why is curriculum mapping needed in a particular district?

Someone familiar with the process of curriculum mapping needs to carefully consider these questions and answer them for a district.

The next questions are typically the following:

- How do we create buy-in from staff members?
- How do we sustain the effort once it has started?

These questions can be approached from a professional development perspective. Answering them involves rethinking leadership, creating a cadre of teacher leaders, and carefully considering the effect of the various facets of curriculum mapping on a district—all important elements of professional development that are necessary to support teachers before and during the mapping process.

Additional essential questions might include

- What is a consensus map?
How do we ensure quality as we create consensus maps and expand into individual maps?

 Achieving consensus will require that everyone involved have the same vocabulary, tools, and expectations prior to beginning the process of mapping. For example, staff members will need to define what is “non-negotiable” in terms of content students should be expected to know and skills students should be expected to demonstrate. Trying to agree on such a definition will generate valuable discussions as staff members work together to create consensus maps. The question about quality is one that will bear repeating throughout the entire curriculum mapping process. Achieving quality should be a constant focus.

Purpose of the Program

The purpose of this professional development video and accompanying facilitator’s guide is to help districts and schools successfully implement and sustain a comprehensive curriculum mapping effort. The program showcases how every district can develop curriculum maps and successfully follow through on their plans. Readily apparent are the thorough preparation of the teacher leaders and the strong commitment by district leaders to curriculum mapping as a vehicle for improving the quality of education for every student.

Additionally, this program will introduce current language and terminology used in mapping curriculum, share how quality maps are developed and how they influence regular classroom instruction and special populations in a school, explain the importance of vertical alignment, show how mapping strategies are applied to such areas as professional development and counseling, and introduce some criteria to consider in selecting the essential tools for mapping.

About the Program

This video-based staff development series consists of one videotape or DVD, and a facilitator’s guide. The videotape and DVD examine the various uses of curriculum mapping in school systems and, ultimately, in classrooms. The program illustrates specific mapping applications and provides essential information from an interview with Heidi Hayes Jacobs, program consultant. Other interviews, with teachers and administrators, and on-site observations offer perspectives on the many variables involved in curriculum mapping, on developing a school culture that supports mapping, and on the benefits mapping provides for students. The facilitator’s guide includes detailed agendas and activities for
two workshops, as well as handouts, overheads, and additional resources.

The video program also includes supplementary material that will allow you to explore curriculum mapping in greater depth. In the supplementary segments, you’ll see how to use curriculum mapping to enhance your learning program at the school and district levels. Then, curriculum mapping expert Heidi Hayes Jacobs offers some suggestions for implementing curriculum mapping.

Each supplementary segment is just a few minutes in length. You may wish to pause at the end of each segment for discussion within a study group to spur conversation and deepen understanding. Questions to guide such discussions are available as Resource 9 in the Readings and Resources section of this guide.

The supplementary video segments include the following:

**Segment 1: Eric Witherspoon, Superintendent of Des Moines Public Schools**
Superintendent Eric Witherspoon sets the context for mapping during a professional development day in Des Moines Public Schools, Iowa.

**Segment 2: Using Curriculum Mapping to Bolster Literacy Instruction**
Members of the Curriculum Mapping Core Team at East High School in West Chester, Pennsylvania, discuss how curriculum mapping can help educators achieve their goal to integrate literacy instruction across the disciplines.

**Segment 3: How Technology Helps Us Teach Better**
Heidi Hayes Jacobs describes how technology can help educators communicate and share their expertise.

**Segment 4: Technology Options for Curriculum Mapping**
Heidi Hayes Jacobs offers some suggestions to help educators determine which software program can best help them map their curricula.

**Segment 5: Curriculum Mapping and Differentiated Professional Development**
Just as we differentiate instruction for students, we should differentiate professional development.

**Segment 6: Curriculum Mapping for Today and Tomorrow**
Curriculum mapping isn’t an add-on, asserts Heidi Hayes Jacobs, but a focal point for addressing curriculum, instruction, and assessment.
Schools Profiled in This Program

Des Moines Public Schools, Des Moines, Iowa

Des Moines Public Schools is the largest school district in Iowa. Its total enrollment is nearly 32,000 students, who represent a diverse population and a total of 48 languages. The students benefit from friendships and experiences with people from many cultures and backgrounds. Des Moines’s approximately 2,200 teachers, spread throughout 60 schools, strive to equip students for life by challenging them to achieve rigorous standards in academics, the arts, and career programs.

Because Iowa is the only state without a set of state standards, it is up to individual districts to develop challenging academic standards. Des Moines Public Schools is using curriculum mapping to develop standards that are rigorous and aligned to other high-quality standards. National standards and research documents, other states and school districts, and national standardized tests such as the Iowa Test of Basic Skills (ITBS) and the Iowa Test of Education Development (ITED) provide “quality lenses” for Iowa educators to use in developing content standards and benchmarks. The curriculum team and teachers in the district—with the support of Superintendent Eric Witherspoon, Deputy Superintendent Linda Lane, and administrators at all levels—are working together to develop, revise, and make public the quality standards of Des Moines Public Schools.

East High School, West Chester, Pennsylvania

The West Chester Area School District serves a 75-square-mile suburban, urban, and rural area in central Chester County, approximately 25 miles southwest of Philadelphia and 12 miles north of Wilmington, Delaware. Close to 12,000 students attend the 10 elementary schools, 3 middle schools, and 3 high schools. The professional staff, headed by Superintendent Alan Elko, numbers more than 900. The student body has an ethnic distribution of 84.5 percent Caucasian, 7.4 percent African American, 3.4 percent Hispanic, 4.6 percent Asian, and 0.1 percent Native American. The district strives for diversity at each school. A Partners in Education Program links parents, private individuals, civic organizations, and businesses with all grade levels. The district also enjoys a partnership with West Chester University, which makes its resources available in a variety of ways.

East High School, with an enrollment of approximately 1,400 students, is a four-year comprehensive high school led by Richard Dunlap Jr., principal. The core curriculum of English, social studies, mathematics,
and science is offered on four levels (academic, honors, seminar, and advanced placement) for college-bound students. Additionally, students may study world languages from entry level to advanced placement. Standards English, remedial reading, and math concepts courses are provided for less-proficient students. Some students elect to attend East High School for half the day and The Center for Arts and Technology, a vocational school, for the other half.

**Use of the Facilitator’s Guide**

As the facilitator of this workshop series, you may find it helpful to keep in mind that when different people view a video program, each may see, hear, and learn something different. Consequently, if participants discuss their different insights, they will often learn more than if they just viewed the program without follow-up activities. Moreover, viewing video programs can often be a passive activity, much like watching television, unless careful preparation has been made to turn viewing into an intellectually active experience by providing the viewer with appropriate previewing discussion activities and follow-up activities. The follow-up activities can promote further reflection and can support the participants’ efforts to plan for the effective application of the ideas presented in the program.

This facilitator’s guide is designed to help you get the best possible benefits from this video program on curriculum mapping. The workshop activities and discussion questions included here can serve as a starting point. However, your choices of activities and questions should certainly not be limited to those contained in this guide. Indeed, you should encourage participants to raise their own questions based on the particular needs or concerns of their school, district, or community.

The guide contains four sections:

**Introduction.** This presents an overview of the philosophy, principles, and research pertaining to curriculum mapping, as well as a description of the video program.

**Workshops.** These provide agendas, materials, and information needed for the facilitator to plan and conduct two different workshops for the video program.

**Handouts and Overheads.** These are the materials to be duplicated and distributed to participants in each workshop. They include camera-ready masters for overhead transparencies and handouts that are incorporated within the workshop formats.
Readings and Resources. This section includes related ASCD resources, and curriculum mapping materials used in the schools featured in this video program.

Program Objectives

This program is designed to help participants gain a better understanding of the process and use of curriculum mapping as well as the common challenges faced by schools and districts as they begin working with it. Specifically, the workshops are designed to

- Introduce participants to the terminology of mapping and the multitude of uses for mapping today.
- Enable participants to understand what it takes to develop quality maps.
- Provide participants with examples of how maps influence regular classroom instruction and special populations in a school.

Role of the Workshop Facilitator

As facilitator of this viewing process, you could be a staff developer, principal, central office administrator, teacher, parent, or community member. As the leader, your preparation for the workshop and discussion will help your group benefit from this program. Remember, you may be showing this video program to a group of individuals who have varying levels of knowledge and experience with curriculum mapping. Your background knowledge and outside reading will be beneficial. As a leader, you have several major responsibilities:

Read and View the Materials.

Your initial preparation should include viewing the video program, reading the Introduction section of this guide, and studying the workshop format you plan to use.

Prepare the Program Activities.

As facilitator, you should review the sample curriculum maps contained in the Handouts and Overheads section of this guide, as well as the materials contained in the Readings and Resources section.

Check the Room and the Seating Arrangements.

Reserve a room that is large enough, with ample seating for the number of participants you expect to attend, and ensure that it is conducive to small-group discussions.
**Arrange for the Necessary Video and Audiovisual Equipment.**

Arrange for a working VCR or DVD player and monitor, ensure proper electrical fittings, and make sure you have sufficient power cords with adapters for the VCR or DVD player. (One 23- to 25-inch monitor will suffice for up to 25 participants.) Plug in these machines to ensure their working condition and make sure that the electrical outlets in the reserved room are in working order. If the room is large, you may need a microphone and speakers. If you plan to use overheads, make sure you have a working overhead projector, screen, and extra transparencies and markers, if you need them. Provide a flip chart and markers, or chalk and eraser for a chalkboard.

**Prepare Materials.**

Duplicate enough handouts for all participants and prepare overhead transparencies from the Handouts and Overheads section of this guide.

**Announce the Program.**

In your announcements or invitations, give sufficient notice and clearly specify the day of the week, date, time, and location for the program. Remind participants to bring pencils and notepads. If parents, business leaders, or community members are invited, they may need more advance notice than school or district staff members. To provide some background for your participants, you may wish to send each a copy of Reading 2, “Creating a Timely Curriculum: A Conversation with Heidi Hayes Jacobs.”

**Make Other Arrangements.**

Prepare an agenda, with times for breaks. Also, arrange for refreshments, if desired.
Getting Results with Curriculum Mapping Workshops
This workshop provides a brief overview on curriculum mapping terminology and what it takes to develop quality maps. Participants will learn a variety of uses for maps and how maps influence regular classroom instruction and instruction for special populations in a school. Throughout the workshop, participants will be able to work with sample maps.

Viewing the video and reading this guide in advance of the workshop will provide helpful information. As the facilitator, you may wish to use the following agenda or customize it to suit your needs.

### Agenda and Time Guide

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome and Introductions</td>
<td>10</td>
</tr>
<tr>
<td>View Program, <em>Getting Results with Curriculum Mapping</em></td>
<td>30</td>
</tr>
<tr>
<td>Reflections on Program</td>
<td>20</td>
</tr>
<tr>
<td>Conclusion</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total Approximate Workshop Time</strong></td>
<td><strong>65 minutes</strong></td>
</tr>
</tbody>
</table>

### Workshop Materials

For this workshop, you will need a copy of Handout 1, Workshop Objectives, for each participant. You will also need a transparency of Overhead 1, Workshop Objectives. You will find the masters for these materials in the Handouts and Overheads section of this guide. You may also wish to provide copies of some of the curriculum maps in the Handouts and Overheads section and copies of one or both readings in the Readings and Resources section. If you choose to show the supplementary video segments, you may wish to provide copies of Resource 9, found in the Readings and Resources section.

The follow-up discussion activity in this workshop calls for use of an overhead projector; a flip chart, chalkboard, or whiteboard; and an overhead transparency, chalk, or a marker.

#### Welcome and Introductions (10 minutes)

1. Welcome all participants. Introduce yourself and explain your role as workshop facilitator. As the facilitator, you will guide the group through the workshop to help them meet the workshop objectives.
2. Depending on the size of the group and whether the participants in the workshop know each other, you may want to set aside time for participants to introduce themselves individually.

**View Video Program, *Getting Results with Curriculum Mapping* (30 minutes)**

1. Display Overhead 1, Workshop Objectives. Say to participants
   - **In this workshop, you will**
     - Become aware of the essential elements of curriculum mapping.
     - Learn how curriculum maps are developed.
     - See examples of ways to ensure quality and rigor in the mapping process.
     - Study examples of ways curriculum mapping improves instruction.

2. Distribute Handout 1, Workshop Objectives. Instruct the participants to take notes as they watch the video.

3. Show the video, *Getting Results with Curriculum Mapping* (30 minutes).

**Reflections on Program (20 minutes)**

1. After viewing the video, allow participants 10 minutes to record their thoughts and what they learned on Handout 1, Workshop Objectives.

2. Invite participants to discuss their reactions to the video. Record key responses on a chalkboard, a flip chart, or an overhead transparency. Use Handout 1 as a discussion guide.

3. After the discussion, distribute copies of materials you have selected from the Readings and Resources section. Tell participants
   - **These materials are only a sampling of what is available from this program. The video includes supplementary material that will allow you to explore curriculum mapping in greater depth. In the extra video segments, you’ll see how to use curriculum mapping to enhance your learning program at the school and district levels. You’ll also hear curriculum**
mapping expert Heidi Hayes Jacobs offer her insights about ways to effectively implement curriculum mapping.

In addition, you may participate in a more extensive workshop on this subject.

**Conclusion (5 minutes)**

1. Close the workshop by reviewing the workshop objectives and addressing any questions the participants may have about curriculum mapping, additional workshop options, and next steps their school or district intends to take with mapping. If you wish, distribute copies of some of the curriculum maps in the Handouts and Overheads section of this guide, and copies of one or both readings in the Readings and Resources section. Thank the participants for attending the workshop.

2. Collect all comments noted on flip chart paper and overhead transparencies to use in future activities you may lead or to distribute to participants after the workshop.
In this workshop, participants review a variety of curriculum maps, examine the components of curriculum maps, learn some common terminology used in mapping, see examples of how maps influence regular classroom instruction and instruction for special populations, and consider technology tools available for creating and updating curriculum maps. The workshop requires participants to step outside of their roles as teachers and administrators and think of the benefits of curriculum mapping from other perspectives, such as the district office, students, and parents. The video program, *Getting Results with Curriculum Mapping*, together with the workshop activities, will lead participants to connect curriculum mapping with other local, state, and national initiatives in which their district may be involved. The purpose of making connections and outlining benefits is to garner support for mapping among stakeholders and help them realize that mapping will tie other initiatives together, bringing clarity and consistency to the curriculum.

### Agenda and Time Guide

<table>
<thead>
<tr>
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<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome and Introductions</td>
<td>15</td>
</tr>
<tr>
<td>View Video Segment 1, “Terminology and Language”</td>
<td>3</td>
</tr>
<tr>
<td>Reflections on Segment 1</td>
<td>15</td>
</tr>
<tr>
<td>Activity 1, New Vocabulary</td>
<td>35</td>
</tr>
<tr>
<td>Activity 2, Benefits of Curriculum Mapping</td>
<td>30</td>
</tr>
<tr>
<td>View Video Segment 2, “Creating Quality Maps”</td>
<td>20</td>
</tr>
<tr>
<td>Activity 3, Creating Quality Maps</td>
<td>20</td>
</tr>
<tr>
<td>Break</td>
<td>10</td>
</tr>
<tr>
<td>View Video Segment 3, “Articulation and Teamwork”</td>
<td>15</td>
</tr>
<tr>
<td>Reflections on Segment 3</td>
<td>10</td>
</tr>
<tr>
<td>View Video Segment 4, “Special Uses of Curriculum Mapping”</td>
<td>5</td>
</tr>
<tr>
<td>Activity 4, Mapping for Professional Development</td>
<td>45</td>
</tr>
<tr>
<td>View Video Segment 5, “Using Technology to Facilitate Curriculum Mapping”</td>
<td>20</td>
</tr>
<tr>
<td>Activity 5, Technology as an Essential Tool for Mapping</td>
<td>20</td>
</tr>
<tr>
<td>Conclusion</td>
<td>10</td>
</tr>
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</table>

Total Approximate Workshop Time 4½ hours
Workshop Materials

You will need a copy of each handout in this guide’s Handouts and Overheads section for each participant. You will also need a transparency of each overhead. Masters are available in the Handouts and Overheads section of this guide.

In addition, you will need copies of Reading 1, “Long-Term Journey That Transformed a District,” by A. Johnson and J. L. Johnson. You may also want to provide copies of Reading 2, “Creating a Timely Curriculum: A Conversation with Heidi Hayes Jacobs,” by D. Perkins-Gough. Masters for these are available in the Readings and Resources section of this guide.

If you choose to show the supplementary video segments in this program, you may want to provide copies of Resource 9, found in the Readings and Resources section, for use as a viewing or discussion guide.

Other materials and equipment needed for this workshop include the following:

- Overhead projector
- Overhead transparencies and markers
- Flip charts or chart paper and markers for small-group activities
- Masking tape
- Post-it notes or sheets of paper in two different colors (optional)

Arrange tables so that participants can sit in groups of six to eight. Because the workshop provides opportunities to record notes during the participants’ interactions in both small- and large-group settings, consider positioning flip charts or whiteboards throughout the room and providing markers or Post-it notes. You may also want to use a “sticky wall” to post any papers or materials participants might use for note taking.

Welcome and Introductions (15 minutes)

1. At the door, have a sign-in sheet for participants to record their names, addresses, phone numbers, and e-mail addresses. You may want to consider providing name tags for the participants.

2. Welcome all participants. Introduce yourself and explain your role as workshop facilitator. As the facilitator, you will guide participants through the activities to help them meet the workshop objectives.
3. If it is feasible, have all participants introduce themselves to the entire group. If this is not feasible due to the size of the group, have participants introduce themselves within the small groups where they are seated. As an icebreaker activity, ask the participants to include in their introduction a brief summary of their experience with curriculum mapping.

4. Present the objectives for this workshop by displaying Overhead 1, Workshop Objectives, and distributing Handout 1, Workshop Objectives.

**View Video Segment 1, “Terminology and Language” (3 minutes)**

1. Introduce the video by explaining that it shows the importance of developing a common understanding of the language and terminology related to curriculum mapping. Tell participants

   - A particular teacher is only one in a series of teachers a child will encounter on the education journey. Communication between teachers is essential to the continuity of a child’s educational experience.

   Curriculum maps are an avenue through which teachers can communicate with one another regarding content taught and skills assessed in every class.

   Tell participants that segment 1 of the video program shows teachers exploring the meaning of common mapping vocabulary. It also shows how teachers connect those words to curriculum terms the participants are already familiar with.

2. Show video segment 1, “Terminology and Language” (3 minutes).

**Reflections on Segment 1 (15 minutes)**

1. Provide a few minutes for viewers to reflect individually on what they saw in segment 1 of the video program. Then ask them to share some highlights with other participants at their table. Allow about 5 minutes for this activity.

2. Give participants about 5 minutes to add to their individual notes after they have heard and discussed others’ reactions.

3. Conclude with a large-group discussion on the importance of shared vocabulary. Allow about 5 minutes for this discussion.
Activity 1, New Vocabulary (35 minutes)

1. Take a minute to ask participants the following focus question and elicit several good responses:

   Why is it important to develop a clear understanding of curriculum mapping?

2. Ask for a volunteer from each table to serve as facilitator for this activity. Distribute copies of the following handouts:
   - Handout 5, Biology One-Year Curriculum Map
   - Handout 6, Curriculum Map for Biology, Grade 10, October: Genetics
   - Handout 7, Mathematics, Grade 5, One-Year Map
   - Handout 8, Curriculum Map for Mathematics, Grade 5: Algebra
   - Handout 9, Curriculum Map for American Citizenship, Grade 8
   - Handout 10, Curriculum Map for Civics, Grade 8, October

3. Display Overhead 2, Old Versus New Vocabulary. Distribute Handout 2, Old Versus New Vocabulary. On the left side of the handout, under the heading “Current/Old Vocabulary,” ask participants to list the terms they currently use for describing or defining curriculum development, curriculum revision, assessment, and data collection. At this point, do not ask participants to define those terms. Allow 2–3 minutes for participants to complete their lists by brainstorming together in their table groups.

4. Once they have completed this task, ask participants, who are still working in small groups, to list on the right side of the handout, under the heading “Curriculum Mapping/New Vocabulary,” the terms associated with curriculum mapping as heard in the video or seen in the sample maps (Handouts 5–10). Again, do not ask participants to define the terms. Allow 2–3 minutes for participants to complete this task.

5. Depending on what type of display is available for your use, you may complete this step in one of two ways:
   - If a flip chart or a whiteboard is available for each group, ask the small-group facilitators to record “Current Vocabulary” terms and “Curriculum Mapping Vocabulary” terms on opposite sides of the board (much like Handout 2) in two different colors.

Facilitator’s Note

This activity may be completed in a large group, but because not as many people would then get to participate, the large-group format could decrease the ownership participants have over the new vocabulary.
Alternatively, they might use two different colors of large Post-It notes.

- If a “sticky wall” is available, ask the small-group facilitators to record the “Current Vocabulary” terms on paper of one color and the “Curriculum Mapping Vocabulary” terms on paper of a different color. Have them affix the sheets of paper to the sticky wall on opposite sides to reflect the format of Handout 2.

Allow about 5 minutes for this activity.

6. Allow time for participants to discuss the meaning of the current (old) vocabulary and curriculum mapping (new) vocabulary terms within their small groups. Circulate among the groups to monitor the discussions and to help the facilitator at each table encourage participants to clearly explain their definitions, especially if participants come from different school districts or positions within the same district. Allow about 10 minutes for this discussion.

7. When the small groups have developed a working definition for each term, instruct them to look for similarities in meanings and to match as many of the current (old) vocabulary terms with the curriculum mapping (new) vocabulary terms as possible. Most, if not all, of the terms should have a counterpart or counterparts in the opposite category.

8. Distribute Handout 3, Working Definitions. Ask participants to record on Handout 3 the matches they discussed and made in their small-group discussions. Then ask participants to continue working in their small groups to develop a working definition for each pairing, with applicable examples from their own school or district if possible. Suggest that they record these definitions on plain paper and refer to them during the next discussion.

9. Reassemble the entire group and ask several volunteers from the different small groups to offer the definitions their groups devised. Record these on an overhead transparency, flip chart, or whiteboard. Invite participants to record these working definitions on Handout 3. Allow about 10 minutes.

10. Tell participants that the “Curriculum Mapping Vocabulary” on Handouts 2 and 3 will be the vocabulary used from now on when talking about curriculum-related issues.
Activity 2, Benefits of Curriculum Mapping (30 minutes)

1. Assign each small group the role of students, teachers, administrators, parents, or a school district administrator for this activity. Distribute Handout 4, Benefits of Curriculum Mapping. Instruct participants to work individually to brainstorm benefits of curriculum mapping from their group’s assigned perspective and to record their thoughts on Handout 4. Allow 2–3 minutes for this task.

2. Ask each group to select a recorder for their team, who will write the group’s thoughts on chart paper at each table. While the members of the small groups are sharing their thoughts, display Overhead 3, Benefits of Curriculum Mapping, and encourage the recorders to recreate its format on the chart paper as they record their group’s ideas.

3. Ask all groups to post their sheets on a wall. In discussion with the entire workshop group, review the sheets and add to or clarify the lists of benefits. Let participants know that they will have to be able to succinctly describe the benefits of curriculum mapping to various work groups and other interested groups and individuals.

View Video Segment 2, “Creating Quality Maps” (20 minutes)

1. Tell participants that segment 2 of the video program explores how maps can guide new teachers, address the needs of special education classes, and help administrators reach consensus during the mapping process.

2. Display Overhead 4, Creating Quality Maps: Guiding Questions, and pose the questions aloud for participants to consider as they view segment 2:

   • What information can be gained through a curriculum map?
   • How can curriculum mapping better enable a special education teacher and a general education teacher to work together for the success of students needing modifications?
   • What are the common components of all curriculum maps?


4. Allow participants about 5 minutes to reflect on video segment 2 in their small groups, comparing the conclusions they drew in the
Activity 3, Creating Quality Maps (20 minutes)

1. Introduce this activity by telling participants they will now examine a variety of maps to define specific quality criteria for each component of curriculum maps. Say that they will also have an opportunity to coach others as they develop and revise curriculum maps. Ask participants to again refer to the following handouts:
   - Handout 5, Biology One-Year Curriculum Map
   - Handout 6, Curriculum Map for Biology, Grade 10, October: Genetics
   - Handout 7, Mathematics, Grade 5, One-Year Map
   - Handout 8, Curriculum Map for Mathematics, Grade 5: Algebra
   - Handout 9, Curriculum Map for American Citizenship, Grade 8
   - Handout 10, Curriculum Map for Civics, Grade 8, October

2. Ask participants to review the handouts, comparing and contrasting the two types of maps—one-year and one-month or unit—to determine what type of information can be gathered from each. Ask them to share their thoughts with their colleagues at their table. Allow about 15 minutes for this reflection and small-group discussion.

3. Distribute the following consensus or district maps for biology, math, and social studies:
   - Handout 11, Consensus or District Map for Biology
   - Handout 12, District Map for Mathematics, Grade 5
   - Handout 13, Consensus or District Map for American Civics, Grade 8

Ask participants to review and discuss these three handouts, comparing them to the maps they reviewed in the previous set of handouts (Handouts 5–10). Ask them to note how the content and skills of the consensus district maps are included in the one-year and one-month or unit maps used in the schools. Ask participants to determine the purpose of developing each type of map.
4. After approximately 10 minutes of discussion time, ask a few volunteers from the various small groups to share what their group members discussed. Then display Overhead 5, Key Concepts of Consensus, One-Year, and One-Month or Unit Maps, and guide participants to understand its key concepts:

- The purpose of developing consensus or district maps is to record the core content and skills that must be taught during a particular course or grade level.
- A one-year map gives a quick overview of content and skills and the order in which a teacher presents them.
- A one-month or unit map provides all the details necessary for a teacher to plan a unit, including content, skills, essential questions, activities, resources, and assessments.

5. Tell participants that now that they have a general understanding of the various types of maps, they will have the opportunity to look more closely at the components of maps.

Break (10 minutes)

View Video Segment 3, “Articulation and Teamwork” (15 minutes)

1. In introducing segment 3 of the video program, say

   Development of consensus maps should include as many teachers as possible.

   Teachers who have participated in a curriculum mapping study group would be the ideal planners and facilitators of the process of developing consensus maps for their district.

   Consensus maps should go through many edits, involving greater numbers of teachers.

2. Display Overhead 6, Articulation and Teamwork: Reflection Questions, and pose the questions aloud for participants to consider as they watch video segment 3.

   Why would you want to involve many people in editing your school or district curriculum maps?

   What type of professional development opportunities might arise out of a curriculum mapping experience?
Activity 4, Mapping for Professional Development (45 minutes)

1. Explain to participants that in this activity they will explore ways to plan and organize professional development using curriculum maps.
They will also gain an understanding of key factors that should be considered prior to implementing curriculum mapping and factors to consider as the mapping effort moves forward. Tell participants

◆ In this era of standards and accountability, it is more important than ever to ensure that professional development opportunities are rooted in research and will help teachers develop skills to maximize their students’ success. “Quick-fix” or “one-shot” workshops do not provide the opportunities for colleagues to work together toward sustainable, long-term growth, nor do they give a teacher or building leader the chance to closely examine the data most relevant to their professional responsibilities. Professional development opportunities that are carefully planned and prepared will make possible the systemic changes needed for increased student achievement and growth. Curriculum mapping is a wonderful tool for planning professional development.

2. Assign to each table group a portion of Reading 1, “Long Term Journey That Transformed a District.” Allow about 10 minutes for the groups to read their assigned portion, summarize key points, and select a spokesperson to report their findings when the large group reconvenes.

3. Ask the spokesperson from each group to summarize the group’s portion of the reading. Record each group’s key ideas on an overhead transparency, flip chart, or whiteboard. Be sure this “jigsaw” method proceeds chronologically through the chapter. Clarify points as needed and allow time for questions that participants in other groups may raise. Allow about 10 minutes.

4. Distribute Handout 14, Implementation Plan: Factors to Consider. Ask participants to work within their small groups to address the questions posed in this handout. Suggest that each group appoint a recorder to capture key points. Allow approximately 15 minutes for this activity.

5. Use the jigsaw method again to have each small group report out a highlight of their team’s work to the large group. Again, record (or ask a volunteer to) any additional comments the large group offers at this time. Allow 10 minutes for this activity.
View Video Segment 5, “Using Technology to Facilitate Curriculum Mapping” (20 minutes)

1. Introduce video segment 5 by saying

   - Technology can greatly enhance the data collection and reporting features of curriculum mapping.

     When discussing technology, many factors must be considered before making a purchase.

     Explain that video segment 5 shows a study group involved in a presentation of technology. Before deciding on a piece of mapping software to pilot, the district represented in the video program spent a significant amount of time evaluating available mapping software. A cadre of teachers, curriculum coordinators, district- and building-level administrators, and software support specialists met with various companies’ representatives to review their products. Once the cadre decided which product fit the district’s needs best, an implementation plan was drafted, and a pilot group used and evaluated the software, evaluated the implementation plan for feasibility, and recommended software changes or changes to the implementation process.

2. Show video segment 5, “Using Technology to Facilitate Curriculum Mapping” (3 minutes).

3. Allow participants a few minutes to reflect on the content of video segment 5. Then lead a discussion with the entire group, inviting volunteers to share information about the essential tools already in place in their school or district as well as ideas they have gained for their school or district after viewing video segment 5. Allow about 15 minutes for this large-group discussion.

Activity 5, Technology as an Essential Tool for Mapping (20 minutes)

1. Tell participants that this activity will focus on how technology can support and extend curriculum mapping. Say that there are many examples of curriculum mapping and data collection software available and that in this activity participants will be articulating their own school or district needs with respect to curriculum mapping and data collection.
2. Distribute Handout 15, Incorporating Technology: Three Essential Questions. Give participants about 5 minutes to reflect on its questions and to write their responses on the handout.

   • *What is the current state of technology in your building or district?*

   • *Does every teacher in your building or district have access to a computer with Internet capability?*

   • *Are the server, Internet connections, and e-mail capacities reliable?*

   Display Overhead 7, Incorporating Technology: Three Essential Questions, as a reference.

3. Ask participants to discuss the questions on Handout 15 within their small groups of fellow building or district participants. Allow about 5 minutes.

4. Give the groups about 10 minutes to discuss some positive and negative forces already in place in their building or district that would help or hinder the move toward their desired state of technology. Ask them to record examples on chart paper. If they need a prompt, suggest the following examples:

   • Positive: Each teacher has an updated computer with Internet access.

   • Negative: The budget for technology is small.

   Caution participants that when making decisions regarding suitable technology for a school’s or district’s needs, many questions need to be answered.

**Conclusion (10 minutes)**

1. Tell participants

   • **Remember that curriculum mapping is a recursive process.**
   As Linda Antonowich pointed out, a curriculum map is a living organism; it is something that changes.

   The fact that maps are not static makes them a wonderful tool for responding to what assessments tell us about student learning and achievement, as Heidi Hayes Jacobs added.

   What educators learn by analyzing assessment data can be reflected in updated curriculum maps.

   **Facilitator’s Note**

   Review some of the additional materials in the Readings and Resources section of this guide regarding implementing technology tools. Consider sharing these materials if you think the participants would benefit from further discussion of this topic.

   **Facilitator’s Note**

   If you choose to show the supplementary video segments as part of your workshop, you may wish to distribute Resource 9 to participants as a guide for viewing or further discussion.
2. Distribute Resource 8, Curriculum Mapping Implementation. Say

- Heidi Hayes Jacobs writes in her latest ASCD book, *Getting Results with Curriculum Mapping* (2004), that the work of curriculum mapping never ends. She says, “Knowledge will continue. Student populations will change. The strength of curriculum mapping is its ability to provide a living document that can respond to our learners’ futures” (p. 9).

Review the implementation rubrics for student learning, faculty and administrative planning, curriculum development, and curriculum mapping entries. How would you categorize your school’s mapping efforts? Share these rubrics with your colleagues and consider how you can move to the next implementation phase. If you are already fully operational, consider how you can sustain that momentum.

3. Give participants a few minutes to review all their notes from this workshop. Answer any unresolved questions they may still have about the workshop concepts or activities.

4. Thank participants for attending the workshop.
Getting Results with Curriculum Mapping

Handouts and Overheads
1. Become aware of the essential elements of curriculum mapping.

2. Learn how curriculum maps are developed.

3. See examples of ways to ensure quality and rigor in the mapping process.

4. Study examples of ways curriculum mapping improves instruction.
## Old Versus New Vocabulary

<table>
<thead>
<tr>
<th>Current/Old Vocabulary</th>
<th>Curriculum Mapping/New Vocabulary</th>
</tr>
</thead>
</table>

*Source: Crista Carlile, Des Moines Public Schools, Des Moines, Iowa, 2005. Reprinted with permission.*
# Working Definitions

<table>
<thead>
<tr>
<th>Curriculum Mapping Vocabulary</th>
<th>Old Vocabulary</th>
<th>Definition</th>
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<tbody>
<tr>
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*Source: Crista Carlile, Des Moines Public Schools, Des Moines, Iowa, 2005. Reprinted with permission.*
Benefits of Curriculum Mapping

Student Benefits

Teacher Benefits

Benefits Common to Teachers and Students

District Benefits

Parent Benefits

Source: Ann Johnson, Des Moines Public Schools, Des Moines, Iowa, 2005. Adapted and reprinted with permission.
## Biology One-Year Curriculum Map

<table>
<thead>
<tr>
<th>Month</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
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</thead>
<tbody>
<tr>
<td>Unit Name</td>
<td>Cells</td>
<td>DNA</td>
<td>Genetics</td>
<td>Evolution</td>
<td>Biotechnology</td>
</tr>
<tr>
<td>Essential Questions</td>
<td>How do living things maintain homeostasis?</td>
<td>How do living things illustrate diversity?</td>
<td>How is genetic variation maintained in nature?</td>
<td>How do living things change over time?</td>
<td>How has science evolved through human and technological advancements?</td>
</tr>
<tr>
<td></td>
<td>How does the surface area of a living system's structure influence its function?</td>
<td>How do living things evolve or change over time?</td>
<td>How do organisms reproduce offspring like themselves?</td>
<td>How do living things illustrate diversity?</td>
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<td></td>
<td>What are the differences in structure and function between various cells?</td>
<td>How do living things maintain homeostasis?</td>
<td>How has science evolved through human and technological advances?</td>
<td>How do living things change over time?</td>
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<tr>
<td></td>
<td>What are the characteristics of living things?</td>
<td>How do living things maintain homeostasis?</td>
<td>How has science evolved through human and technological advances?</td>
<td>How do living things illustrate diversity?</td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Cells</td>
<td>Genetics</td>
<td>Cells</td>
<td>Genetics</td>
<td>Biotechnology</td>
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<tr>
<td></td>
<td>– Energy transfer</td>
<td>– Historical perspective</td>
<td>– Mitosis</td>
<td>– Mendelian inheritance</td>
<td>– Genetic engineering</td>
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<tr>
<td></td>
<td>– Structures and functions</td>
<td>– Mendelian inheritance</td>
<td>– Meiosis</td>
<td>– Evolution</td>
<td>Pharmaceuticals</td>
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<td>– Molecule transport</td>
<td>– Structure and function of DNA</td>
<td>– Genetics</td>
<td>– Historical perspective</td>
<td>Stem Cell Research</td>
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<td>Nature of Biology</td>
<td>– Protein synthesis</td>
<td>– Mendelian inheritance</td>
<td>– Evidence</td>
<td>Cloning</td>
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<td>Scientific Method</td>
<td>Scientific Tools/Technology</td>
<td>Scientific Tools/Technology</td>
<td>– Mechanism (natural selection)</td>
<td>GMO’s</td>
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<td>Scientific Tools/Technology</td>
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<td>Nature of Biology</td>
<td>Equipment</td>
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<td></td>
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<td></td>
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<td>Ethics</td>
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</table>
Skills

Differentiate between energy transfer processes in cells.
Differentiate between the transport processes that move materials through cells.
Collect and interpret data using scientific equipment.
Distinguish between characteristics of life (living vs. non-living).
Interpret scientific investigations using scientific methods.
Relate cellular energy transfer to the ecosystem.
Relate science to current events.
Relate the impact of technology on science.
Compare the structure of cells to their function.
Demonstrate proper and safe lab techniques.

Relate the structure of DNA to its function.
Summarize the process of DNA replication.
Compare and contrast DNA and RNA.
Reconstruct the evidence used to prove DNA as the hereditary material.
Summarize the process of protein synthesis.
Determine the relationships between mutations and genetic disorders.

Demonstrate proper and safe lab techniques.
Determine the relationships between mutations and genetic disorders.
Collect and interpret data using scientific equipment (microscope, etc.).
Summarize the process and significance of cell division.
Summarize how Mendel discovered the laws of heredity.

Determine relationships between mutations and genetic disorders.
Summarize current scientific theories of human evolution.
Compare and contrast historical views of evolution to modern Darwinian theory.
Interpret scientific evidence used to support the theory of evolution.
Relate how modern organisms can be used to determine evolutionary relationships.
Relate science to current events.
Relate the impact of technology on science.
<table>
<thead>
<tr>
<th>Month</th>
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<td>Cells</td>
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<td>Genetics</td>
<td>Evolution</td>
<td>Biotechnology</td>
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<tr>
<td>Assessments</td>
<td>Cell Lab Osmosis Lab Characteristics of Life Quiz Cells Unit Test and Lab Practical</td>
<td>Model of DNA DNA Replication and Protein Synthesis Demonstration DNA Unit Test and Performance Task</td>
<td>Mitosis Lab Meiosis Demonstration Punnett Square Quiz Create-a-Kid Activity Genetics Unit Test and Performance Task</td>
<td>Natural Selection Lab “How Humans Evolve” article Reflection paper Galapagos Travel Brochure Evolution Unit Test and Performance Task</td>
<td>Letter to Congress Biotechnology Quiz</td>
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<tr>
<td>Month</td>
<td>January</td>
<td>February</td>
<td>March</td>
<td>April</td>
<td>May</td>
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<tr>
<td>Unit Name</td>
<td>Classification</td>
<td>Microbiology</td>
<td>Protists &amp; Fungi</td>
<td>Plants</td>
<td>Animals</td>
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<td>What are the characteristics of living things? How are things organized naturally and artificially? How do living things illustrate diversity?</td>
<td>How has science evolved through human and technological advancement? How does the surface area of a living system’s structure affect its function? How do living things maintain homeostasis? How do living things illustrate diversity?</td>
<td>How do living things maintain homeostasis? How does the surface area of a living system’s structure influence its function? How do living things illustrate diversity? How is energy transferred through the ecosystem?</td>
<td>How do living things maintain homeostasis? How does the surface area of a living system’s structure influence its function? How do living things illustrate diversity? How is energy transferred through the ecosystem?</td>
<td>How do living things illustrate diversity? How do living things maintain homeostasis? How does the surface area of a living system’s structure influence its function? How is energy transferred through the ecosystem?</td>
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<td>Content</td>
<td>Classification</td>
<td>Bacteria and Viruses</td>
<td>Fungus and Protist Kingdoms</td>
<td>Plants</td>
<td>Animals</td>
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<td>Historical context</td>
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<td>Dichotomous keys</td>
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<td>Kingdoms of life</td>
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<td>Benefits/uses</td>
<td>Benefits/uses</td>
<td>Pathogenic effects</td>
<td>Ecology and conservation</td>
<td>Reproduction</td>
</tr>
<tr>
<td>Skills</td>
<td>Construct and use dichotomous keys.</td>
<td>Identify and describe the events of bacterial reproduction.</td>
<td>Compare and contrast characteristics of four divisions of fungi.</td>
<td>Compare and contrast life cycles of various plants. Distinguish plant growth and response patterns.</td>
<td>Analyze mammalian body structure and function.</td>
</tr>
</tbody>
</table>
### Skills (continued)
- Demonstrate an understanding of the system of scientific classification.
- Describe and differentiate between kingdoms of living organisms.
- Identify the stages of viral replication. Relate the structure of bacterial cells to their function. Describe the beneficial effects of microorganisms to humans and the ecosystem. Relate the effects of pathogenic disease to individuals and society.
- Compare the plant-like, animal-like, and fungus-like protists. Observe and draw representative protists. Relate the structure of fungal cells to their function.
- Compare and contrast movements of materials in plants. Relate plant cells' and tissues' structures to their functions. Compare and contrast plants based on structure. Differentiate between energy transfer processes in cells. Identify cause and effect of environmental problems. Interpret relationships between living organisms and their environment. Relate cellular energy transfer to the ecosystem.
- Describe the beneficial effects of microorganisms to humans and the ecosystem. Describe the beneficial effects of animals to humans and the ecosystem. Relate effects of pathogenic disease to individuals and society. Relate taxonomic classification of animals to structure and function.

### Assessments
- Construct a dichotomous key with a classification unit test performance task.
- "Pathogen Page" article with Bacteria Lab Microbiology Unit Test and Lab Practical.
- Protist Lab Fungus Lab Protists/Fungi Unit Quiz and Lab Practical.
- Seed Lab Flower Lab Roots, Stems, Leaves Lab Park Project Plants Unit Test and Lab Practical.
- PowerPoint project Fetal pig dissection Animal Unit Quizzes Final Exam and Open-Response Questions.

### Source:
Crista Carlile, Des Moines Public Schools, Des Moines, Iowa, 2004. Reprinted with permission.
ESSENTIAL QUESTIONS
• How do organisms reproduce offspring like themselves?
• How is genetic variation maintained in nature?

CONTENT
• Cell cycle
• Mitosis
• Meiosis
• Genetic variation
• Sexual versus asexual reproduction
• Genetics: heredity and Gregor Mendel

SKILLS
• Compare and contrast the significance of mitosis and meiosis.
• List and describe the events of meiosis.
• List and describe the events of mitosis.
• Summarize how Mendel discovered the laws of heredity.
• Utilize Mendelian genetics to predict hereditary outcomes.
• Analyze research and ideas from beyond the text to make connections to world issues.
• Recognize the difference between relevant and irrelevant Web sites.
• Recognize and use appropriate computer applications to develop research papers and class presentations.
• Use a variety of vocabulary development techniques (e.g., Frayer model, semantic mapping, etc.) to better aid understanding of unknown words.

ASSESSMENTS
• Mitosis and Cell Cycle Quiz
• Meiosis Story
• Mitosis and Meiosis Test
• Punnett Square Quiz
Handout 6—Continued

**ACTIVITIES**
- Chromosome diagram
- Make a model of mitosis
- Chapter 6 review packet
- Mitosis play
- Meiosis steps with yarn
- Stations: pedigrees; sexual and asexual reproduction; genetic variation
- *In vitro* fertilization video worksheet
- Coin Flip inheritance activity
- Punnett Squares: monohybrid and dihybrid
- Chapter 7 review packet
- Chapter 8 review packet
- “Blue People” pedigrees
- Pedigree WebQuest
- Exceptions to Mendel jigsaw
- Reading strategies (K-W-L chart, “4 corners” chart)
- Vocabulary strategies (Frayer model, semantic mapping)

**RESOURCES**
- Textbook
- Mitosis video
- Microscope camera and television
- Onion root tip and whitefish blastula microscope slides
- Compound light microscope
- Craft supplies: construction paper, glue, scissors, yarn, etc.
- Media center computers with Internet access and word processing applications
- *In Vitro* video
- “Blue People” story and pedigree
- Coins
- Mitosis and Meiosis transparencies
- *Understanding Genetics* video

*Source: Crista Carlile, Des Moines Public Schools, Des Moines, Iowa, 2004.*

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# Mathematics, Grade 5, One-Year Map

<table>
<thead>
<tr>
<th>Approximate Time Period</th>
<th>2 Weeks</th>
<th>2 Weeks</th>
<th>3 Weeks</th>
<th>4 Weeks</th>
<th>4 Weeks</th>
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</thead>
<tbody>
<tr>
<td><strong>Unit Name</strong></td>
<td><strong>Data Analysis</strong></td>
<td><strong>Algebra</strong></td>
<td><strong>Numeration and Place Value</strong></td>
<td><strong>Rational Numbers</strong></td>
<td><strong>Addition and Subtraction of Whole Numbers and Decimals</strong></td>
</tr>
<tr>
<td>Essential Questions</td>
<td>In what ways can data be organized and represented? How do organized data convey information?</td>
<td>How are patterns generalized and extended? How can we use algebra to make predictions? How do functions reflect the shape of a graph?</td>
<td>What patterns are highlighted as the place value system extends (whole numbers and decimals)? How do fractions represent parts of a whole, parts of a set, or distance on a number line?</td>
<td>In what ways are fractions and decimals related? What is the relationship between addition and subtraction? How are decimals related to whole numbers? How are decimals illustrated in our monetary system and in the metric system?</td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Data display – Table, bar graph, line graph, line plot, circle graph, stem-and-leaf plot Statistical methods – Mean, median, mode, range, outlier</td>
<td>Algebra – Patterns, relations, and functions – Analysis of change – Symbolic representations – Models</td>
<td>Number relationships Conceptualizing large numbers</td>
<td>Fractions, decimals, and percents Comparison and equivalency Estimation and computation</td>
<td>Decimals between 0 and 1 Decimals greater than 1 Estimation and computation Comparison</td>
</tr>
<tr>
<td>Skills</td>
<td>Data Analysis</td>
<td>Algebra</td>
<td>Numeration and Place Value</td>
<td>Rational Numbers</td>
<td>Addition and Subtraction of Whole Numbers and Decimals</td>
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<td>-----------------------------------------------------</td>
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<tr>
<td>Construct tables, bar graphs, line graphs, point graphs, circle graphs, line plots, and stem-and-leaf plots with varying scales and intervals. Read and interpret tables and graphs. Calculate mean and range of collected or given data.</td>
<td>Extend and describe numerical patterns using words or variables. Describe function rules to express patterns illustrated in input/output tables. Solve equations with missing numerals or operational symbols. Apply the distributive, associative, and commutative properties to compute and estimate. Solve algebraic equations using properties and order of operations. Use oral, written, and graphic representations of patterns to make predictions.</td>
<td>Estimate quantities from zero through the billions period. Model, read, and write standard form, word form, and expanded notation of numbers. Identify the place value of a digit within a 12-digit number. Categorize numbers to 100 as prime or composite. Use a variety of methods to compose and decompose numbers.</td>
<td>Compare and order fractions using models, benchmark fractions, and common numerators or denominators. Determine equivalency among fractions. Simplify proper fractions, improper fractions, and mixed numbers. Convert among fractions, decimals, and percents. Use the commutative property and associative property to simplify operations with whole numbers and decimals. Estimate and solve addition and subtraction of whole numbers and decimals. Demonstrate purchases, change, and coin and bill combinations for amounts up to $40.00. Count back change from dollar sums.</td>
<td>Order whole numbers and decimals. Identify equivalent decimals. Use the commutative property and associative property to simplify operations with whole numbers and decimals. Estimate and solve addition and subtraction of whole numbers and decimals. Demonstrate purchases, change, and coin and bill combinations for amounts up to $40.00. Count back change from dollar sums.</td>
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<tr>
<td>Approximate Time Period</td>
<td>2 Weeks</td>
<td>2 Weeks</td>
<td>3 Weeks</td>
<td>4 Weeks</td>
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<tr>
<td><strong>Unit Name</strong></td>
<td>Data Analysis</td>
<td>Algebra</td>
<td>Numeration and Place Value</td>
<td>Rational Numbers</td>
<td>Addition and Subtraction of Whole Numbers and Decimals</td>
</tr>
<tr>
<td><strong>Assessments</strong></td>
<td>Create-a-graph Class survey Variables science lab Excel project Data Strand Test</td>
<td>Function Tables Hundreds Chart Graphs Missing Elements Pattern Extension Algebra Strand Test</td>
<td>Place Value Cards Project Build-a-million description Decomposition quiz Place Value Strand Test</td>
<td>Comparison quiz Fraction journal—models Number line benchmarks Properties demonstration Computation quiz Addition and Subtraction Strand Test</td>
<td>Making change activity Number line benchmarks Properties demonstration Computation quiz Addition and Subtraction Strand Test</td>
</tr>
<tr>
<td>Essential Questions</td>
<td>Content</td>
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</tr>
<tr>
<td><strong>Unit Name</strong></td>
<td><strong>Multiplication of Rational numbers</strong></td>
<td><strong>Division of Whole Numbers</strong></td>
<td><strong>Measurement</strong></td>
<td><strong>Geometry</strong></td>
<td><strong>Probability</strong></td>
</tr>
<tr>
<td><strong>Essential Questions</strong></td>
<td>What is the meaning of multiplication? How are multiplication of whole numbers and multiplication of fractions and decimals different?</td>
<td>How are division and subtraction related? How are division and multiplication related? What are the benefits of estimating divisors and quotients? How is division used to solve problems in measurement, geometry, and data analysis?</td>
<td>How is measurement used to compare attributes? How are perimeter, area, and volume related? How does the size of the measuring unit affect the total quantity? How does the size of the measuring unit affect the degree of accuracy?</td>
<td>How are 2-dimensional and 3-dimensional shapes alike and different? How do coordinate systems describe precise location in a plane or in space? In what ways can shapes be moved in a plane or in space?</td>
<td>How does theoretical probability aid in prediction? What is the relationship between theoretical and experimental probability? How does the number of trials affect estimation? How does the continuum of likelihood move between impossible and certain?</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Factors and multiples—multiples of 10 and 100 Number decomposition Partial products 2-digit multipliers</td>
<td>Partitioning Fair-sharing Repeated subtraction Averages</td>
<td>Length, perimeter, area, volume Circumference Mass Time Temperature Capacity</td>
<td>Characteristics of 2-D and 3-D shapes Coordinates and locations Spatial reasoning Transformations</td>
<td>Likelihood of events Combinations Permutations</td>
</tr>
<tr>
<td>Skills</td>
<td>Use multiple representations to illustrate multiplication (equal-size groups, array and area, number line). Name multiples and factors including greatest common factor and least common multiple. Estimate and solve multiplication of whole numbers. Estimate and solve multiplication of decimals. Use order of operations to solve problems.</td>
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<tr>
<td>Use divisibility patterns to determine the factors of 2-digit numbers. Use multiple representations to illustrate division. Interpret the meaning of a remainder. Estimate and solve division of whole numbers and decimals including 2-digit divisors.</td>
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<tr>
<td>Identify appropriate units of measure for capacity, length, and mass of various objects. Estimate and measure length to the nearest centimeter or 1/16 of an inch. Estimate and measure mass, capacity, and temperature using customary and metric units. Determine the perimeter and area of regular and irregular shapes using grids and representations. Estimate and measure the volume of a rectangular prism. Identify the radius, diameter, and circumference of a circle. Convert among units of time. Convert among units of length and capacity within customary and metric systems.</td>
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<tr>
<td>Describe and classify polygons. Identify acute, right, obtuse, and straight angles. Identify and describe the properties of scalene, isosceles, equilateral, right, obtuse, and acute triangles. Classify 3-D shapes. Construct and name points; lines; line segments; rays; and parallel, intersecting, and perpendicular lines using symbols. Plot points on a coordinate grid. Create and use coordinate systems to describe location. Construct 3-D shapes using a net. Compare congruent and similar shapes.</td>
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<tr>
<td>Make predictions on collected data and compare predictions to results. Identify possible outcomes of events and the likelihood of recurrence. Identify possible outcomes of combinations and permutations.</td>
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</tr>
</tbody>
</table>
| Assessments | Area model multiplication
Shopping spree
Order of operations quiz
Multiplication explanation
Multiplication Strand Test |
|-------------|---------------------------------------------------------------------|
|             | Concept map (factors, divisors, product, etc.)
Division stories
Averages project
Division Strand Test |
|             | Measurement Data Collection stations
Design a park
Metric Olympics
Measurement Strand Test |
|             | What’s My Shape?
Triangle sort
Shapes Venn
Building perspective plans
Geometry conjectures
Geometry Strand Test |
|             | Likelihood line
Probability stations
Combinations chart
Probability Strand Test |

*Source: Barbara Adams, Des Moines Public Schools, Des Moines, Iowa, 2005. Reprinted with permission.*
**ESSENTIAL QUESTIONS**
- How are patterns generalized and extended?
- In what ways can the same relationship be represented?
- How can we use algebra to make predictions?
- How do various forms of symbolism express relationships?
- How do functions reflect the shape of a graph?

**CONTENT**
- Patterns, relations, and functions
- Analysis of change
- Symbolic representations
- Models that represent quantitative relationships

**SKILLS**
- Extend and describe numerical patterns using words or variables.
- Describe function rules to express patterns illustrated in input/output tables.
- Solve equations with missing numerals or operational symbols.
- Apply the distributive, associative, and commutative properties to compute and estimate.
- Solve algebraic equations using properties and order of operations.
- Use oral, written, and graphic representations of patterns to make predictions.

**ASSESSMENTS**
- Missing elements, pattern extension
- Hundreds-chart graphs
- Function tables
- Picture, table, equation, graph
- Order of operations quiz
- Journal responses
- Algebra Strand Test
Handout 8—Continued

ACTIVITIES
• Hundreds chart—repeating-pattern predictions
• “Function machine”
• Growing patterns: extend and explain
• “What’s my rule?”—recursive and functional relationships
• Hundreds chart—diagonal sums
• “Tilt or balance?”—variables and equations
• Calculators and order of operations
• “Stories from graphs”
• Square and triangular numbers
• “Grays Lake Bridge”—exemplars
• Real-world functions
• A Grain of Rice—exponential growth
• “Tiling a Patio”—Navigations Through Algebra

RESOURCES
• Coordinate grid paper—one-quadrant and four-quadrant
• Two-pan balance
• Calculator for every student pair

Source: Barbara Adams, Des Moines, Public Schools, Des Moines, Iowa, 2005.
Reprinted with permission.
## Curriculum Map for American Citizenship, Grade 8

<table>
<thead>
<tr>
<th>Essential Questions</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Why did the founders make the Constitution a flexible document?</td>
<td>Why have a Congress? How would your answer affect the citizens/people?</td>
<td>Why would anyone want to be President?</td>
<td>Should all citizens have equal justice under the law?</td>
<td>What powers should states have?</td>
</tr>
<tr>
<td></td>
<td>Why is the Bill of Rights important?</td>
<td>Is there a better way?</td>
<td>Why does government create so much red tape?</td>
<td>How can we maintain equal rights for all?</td>
<td>Why don’t we have more than 50 states?</td>
</tr>
<tr>
<td></td>
<td>Why should the government be balanced?</td>
<td>How does a bill become law?</td>
<td></td>
<td>What should be considered a crime?</td>
<td>Why do we have state government?</td>
</tr>
</tbody>
</table>

## Content

<table>
<thead>
<tr>
<th>Formation of government</th>
<th>Legislative Branch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideals of the Constitution</td>
<td>- Powers</td>
</tr>
<tr>
<td>Three branches of government</td>
<td>- Qualifications and duties</td>
</tr>
<tr>
<td>Bill of Rights</td>
<td>- Organization</td>
</tr>
<tr>
<td>Amendment process of the Constitution</td>
<td>- Making a law</td>
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<tr>
<td></td>
<td>* Steps</td>
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<tr>
<td></td>
<td>* Process</td>
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<tr>
<td></td>
<td>* Effect(s) on citizens</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Executive Branch</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Powers</td>
</tr>
<tr>
<td>- Qualifications and duties of President and Vice President</td>
</tr>
<tr>
<td>- Organization</td>
</tr>
<tr>
<td>- Departments and the Cabinet</td>
</tr>
<tr>
<td>Election process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Judicial Branch</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Kinds of laws</td>
</tr>
<tr>
<td>- Right to a fair trial</td>
</tr>
<tr>
<td>- Federal court system</td>
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<tr>
<td>- Supreme Court</td>
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<tr>
<td>- Important court cases</td>
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<tr>
<td>- Juvenile justice system</td>
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<tr>
<td>- Civil rights</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>State Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Executive</td>
</tr>
<tr>
<td>- Legislative</td>
</tr>
<tr>
<td>- Judicial</td>
</tr>
<tr>
<td>- Qualifications, powers, and roles of each branch</td>
</tr>
<tr>
<td>- State of Iowa Constitution</td>
</tr>
</tbody>
</table>

## Skills

<table>
<thead>
<tr>
<th>Describe the impact of the British system on the U.S. government.</th>
</tr>
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<tbody>
<tr>
<td>Analyze effects of the Bill of Rights on citizens.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Describe the qualifications, duties, and powers of the Legislative Branch.</th>
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</thead>
<tbody>
<tr>
<td>Demonstrate the organization of the Legislative Branch.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Describe the qualifications, duties, and powers of the Executive Branch.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Describe the qualifications, duties, and powers of the Judicial Branch.</th>
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</thead>
</table>

| Compare and contrast different forms of state government.                   |
### Skills (continued)

- **Describe the amendment process.**
- **Analyze key amendments and their effects on citizens.**
- **Identify the steps in making a bill into a law.**
- **Demonstrate how a bill becomes law.**
- **Analyze the effects of the Legislative Branch on citizens.**
- **Develop opinions using supportive ideas.**
- **Analyze the effects of the Executive Branch on citizens.**
- **Describe the election process at the national level.**
- **Differentiate facts from opinions.**
- **Analyze the effects of the Judicial Branch on citizens.**
- **Identify major court cases that affected the civil rights movement.**
- **Develop opinions using supportive ideas.**
- **Identify the qualifications, duties, and powers of the Legislative, Executive, and Judicial Branches of state governments.**
- **Analyze the effects of the state government on citizens.**
- **Identify the different levels of the court system in Iowa.**

### Assessments

- **Study guides, quizzes, tests, essays**
- **Write your own Bill of Rights**
- **Create your own country**
- **Current events (topic: individual rights)**
- **Graphic organizer on steps to make a bill into law**
- **Bill-into-Law Performance Task**
  - Roles determined by qualifications, duties, and powers of the members
  - Organization including House and Senate, committees, and process for bill passage
- **Persuasive paper: How is the “law” going to affect the students (the people)?**
- **Mock elections/campaigning techniques**
- **Mock trial “Who am I?” civil rights research**
- **Letter to a state legislator**

### Handout 9—Continued

### August

- Describe the amendment process.
- Analyze key amendments and their effects on citizens.

### September

- Identify the steps in making a bill into a law.
- Demonstrate how a bill becomes law.
- Analyze the effects of the Legislative Branch on citizens.
- Develop opinions using supportive ideas.

### October

- Analyze the effects of the Executive Branch on citizens.
- Describe the election process at the national level.
- Differentiate facts from opinions.

### November

- Analyze the effects of the Judicial Branch on citizens.
- Identify major court cases that affected the civil rights movement.
- Develop opinions using supportive ideas.

### December

- Describe the qualifications, duties, and powers of the Legislative, Executive, and Judicial Branches of state governments.
- Analyze the effects of the state government on citizens.
- Identify the different levels of the court system in Iowa.
### Assessments (continued)

<table>
<thead>
<tr>
<th>August</th>
<th>September</th>
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<tbody>
<tr>
<td></td>
<td>Debate (interdisciplinary—social studies and language arts)</td>
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<tr>
<td></td>
<td>– Why have a Congress?</td>
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<td></td>
<td>– Is there a better way?</td>
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</table>

ESSENTIAL QUESTIONS
• How diverse were the American colonies?
• What determined how people earned a living in the colonies?
• How did the colonial “experience” affect how the colonists felt about the king?

CONTENT
• Colonial regions
• Northern, Middle, Atlantic
• Five themes of geography
• Location, place, environment, movement, regions
• Colonial trade
• Raw materials
• Methods of production
• Channels of communication
• Committees of correspondence
• Royal governors
• Colonial newspapers
• Loyalists and Tories

SKILLS
• Characterize the three colonial regions using the five themes of geography.
• Sequence the production cycle from raw material to finished product.
• Associate trade names with products made (e.g., chandler, cooper, smith).
• Evaluate the channels of communication in the colonial era.
• Predict the general degree of loyalty to the king in each colonial region.
Handout 10—Continued

**ASSESSMENTS**
- Five Themes of Geography review quiz (open-note)
- “A Job Well Done” worksheet
- Essay linking geography, economics, and history (benchmark assessment)
- “Frozen in Time” tableau reflection (benchmark assessment)
- “Letter to the Editor” opinion essay (language arts benchmark assessment)

**ACTIVITIES**
- Cooperative group study of selected region
- Hands-on demonstration of raw materials and colonial manufactured products
- Linkage essay prewriting activities (review expository style, key vocabulary)
- Role-playing of colonial daily life (“Frozen in Time”)
- Comparison between current and historical newspaper writing

**RESOURCES**
- Textbook
- Colonial file folders
- Physical, political, and thematic maps
- Flax, cream, iron, tallow, oak staves
- Flax comb, baby food jars, candle mold, draw knife, clamp
- Media center computers with word processing applications
- Production cycle flow chart template (also on transparency)
- Tableau photos (linked as “Favorites”)
- Projection unit
- Daily newspapers (editorials)
- Historic reproduction newspapers or online text (recommended: Library of Congress, *American Memory Collection*)
- Writing the Linkage Essay guide

Consensus or District Map for Biology

KEY
✓✓ Benchmark Skill
✓ Critical Skill

Scientific Method
✓✓ Interpret scientific investigations using scientific methods.

Scientific Tools/Technology
✓✓ Relate the impact of technology on science.
✓ Demonstrate proper and safe lab techniques.
✓ Collect and interpret data using scientific equipment (i.e., microscopes).

Nature of Biology
✓✓ Relate science to current events.
✓✓ Distinguish characteristics of life (living versus nonliving).
✓✓ Relate effects of pathogenic disease to individuals and society.
✓✓ Describe the beneficial effects of microorganisms to humans and the ecosystem.

Classification
✓✓ Describe and differentiate between kingdoms of living organisms.
✓✓ Demonstrate an understanding of the system of scientific classification.
✓ Construct and use dichotomous keys.

Plant Kingdom
✓✓ Compare and contrast plants based on structure.
✓ Compare and contrast life cycles of various plants.
✓ Distinguish plant growth and response patterns.
✓ Relate plant cells’ and tissues’ structures to their functions.
✓ Compare and contrast movements of materials in plants.

Bacterial Kingdom
✓ Compare and contrast the major groups of bacteria.
✓ Identify and describe the events of bacterial reproduction.
✓ Relate the structure of bacterial cells to their function.
Handout 11—Continued

Protist Kingdom
✓ Compare and contrast the plant-like, fungus-like, and animal-like protists.
✓ Observe and draw representative protists.

Fungus Kingdom
✓ Compare and contrast characteristics of the four divisions of fungi.
✓ Relate the structure of fungal cells to their functions.

Animal Kingdom
✓✓ Relate taxonomic classification of animals to structure and function.
✓✓ Analyze mammalian body structures and functions.
✓✓ Describe beneficial effects of animals to humans and the ecosystem.

Viruses
✓ Identify the stages of viral replication.
✓ Relate the structure of viruses to their function.

Cells
✓✓ Relate the structure of cells to their function.
✓✓ Differentiate between the transport processes that move materials through the cell.

Energy Transfer in the Cell
✓✓ Differentiate between energy transfer processes in cells.
✓✓ Relate cellular energy transfer to the ecosystem. Understand mitosis and meiosis.
✓✓ Summarize the process and significance of cell division.

Genetics

Structure of DNA
✓✓ Relate the structure of DNA to its function.
✓✓ Summarize the process of DNA replication.
✓ Reconstruct the evidence used to prove DNA as hereditary material.

Protein Synthesis
✓✓ Compare and contrast DNA and RNA.
✓ Summarize the process of protein synthesis.
Handout 11—Continued

Mendelian Inheritance of Traits

✓✓ Utilize Mendelian genetics to predict heredity outcomes.
✓ Determine the relationships between mutations and genetic disorders.
✓ Summarize how Mendel discovered the laws of heredity.

Evolution

✓✓ Compare and contrast historical views of evolution to modern Darwinian theory.
✓✓ Interpret the scientific evidence used to support the theory of evolution.
✓ Summarize current scientific theories of human evolution.
✓ Relate how modern organisms can be used to determine evolutionary relationships.

Ecology and Conservation

✓✓ Interpret relationships between living organisms and their environment.
✓✓ Identify the causes and effects of environmental problems.

District Map for Mathematics, Grade 5

KEY
✓✓ Benchmark Skill
✓ Critical Skill

Algebra

Patterns, Functions, and Relations
✓✓ Extend and describe numerical patterns using words or variables.

Analysis of Change
✓✓ Determine function rules to express patterns illustrated in input/output tables.

Symbolic Representations
✓✓ Apply the distributive, associative, and commutative properties to compute and estimate.
✓✓ Solve algebraic equations using properties and order of operations.
✓✓ Solve equations with missing numbers or operational symbols.

Models
✓ Use oral, written, and graphic representations of patterns to make predictions.

Data Analysis and Probability

Display Data
✓✓ Construct tables, bar graphs, line graphs, point graphs, circle graphs, line plots, and stem-and-leaf plots with varying scales and intervals.

Probability
✓✓ Identify possible outcomes of events and the likelihood of recurrence; record as ratios and fractions.
✓✓ Identify possible outcomes of permutations, where order of arrangement matters.
✓ Make predictions on collected data and compare predictions to results.

Statistical Methods
✓✓ Read and interpret tables, graphs, and plots.
✓✓ Calculate mean, median, mode, and range of given or collected data.
Geometry

Characteristics of 2-D and 3-D Shapes
✓✓ Describe and classify polygons.
✓ Identify and describe 3-D shapes.
✓ Identify and describe the properties of scalene, isosceles, equilateral, right, obtuse, and acute triangles.
✓✓ Identify points; lines; line segments; rays; and parallel, intersecting, and perpendicular lines.
✓✓ Identify acute, right, obtuse, and straight angles.

Coordinates and Locations
✓ Plot points on a coordinate grid.
✓✓ Create and use coordinate systems to describe location.

Spatial Reasoning
✓ Construct 3-D geometric shapes using a net and objects.
✓ Identify and draw a 2-D representation of a 3-D object.

Transformations
✓✓ Compare and contrast congruent and similar shapes.
✓ Create a pattern using the results of sliding, flipping, and turning 2-D shapes.
✓ Apply rules of line of symmetry.

Measurement

Applications of Measurement
✓✓ Estimate and measure mass, capacity, and temperature using customary and metric units.
✓✓ Estimate and measure length to the nearest 1/16 of an inch and centimeter.
✓✓ Demonstrate purchases, change, and coin and bill combinations for amounts up to $40.00.
✓ Determine the area and perimeter of geometric shapes.
✓✓ Identify the radius, diameter, and circumference of a circle.
✓ Estimate and measure the volume of a rectangular prism.
✓ Determine the area of irregular figures.

Concepts of Measurement
✓✓ Identify the appropriate units of customary and metric measurement for capacity, length, and mass of various objects.
✓✓ Convert units of length and capacity within the customary and metric systems.
✓✓ Convert units of time.
Handout 12—Continued

Number and Operations

Computation and Estimation

✓✓ Estimate and solve addition, subtraction, multiplication, and division of whole numbers and decimals including 2-digit divisors.
✓✓ Estimate and solve addition and subtraction of fractions with denominators of common multiples.
✓ Determine equivalency among fractions.
✓✓ Simplify proper fractions, improper fractions, and mixed numbers to lowest terms.
✓ Multiply fractions.
✓✓ Estimate quantities from zero through the billions period (12 digits), including fractions and decimals.

Meanings of Operations

✓✓ Use multiple representations to illustrate multiplication and division.

Numbers, Properties, and Representations

✓✓ Round whole numbers and decimals to a given place value.
✓✓ Identify the place and value of a digit within a 12-digit number.
✓✓ Read, write, and model decimals, fractions, and percents.
✓ Compare and order numbers through 12 digits.
✓✓ Identify, read, and write numbers through 12 digits using standard, expanded, and word forms.
✓✓ Identify equivalent fractions.
✓✓ Categorize numbers to 100 as prime or composite.
✓✓ Order fractions, decimals, percents, and whole numbers.
✓✓ Name multiples and facts including greatest common factor (GCF) and least common multiple (LCM).

Source: Des Moines Public Schools, Des Moines, Iowa, 2005. Reprinted with permission.
Consensus or District Map for American Civics, Grade 8

KEY
✓✓ Benchmark Skill
✓ Critical Skill

Students will use tools to interpret the world around them.
✓✓ Identify the four parts (characters, symbols, labels, and captions) of a political cartoon and interpret its meaning.
✓✓ Distinguish between statements of fact, opinion, belief, and propaganda as they appear in the media and the historical record.
✓✓ Interpret the results of a public opinion poll.
✓✓ Debate issues related to the Bill of Rights.
✓ Interpret voting and nonvoting trends in local, state, and federal elections.

Students will demonstrate research skills.
✓✓ Extract from primary source documents various opinions on the colonists’ ability to self-govern.
✓✓ Reconstruct a debate over a divisive constitutional issue.
✓✓ Investigate the origins, agenda, and platform of a political party.

Students will demonstrate a geographic perspective.
✓✓ Identify how geographic characteristics of North America affected economic decisions and relations with the Crown.
✓✓ Reconstruct a scene of daily life in one of the three English colonial regions of North America, depicting the themes of geography.
✓✓ Critique a past presidential campaign strategy using maps and voter turnout data.

Students will understand the role of political systems.
✓✓ List characteristics of a democratic republic.
✓✓ Evaluate the strengths and weaknesses of democratic and nondemocratic systems.
✓✓ Identify and prioritize the major responsibilities of citizenship.
✓✓ Classify powers unique to the branches of government in a federal system.
✓✓ Distinguish between the political systems created under the Articles of Confederation and the Constitution.
✓✓ Compare the functions of local, state, and federal government.
Handout 13—Continued

✓✓ Compare and contrast Iowa government with federal government.
✓ Identify advantages and disadvantages of a federal system.

Students will understand the role of **economic** systems.
✓✓ Differentiate between economic needs and wants.
✓✓ Relate the effect of supply to demand and price.
✓✓ Predict the effect of inflation on wages and prices.
✓✓ Identify sources of revenue for municipal, state, and federal governments.
✓✓ Develop a budget, given revenue and expense information.

Students will understand the **interactions** between individuals, groups, and institutions.
✓✓ Compare ways ideas are proposed and decisions are made in a variety of settings.
✓✓ Chart the evolution of civil rights for various groups in the United States.
✓✓ Identify ways the law can be changed.
✓✓ Recognize the U.S. Constitution as a living document that changes based on interpretation of the law.
✓ Analyze the conflict between individual liberties and the rights of others.

Students will develop and apply **historical** perspective.
✓✓ Explain the European origins of the U.S. political system.
✓✓ Connect the goals of the Preamble to the Constitution with the colonial experience of the American people.
✓✓ Predict the outcome of upcoming elections based on historic trends.
✓✓ Connect the impact of social movements throughout history with constitutional amendments.
✓✓ Link the concept of natural rights to the social philosophy of the Declaration of Independence.
✓ Identify reasons why the power of the President has changed.
✓ Characterize the role of various third parties in American politics.

Students will engage in **participatory** citizenship.
✓✓ Develop and administer an opinion survey.
✓✓ Advocate for a cause through persuasive means.
✓✓ Recommend a political remedy for an existing social concern.
✓✓ Participate in an activity aimed at solving local, social, and/or political issues.
✓✓ State an advantage to having rights protected under the First Amendment.
✓✓ Explain the specific rights of due process as they are guaranteed in the Constitution.

HANDOUT 14

1. What would you hope to accomplish by implementing curriculum mapping in your building and district?

2. What might be possible “entry points” to mapping curriculum (e.g., curriculum adoption process, assessment alignment, inconsistency in what is being taught, etc.)?

3. What curriculum mapping products do you want to produce by the end of the school year?

4. What committees and individuals can help facilitate this process?

5. What amount of inservice time can you devote to curriculum mapping this year?

6. What resources are needed to accomplish this goal?

Source: Ann Johnson, Des Moines Public Schools, Des Moines, Iowa, 2006. Adapted and reprinted with permission.
1. What is the current state of technology in your building or district?

2. Does every teacher in your building or district have access to a computer with Internet capability?

3. Are the server, Internet connections, and e-mail capacities reliable?
Workshop Objectives

1. Become aware of the essential elements of curriculum mapping.

2. Learn how curriculum maps are developed.

3. See examples of ways to ensure quality and rigor in the mapping process.

4. Study examples of ways curriculum mapping improves instruction.
## Old Versus New Vocabulary

<table>
<thead>
<tr>
<th>Current/Old Vocabulary</th>
<th>Curriculum Mapping/New Vocabulary</th>
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*Source: Crista Carlile, Des Moines Public Schools, Des Moines, Iowa, 2005. Reprinted with permission.*
Benefits of Curriculum Mapping

Student Benefits

Teacher Benefits

Benefits Common to Teachers and Students

District Benefits

Parent Benefits

Source: Ann Johnson, Des Moines Public Schools, Des Moines, Iowa. Adapted and reprinted with permission.
Creating Quality Maps: Guiding Questions

1. What information can be gained through a curriculum map?

2. How can curriculum mapping better enable a special education teacher and a general education teacher to work together for the success of students needing modifications?

3. What are the common components of all curriculum maps?
Key Concepts of Consensus, One-Year, and One-Month or Unit Maps

- The purpose of developing consensus or district maps is to record the core content and skills that must be taught during a particular course or grade level.

- A one-year map gives a quick overview of content and skills and the order in which a teacher presents them.

- A one-month or unit map provides all the detail necessary for a teacher to plan a unit including content, skills, essential questions, activities, resources, and assessments.
Articulation and Teamwork: Reflection Questions

- Why would you want to involve many people in editing your school or district curriculum maps?

- What type of professional development opportunities might arise out of a curriculum mapping experience?

- What in this scene could be replicated at your school or in your district?
Incorporating Technology: 
Three Essential Questions

• What is the current state of technology in your building or district?

• Does every teacher in your building or district have access to a computer with Internet capability?

• Are the server, Internet connections, and e-mail capacities reliable?
Getting Results with Curriculum Mapping

Readings and Resources
How often has someone asked, “Why fix it if it isn’t broken?” On the surface, the Ankeny Community School District in Ankeny, Iowa, didn’t need fixing because it wasn’t broken. Our local constituents, both town citizens and internal staff members, would not have considered transformation of our district as necessary 10 years ago. Yet, after starting our school improvement journey using curriculum mapping as a tool, we have, indeed, transformed. Our students have made marked improvement in performance, we have enhanced our leadership capacity on every level, and we have refined our focus and consistency in instruction. We have also used data to guide decisions in professional development and instruction, plus technology as a tool to systematize curriculum mapping.

The process of curriculum mapping became part of our system and focused our efforts in the following areas:

- Building leadership
- Moving from the individual maps to district maps
- Creating quality maps
- Connecting other district and state initiatives
- Providing research-based staff development
- Maintaining sustainability
- Creating a long-term vision

As with most trips, we have endured detours and encountered delays by forces we could not control. We have dealt with breakdowns and repairs in the process of school improvement and mapping. Despite it all, not only have we enjoyed the trip, but also—as so often happens on such a journey—we have learned more than we ever imagined.

The Ankeny Community School District

Ankeny is a suburban school district located just north of Des Moines, Iowa. It is a middle- to upper-level-income community in which students achieve well above the national average on norm-referenced tests.

Why did our district believe that we needed to rethink curriculum and assessment? The superintendent, the Superintendent’s Advisory Committee (which consists of parents representing every program in the district), the Ankeny Taxpayers’ Association, the Facilities Committee, and representatives from the teaching staff review had been studying the availability of student space in each building in the district and examining predictions for growth. Our district experiences phenomenal growth each year compared to other districts in the state. The student population usually grows from 150 to 225 students each year, and this growth has continued for at least eight years. The projections showed that growth would continue and probably increase over the years. To accommodate such growth, the district decided to redesign the structure of the buildings. At the beginning of the 1996–1997 school year, the six elementary schools became kindergarten through 5th grade schools, the junior high schools became 6th and 7th grade middle schools, a newly constructed building became an 8th and 9th grade middle school, and the high school became a 10th through 12th grade school.

With this massive reorganization, two-thirds of the 350 teachers changed teaching assignments. In addition, an annual turnover of staff results from retirements and a growth of 45 to 55 new teachers each year. Therefore, the district had many teachers who were just starting their careers or were starting over with new curriculum. Many teachers who changed grade levels took their favorite units and activities with them, even though the topics of those units and activities were not in the district curriculum. Consistency was lacking in subjects taught by many different teachers. Gaps and repetitions surfaced in various curricula, depending on which teacher taught the course or subject. The taught
curriculum, in many cases, did not resemble the district curriculum that was written into the courses of study. Many teachers were more concerned with covering more curriculum rather than the depth of knowledge and learning.

**Need for Change**

The associate superintendent for instruction determined through a curriculum audit that the district needed a common focus on curriculum. With the creation of new information at an ever-increasing rate, teachers, administrators, and parents questioned the validity of the seven-year curriculum cycle. Teacher volunteers and administrators were recruited to attend a school-restructuring conference in New York. Several of the Ankeny group attended a session by Dr. Heidi Hayes Jacobs on curriculum mapping. They were so excited that, upon their return, they proposed starting a pilot in mapping at the secondary buildings.

In the first year, we worked with 12 members of the secondary teaching and administrative staff who had attended the conference on curriculum mapping. This group became our leadership team for the curriculum mapping initiative. It held a professional development session for the teachers in the three buildings and asked them to map only their content. We soon learned that we needed to expand our leadership base in order to continue the effort in the entire district. The leadership group developed a plan for implementing the process using a time line and a plan for building leadership capacity. Now, eight years later, the district leadership looks quite different from what was in place when we began the process of curriculum mapping.

**Leadership Transformation**

The first step in the plan for building leadership capacity was to expand the group of teachers and administrators who had received training in the curriculum mapping process at the workshops conducted by Dr. Jacobs. The original group of teachers and administrators consisted of the secondary staff. Therefore, it was necessary to train elementary staff members and administrators. This new group of secondary and elementary teachers and administrators formed the original leadership team that was responsible for implementing the curriculum mapping process in all nine schools in the district.

At the end of the second year of implementation, the curriculum mapping leadership team distributed a survey to teachers and administrators. The survey was designed to determine the degree of implementation of the process in each school in the district. Upon analyzing the data collected from the survey, the team came to one undeniable conclusion: everyone was working hard at implementing the process, but it was obvious that not all schools had received the same message.

Therefore, step two of the leadership expansion plan was implemented. This step involved examining the leadership roles that existed in the district. At that time, the primary leadership roles in the district included the school administrators, the department chairs, and the grade-level leaders. Those roles had traditionally been management roles. The district needed leaders who could guide not only the curriculum mapping process but also the state-mandated Comprehensive School Improvement Process. After meetings with the Ankeny Teachers’ Association, the associate superintendent of instructional services created a new leadership position: the building curriculum facilitator. Each elementary school has two building curriculum facilitators, and each secondary school has three. Teachers apply for these positions and are paid a yearly stipend. Over time, this job has come to encompass more than was originally intended, because those building curriculum facilitators and their principals have become the curriculum leaders and supporters in each school.

**Role of the Building Curriculum Facilitators**

At the beginning of each school year, the principal and the building curriculum facilitators meet with staff members and remind them of the building goals set by the entire staff for the new school year. The facilitators then review the curriculum goals for the year and distribute a time line and a list of products to be submitted to the principal and the curriculum office by the end of the year. In addition, they hand out an inservice schedule showing the professional development days reserved for mapping training and mapping work.
The facilitators also hold small group sessions, called “hold your hand help,” for those people who want individual training and encouragement in the mapping process or who want assistance entering their maps into the software that the district has chosen to house the maps and the data. The facilitators collect feedback and data from the staff in their buildings throughout the year, and they share that data at the monthly meeting of all facilitators, principals, and the curriculum team (consisting of the associate superintendent of instructional services; the district reading facilitator; and the two teachers on special assignment, who are curriculum and assessment specialists).

Those meetings are strategy sessions for coaching teachers in the curriculum mapping process and other state initiatives that the district has been able to integrate into the process. For example, after teachers had completed one map, the curriculum team noticed that the quality of the maps was not what it should be. The teachers had been shown how to align maps and to indicate the complexity of skills. Review of the maps, however, showed that most teachers needed more specific training.

In their search for an answer to this problem, the curriculum team developed a strategy that they call a quality cell, which is a sample unit covering a month’s instruction. Those sample units are based on the mapping components described in Dr. Jacobs’s book (1997a). Figures 4.1 and 4.2 show examples of two sample units: one for 1st grade math and another for 8th grade social studies students.

The curriculum team also developed a set of coaching questions, shown in Figure 4.3, to guide teachers’ work as they review their maps for quality.

Building curriculum facilitators and their principals were trained by a consultant on the use of the quality cell strategy at their next meeting. Each building in the district then used inservice time to train small groups of their staffs on the use of this strategy. The curriculum team made sure that one of its members was at every building meeting. The response was remarkable. Teachers were energized and ready to work on revising their maps. At the semester break, each teacher turned in one cell of a map to the building curriculum facilitators for feedback. The teachers actually requested specific feedback to indicate whether they were on the right track before they revised the entire map. The building curriculum facilitators, along with their principals, have become the curriculum leaders in each building. Throughout all of the training and development of maps, the staff has relied on the curriculum leaders for training and expertise.

Role of the Building Improvement Team

Another group that provides leadership and support for the mapping process is the building improvement team, which consists of all building curriculum facilitators and principals, one combined committee representative from each building, and other teacher volunteers. The team performs the following:

- Planning and facilitating curriculum mapping and other curriculum work within each building
- Providing support so colleagues are successful at completing the curriculum goals
- Planning specific training
- Securing facilitators for the building staff to ensure successful completion of goals
- Providing feedback to the curriculum team to help address next steps in the curriculum mapping process
- Collecting and organizing maps and assessments
- Helping facilitate discussions about the use of data from maps, assessments, and surveys to inform instruction

The building improvement team is especially vital in linking the curriculum mapping process to school improvements. The team is responsible for ensuring that all initiatives in the district, of which curriculum mapping is one, are part of the school improvement process. Therefore, while the building improvement team works hand-in-hand with the building curriculum facilitators, its view is always on the bigger picture of school improvement.

Role of the Combined Committee

The combined committee provides the support structure for the massive project of systemizing
curriculum mapping. This committee consists of teacher representatives from every school in the district in direct proportion to the number of students in each school building. Representatives from the elementary and secondary principals, the associate superintendent for instruction, the teachers on special assignment, a Board of Education representative, and a representative of the teachers’ union executive board join those teacher representatives.

The combined committee’s primary responsibility is to supply monetary support to the schools to help them successfully complete their curriculum goals. The committee has agreed to combine all of the monies available to pay teachers to support curriculum mapping and school improvement efforts within the district. With the monetary resources aligned, the combined committee provides direction and leadership for the district improvement plan, plus additional professional development in areas or skills related to goals to help teachers and administrators successfully complete their goals.

Role of the Technology Team

To ensure that the curriculum mapping process results in data that can be used to meet goals and improve instruction, technology plays an important role. The district technology team works collaboratively with the curriculum team to provide vision for technology that will support curriculum mapping, instruction, and assessment. The technology team comprises the district technology coordinator, the teacher on special assignment for curriculum/assessment support, the associate superintendent for instruction, the executive director of finance, the superintendent, and the technology support personnel.

The work of this team includes the following:

- Planning and implementing the time line for training on the curriculum mapping software and other support software
- Training building curriculum facilitators and teacher leaders to assist in the software training sessions
- Working with software designers to troubleshoot problems to ensure successful implementation of the mapping software
- The technology team has been instrumental in providing teachers with the skills they need to enter their maps and to collect data that will improve instruction.

Use of Data to Make Instructional Decisions

Implementing the curriculum mapping process and ensuring its place in the educational system requires leadership and support. The Ankeny Community School District has transformed its leadership structure as a result of the curriculum mapping process.

With the leadership in place to guide the curriculum mapping process, teachers completed drafts of their first maps under the direction of the building leadership teams. The drafts of maps were copied, and each school worked with its leadership teams and the curriculum office to prepare for the read-through process. This process is one of the most informative in the curriculum mapping process. Each school divided its staff into mixed groups. The mixed groups consisted of six to eight teachers from different grade levels and different subject areas within the school. Each person in the group was given copies of the maps of the other group members to review before the read-through session.

On the afternoon of the sessions, the groups met to review maps for four different pieces of information: “A-ha’s,” gaps, repetitions, and questions. Group members used the form shown in Figure 4.4 to record their observations of the maps.

The mixed-group members assigned the roles of facilitator, timekeeper, and recorder. Each person within the group was given two minutes to review the major components of a map. Then each member had two minutes to ask questions about that map. The questions were not to be critical of the map, but rather to elicit information about the curriculum from the person who wrote the map. (See Appendix 1 for information on how to organize the map read-through process.)

The building curriculum facilitators designed guided questions, shown in Figure 4.5, to assist teachers in eliciting information from the creator of the map.

The group’s recorder captured the questions, answers, and areas that needed more discussion. On another professional development day, the process
was repeated with groups that consisted of teachers who had taught in the same department or grade level. The recorders' sheets were compiled from the mixed groups, and the teachers addressed the data collected.

The review of the data was one of the most enlightening processes in curriculum mapping. The gaps and repetitions were easily identified, and those that could be resolved within the school were resolved during this review. Issues that needed to be addressed at the district level were compiled so the issues could be addressed at K–12 department meetings. The data collected from the maps provided the starting point for many curriculum initiatives. The K–12 department teams addressed the gaps and repetitions found during the read-through sessions, which resulted in changes in alignment of curriculum.

The review of the data from the individual maps revealed a lack of consistency in the maps of a subject or course that was taught by multiple teachers. For instance, more than 20 teachers taught 1st grade reading, but their curriculum maps were quite different. Those teachers agreed that the district needed a district map that contained the required content and skills each teacher should cover during the school year. They also felt that the required content and skills should not compose the entire curriculum. Teachers wanted time to personalize the content and skills taught in their classrooms. As a result of those discussions, the Ankeny Community School District created district maps, called curriculum frameworks, for every subject and course taught in the district. (See Appendixes 2 and 3.)

All of the information that teachers collected from the read-through of the curriculum maps whetted their thirst for more. They requested data from their maps that the district could not collect from the paper maps. Technology—specifically, a software program that would house all of the maps in a database so that the information could be sorted—was the answer. After reviewing many different products, the district selected a program to meet all of our needs. With this program, teachers can print reports that tell them if they have covered all the content and skills listed in the district maps. They can also print a summary of the content standards and benchmarks covered in their maps.

**Ways to Systematize the Maps**

Armed with data from the maps plus assessment data that were aligned to the content and skills required in the district maps, the district looked for ways to systematize the use of data in making instructional decisions. The software technology made it possible to search all maps for specific topics. Because the state of Iowa requires the integration of reading, problem solving, technology, and skills from other subject areas into all subjects taught, the maps became the perfect vehicle for collecting data showing where those skills are taught.

For example, all elementary teachers teach reading as a defined subject. Therefore, they have a curriculum map for reading. However, in the secondary schools in Ankeny, reading is taught only in 6th and 7th grades. In grades 8–12, no reading class is required. Therefore, the district decided to train all secondary teachers to be teachers of reading in their own content areas. Then all teachers were required to integrate those reading skills into their curriculum maps. The software made it possible to collect data on where those skills were being taught, so teachers could make decisions on the alignment of skills throughout the K–12 curriculum.

Using data from the maps and assessments has become a way of life for the teachers in the Ankeny Community School District. They have requested that the district work with the software company to develop a data module that could work with the curriculum mapping software. The teachers would like to have access to student data from the assessments that they have recorded on their curriculum maps and from the districtwide assessments administered by the district. Those assessments have all been aligned with district benchmarks and content standards, so the data would be aligned with the skills recorded in the curriculum maps. Having all the data and the information from the curriculum maps in a database program would allow teachers and administrators access to information aligned with the content and skills in the curriculum maps for entire classes or individual students. Such information provides teachers with facts they need to make instructional decisions that affect student learning.
Changes to the Paradigm for Professional Development

At the beginning of the curriculum mapping process, the teacher leaders and administrators realized that focused professional development was imperative to ensure successful implementation of the process. At that time, the professional development program in the district consisted of soliciting ideas from the nine school buildings and then developing programs for that particular year. The district provided two early dismissal days each month that afforded about an hour of professional development time after allowing for travel time so the teachers could go from their buildings to the designated site. The district leadership team realized that implementing the curriculum mapping process in nine school buildings with 400 teachers would require extensive training in the process.

The first step in revamping professional development in the district consisted of examining the delivery system for professional development. The leadership team conducted extensive research in exemplary staff development and determined that the short, one-hour chunks of time did not allow enough time to present and discuss information or to have teachers work on developing maps and lessons. The unanimous decision was to request that the Board of Education change the two early dismissals per month to one half-day early dismissal per month for staff development. The board granted approval, and the leadership team began to develop a vision for three-year implementation of a staff development plan.

The building curriculum facilitators and the building administrators conducted surveys and compiled lists of professional development needs of teachers. When they compiled this information, the district leadership team quickly realized that one half-day per month would not be sufficient to accomplish all the training, support, and work time necessary for implementation. The building curriculum facilitators and the building administrators then scheduled a meeting with the combined committee. The larger group consisted of teachers, administrators, and board members. Its purpose was to determine the use of district funds for staff development and teacher projects. The combined committee examined other structures that were in place to see if those structures could also support professional development. The district was already offering classes on Saturdays for staff development or graduate credit. Those classes were revamped to provide additional training in curriculum mapping and other district initiatives and to provide teachers with time to work on those initiatives in teams or departments. The combined committee also agreed to include the summer institute that was already in place in the professional development system. With one half-day per month, Saturday classes, and a four-day summer institute, the leadership team was able to develop a comprehensive professional development system.

As training in curriculum mapping and its implementation continued, the teachers asked for more time to work together on their maps, lesson plans, data analysis, integration of required skills into the maps and lesson plans, and assessment design in teams and departments. Again, the leadership team responded by adding work time to each professional development session and by creating structured and independent classes. Those classes support district initiatives by allowing each school to customize classes to the work being done in that school and district. Teachers have to meet specified criteria, provide evidence of the work they have done, and submit a summary of the outcome of their work. A portion of the hours worked can be on contract time, with the remainder of the hours coming outside the school day. The classes are also offered for staff development credit for license renewal.

In addition to the training opportunities, the curriculum mapping process furthered the evolution of the professional development plans designed by the school’s curriculum facilitators and the principals in all schools. Each spring, the leadership teams in the buildings analyze the data collected from districtwide assessments and teacher surveys to determine the staff’s development needs. A staff development map for the next school year is then created. That map lists the inservice days, study groups, and any other staff development opportunities offered by the school.

The curriculum team in the district revised the standard curriculum mapping form to fit the needs of the school’s staff development plans (see Appendix 4). Those professional development maps contain
the following components: essential questions, content, skills, evidence, time line/deadlines, and materials to bring. Each building staff member receives a staff development map at the fall teacher workshops. Those maps guide the professional development in each school and are based on the data collected during the previous school year.

All pieces of the staff development program had been focused on the implementation of curriculum mapping. Then, as curriculum mapping became part of the system, the focus shifted to the other state, federal, and district initiatives that are supported by the curriculum mapping process.

**Effect of Curriculum Mapping**

At the end of the school year, the district leadership team reflected on what curriculum mapping had done for the Ankeny Community School District in the areas of curriculum, instruction, and assessment. The team compiled this list of ways in which the process has enhanced the district’s instructional programs:

- A focus for curriculum, instruction, and professional development
- Consistency in instruction and assessment
- Alignment of instruction to the content standards and benchmarks in all content areas, plus increased accountability for instruction
- Access to data about instruction, assessment, and student learning
- A vehicle for integration of skills, such as reading, into all subject areas
- An awareness of what other teachers in the department, team, or grade level are teaching
- An increased awareness of the researched-based link between teaching and learning

This focus on improving the district’s instructional programs resulted in organizational and leadership changes, new ways of collecting and analyzing data, and a new paradigm for planning and implementing professional development. Curriculum mapping became the hub that focused the work of the district on enhancing student achievement. Every aspect of the work in the district emanated from that hub, and the hub served as an organizing force for bringing together the group of dedicated professionals who were charged with providing every child with a rich, coherent, and consistent instructional program across the grades. Curriculum mapping has allowed teachers and administrators to become dreamers and confident risk-takers in their quest to help all students become independent and lifelong learners.
Creating a Timely Curriculum: A Conversation with Heidi Hayes Jacobs

Deborah Perkins-Gough

Preparing students for tomorrow requires that we thoughtfully reexamine and rethink the curriculum.

Education consultant Heidi Hayes Jacobs has worked with thousands of teachers in the United States and internationally to develop curriculum maps. Here she talks with Educational Leadership about curriculum changes that would better prepare students for the 21st century.

You’re well known for your work in curriculum mapping. Could you explain to us what curriculum mapping is and how it helps teachers and students?

Curriculum mapping is a procedure for collecting data about the operational curriculum in a school and in a district—the instruction that students are experiencing. By mapping what’s actually taught and when it’s taught, teachers produce data that they can use in conjunction with assessment data to make cumulative revisions in instruction.

The key to mapping is that each teacher enters the data electronically. Colleagues share immediate access to the data, so they can find out what curriculum is being taught down the hall, what was taught in previous years, and what might be taught the following year. Because teachers have direct access to this information electronically, they don’t have to go to so many curriculum meetings. And when they do go to meetings, they can talk about the students’ actual curriculum journey.

What led you to develop curriculum mapping?

In the early ’90s, I worked with schools across the United States and overseas on how to improve the quality of their curriculum units and courses. In meetings, teachers would often refer to curriculum guidelines to help them make decisions about curriculum content.

It struck me that guidelines were being misunderstood. The function of a guideline isn’t to tell you what kids have actually experienced; it’s to provide goals. Think of the difference between an itinerary and a trip. An itinerary is my guideline for a trip. My real trip may look very different—in fact, it undoubtedly will.

At curriculum planning meetings, people were talking about what was supposed to have happened, but in fact that curriculum may not have happened. Learners may have taken longer on a particular unit. Maybe the teacher found a better way. Maybe some students moved more quickly. Nevertheless, people were making curriculum decisions on the basis of a false reality. To have an integrated curriculum, we needed a more authentic picture.

How has your work in mapping prepared you to help educators think about curriculum content?

Mapping provides an active tool to give people better access to the truth about what’s happening in classrooms—not just so they can keep track of curriculum content, but so they can change it in response to students’ needs. When we examine maps, one of the tasks is to review curriculum content and assessments for timeliness. After looking at hundreds of curriculum maps over the years, one thing that has startled me is how dated the content is.

Schools are launching pads, launching our kids into their futures. Unfortunately, a lot of what we teach now looks identical to what we taught 40, 50, or 60 years ago. There’s a need for both timeless curriculum content and timely content. What seems to be falling by the wayside is timely content. We have to make decisions about what we shed and what we keep—and some of what we’re holding on to is predicated on outdated ideas about the needs of Jason and Maria and Abdul and Sally.

Let’s talk about some of the curriculum changes you see as important. What should we shed, and what should we keep?

Because most of our standards are written within subject areas, a good way to grapple with your question is to look at it through various subjects.

One important area is social studies, and one area that we should rethink is state history. People in the United States are highly transient. Families move from state to state. So why do we take a full year—in some states, two years—to study state history? It takes time away from more important topics.

For younger students, a deeper, richer study of U.S. history makes more sense. Rooted in the word history is story. And America’s story is exceptional. It’s amazing. Younger students should learn that we have always been and continue to be a land of immigrants—a land committed to bold new ideas. That’s more timely than saying, “I have to know every detail about the history and geography of my particular state,” when I’m likely to move in the next few years.

When we look at curriculum maps, we see early U.S. history repeated again and again throughout grades K–12. The result is that our students know almost nothing about the last 50 to 75 years of not only U.S. history but also world history. Teenagers tend to be defiant by nature, and they resist curriculum experiences that are reminiscent of experiences they had when they were younger. The curriculum for middle and high school students should build on the elementary school curriculum. Students should learn about recent U.S. and world history and global issues that are crucial for them as future citizens.

How do you see citizenship education fitting in with such a social studies curriculum?

Passive citizenship is a contradiction in terms. We need to rethink the design of citizenship courses. Students should look at such issues as defining active patriotism and examining viable dissent. The U.S. Constitution is a remarkable document that keeps growing, responding to each chapter in our national story. Students should study it in depth as a commanding political and literary work.

Why not have a course in high school called Becoming an Active Voter? We have an extraordinarily low voter turnout in the United States. Kids say, “What difference does it make? Adults aren’t voting.” We create that passivity by teaching citizenship and government at kids as opposed to engaging them in issues-based, activity-based, voter-oriented, and yes, community service-oriented curriculum. Students should have opportunities to become politically active in their communities throughout middle and high school.

A recent report published by the Albert Shanker Institute, Education for Democracy, laments the fact that schools are not teaching students what it means to “be American.” Does your view of citizenship education support that report’s findings?

A lot of that report was right on target in terms of the deficit in student learning about the American experience, in part because of the disproportionate amount of time spent on state history. But the American experience is now more than ever an interaction with the world. Our students are also going to need to be citizens of this planet.

Whatever one’s politics, it must be acknowledged that the United States needs to take a look at increasing students’ global knowledge. It will be their world. The United States is geographically isolated, with only two bordering countries. According to the U.S. Department of State, only a small percentage of U.S. citizens hold active passports—around 10 to 12 percent—and in a given year, maybe 7 to 10 percent of those go abroad.

We need to prepare our students for a very different world. No matter where we live, our future will be shaped by global politics and global economics. Many state standards do not require global studies or pay little attention to them.

Our schools must take a hard look at building a strong sense of our national heritage and a respect for the marvelous country we live in—and at the same time the world in which it resides. Technology provides a link. Many remarkable programs allow kids to interact with their peers in other parts of the United States and abroad.

How about some other curriculum areas? What changes do we need in science and math?

Although we say we want to have world-class scientists, we often see a lack of rigor in science programs in the United States. We need to look at the
various science arenas—environmental planning, earth science, space science, the life sciences, and the physical sciences, for example—more as a K–12 issue. We need a more balanced approach in the early grades, and we need to develop programs that support more independent science research.

If we wanted to have a world-class football team, we’d have a better shot at that team if we provided them with uniforms, equipment, coaches, and all kinds of support. If you want to have world-class achievement in science, school districts must provide more support in middle and high school to our first-string science students.

For example, in the state of New York, 10th grade students can participate in an independent scientific research project that will last three years. And every year, almost without exception, when the Intel-Westinghouse Scholarship awards come out, New York State students win at least 25 percent of them.

We also need to consider including in the science curriculum the ethical repercussions of scientific work—issues such as cloning, reproductive decision making, the international cost of pharmaceuticals, and so on. These are issues that our students will have to deal with. At the same time, we need to maintain a separation between religion and the science curriculum in our schools. An educated person should know about religious beliefs and their impact on history and on the present, but social studies is the logical place for those studies, not science.

As for math, we have a real problem in the United States in math instruction for young children. We refer to this strategy as “snapshot mathematics.” Early childhood curriculum maps typically show four weeks of addition, four weeks of subtraction, four weeks of metrics, and four weeks of telling time—but little conceptual work. We move kids along rapidly.

Schools in other parts of the world have a longer school year and a longer school day. They have more time, but they don’t try to jam so much into the school year. In Japan, on average, students work through about eight math concepts in 8th grade. For each concept, students not only do the math, but they’re also able to tell you in their own words what they’re doing. In the United States, in 8th grade, students cover about 35 math concepts on average.

U.S. teachers need the chance to slow down and teach a more solid, language-oriented math curriculum. The instructional focus should be more on translating the language of mathematics. Frequently, I see math classrooms with row upon row of students watching a teacher speak fluently in mathematics. Student speech—genuine student reflection—receives minimal attention. To be literate in math, students need to practice listening and speaking skills—retelling, describing, and using analogies.

The overwhelming majority of assessments in math classes are still quizzes and tests. The rarest form of assessment in math is the formal examination of students’ ability to retell in their own speech what they’re doing. And yet, we’re teaching a language.

How about language arts? Educators often debate what literature students must read and what literacy skills they should have. What is your response to these issues?

We need to take a second look at more expansive and contemporary genre studies. Shakespeare is not only timeless but also relevant to the moment. The great works in literature are always timely. But those classics also need to be seen in light of more contemporary genres. After all, what century are we living in here? Students should be reading screenplays and teleplays by the time they are in middle and high school. They should have a chance to write in those forms as well. They should be dealing with not only book anthologies but also Web site anthologies.

From early childhood, the curriculum should emphasize media literacy and criticism. We learn to critique books, but if there’s one pervasive influence today, it’s television. We need to give students more cognitive sieves so that they can sort out the impact of TV and think about “Who’s telling the story? Is this authentic? Am I being manipulated here?”

I’d love to see more work with video conferencing and electronic interviews. Students could interview others across the United States and in other countries. Which brings up another point about literacy: Modern language instruction is central to global literacy. A broader view of languages beyond the usual offering is important for our future and for our security needs.
How do you see the arts fitting into the curriculum for the future?

The focus on the arts is central to what it means to be human. Curriculum discussions in the United States often marginalize the arts. The education systems in most other countries—especially industrialized countries, but even developing ones—reflect how important it is to be culturally literate.

When I travel in other countries, I often visit museums. On occasion, I’ll see groups of students lying down on the floor with sketchpads. They’re clustered around some great works of art, making drawings of those works. And after they’ve done their own reproductions, their teachers ask them to do a drawing of their own that expresses the feelings that the artwork set off in them. These kids are not necessarily artistically gifted. This instruction is an active way to expand students’ minds and combine the essential components of cultural literacy and creative expression. This should be a fundamental experience of all our students, whether it’s a trip to a local art gallery or to the Metropolitan Opera.

We need to provide opportunities for studio work and performance work in our classes and also much more work with our local institutions. Although national institutions, such as the Kennedy Center or Carnegie Hall, and various local museums are often actively involved in trying to raise student awareness of great traditions of self-expression, we’re negligent in some areas. You’re very likely to see students writing original stories in an English class. But it’s rarer to find music programs in which students have a chance to do original music compositions, original playwriting and producing, or original choreography. Our arts program would be stronger if we had a balance between more cultural literacy—for example, appreciation of great music performance—and opportunities for more original work in a range of forms.

Are state content standards holding back the kind of innovations that you’ve described? Or can they be a positive force in making the curriculum more timely?

Every state is different. The United States does not have a national curriculum, nor will it ever, as long as funding comes through states and localities. It’s as if there were 50 countries with distinctive approaches to standards.

In general, though, one would have to argue that most states are not seriously focusing on the questions we’re raising here. We cannot operate as though standards are fine the way they are, as though knowledge stands still. Standards need to be constantly debated and rethought. The American Medical Association regularly reviews medical standards on the basis of best practice and what’s timely. You don’t want people using medical standards established 40 years ago—and yet, in education we do that. There is a great unevenness in how individual states are handling hard questions, on a regular basis and in a formal way, about the issue of timeless and timely content.

Unfortunately, educators are confusing the push for state testing through No Child Left Behind with the standards movement. Most educators want to be responsive to students and to the larger world. But the discussions in our communities about curriculum—Are some of these standards unimportant? Should some be dropped and others added? Can we make some a little better?—aren’t happening. Those discussions are being overridden by the focus on two or three testing days when 3rd graders sit anxiously for three hours, knowing that they may be held back because of their inability to do well on a restrictive set of test items.

In different parts of the United States, different sections of standards are outdated. But even if the majority of schools wanted to upgrade them or rethink them, their hands are tied because they’re juggling this testing dilemma.

We hear school leaders say, “Listen, the main thing is that our students have to pass these tests—no one’s really holding us accountable for dealing with all of these standards. So we’re going to have to focus on the standards our students are being tested on.” That’s the reality. That’s what’s playing out there. It amounts to a curriculum ambush.

How can schools and teachers deal with that test pressure?

The field of education, like every other field, keeps growing and altering. The tests will be refined and improved. But no matter what happens, the one subset of skills that’s requisite for any test or any assessment is literacy. Every test these kids take entails reading. Schools can’t lose when they help
students become more discriminating and discerning readers; more critical responders in their writing; and more effective speakers, reflective listeners, and active note-takers.

All of those skills are worth working on throughout the grades. If schools put more time and attention into cross-disciplinary literacy and K–12 mapping of literacy, students will do better in all classes. And when the students encounter any kind of testing situation, their performance levels will increase. Every test is first and foremost a language test.

One of the big messages that has come out of curriculum mapping is the absence of consistent approaches to reading, writing, speaking, and listening in every single class. Learning will always rely on language capability. That’s true in every subject—even physical education, where kids have to listen very carefully so they don’t look silly when they go out on the basketball court.

The focus on literacy across the grades and subjects is a direction worth pursuing, even as we debate and wrangle over the power and the nature of testing.

*How does curriculum mapping contribute to our continuing efforts to improve curriculum?*

Curriculum mapping has great potential to help educators reexamine and renegotiate content standards. Mapping isn’t like anything we did 10 years ago. We couldn’t have done it then—it’s electronic. I can make changes on a curriculum map immediately because I can go to my computer, pull up the map, and enter changes. Standards are not filed away on dusty shelves. We can electronically begin to rethink, renegotiate, look at performance data, and look at changes in the world. As better Internet-based programs have emerged and teachers have had more input, we are merging assessment data directly into the maps.

Electronic mapping can give teachers immediate and powerful control over the curriculum. And in the future, who knows? I think most communications will be paperless. We’ll be communicating in a more timely way—and also, I hope, about an expansive, contemporary, timely curriculum.

**Heidi Hayes Jacobs** is President of Curriculum Designers, Inc. (curricdes@aol.com). She works with schools and districts, K–12, on issues and practices pertaining to curriculum reform, instructional strategies to encourage critical thinking, and strategic planning. Her ASCD publications include *Interdisciplinary Curriculum: Design and Implementation* (1989) and *Mapping the Big Picture: Integrating Curriculum and Assessment K–12* (1997). She is currently working on a new ASCD book about making curriculum mapping work. Deborah Perkins-Gough is Senior Associate Editor, *Educational Leadership*.
When looking at technology to support curriculum mapping, it is important to focus on two questions. First, what outcome do you wish to see in your district two or three years down the road (i.e., what is your vision for the future of your district)? Second, will your current infrastructure support the mapping software?

Keep in mind that both not-for-profit and commercial companies develop curriculum mapping software. To help you consider whether to work with an existing software provider or to develop your own version, consider that the three leading mapping software vendors

- Are staffed by education and technology professionals of integrity.
- Require that teachers enter their own data by the actual school calendar.
- Require that teachers and administrators have access to one another’s maps.

The additional functions included in each program differentiate these three products, so you’ll need to evaluate those carefully. Also, it’s important to note that new products are regularly developed by new companies with an eye toward assisting schools in the mapping process.

**Step 1: Do your homework.**

Locate information through books, articles, and Web searches on curriculum mapping software companies. Go to the Web sites to locate more specific information on the software and the background of the company.

Identify school districts in your area that are already working with curriculum mapping software. Contact them and learn where they are in their implementation. Ask them to share information about their experience with the software they are using. Suggested questions:

- What software did you choose? Why?
- How was the software chosen (length of time, type of committees)?
- What is the best feature of the software?
Resource 1—Continued

- What improvements would be helpful?
- In retrospect, would you choose the same software if you had an opportunity to start over?

If the district is planning training in the near future, ask permission to attend.

Step 2: Arrange for initial demonstrations.

Narrow your choices to a few curriculum mapping software companies that you feel will most closely fit your needs. Contact these companies and arrange for a demonstration of their product to a small group of colleagues. Include on the committee those who will be responsible for the administration of the software on your local network, as well as district network technology personnel.

The demonstration session is the time to ask questions about the interface of the program with the existing district network. Sample questions are categorized below.

- Compatibility and interface with the existing system
  - What type of database is used for the holding of information?
  - Is the software compatible with our local area network?
  - Is the software compatible with our existing hardware?
  - What is the lowest operating system or Internet browser that works with the product?
  - What amount of bandwidth is needed to run the program effectively and efficiently?
  - Does this software interact with our current student information system, or does it exist separately? If they are separate, what information would need to be imported or exported between the systems, and how would this task be accomplished?
  - Where would the backup for this program be located (locally or at a company site)?
  - How often is the software upgraded? What is the down time for school districts?
  - Please give us references of schools using the software and the student information system that we use so we may check on the ease of importing and exporting data.
Accessibility and ease of use for the district employees

- Will users be able to use the same username to log on to the curriculum mapping software that they currently use for the rest of our network?
- What level of technology expertise is needed for users to be able to navigate the software?
- What can be preloaded so the end user won’t have to manually enter the data?
- Demonstrate the process for entering and printing a curriculum map.
- Can Web addresses, clips, lesson plans, and tests be placed in the map?
- What are the lesson plan features?
- Does the teacher have the choice to share maps or not?
- Demonstrate the skill of connecting a map to district core maps, and district and state standards.
- What is the process to search for and modify a map?
- What level of expertise is needed for teachers to generate reports that allow them to correlate their student assessment data with the maps?
- What reports might a building principal want to have access to?
- What types of help features are accessible to teachers (e.g., Web site help screens, Web site direct assistance, user’s manual, phone)?

Company-based training

- What type of training opportunities will be provided by the software company?
- Are the trainers competent in curriculum mapping as well as in the software?
- Are the trainers company employees or subcontractors?
- What type of training is available on-site, by phone, or by another means?
- Is the training covered in the price of the software?
Ease of use for the software administrators

- How much front-end preparation will be required by our district?
- Is there someone who will work directly with us to walk through the process?
- How can we customize the program for our district? Will it be possible to rename, add, or delete columns on the basic template?
- Can we create district (consensus) maps and push them out to the appropriate users? Please demonstrate.
- Are the district or state standards preloaded into the software?
- Can the standards be updated?
- Can we align assessments to the standards?
- How are administrative changes made?
- What types of reports are district-based?
- What types of ongoing support will be available?

Cost

- What is the fee structure (e.g., initial cost with yearly subscription, one-time fee, training fees, upgrading fee)?
- Are there fees for customization?

Step 3: Demonstrate to a larger audience.

After the committee has seen all the demonstrations and has chosen two or three companies whose products align best with the district needs, invite a larger group of district employees to view similar presentations. Include teachers, principals, district administrators, testing specialists, and others who will be vital to the success of curriculum mapping in the district. Give each participant a comment sheet to record responses.

Step 4: Choose one curriculum mapping company to initiate a pilot program.

Ask the software administrative team to review the larger audience’s comments and reflect on the demonstrations. From the feedback given by the large group, select and work with one company to establish a pilot program. During the pilot program, decide whether the product meets
your needs. If it does, plan to proceed with fully implementing the software.

**Step 5: Begin the implementation process.**

Integrate the technology into the curriculum mapping process at an appropriate time, using the professional development model that works best with your district or school (e.g., the study group model).

**Step 6: Establish different levels of support for users.**

The following chart may be helpful for establishing levels of support.

<table>
<thead>
<tr>
<th>Level</th>
<th>Responsibilities</th>
<th>Participants</th>
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<tbody>
<tr>
<td>1</td>
<td>District-level responsibilities—This group receives the initial training for the software, sets up beginning users, and works directly with the software company to make the implementation work.</td>
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<td>2</td>
<td>Building-level responsibilities—This cadre has in-depth training to understand the software and be responsible for assisting in the training of other staff members. They also assist in troubleshooting problems that may arise with the software in their building. If they can’t solve a problem they contact the Level 1 administrators. They are also a part of the advisory council to help guide the implementation of the software.</td>
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<tr>
<td>3</td>
<td>This group includes the remaining participants from the initial study group. They learn the teacher side of the software only but assist in training other staff within their building and, possibly, other buildings.</td>
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</tbody>
</table>

*Source: Sharon Reynolds, Des Moines Public Schools, Des Moines, Iowa, 2006. Adapted and reprinted with permission.*
## Template for a Professional Development Plan

**Goals:**

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Evidence</th>
<th>Skills</th>
<th>Content</th>
<th>Essential Questions</th>
<th>Dates</th>
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</thead>
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</table>

## Sample Professional Development Implementation Plan

**Goal:** Complete a map for one course or subject and conduct a mixed-group review.

<table>
<thead>
<tr>
<th>Dates</th>
<th>August 17 Inservice Meeting 8:00–10:00 a.m.</th>
<th>September 2 Inservice Meeting 1:15–3:15 p.m.</th>
<th>September 15 Study Group 3:00–4:00 p.m.</th>
<th>October 8 Faculty Meeting 3:00–3:45 p.m.</th>
<th>October 19 Inservice Meeting 1:15–3:15 p.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Essential Questions</strong></td>
<td>• How can curriculum mapping focus instruction?</td>
<td>• How can curriculum mapping be used as a tool to connect district initiatives?</td>
<td>• How can curriculum mapping affect student achievement?</td>
<td></td>
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</tr>
</tbody>
</table>
| **Content** | • Curriculum mapping overview  
  - Purpose/rationale  
  - Connections with other district initiatives  
  - Definition  
  - Components  
  - Quality examples | • Step-by-step process  
  - Content  
  - Skills  
  - Assessments  
  - Essential questions  
  - Coaching questions | | | |
| **Skills** | • Identify strengths and changes that would enhance the curriculum.  
  • Brainstorm possible benefits.  
  • Develop a shared definition.  
  • Identify components. | • Use step-by-step process to develop a one-month map.  
  • Review maps and use coaching questions to revise to ensure quality. | | | |
### Dates

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### Skills (continued)

- Review sample maps.
- Identify quality indicators.
- Identify how a map can be used as a tool to link initiatives.

### Evidence

- List of strengths in curriculum and changes that would enhance the curriculum
- List of benefits
- Shared definition

- A quality month map

### Assignment

Review sample map(s) and think through a unit or concept before September 2 meeting.

Complete two additional one-month maps and bring to September 15 meeting.

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*Source: Ann Johnson, Des Moines Public Schools, Des Moines, Iowa, 2005. Reprinted with permission.*
**Essential Questions**
- What overarching questions will serve to guide instruction and push students to higher levels of thinking?
- What overarching questions might help students to link or connect a big idea or major concept to real-world applications?
- What specific questions would guide teaching and engage students in uncovering what is at the heart of each big idea or major concept?

**Content**
- What is the big idea or major concept?
- What are the major subcategories on which you will spend a significant amount of time?
- What are the major underlying concepts?

**Skills**
- What skills do students need to be successful at demonstrating an understanding of the big idea or major concept?
- What district or state benchmarks or standards align with the major concept?

**Assessments**
- What would you accept as evidence that students understand the big idea or major concept?
- What tangible products or performances can the students produce to indicate an understanding of the concept?

**Activities**
- What activities would provide needed practice on the skills to ensure successful mastery?

**Resources**
- What specific support materials, books, field trips, videos, or Web sites do you use or incorporate into your teaching to support instruction?

RESOURCE 5

• Month or Unit Map

• Individual Map of Actual, Taught Curriculum

• Consensus or District Map and Connections to State Standards and Cross-Curricular Skills

• Strands (Common Terms) or Strand Report

• District and Classroom Assessments Aligned to Benchmarks

• Reporting Instruments Aligned to Benchmarks

• Building and District Goals

• Strategy Banks Aligned to Benchmarks

• Building and District Professional Development Map

• Work to create buy-in and connect with district’s focus.

• Develop shared definitions.

• Develop a time line for implementation.

• Develop a plan to train staff in the mapping process.

• Identify the appropriate software to support the process.

• Complete first draft of maps.

• Conduct read-throughs:
  ✓ Mixed groups
  ✓ Like groups

• Resolve issues, concerns, and questions that surfaced during read-throughs.

• Revise individual maps.

• Create consensus or district maps.

• Use mapping process to integrate cross-curricular skills and work on alignment of assessments.

• Use mapping process to address curriculum issues that surfaced during building and district data analysis.

• Has everyone completed an individual map?

• Have you developed a process to ensure quality in the maps being produced?

• Have you reviewed assessments to make sure they align with the skills?

• Have you used maps to integrate skills across the curriculum (reading, technology, research, etc.)?

• Have you conducted read-throughs to determine gaps and repetitions?

• Have you developed grade-level or course maps (consensus maps)? If so, have individual maps been edited to reflect them?

• Have you used grade-level and course maps to check for K–12 gaps and repetition (vertical alignment)?

• Have you used maps to aid in instructional decisions following a review of classroom and district assessment data?

• Have you examined data and used maps to address gaps and deficit areas?

## Curriculum Mapping Implementation

<table>
<thead>
<tr>
<th>Student Learning</th>
<th>Premapping Curricular Process</th>
<th>Fully Operational Mapping Process</th>
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</thead>
<tbody>
<tr>
<td><strong>Aligned to Standards</strong></td>
<td>No direct or formal attention to aligning curriculum to state, national, or organization standards.</td>
<td>Standards are identified by school or group with deliberation but are formally integrated into curriculum. They are a separate list of targets.</td>
</tr>
<tr>
<td>Faculty loosely follows traditional curricular documents that are difficult to keep updated. Therefore, most teach to their own strengths and preferences because there is no K–12 plan for students.</td>
<td>Selection to align to standards is random, approaching “cherry-picking” by each isolated teacher.</td>
<td>Standards are thoughtfully identified and directly matched with specific grade levels and departments to assist in improving student learning.</td>
</tr>
<tr>
<td>Faculty and administrators agree upon goals for student achievement and agree to focus instruction so that each student will meet the academic goals and standards. These are posted but not mapped formally.</td>
<td>Using the help of computer software, yearly benchmarks based on academic standards are designated for student learning. These are formally mapped.</td>
<td>Instruction is designed to support student achievement of academic standards. Regular assessments and review of curriculum occur throughout each year, so teachers, parents, and students are aware of progress toward benchmarks based on school-wide standards.</td>
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<tr>
<td>The faculty and administration collaboratively set forth a preK–12 consensus map (master map or essential map) that contains designated yearly benchmarks and assessments linked to district/school standards and intended outcome statement.</td>
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### RESOURCE 8

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<table>
<thead>
<tr>
<th><strong>Student Learning</strong></th>
<th><strong>Premapping Curricular Process</strong></th>
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<th>3</th>
<th>4</th>
<th><strong>Fully Operational Mapping Process</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Linked Learning</strong></td>
<td>At times, students experience unlinked learning episodes. Learning experiences may repeat or contain learning gaps.</td>
<td>Awareness of the opportunity to link learning experiences is developed with the mapping process.</td>
<td>Subject strands collaborate to eliminate gaps and repetitions within the curriculum preK–12.</td>
<td>Learning experiences are vertically linked, sequential, and spiral within each subject strand preK–12.</td>
<td>Power standards are identified as most pertinent and necessary by faculty and leadership and each school based on needs of specific student population. These are formally entered on each teacher’s map and are reviewed on an ongoing basis.</td>
</tr>
<tr>
<td><strong>Integrated Assessment</strong></td>
<td>In general, traditional methods of evaluation define the grading process.</td>
<td>Rubrics and other means of authentic assessment are introduced and used to determine student achievement according to each teacher.</td>
<td>Faculty and administrators collaborate to determine authentic assessments that demonstrate students’ yearly progress with benchmarks.</td>
<td>Assessments are aligned within strands and grade levels. Faculty and administrators use student assessment data to inform curricular decisions.</td>
<td>The faculty and administration collaboratively set forth a preK–12 consensus map (master map or essential map) that contains designated yearly benchmarks and assessments linked to district/school standards and intended outcome statement.</td>
</tr>
<tr>
<td>Faculty and Administrative Planning</td>
<td>Premapping Curricular Process</td>
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<td>Fully Operational Mapping Process</td>
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<tr>
<td><strong>Collaboration</strong></td>
<td>Little or no curricular collaboration or consultation exists between faculty members. Teachers may have only an occasional awareness of what is taught in other classes.</td>
<td>Faculty gain an awareness of what is being taught in “like” areas of the school across a grade level on elementary and within departments on the secondary level. Awareness in middle schools is within teams.</td>
<td>All faculty members align essential questions, content, skills to academic standards vertically within subject strands and horizontally across grade levels.</td>
<td>Faculty members continually review and adjust student benchmarks within subject strands and across grade levels based on data they collect and on research they conduct or read.</td>
<td>Teachers and administrators collaboratively adjust what is taught based on the best interest of the students, related to student performance needs. Targeted work sessions develop between the professionals who are best suited to solve a problem. An essential curriculum is put forth on the school’s Website that is periodically updated according to faculty research.</td>
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<tr>
<td><strong>Professional Development</strong></td>
<td>Faculty members engage in solo professional development experiences. Reports to colleagues are brief if at all.</td>
<td>Groups of teachers experience professional development with the expectation and opportunity to share with other faculty.</td>
<td>Faculty members work with administrators to designate and plan faculty development based on data they have gathered.</td>
<td>Faculty and administrators gather data to measure how professional development has affected student achievement.</td>
<td>Resources spent on professional development can be directly assessed and aligned to student achievement.</td>
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<tr>
<td>Faculty and Administrative Planning</td>
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<tr>
<td>An Accessible Curriculum</td>
<td>Teacher planning occurs in isolation and does not inform other faculty members or other departments of the school (i.e., Admissions, Development).</td>
<td>The Office of Curriculum Coordinator is created to coordinate and display the curriculum. Faculty begins work on computer curriculum maps.</td>
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<td></td>
<td>The Office of Curriculum Coordinator is created to coordinate and display the curriculum. Faculty begins work on computer curriculum maps.</td>
<td>Faculty is ready to make public an abridged, core essential curriculum that will inform the work of the admissions office as well as other departments and constituents of the school.</td>
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</table>

The public, essential curriculum is periodically updated on website. In-house, faculty members use computer software to share their maps and lesson plans as needed to expedite coordination and planning for students.
### Joint Decision-Making Process

Faculty members make curricular decisions independently. Some decisions are mandated by administration. The Faculty Curriculum Council is formed to work in tandem with administrators. The curriculum coordinator facilitates and coordinates the work of these two groups.

### Decisions Based on Data

Working independently from one another, teachers adapt, adjust, or discard ideas from outdated curricular documents.

<table>
<thead>
<tr>
<th>Curriculum Development</th>
<th>Premapping Curricular Process</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Fully Operational Mapping Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Decision-Making Process</td>
<td>Faculty members make curricular decisions independently. Some decisions are mandated by administration.</td>
<td>The Faculty Curriculum Council is formed to work in tandem with administrators. The curriculum coordinator facilitates and coordinates the work of these two groups.</td>
<td>Teachers work in subject-area strands under the leadership of an appointed coordinator. Representatives from each grade level and department compose the site-based curriculum council with an administrator present.</td>
<td>Task forces address curricular issues that go across subject strands and grade levels. Groups may include other constituents of the school as well.</td>
<td>Site-based decision making is institutionalized. Excess and unneeded committees are eliminated. Faculty and administration make curricular decisions jointly. A fluid curriculum review and change process is in place with regular meeting times.</td>
</tr>
</tbody>
</table>

Teachers and administrators read data that has been gathered from mixed reviews of maps and ISACS reports and then consult various academic standards documents.

As a school, faculty and administrators explore what data is available and how and when to use it.

Teachers and administrators gather data from a variety of sources to inform curricular decisions.

Teachers and administrators generate data from student assessments to inform curricular decisions. Action research is explored as a way of collecting data as well.

Teachers and administrators make curricular decisions based on external data they have consulted or internal data they have generated, including action research conducted in classrooms. New breakthroughs from the larger world will be thoughtfully entered in the curriculum.
<table>
<thead>
<tr>
<th><strong>Curriculum Mapping Entries</strong></th>
<th><strong>Premapping Curricular Process</strong></th>
<th><strong>2</strong></th>
<th><strong>3</strong></th>
<th><strong>4</strong></th>
<th><strong>Fully Operational Mapping Process</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detail on Content</strong></td>
<td>Vague, general description.</td>
<td>Listing of topic and a few general topics.</td>
<td>Concept with supporting sub-components.</td>
<td>Deliberate choice of topic, problem, theme, issue, or work describes main concepts and subject matter with a focus.</td>
<td>Details succinct and clear, with specific references to key concepts, facts, and materials.</td>
</tr>
<tr>
<td><strong>Essential Questions</strong></td>
<td>No essential questions are entered.</td>
<td>Simplistic, uneven in quality, lacking in relevance.</td>
<td>Clear focus questions that are accessible to learners.</td>
<td>Questions are conceptual, targeted, open for inquiry.</td>
<td>Engaging, targeted, insightful questions frame and align content, skills, and assessment that work developmentally.</td>
</tr>
<tr>
<td><strong>Precise Skills</strong></td>
<td>Missing or inaccurate.</td>
<td>Generic verbs; broad process.</td>
<td>Action verbs are listed indiscriminately; too many.</td>
<td>Action verbs are used consistently; skills sets are in the “foreground.”</td>
<td>Commences with action verb; reflects standards and desired proficiencies.</td>
</tr>
<tr>
<td><strong>Targeted Assessment</strong></td>
<td>Absent, incomplete, or unfocused.</td>
<td>Generic product or performance is listed.</td>
<td>Generic products only; teacher role is noted but not students’ (i.e., teacher observation).</td>
<td>Specific product and performance is noted and aligns with skills.</td>
<td>Specific and engaging product and performance provides evidence of student learning and aligns with other elements.</td>
</tr>
<tr>
<td>Curriculum Mapping Entries</td>
<td>Premapping Curricular Process</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
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</tr>
<tr>
<td><strong>Developmental Focus</strong></td>
<td>No attention to developmental considerations.</td>
<td>Uneven reflection of developmental appropriateness.</td>
<td>Limited attention to developmental appropriateness in certain elements.</td>
<td>Age or stage of development is reflected in all entries.</td>
<td>Age or stage of development is reviewed and considered among faculty regularly.</td>
</tr>
<tr>
<td><strong>Accuracy of Response</strong></td>
<td>Inaccurate information is entered.</td>
<td>Attempt at accuracy is inconsistent.</td>
<td>General representation of curriculum with little attention to time frames.</td>
<td>Reasonable representation of operational curriculum.</td>
<td>Consistent and accurate reflection of operational curriculum anchored in real time.</td>
</tr>
<tr>
<td><strong>Conceptual Understanding of the Design Process</strong></td>
<td>Understanding is not evident.</td>
<td>Shows some understanding with some support.</td>
<td>Displays understanding of material and design principles consistently.</td>
<td>Conveys a depth of understanding of curriculum supported by salient details.</td>
<td>Creates engaging, imaginative, rigorous curriculum with deep understanding.</td>
</tr>
<tr>
<td><strong>Internal Alignment</strong></td>
<td>No alignment; elements are missing.</td>
<td>Elements are all entered but not aligned.</td>
<td>Minimal attention is evident to alignment.</td>
<td>Demonstrates alignment between some of the key elements internally but not all.</td>
<td>Demonstrates a clear, coherent, complete correspondence among content, assessment, skills, and essential questions and standards.</td>
</tr>
</tbody>
</table>

Source: Developed by Heidi Hayes Jacobs, Bena Kallick, and Laura Fisher, Principia School, St. Louis, Missouri. Reprinted with permission.
Segment 1: Eric Witherspoon, Superintendent of Des Moines Public Schools (approximately 4 minutes)

Superintendent Eric Witherspoon sets the context for mapping during a professional development day in Des Moines Public Schools, Iowa.

- We keep hearing that what served students in the past just isn’t good enough today, that today’s students need more. How do you respond to this conclusion?
- In what ways do you think the adult lives of your students will differ from your own adult life?
- How can you help students prepare for their adult roles? In what ways can curriculum mapping help you meet that challenge?

Segment 2: Using Curriculum Mapping to Bolster Literacy Instruction (approximately 3 minutes)

Members of the Curriculum Mapping Core Team at East High School in West Chester, Pennsylvania, discuss how curriculum mapping can help educators achieve their goal to integrate literacy instruction across the disciplines.

- How do you respond to Heidi Hayes Jacobs’ observation that every teacher is a reading teacher?
- In what ways can curriculum mapping help content area teachers integrate literacy activities into their lessons?
- What is one initiative in which your school or district is currently engaged? How can curriculum mapping help you achieve your goals?

Segment 3: How Technology Helps Us Teach Better (approximately 3 minutes)

Heidi Hayes Jacobs describes how technology can help educators communicate and share their expertise.

- What kinds of collaborative activities does Heidi Hayes Jacobs envision for educators? How does her ideal support your school’s notions of collegiality?
- What do you see as some major benefits of technology? What tools do you think would enable you to easily update curriculum maps?
Segment 4: Technology Options for Curriculum Mapping (approximately 3 minutes)

Heidi Hayes Jacobs offers some suggestions to help educators determine which software program can best help them map their curricula.

- Why is it important to establish a research and development team as a first step in identifying tools that support the curriculum mapping effort?
- What criteria should be used to judge the effectiveness of a particular software program?
- Why does Heidi Hayes Jacobs like home-grown programs? How might you and your colleagues go about creating your own program to support your curriculum mapping effort?

Segment 5: Curriculum Mapping and Differentiated Professional Development (approximately 2 minutes)

Just as we differentiate instruction for students, we should differentiate professional development.

- Why might differentiated professional development be absolutely critical to the success of any initiative?
- What traditional professional development practices make it difficult to differentiate an adult learning program?
- How can you and your colleagues ensure that all teachers receive the professional development they truly need?

Segment 6: Curriculum Mapping for Today and Tomorrow (approximately 2 minutes)

Curriculum mapping isn’t an add-on, asserts Heidi Hayes Jacobs, but a focal point for addressing curriculum, instruction, and assessment.

- Heidi Hayes Jacobs uses the word “hub” as a metaphor for curriculum mapping. What other words or phrases could serve as metaphors for the process that is curriculum mapping?
- Heidi Hayes Jacobs is optimistic about the success of school initiatives that are guided by curriculum mapping. What is your response to Jacobs’ vision of the future?
**Related ASCD Resources**

**Audio Products**

*Control Versus Autonomy: Dilemma in a Time of Change and Accountability*, by Marian Leibowitz (Audiotape #204092)

*Curriculum Mapping: A Tool for Instructional Decision Making*, by Chris Stewart (Audiotape #203080)


**Print Products**

*Curriculum Technology Quarterly*, Spring 2003: Connecting Curriculum Mapping and Technology (Stock #103310)


*Getting Results with Curriculum Mapping*, by Heidi Hayes Jacobs, ed. (Stock #104011)

*Mapping the Big Picture: Integrating Curriculum and Assessment K–12*, by Heidi Hayes Jacobs (Stock #197135)

*Succeeding with Standards: Linking Curriculum, Assessment, and Action Planning*, by Judy F. Carr and Douglas E. Harris (Stock #101005)

**Video Products**

*Curriculum Mapping: Charting the Course for Content* (Stock #499049)
Other Video Programs Available from ASCD

*Programs with an asterisk are also available on DVD.

Action Research: Inquiry, Reflection, and Decision Making *(4-tape series)*
Assessment and Grading: What’s the Relationship?
Assessment in Elementary Science *(3-tape series)*
At Work in the Differentiated Classroom *(3-tape series)*
Balanced Assessment: Improving Student Achievement and Standardized Test Results *(3-tape series)*
Best Practices in Action *(multitape series)*
Books in Action
  Become a Multiple Intelligences School
  Closing the Achievement Gap
  Guiding School Improvement with Action Research
  Multiple Intelligences of Reading and Writing: Making the Words Come Alive
The Brain and Early Childhood *(2-tape series)*
The Brain and Learning *(4-tape series)*
The Brain and Mathematics *(2-tape series)*
The Brain and Reading *(3-tape series)*
Breaking Through Barriers to Achievement *(3-tape series)*
Building Academic Background Knowledge *(3-tape series)*
Catch Them Being Good: Reinforcement in the Classroom *(3-tape series)*
Challenging the Gifted in the Regular Classroom
Classroom Management That Works *(3-tape series)*
The Common Sense of Differentiation: Meeting Specific Learner Needs in the Regular Classroom *(3-tape series)*
Curriculum Mapping: Charting the Course for Content *(2-tape series)*
Developing Performance Assessments
Differentiating Instruction *(2-tape series)*
Dimensions of Learning Training Program and Video Package
Educating Everybody’s Children *(6-tape series)*
Examining Student Work *(4-tape series)*
Getting Results from Cooperative Learning *(3-tape series)*
How To *(multitape series; 15-minute tapes on a variety of helpful classroom practices)*
Implementing a Reading Program in Secondary Schools
Improving Instruction Through Observation and Feedback *(3-tape series)*
Inclusion *(3-tape series)*
Instructional Strategies for the Differentiated Classroom: Tapes 1–7 *(7-tape series)*
Integrating the Curriculum *(2-tape series)*
The Lesson Collection *(multitape series; 15-minute sample classroom lessons)*
Managing Today’s Classroom *(3-tape series)*
Maximizing Learning for English Language Learners *(3-tape series)*
Mentoring the New Teacher *(8-tape series)*
Mentoring to Improve Schools *(2-tape series)*
Motivation: The Key to Success in Teaching and Learning *(3-tape series)*
Multicultural Education
Multiple Intelligences *(3-tape series)*
Planning Integrated Units: A Concept-Based Approach
The Principal Series *(7-tape series)*
Problem-Based Learning *(2-tape series)*
Qualities of Effective Teachers *(3-tape series)*
Raising Achievement Through Standards *(3-tape series)*
Reading in the Content Areas *(3-tape series)*
Reporting Student Progress
The Results Video Series *(2-tape series)*
A Six-Step Process for Teaching Vocabulary*
Teacher Portfolios *(2-tape series)*
The Teacher Series *(6-tape series)*
Teaching the Adolescent Brain *(4-tape series)*
Teaching Strategies Library *(9-tape series)*
Teaching Students with Learning Disabilities in the Regular Classroom *(2-tape series)*
Understanding by Design *(3-tape series)*
Using Classroom Assessment to Guide Instruction *(3-tape series)*
Using Standards to Improve Teaching and Learning *(3-tape series)*
A Visit to a Classroom of English Language Learners
A Visit to Classrooms of Effective Teachers*
A Visit to a Data-Driven School District*
A Visit to a Differentiated Classroom
A Visit to a Freshman Advisory Program*
A Visit to a Motivated Classroom
A Visit to One School’s Bullying Prevention Program*
What Works in Schools *(3-tape series)*

For information on how to purchase or preview these programs, call ASCD’s Service Center at 1-800-933-2723 or 1-703-578-9600. Or visit the Online Store at http://shop.ascd.org.
About ASCD

Founded in 1943, the Association for Supervision and Curriculum Development is a nonpartisan, non-profit education association, with headquarters in Alexandria, Virginia, USA. ASCD’s mission statement:

ASCD, a community of educators, advocating sound policies and sharing best practices to achieve the success of each learner.

Membership in ASCD includes a subscription to the award-winning journal *Educational Leadership*, the newsletter *Education Update*, and other products and services. ASCD sponsors affiliate organizations around the world; participates in collaborations and networks; holds conferences, institutes, and training programs; produces publications in a variety of media; sponsors recognition and awards programs; and provides research information on education issues.

ASCD provides many services to educators—prekindergarten through grade 12—as well as to others in the education community, including parents, school board members, administrators, and university professors and students. For further information, contact ASCD via telephone: 1-800-933-2723 or 1-703-578-9600; fax: 1-703-575-5400; or e-mail: member@ascd.org. Or write to ASCD, Information Services, 1703 N. Beauregard St., Alexandria, VA 22311-1714 USA. You can find ASCD on the World Wide Web at www.ascd.org.

ASCD’s Executive Director is Gene R. Carter.

2006–07 Board of Directors

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Belief Statements

Fundamental to ASCD is our concern for people, both individually and collectively.

- We believe that the individual has intrinsic worth.
- We believe that all people have the ability and the need to learn.
- We believe that all children have a right to safety, love, and learning.
- We believe that a high-quality, public system of education open to all is imperative for society to flourish.
- We believe that diversity strengthens society and should be honored and protected.
- We believe that broad, informed participation committed to a common good is critical to democracy.
- We believe that humanity prospers when people work together.

ASCD also recognizes the potential and power of a healthy organization.

- We believe that healthy organizations purposefully provide for self-renewal.
- We believe that the culture of an organization is a major factor shaping individual attitudes and behaviors.
- We believe that shared values and common goals shape and change the culture of healthy organizations.