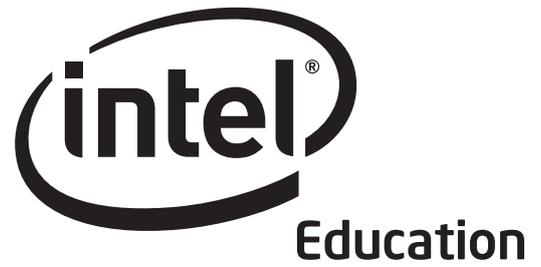


Intel® Teach Program

Getting Started Course



Intel[®] Teach Program

Getting Started Course

The Getting Started curriculum materials were developed by Intel Corporation in cooperation with the Institute of Computer Technology (ICT), a nonprofit organization.

Programs of the Intel[®] Education Initiative are funded by the Intel Foundation and Intel Corporation.
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Version 2.0

Welcome to the Intel® Teach Program Getting Started Course.

Thanks to teachers like you, over 4 million educators worldwide have made technology learning more compelling and more relevant.

Dedicated teachers nurture the innovative potential in young people, preparing them to step into a world where an understanding of technology can help shape their success. Like you, Intel is passionate about education, because we know it is the foundation for innovation and opportunity. So, on behalf of Intel, I want to thank you for participating in this course.

Since 1999, the Intel Teach Program has helped educators in more than 40 countries. Our programs are built for educators by educators, and they combine best practices with the power of technology.

We live in a global economy where each one of us is increasingly challenged to analyze information, collaborate, and communicate ideas using an ever-changing array of technology. We hope our materials help prepare you to succeed in this competitive environment.

Innovation involves taking calculated risks but yields big rewards. Your participation in the Intel Teach Program brings that same spirit to the classroom, where we know your students will be the true winners.

Best regards,



Paul Otellini
Chief Executive Officer
Intel Corporation

An equal opportunity employer.

Welcome

We welcome you to the Intel® Teach Getting Started Course, and appreciate your commitment to the future of your students and to your profession as an educator. Students today, more than ever, need the ability to understand and deal with complex issues and problems. This course has been created to help you acquire technology literacy skills and develop 21st century teaching and learning approaches. Thank you for investing your time and energy into this course and for your commitment to preparing your students to be successful in tomorrow's world.

Curriculum Introduction

The Intel® Teach Getting Started Course helps subject matter teachers who have little to no computer experience acquire technology literacy skills and develop 21st century approaches to teaching and learning. The training consists of 12 modules that can be customized to the needs of each school.

The themes of the Getting Started Course include:

- Promoting and developing a 21st century learning environment
- Fostering critical thinking and collaboration in the classroom
- Facilitating student-centered classrooms that encourage student self-direction and higher-order thinking
- Acquiring and applying basic technology skills to create teacher productivity tools
- Using technology effectively to create products relevant to subject and grade levels
- Developing an action plan detailing how teachers will apply their new skills and approaches to enhance productivity and professional practices over time

Intel® Education Initiative

Working with educators from around the world, Intel is preparing today's young people to flourish in the knowledge-based economy of the 21st century. Our goal is to help students develop the higher-order thinking skills they need to realize their full potential. The Intel Education Initiative consists of several programs that serve teaching in primary and secondary education, higher education, and community education, including:

- Intel® Teach Program
- Intel® Learn Program
- Intel Computer Clubhouse Network
- Intel sponsored science competitions
 - Intel Science Talent Search (Intel STS)
 - Intel International Science and Engineering Fair (Intel ISEF)

Overview

About the Institute of Computer Technology

The Getting Started Course materials were prepared by the Institute of Computer Technology (ICT). ICT, a nonprofit organization, provides K-12 curriculum development and technology training services for corporations, nonprofit agencies, and the education community.

Founded in 1982, ICT has become a trusted partner worldwide in designing standards-based, student-centered computer science, science, engineering, and math curriculum, including technology integration professional development programs for educators. A key part of ICT's mission is to advocate for technology literacy in all curricula. The organization's goal is simple, but ambitious: to harness the power of technology to transform teaching and learning for all K-12 students worldwide.

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Course Introduction

Goal for the Course

The Intel® Teach Getting Started Course is a professional development offering to assist classroom teachers who have little or no computer experience to acquire basic technology literacy skills and an introduction to developing 21st century approaches to teaching and learning. The course:

- Introduces 21st century approaches such as student-centered instruction, critical thinking, and collaboration
- Introduces technology skills in a practical way that results in the creation of tools and documents that can help increase your teacher productivity
- Includes the development of an individual action plan detailing how you will apply your new skills and approaches to enhance your productivity and professional practice over time

The course involves the use of computers, and you will have many opportunities to use computer software to engage in hands-on exercises and activities. You will also find that the instructional mix features direct instruction, discussion and teamwork, self-reflection, and individual work on course exercises, activities, and action plans. All of this is designed to provide you with tools to be more effective and productive as a subject-matter teacher. However, we also recognize that access to computers in classrooms may be limited for teachers and for use by students. Therefore, this course does not focus on training you to teach computer skills to students, or to have you prepare student lesson plans that incorporate technology. Instead, this course focuses on giving you skills to be more productive as a teacher, and to incorporate new learning approaches into your classroom.

Our Goal for You

As you progress through the course modules, you will gain a better understanding of 21st century skills and project approaches, which include student-centered instruction, critical thinking, collaboration, and facilitation. You will also acquire and apply technology literacy skills in the areas of computer basics, the Internet, word processing, multimedia, and spreadsheets.

Our goal is for you to effectively use the new skills and approaches in your classroom. To help you meet this goal, you will engage in action planning during the last two modules to determine how the new skills and approaches will be applied to enhance your productivity and professional practices over time.

Course Overview

The following table outlines the major focus and outcomes for each module during the course.

Module 1: Developing 21st Century Skills	
Focus: 21st century skills and classroom environment	Outcomes: <ul style="list-style-type: none"> ▪ Identify 21st century skills ▪ Understand the trend towards creating a 21st century classroom environment ▪ Discover the differences between teacher-centered and student-centered approaches ▪ Reflect on professional practices
Module 2: Learning Computer Basics and the Internet	
Focus: Computer basics and the Internet	Outcomes: <ul style="list-style-type: none"> ▪ Learn about basic computer components ▪ Discover the fundamentals of the operating system ▪ Develop Internet navigation skills ▪ Reflect on professional practices
Module 3: Fostering Critical Thinking and Collaboration	
Focus: Higher-order thinking and student collaboration	Outcomes: <ul style="list-style-type: none"> ▪ Understand how to cultivate higher-order thinking in students ▪ Develop skills for promoting and facilitating collaboration ▪ Become familiar with the structure of each activity—a four-step iterative cycle of plan, do, review, and share ▪ Reflect on professional practices
Module 4: Discovering Word Processing	
Focus: Word processing software	Outcomes: <ul style="list-style-type: none"> ▪ Discover word processing by beginning with a technology introduction, exploration, and discussion ▪ Complete the required word processing activity: Assessment Handout ▪ Reflect on professional practices

(continued)

Course Introduction

Module 5: Applying Word Processing	
<p>Focus:</p> <p>Word processing productivity tools</p>	<p>Outcomes:</p> <ul style="list-style-type: none"> ▪ Apply your word processing skills by selecting and completing at least one relevant elective activity ▪ Share your work with colleagues, and discuss and reflect on productivity and professional practices
Module 6: Discovering Multimedia	
<p>Focus:</p> <p>Multimedia software</p>	<p>Outcomes:</p> <ul style="list-style-type: none"> ▪ Discover multimedia by beginning with a technology introduction, exploration, and discussion ▪ Complete the required multimedia activity: Curriculum Preview ▪ Reflect on professional practices
Module 7: Applying Multimedia	
<p>Focus:</p> <p>Multimedia productivity tools</p>	<p>Outcomes:</p> <ul style="list-style-type: none"> ▪ Apply your multimedia skills by selecting and completing at least one relevant elective activity ▪ Share your work with colleagues, and discuss and reflect on productivity and professional practices
Module 8: Discovering Spreadsheets	
<p>Focus:</p> <p>Spreadsheet software</p>	<p>Outcomes:</p> <ul style="list-style-type: none"> ▪ Discover spreadsheets by beginning with a technology introduction, exploration, and discussion ▪ Complete the required spreadsheet activity: Grade Book ▪ Reflect on professional practices
Module 9: Applying Spreadsheets	
<p>Focus:</p> <p>Spreadsheet productivity tools</p>	<p>Outcomes:</p> <ul style="list-style-type: none"> ▪ Apply your spreadsheet skills by selecting and completing at least one relevant elective activity ▪ Share your work with colleagues, and discuss and reflect on productivity and professional practices

(continued)

Module 10: Developing 21st Century Approaches	
Focus: Facilitation skills	Outcomes: <ul style="list-style-type: none"> ▪ Develop strategies for promoting the skills of listening and speaking, giving directions, observing and monitoring, questioning, encouraging, and intervening ▪ Understand the process of accepting change ▪ Reflect on professional practices
Module 11: Planning and Doing Your Action Plan	
Focus: Action plan purpose and development	Outcomes: <ul style="list-style-type: none"> ▪ Understand the purpose and components of an action plan ▪ View sample action plans ▪ Determine the professional changes you want to make and develop a plan to implement the changes over time ▪ Plan the action plan on paper and do it on the computer
Module 12: Reviewing and Sharing Your Action Plan	
Focus: Action plan enhancement and sharing	Outcomes: <ul style="list-style-type: none"> ▪ Review and make changes to your action plan ▪ Share your action plan and receive constructive feedback ▪ Conclude the course

Considering Your Role as a Participant Teacher

Classroom teachers are continually looking for ways to teach more effectively and to increase productivity. As a Participant Teacher in this course, you will do both. As you learn new teaching approaches and methods, you will consider how you can apply your knowledge in your classroom environment. As you acquire and apply new technology skills, you will think about how the products you create will help increase your productivity as a teacher. This course is designed to be flexible and allow you to bring your content to the products so that the tools you create are relevant to your needs as a teacher.

At this point, the facilitator should distribute a course schedule, outlining the dates of the training sessions and the modules that will be covered in each session.

Course Introduction

As part of the course, you are asked to commit to the following:

- Attend all course sessions
- Be prepared and give your best effort
- Take notes and ask questions
- Complete all exercises, assigned activities, and an action plan
- Share your ideas and work
- Support, encourage, and respect others
- Have fun while learning
- Provide daily feedback about the course

After each module, you should expect to spend at least one hour of homework time reviewing the completed module content and your notes, and doing a take-home exercise for the next module. These tasks can be done independently or with one or more of your colleagues. Although computers may be used to complete homework assignments, access to a computer outside of course sessions is neither expected nor required.

Discuss the course goals, outcomes, expectations, and roles with the group.

When you successfully finish all assignments and demonstrate an understanding of the key skills and approaches, you will receive a Certificate of Completion at the end of the course.

Module 1

Developing 21st Century Skills

Description: 21st century, student-centered learning differs from traditional, teacher-centered learning in that the two have different approaches to content, instruction, classroom environment, assessment, and technology. The objective of this module is to have you identify key 21st century skills, examine the trend toward creating a 21st century classroom environment, and explore the differences between teacher-centered and student-centered approaches.

Each module begins with a preview.

Exercise 1: Identifying Essential Skills

Step 1

When students graduate from your school system, what is essential for them to know and to be able to do to be successful in the 21st century workplace? Working in a small group, discuss your answers, and record them on the lines that follow.

The facilitator will assign groups with four or five participants. In each group, members should assume the roles of facilitator, recorder, participants, and presenter.

Step 2

Share your list of essential skills with the large group as directed.

Presenters from each group will share a brief list of essential skills. Presenters should listen carefully so that no skills are repeated.

Developing 21st Century Skills

Silently read the remaining content in this step.

In 21st century workplaces, workers

- analyze, transform, and create information
- collaborate with coworkers to solve problems and make decisions
- perform a variety of complex tasks using sophisticated technology

In 21st century homes, families

- are entertained by watching, creating, and participating in a variety of media
- make consumer decisions by looking for information on the Internet
- stay in touch with friends and family members through various technologies

In 21st century communities, citizens

- use the Internet to stay informed about local, national, and global issues
- communicate and persuade others about their opinions using different technologies
- comply with government regulations without leaving their homes

As computers take over routine tasks in the workplace, a far greater proportion of employees are engaged in tasks that require them to be flexible and creative problem solvers. Home life is also more complex in the 21st century as emerging technologies provide almost infinite possibilities for entertainment, leisure-time activities, and participation in community activities.

21st century schools must prepare students to work in today's workplaces, and teachers must stay current with the ways students and families use technology in their daily lives.

In 21st century schools, students

- work on complex, challenging tasks that require them to think deeply about subject matter and manage their own learning
- collaborate with peers, teachers, and experts on meaningful tasks using higher-order thinking
- use technology to make decisions, solve problems, and create new ideas

Developing 21st Century Skills

To help students achieve levels of full participation in their communities, teachers must focus on the 21st century skills¹, listed below, that will help students adapt to changing society and technology:

- **Accountability and Adaptability**—Exercising personal responsibility and flexibility in personal, workplace, and community contexts; setting and meeting high standards and goals for one’s self and others; tolerating ambiguity
- **Communication Skills**—Understanding, managing, and creating effective oral, written, and multimedia communication in a variety of forms and contexts
- **Creativity and Intellectual Curiosity**—Developing, implementing, and communicating new ideas to others; staying open and responsive to new and diverse perspectives
- **Critical Thinking and Systems Thinking**—Exercising sound reasoning in understanding and making complex choices; understanding the interconnections among systems
- **Information and Media Literacy Skills**—Analyzing, accessing, managing, integrating, evaluating, and creating information in a variety of forms and media
- **Interpersonal and Collaborative Skills**—Demonstrating teamwork and leadership; adapting to varied roles and responsibilities; working productively with others; exercising empathy; respecting diverse perspectives
- **Problem Identification, Formulation, and Solution**—Ability to frame, analyze, and solve problems
- **Self-Direction**—Monitoring one’s own understanding and learning needs; locating appropriate resources; transferring learning from one domain to another
- **Social Responsibility**—Acting responsibly with the interests of the larger community in mind; demonstrating ethical behavior in personal, workplace, and community contexts

In summary, as 21st century work-places, homes, and citizens change, schools too much change. Teachers must help students develop the skills needed for success in the 21st century.

¹Source: Partnership for 21st Century Skills (www.21stcenturyskills.org). Used with permission.

Exercise 2: Comparing Classrooms of Today with Classrooms of Tomorrow

Step 1

Participants will share the reflections of their partners. The facilitator will ask two or three pairs to share their experiences with the large group. The facilitator will end the discussion by summarizing recurring themes.

How were you taught when you attended school? What did you like about how you were taught? What were your frustrations about how you were taught? Write your responses in the table that follows.

How You Were Taught	What You Liked	What Your Frustrations Were

Step 2

Share your reflections with a peer and others as directed.

Traditional, Teacher-Centered Instruction

Traditional, teacher-centered instruction and lecture is the most common teaching behavior found in schools worldwide. Teacher-centered instruction can be very effective, particularly for:

- Sharing information that is not easily found elsewhere
- Presenting information in a quick manner
- Generating interest in the information
- Teaching students who learn best by listening

Developing 21st Century Skills

However, teacher-centered instruction also presents several challenges, including:

- Not all students learn best by listening
- Keeping students’ interest is often difficult
- The approach tends to require little or no critical thinking
- The approach assumes that all students learn in the same impersonal way

21st Century, Student-Centered Instruction

How is 21st century, student-centered learning different from traditional, teacher-centered learning? The two methods have different approaches to content, instruction, classroom environment, assessment, and technology, as summarized in the following table. Each approach is appropriate in different situations.

This table is not intended to show a comparison of two opposing approaches where one is more appropriate than the other. On the contrary, this table shows that both approaches can be appropriate depending on a particular situation.

The facilitator will briefly explain the organization of the information in the table. Then, participants will read silently and identify approaches that they have used in their classrooms. Participants will share their experiences when they are called on. You may notice that after most have shared, many of the approaches are discussed.

Teacher-Centered Approaches	Student-Centered Approaches
Content	
The content is established by a curriculum, and all students study the same topics at the same time.	Students study topics based on curriculum and standards but are allowed numerous choices in a topic of study.
Students have access to limited information, selected by the teacher or the school library.	Students have infinite access to unlimited information of varying degrees of quality.
Topics of study are typically isolated and disconnected from each other.	Students study content in a way that shows connections between subjects.
Students memorize facts and occasionally analyze information critically. There is little focus on applying facts or concepts to a variety of real world situations.	Students learn concepts as well as facts, and frequently engage in high-level analysis, evaluation, and synthesis of a variety of kinds of material. There is an emphasis on showing how concepts apply to a variety of real world situations.
Students work to find correct answers.	Students work to construct any one of a number of possible correct answers.
Teachers choose activities and provide materials at the appropriate level.	Students select from a variety of teacher-provided activities and often determine their own level of challenge at which to work.

(continued)

Developing 21st Century Skills

Teacher-Centered Approaches	Student-Centered Approaches
Instruction	
The teacher is the information giver—the sage on the stage—helping students acquire skills and knowledge.	The teacher is the facilitator—the guide on the side—providing opportunities for students to apply skills and construct their own knowledge.
Learning starts with what students do not know.	Learning starts with students’ previous knowledge.
Teaching is an instructive process.	Teaching is a constructive process.
Students complete short, isolated activities and lessons around specific content pieces and skills.	Students work on activities and projects connected to long-term goals aimed at building deep conceptual understanding and proficient strategy use.
Classroom Environment	
Students learn passively in an often silent classroom.	Classroom environment resembles an active workplace with various activities and levels of sound depending on the kind of work being done.
Students usually work individually.	Students often collaborate with peers, experts, community members, and teachers.
Assessment	
Students take paper-and-pencil exams, silently and alone. The questions are kept secret until test time, so students have to learn all the material even though only part of it will be tested.	Students know ahead of time how they will be assessed, have input into the criteria by which they will be assessed, receive feedback from the teacher and their peers throughout a unit, and have multiple opportunities to assess their own learning.
Teachers are primarily accountable for student learning.	Teachers and students share accountability for learning and achievement.
Students are extrinsically motivated by the desire to get good grades, to please teachers, and to gain rewards.	Students’ interests and involvement promotes intrinsic motivation and effort.
Technology	
Teachers use various kinds of technology to explain, demonstrate, and illustrate various topics.	Students use various kinds of technology to conduct research, communicate, and create knowledge.

Developing 21st Century Skills

Exercise 3: Introducing Yourself

The facilitator will model what is expected before asking participants to do the same.

Now it is time for you to meet the others participating in the course. Hopefully, the colleagues you meet here will become valuable resources for you both during the course and beyond as you return to your classroom and begin applying your 21st century teaching and learning skills and approaches.

Step 1

What would you like to share about yourself? Would you like to tell the grade level or subject area that you teach? Would you like to tell where you teach? List the key points that you want to share on the lines that follow.

Step 2

Share your key points as directed. Listen while others share as well.

Take-Home Exercise: Reflecting on Module 1

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. Consider the list of 21st century, student-centered approaches. Which approaches are you most interested in using with your students? How might the approaches support student learning?

2. Recall the names of the colleagues that you were introduced to during this module and the information that they shared about themselves. Which colleagues might share interests with you? What are those shared interests? How might you collaborate or work together with your colleagues both during and after the course?

Module 1 Summary

Step 1

What did you accomplish in this module? List your ideas and other participants' ideas as directed on the lines that follow.

Step 2

What key points are addressed in this module? List your ideas and other participants' ideas as directed on the lines that follow.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 2: Learning Computer Basics and the Internet.

Module 2

Learning Computer Basics and the Internet

Description: Technology literacy involves being able to use technology such as computers to communicate, solve problems, and collect, organize, and share information. This course provides many hands-on opportunities for you to explore and discover how to use the computer to write (word processing), to create presentations (multimedia), and to solve mathematical problems (spreadsheets). The objective of this module is for you learn the basic components of a computer, discover the fundamentals of an operating system, and develop Internet navigation skills.

Discuss what happened during the last module. Preview this module and understand how it relates to the previous module.

Pair and Share: Reflecting on Module 1

Share your answers to the Take-Home Exercise: Reflecting on Module 1 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

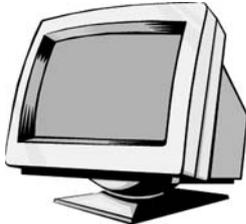
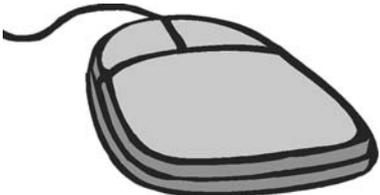
After participant partners exchange answers and provide feedback to each other, the facilitator will ask a few pairs to share with the whole group.

Exercise 1: Naming the Parts and Moving the Mouse

Before you begin using the computer, you need to learn the basics. This includes learning the names of some of the parts of the computer, as well as learning how to move the mouse.

Step 1

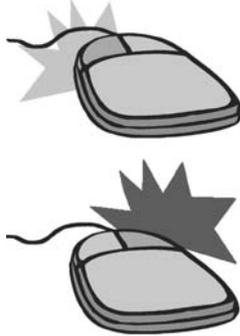
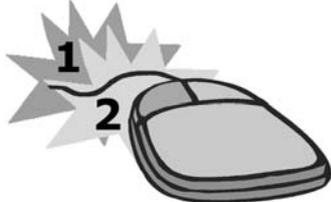
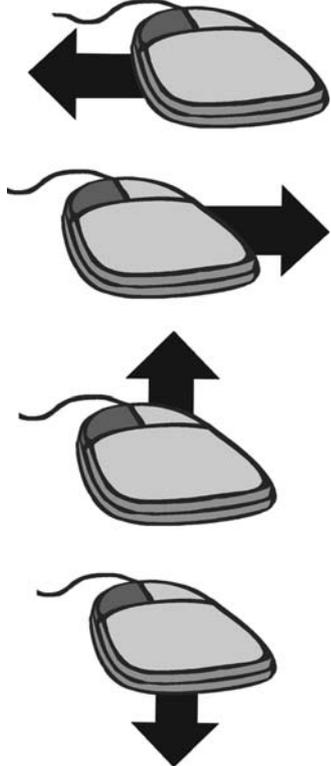
As each part in the following table is identified, locate the corresponding part on your computer as directed.

Parts of the Computer	
1. The CPU (Central Processing Unit) is the brain of the computer. It is found within the enclosed part of the computer.	
2. The monitor is similar to a television in that both have screens used to display information.	
3. The keyboard is used to type or input information. It has keys or buttons with letters and numbers on them, plus some special keys.	
4. The mouse is used most often for pointing at different things on screen. The mouse has buttons that can do things when pressed.	

Learning Computer Basics and the Internet

Step 2

As each movement in the following table is identified, practice making the corresponding movement using your mouse as directed.

Parts of the Computer	
<p>1. The mouse can also be used for clicking. Clicking is tapping the mouse button once to press it and then quickly letting go.</p> <p>If your mouse has two buttons, you will be doing left-clicking most of the time.</p> <p>However, there will be times when you will be doing right-clicking as well.</p>	
<p>2. Also, there will be times when you will be double-clicking. Double-clicking means tapping the left button two times very quickly. A double-click is often used to open or start something.</p>	
<p>3. Dragging is another type of movement you can do with the mouse. Dragging is holding down the left mouse button and moving the mouse. Once you have pressed down the left mouse button, you can drag left, right, up, down, or any other direction.</p>	

Exercise 2: Working with the Operating System

Your computer has one main program, called the *operating system*, which controls almost everything your computer does. The operating system controls the information that the CPU receives from the keyboard or mouse. Then, the operating system transfers the information to the software you are running. After the software processes the information, the operating system displays the information on the monitor.

[Note: This exercise is written for the Microsoft Windows 2000* operating system. The localization team is responsible for adapting this exercise to the operating system used by participants.] Microsoft Windows* is a popular operating system for many personal computers. Whenever you turn on your computer, Windows starts automatically. After your computer starts up, the computer's desktop will be displayed on the monitor screen. The desktop has small pictures, or *icons*, that represent some of the actions or tasks you can perform on the computer. Some of the icons represent computer software. Other icons represent places on your computer where files and documents are stored.

What pictures, or icons, do you see on your computer desktop?

Step 1

Double-click the Microsoft Internet Explorer* icon on the desktop. Notice that the program starts in a new window. This window is on top of the desktop. The title bar at the top of the window tells you that Internet Explorer is running in this window. The taskbar at the bottom of the desktop also shows that you have one open window.

Step 2

Answer: The window disappears but is still available on the taskbar.

Click the **Minimize** button  at the top-right corner of the window. What happens to the window?

Step 3

Answer: The window reappears.

Click the **Internet Explorer** button on the taskbar along the bottom of the desktop. What happens?

Learning Computer Basics and the Internet

Step 4

Click the **Maximize** button  at the top-right corner of the Internet Explorer window. What happens to the window?

Answer: The window gets larger.

Step 5

Click the **Close** button  at the top-right corner of the Internet Explorer window. What happens to the window?

Answer: The window closes.

The icons on a computer’s desktop typically represent only the most frequently used programs and features. For more options, you need to use the **Start** button at the bottom-left corner of the desktop. By clicking this button, you can start any of the programs on your computer. You can also access your computer’s settings, as well as the places where files and documents are saved and stored. This is the button you click when you want to shut down your computer.

Step 6

Click the **Start** button. What are some of the available options you could select?

Step 7

Click the **Start** button and select Internet Explorer again. Which method of starting this program do you like better—double-clicking the icon on the desktop or selecting the program from the **Start** button? Why?

The facilitator will call on participants to explain their reasons.

Step 8

Position the pointer over the bottom-right corner of the Internet Explorer window . Hold down the left mouse button, and drag the corner to make the window bigger or smaller.

Step 9

Notice the scroll bar along the right side of the Internet Explorer window. To view the information that is at the bottom of the displayed Web page, click the **Down** scroll arrow . To go back to the top of the displayed Web page, click the **Up** scroll arrow . You can also hold down the left mouse button and drag the rectangle on the scroll bar to display the part of the page that you want to see.

Step 10

Without closing the Internet Explorer window, click the **Start** button, choose **Documents**, and select **My Documents**. This takes you to the My Documents folder in Windows Explorer, which contains all the places where files and documents are stored on your computer.

Step 11

Notice that the taskbar at the bottom of the desktop shows that two windows are open—one Internet Explorer window and one My Documents window. Click the **Internet Explorer** button on the taskbar to go to that window. Then, click the **My Documents** button on the taskbar to return to that window.

Step 12

Click the drop-down arrow  to the right of the **Address** bar containing the My Documents text. As instructed, select the location or folder where you are supposed to save your work. Briefly look at the contents inside the location or folder.

Step 13

Select **File** ⇒ **New** ⇒ **Folder**. Notice that a new folder icon appears in the window. Rename the folder by typing your name followed by the words "Getting Started".

Step 14

Double-click the folder that you just renamed to open that folder. Inside, create four new folders. Name the four folders "Word Processing", "Multimedia", "Spreadsheets", and "Action Plan". You are to use these folders for storing the products you create during the Intel® Teach Getting Started Course.

Step 15

Click the **Close** button  in each window to close both windows. You should now be able to see the desktop again.

The facilitator will show an example of how participants should rename their folders.

Exercise 3: Searching the Internet

The Internet is a communications network that offers a number of services, including e-mail and the World Wide Web. To help you become more familiar with the Internet, share a computer with a partner to find online resources for teachers.

Step 1

Start the web browser on your computer.

Step 2

Type the following Web site address in the **Address** bar: **[Note: The localization team needs to insert the address of an appropriate Web site that features tools and resources that teachers in your country may find useful. An example from the United States is: www.intel.com/education]**

Make sure that you type the Web site address correctly since a typing error may take you to a different Web site that does not work. Press the **Enter** key or click the **Go** button. Then, wait as the Web page loads on your computer. Read the Web page thoroughly. What is one interesting piece of information you learned from this page?

If a Web site is not working or if the content has changed, discuss the changing nature of the Internet.

Step 3

Click one of the hyperlinks. Where does this link take you?

Learning Computer Basics and the Internet

Step 4

Go back to the first page by clicking the **Back** button on the toolbar. Click in the **Address** bar, and type in the following Web site address: **[Note: The localization team needs to insert the address of an appropriate Web site that contains lesson plan ideas or educational activities for teachers in your country. Examples from the United States include: <http://school.discovery.com/lessonplans> or www.lessonplanspage.com]**

Read the Web page thoroughly. What is the name of one lesson plan idea or educational activity that you might consider using in your classroom?

Step 5

Click the icon on the toolbar that looks like a house. Where does this take you?

With billions of published Web pages, finding the information you need on the Internet may seem like an overwhelming task. Fortunately, several Web sites offer tools that can help make your search easier. Deciding which tool to use depends on what you are looking for and what you want to know. To help you become more familiar with some Internet search tools, share a computer with a partner to complete the following steps.

Step 6

A search engine is one such tool that can help make your search easier. Select a search engine from the following list: **[Note: The localization team must identify and insert the Web site addresses for two or three appropriate search engines for teachers to use. Some examples from the United States include www.google.com, www.yahoo.com, and www.altavista.com. In addition to having basic search functionality, the Web sites must also allow users to search directories and images. For example, Google offers a basic search engine at www.google.com, a directory at www.google.com/dirhp, and an image search at www.google.com/imghp.]**

What is the name of the search engine you selected?

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Step 7

Type the Web site address for the search engine you selected in the **Address** bar. Make sure to check that you typed the address correctly since a typing mistake may take you to a different Web site or to a Web site that does not work. Press the **Enter** key or click the **Go** button. Then, wait as the Web page loads on your computer.

Step 8

For best search results, choose your keywords wisely. If you are not sure which keywords to use, a directory can help. Most search engines have a directory. Review the home page of your search engine to find the link to the directory.

Step 9

Click the link to go to the search engine’s directory. Directory pages feature information that has been grouped or organized into categories. Searching within a category allows you to quickly find only the links to Web pages with the most relevant information. How many major categories appear in the directory? In which category or categories would you begin to look for information about one of the content areas you teach in your classroom?

Examples of content areas include *fractions, volcanoes, and leaders.*

Step 10

Often, we search the Internet to find an illustration, a photograph, or another type of image to use in an activity, project, or presentation. Most search engines allow you to conduct image searches. Review your current page to find the link that will take you to an images search. Click the link to go to the images. Enter the name of a content area that you teach in the search text box. Click the search button to see your results. How many results or matches are identified? Which image would you consider using for an activity, project, or presentation that you might have to do? Why?

Step 11

Although the image may be representative of a content area that you teach in your classroom, you also might want to find an image representative of your country. You can easily conduct an advanced search by using the addition symbol, +. In the search window, enter the name of the content area that you teach. Type the + symbol. You do not need to put any spaces before or after the symbol. Type the name of the country in which you live. Click the button to find and display your results. How many results or matches are identified? Which image would you consider using for an activity, project, or presentation that you might have to do? Why?

Step 12

Review your current page to find the link that will take you back to the Web search engine home page. Click the link to go to the Web search engine home page. Enter the name of the content area that you teach in the search text box. Click the search button to see your results. How many results or matches are identified?

Step 13

Many search engine sites also have advanced search features. Review your current page to find the link that will take you to the advanced search page. Click the link to go to the advanced search page. What are some of the advanced image search features?

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Step 14

Select one or more of the advanced search features and conduct a new search involving the content area that you teach. How many results or matches are identified? How might you use some of these advanced search features as you work on activities, projects, and presentations in the future?

Step 15

Exit your web browser.

Take-Home Exercise: Reflecting on Module 2

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. How might you use technology such as computers to communicate, solve problems, and collect, organize, and share information in your classroom?

2. What specific Internet resources might you use to enhance your productivity and professional practices? How do you intend to use such resources?

Module 2

Learning Computer Basics and the Internet

Module 2 Summary

Step 1

Possible answers include: shared our Module 1 reflections; learned the names of parts of the computer; practiced moving the mouse; worked with the operating system; searched the Internet.

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Step 2

Possible answers include: computers can be used to communicate, solve problems, and collect, organize, and share information; the Internet has resources that can help enhance my productivity and professional practices in the classroom.

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 3: Fostering Critical Thinking and Collaboration.

Exercise 1: Engaging in Higher-Order Thinking

Critical thinking is a key 21st century skill for students. As a 21st century teacher, you must be knowledgeable about processes that help students grow into good thinkers. Educational researchers have long recognized that there are types of thinking with different levels of complexity. Being familiar with these differences can help you become a more effective teacher. Using this knowledge, you can tap into many levels of thinking and help all students learn how to think deeply about what they are learning.

Lower-Order Thinking Skills

Traditionally, textbooks and other teaching materials consist of activities that require recall and memorization. Much of the thinking that students are asked to do in schools involves these lower-level skills. Knowledge and comprehension are considered simple thinking tasks and do not necessarily engage students in deep understanding and long-term retention. For example, the majority of traditional tests require students to simply recall information. Often the information is forgotten soon after the test.

Higher-Order Thinking Skills

21st century teaching and learning encourages students to move beyond lower-order thinking to inventive, productive, and ethical thinking. This kind of thinking requires higher-order thinking skills, such as analysis, synthesis, metacognition, problem solving, and evaluation. Most educators agree that their students are not as proficient at these kinds of thinking as they would like them to be. Often, the kinds of questions presented to students can make a big difference in their levels of thinking.

Fostering Critical Thinking and Collaboration

Top Discoveries and Inventions²

This exercise explores the relationship between the type of questions teachers can ask and the level of thinking required by students. In this exercise, you will use your newly acquired Internet skills to help you answer questions about the top discoveries and inventions within the last 100 years.

Step 1

Working individually, spend the next 10 minutes brainstorming answers to the questions, *What 5 to 10 scientific discoveries or technological inventions of the last 100 years do you think have had the most impact (positive and negative) on people and history? When did each occur?* Use the Internet to identify and provide accurate dates. Write your answers and share as directed.

Be certain to share answers to each question before the next question is introduced.

Step 2

Choose one discovery or invention from your list. Spend the next 10 minutes to develop an answer to the following question: *What are three positive and three negative impacts of that discovery or invention?* Use the Internet to find one piece of evidence to support either the positive or negative impact of the discovery or invention you chose. Write your answers and share as directed.

The facilitator will lead a discussion sharing answers.

Fostering Critical Thinking and Collaboration

Step 3

Use the same discovery or invention and spend the next three minutes thinking about the following question: *How might our lives be different if this invention never existed?* Write your answers and share as directed.

Step 4

After hearing all the answers to Steps 1 through 3, work in a small group to discuss the question: *Is there any scientific discovery or technological invention that you think should not be pursued? Why or why not?* Write your answers and share as directed.

Step 5

What did you notice about your thinking processes as you progressed through the questions? How did the first set of questions help you to discuss the last couple of questions? Write your answers and share as directed.

²Note: The Top Discoveries and Inventions exercise is modified from pages 240–241 of Simon, Katherine. (2003). *Moral Questions in the Classroom*. New Haven, CT: Yale University Press.

Many models exist to help teachers identify and categorize thinking skills. For more information on these frameworks, see Appendix A.

Questioning can be an effective way to extend thinking. Learn more about questioning strategies in Module 10: Developing 21st Century Approaches.

Exercise 2: Promoting Collaboration

Achieving Learning Goals

Efforts to achieve learning goals can be organized in three ways:

- **Competitively:** Students work against each other to see who is best or fastest at achieving a goal that only one or a few can attain.
- **Individualistically:** Students work alone to accomplish goals unrelated to others.
- **Cooperatively:** Students work together to achieve shared goals.

Competitive, individualistic, and cooperative efforts all have a role in achieving learning goals. Ideally, all students should learn how to compete, work alone, and work with others.

1. What might be the advantages and disadvantages of each way of achieving learning goals?
2. Do you think you might prefer one way to accomplish your learning goals? Why or why not?

The facilitator will call on participants to share ideas with the whole group.

Forming Collaborative Groups or Pairs

Students in 21st century classrooms are often encouraged to achieve learning goals by working cooperatively in a collaborative manner. Collaboration involves teamwork—working with one or more people to set goals and complete tasks. Research indicates that collaboration provides opportunities for students to improve academic success in that they must ask questions, discuss ideas, explore solutions, clarify their own thinking, and develop a deeper understanding of the content. Also, social skills such as taking turns, sharing, giving help to others, and accepting help from others can be acquired through collaboration.

Collaborative groups or pairs can be formed in many ways:

- By students themselves based on friendships or interests
 - By random assignment
 - By the teacher
1. What might be the advantages and disadvantages of each way?
 2. Do you generally prefer one particular way to form groups or pairs? Why?

The facilitator will call on participants to share ideas with the whole group.

Teachers are strongly encouraged to assign pairs that stay together for the duration of all activities in a unit, with the goal of two students learning together. Efforts to break up pairs that are not getting along are often counterproductive. Breaking up pairs is discouraged because it denies students the opportunity to learn the skills needed to resolve problems in collaborating with one another.

Fostering Critical Thinking and Collaboration

Facilitating Collaboration

Collaboration may not come naturally to students and may require motivation, role modeling, direct instruction, and practice time. For example, ways to work together should be discussed, including taking turns, listening when others are speaking, and being responsible for one's own learning.

When students are collaborating and working together, teachers should ensure that all group members

- participate and feel included
- agree to their goals and their plans for making their product
- work on their assigned parts to complete their product
- review their work together to see how to make it better
- talk about their work and help each other as they go along

When students work with peers, conflicts may arise. Read the following list of conflicts and identify possible solutions as directed.

The facilitator will assign one group to each conflict. Then, as each group reports out, other participants may contribute new solutions as well. No one correct solution exists for each situation.

Conflict 1: A student refuses to work with a partner or in a group.

Conflict 2: No one wants to work with a specific student.

Fostering Critical Thinking and Collaboration

Conflict 3: One student is shy and does not want to speak.

Conflict 4: One student does not let a partner or other group members share the computer.

Conflict 5: One student does not respect or listen to the ideas of a partner or other group members.

Exercise 3: Planning, Doing, Reviewing, and Sharing

The ability of students to think critically and collaborate meaningfully with others often occurs best within a cycle of their generating and improving their work. So that you can gain direct experience with this type of 21st century learning environment, the design of every technology productivity activity and action plan included in the Intel® Teach Getting Started Course requires you to plan, do, review, and share. To learn more about this four-step iterative cycle, read and discuss the following information.

Plan It

Step 1 is Plan It. The icon or picture symbol for Plan It shows a pencil. A pencil is shown because planning typically is done with a pencil and paper. A pencil is better than a pen because pencils often have erasers, so you can change your plans if needed.

You begin Plan It by learning what you are being asked to do or solve. Then, you discuss and answer questions that help you decide what you are interested in doing and how you are going to do it. Often, writing your answers and drawing a quick picture detailing your plan is a helpful step. Plan It ends when you have shared your plan with a colleague and have received constructive feedback.

1. Have you ever made a plan before? What did you plan?
2. Did your plan change? How did having a plan help?

Do It

Step 2 is Do It. The icon for Do It shows a computer mouse. A computer mouse is shown because doing typically is done with a mouse, along with a keyboard and a computer.

During Do It, you follow your plan and complete what you have been asked to do or solve. Your ideas should be different from the ideas shown in the examples in this book. As part of doing, you carefully read and follow the numbered directions. In the directions, you will find helpful suggestions and new challenges. You may find that you want to change your original plans as you do your work. Do It ends when you have completed all of the numbered directions. You might also have tried one or more of the challenges. Should you have needed help, you may have asked a colleague.

1. What have you done or made that has required you to read and follow directions?
2. Why is reading and following directions important?
3. Have you ever started a process or project and then needed to go back and change your original plan? If so, why?

The facilitator will call on participants to share their answers to the questions in this exercise with the whole group.



Review It

Step 3 is Review It. The icon for Review It shows a magnifying glass. A magnifying glass is shown because a magnifying glass often is used when we want to see something more clearly and in greater detail.

During Review It, you go back and closely look over the product that you created. You check to see whether you have followed your plan and the directions. You also make sure that your product has all the required elements. Often, you might ask a colleague to help check your work. If elements are missing, or if you would like to change specific aspects of your work, you can add to or change your product. Review It ends when you have saved your work, checked it, and decided that no additional changes are needed.

1. Have you ever thought that you had finished a process or project only to find out that something was missing or needed to be changed? What happened?
2. How can going back and reviewing your work help to improve it?



Share It

Step 4 is Share It. The icon for Share It shows an open hand. An open hand is shown because we often use our hands when we share our work with others.

During Share It, you begin by showing colleagues the work you have done on the computer. As part of sharing, you might tell others about your work and answer any questions they might have. You should also read the questions in the book and discuss your answers. Share It ends after you have shared your answers with the class.

1. When have you had an opportunity to share your work with others? What did you share?
2. What can be learned by sharing your work with others?

During the next module, Module 4: Discovering Word Processing, you have your first opportunity to plan, do, review, and share with colleagues.

Take-Home Exercise: Reflecting on Module 3

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. What can you do in your classroom to promote higher-order analysis, synthesis, and evaluation?

2. What opportunities exist in your classroom for students to collaborate with one another?

Module 3 Summary

Step 1

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: shared our Module 2 reflections; experienced being asked questions that require different levels of thinking; learned strategies for facilitating collaboration.

Step 2

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: teachers should identify opportunities to promote higher-order thinking; developing collaboration skills requires motivation, role modeling, direct instruction, and practice time; all activities require planning, doing, reviewing, and sharing.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 4: Discovering Word Processing.

Module 4

Discovering Word Processing

Description: The objective of this module is for you to learn word processing as you explore word processing software, discuss word processing skills, and identify word processing resources. You will complete an activity that will require you to develop your word processing skills to create a product that will be useful in your role as a classroom teacher. The product you create may improve your productivity, and completing the activity will give you direct experience with 21st century teaching and learning skills and approaches.

Pair and Share: Reflecting on Module 3

Share your answers to the Take-Home Exercise: Reflecting on Module 3 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

Discovering Word Processing

For the technology explorations, the facilitator will read, introduce, and explain the tasks; as questions arise, participants can volunteer to share responses.

Participants should attempt the tasks through trial and error, without the benefit of the Intel® Education *Help Guide*.

Exercise 1: Exploring Word Processing Software

What are some common writing projects or assignments that you must do? What tools and materials do you use to write them? Pencils, pens, and typewriters are tools that help us write. Another tool that can help us is a computer with word processing software. Word processing software allows us to make fast and easy changes to the way our words look as well as helps us to add pictures and even create Web pages.

Several word processing software applications are available, including Microsoft Word* and OpenOffice.org Writer*. Sharing one computer, work with a partner to start word processing software. Spend 10 minutes completing the tasks that follow.

1. Type your names.
2. Change the way your names look.
3. Make copies of your names without retyping them.
4. Move your names to the middle of the page without retyping them.
5. Use the remaining time to discover what else you can do with word processing software.

Exercise 2: Discussing Word Processing Skills

For the technology discussions, participants will share and discuss their answers to the questions that follow with the whole group.

1. What skills did you learn to do with the word processing software?
2. How does writing on a computer differ from writing on paper?
3. What activities or projects could you use word processing software to do?

Exercise 3: Using the Help Guide

The Getting Started approach to technology literacy involves learning by doing. This means that, although your trainer sometimes shares information or knowledge with you, you are strongly encouraged to find answers to your questions. You will come to learn that problems can be solved by asking your colleagues for help. You can try and explore different features and resources on the computer. You can search for help online or in books. One such resource that can help you is the Intel® Education *Help Guide*. In this CD-ROM or web-based guide you can find step-by-step directions for how to complete certain skills.

The *Help Guide* is used to learn how to do certain tasks on the computer, much in the same way that dictionaries and encyclopedias are used as a reference at the time of need, rather than for reading cover-to-cover like a book. **[Note: If you plan to use the older print or CD version of the *Help Guide*, the localization team must localize this section and check *Help Guide* skill names and numbers in the entire manual.]**

Take a few minutes to review the *Help Guide* by browsing the technology areas in the left navigation pane. Write your answers to the following questions and be prepared to share as directed.

1. How is the *Help Guide* different from other skill books, manuals, or tutorials that you have seen or used?

Possible answers include: many pictures; simple, child-friendly vocabulary; well-organized.

2. What is one new skill that you are eager to try?

Exercise 4: Identifying Word Processing Resources

Step 1

To learn more about word processing skills, check the *Help Guide* as you complete the exercises, activities, and action plan. The Word Processing section consists of 12 skill groups:

- **Word Processing Group 1:** Getting to Know Word Processing Software (**Note:** This group name will change depending on the *Help Guide* version being used.)
- **Word Processing Group 2:** Typing and Changing Words
- **Word Processing Group 3:** Changing the Look of Your Words
- **Word Processing Group 4:** Making Paragraphs and Lines of Words Look Good
- **Word Processing Group 5:** Adding Pictures to Your Pages
- **Word Processing Group 6:** Designing Your Pages
- **Word Processing Group 7:** Working with Tables
- **Word Processing Group 8:** Working with Charts and Graphs
- **Word Processing Group 9:** Working with Diagrams
- **Word Processing Group 10:** Using Preset and Advanced Features
- **Word Processing Group 11:** Reviewing Documents
- **Word Processing Group 12:** Creating Web Pages

Step 2

What is one word processing skill that you would like to learn how to do? In which skill group might you begin looking to learn how to do that skill?

Exercise 5: Using Word Processing Skills

You will have an opportunity to learn and use word processing skills as you complete one required activity and at least one elective activity from the following list:

- **Required Activity:** Assessment Handout
- **Elective Activity:** Weekly Lesson Planner
- **Elective Activity:** Newsletter
- **Elective Activity:** Diagram
- **Elective Activity:** Certificate

Now you will learn about the required word processing activity, Assessment Handout. You will develop word processing skills to create a product that may improve your productivity, and you will gain direct experience with 21st century teaching and learning skills and approaches. Turn to the next page to see the Assessment Handout activity, and wait for further direction.

As you complete each activity, save your files to the appropriate folder—Word Processing, Multimedia, Spreadsheets, or Action Plan.

Assessment Handout

Teachers have many responsibilities. One important responsibility is to assess student learning. What are some ways to assess student learning? What types of written assessments might you give your students? How might you use a computer to create written assessment handouts?



Plan It

Create an assessment handout that is based on the content you teach your students. Look at the following example:

Name: _____ Date: _____

Antarctica Quiz

- Which country is closest to Antarctica?
 - Australia
 - Chile
 - New Guinea
 - South Africa
- Antarctica is one of the seven continents on Earth.
 True
 False
- The average temperature in Antarctica during the summer is _____ degrees celcius. The average temperature during the winter is _____ degrees celcius.
- How is global warming destroying the environment in Antarctica?

- Which type of animal **does not** live in Antarctica?
 - Penguin
 - Elephant
 - Seal
 - Walrus
- Most people travel to Antarctica by boat.
 True
 False
- The total area of Antarctica is _____ square kilometers.

Assessment Handout Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper might be helpful.

- On what content might you assess your students?
- What multiple-choice, true/false, fill-in-the-blank, and short answer assessment questions might you ask? Think of at least one of each of these four types of questions to ask students. For the multiple-choice question, be sure to think of three or four answers for students to choose from.
- How might you use the computer to create an assessment handout?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Word Processing Group 2:** Typing and Changing Words
- **Word Processing Group 3:** Changing the Look of Your Words
- **Word Processing Group 4:** Making Paragraphs and Lines of Words Look Good



Do It

1. Start the word processing software, and open a new, blank document.
2. At the top of the page, type an appropriate title for the assessment handout.
3. Change the font, size, style, and color of the new title. You might also want to change the left/right position, or alignment, of the title on the line.
4. Press the **Enter** key twice to move the cursor down two lines. If needed, change the alignment so the cursor is positioned on the left side of the page. Then, type a multiple-choice question that you decided on during the planning stage.
5. Move the cursor down two lines. Then, type a true/false question.
6. Two lines down, type a fill-in-the-blank question. To create a blank line, hold down the **Shift** key and press the **Dash** key as many times as needed.

Discovering Word Processing

Steps 8-10: Few participants will have trouble creating the numbered and lettered lists. However, the items in a list may automatically shift too far to the right, away from the left margin. The steps to fix this problem may seem advanced for some participants. If participants are interested, they can look at the first challenge to try to fix the first line indent and left tab settings. If the task proves to be too challenging, move on to Step 11.

7. Move the cursor down two more lines and then type a short answer question.
8. Highlight the four questions, and change the font and size of the text. Then, turn the four questions into a numbered list. (**Note:** If the blank lines are also numbered, simply position the cursor on the blank lines and press the **Backspace** key to delete the number. Be sure to keep the blank lines. The numbering should automatically adjust accordingly.)
9. Position the cursor on the empty line below the first numbered question. Since this is the multiple-choice question, type the first possible answer choice that you decided on during the planning stage. (**Note:** If you are using OpenOffice.org Writer, press the **Tab** key before typing your answers.) Press the **Enter** key and type the next answer choice. Continue in this manner until all answer choices are added. Make sure each answer choice is on its own line. When you are finished with the list of answers, press the **Enter** key again.
10. Highlight all of the answers for the multiple-choice question. Then, turn the answers into a numbered list. This time, use letters instead of numbers at the beginning of each list item.

Challenge: If you want to change the left/right position of the items in the numbered or lettered lists, select the lines and drag the first line indent and left tab markers on the ruler. (See the Challenge Example at the end of this section.) (For help, refer to Word Processing Skill 4.6: To make a numbered list of information.)

11. The second numbered item in the list will be a true/false question. Position the cursor on the line below the second numbered item in the list. (**Note:** If a number appears on this line, simply delete it.) Make sure you have access to the feature in the word processing document that allows you to create a form.
12. Add a check box form field. Then, press the **Spacebar** key and type "True". On the line below, add a second check box form field. Press the **Spacebar** key and type "False". (**Note:** If a number appears on this line, simply delete it.) (For help, refer to Word Processing Skill 10.10: To create a form.)

Discovering Word Processing

13. Since the third question (fill-in-the-blank) is complete, go to question four. This question requires students to write their own short answer. Position the cursor on the empty line below the fourth numbered list item. Press the **Enter** key to add another blank line. (**Note:** If a number appears on this line, simply delete it.) Then add a custom border to the bottom of the paragraph. (For help, refer to Word Processing Skill 4.8: To add a border around words or paragraphs.)
14. Position the cursor down two more empty lines, and add another custom border to the bottom of the paragraph. Repeat this step one more time to add a third line.
15. Now, add lines where students can write their name and the date. Go to the document header and type "Name:". Change the look of the text. (For help, see Word Processing Skill 6.16: To add repeated information at the top and bottom of your pages, or to add headers and footers.)
16. Make sure the ruler is displayed at the top of the page. Find the center point on the ruler and set a tab if one is not create by default. Set the tab's leader option to create an underline when you press the **Tab** key. After the tab is set, make sure the cursor is positioned after the word *Name;* and then press the **Tab** key on the keyboard. (For help, see Word Processing Skill 4.4: To set and use a tab to space your words from left to right.)
17. Press the **Spacebar** and then type "Date:".
18. Find the far right point on the ruler and set a tab if one is not created by default. Set the leader option to create an underline when you press the **Tab** key. After the tab is set, press the **Tab** key on the keyboard.
19. Use the skills that you just learned to add more questions to the assessment handout. For example, you might copy and paste the question and answer choices for item number one to add another multiple-choice question. You might also copy and paste item number two to add another true/false question. Replace the text with other questions that you decided on during the planning stage.

Step 14: You may be confused by the idea that you can add a border around a paragraph that does not contain any text. Notice the paragraph markers in the document showing that paragraphs exist even though no text has been entered. If the paragraph markers are not showing, participants can choose to display all formatting marks by customizing the view options.

Steps 16 and 18: Depending on a software application's default settings and the last tab settings used, the center tab setting and the far right tab setting may automatically appear when setting a new tab. If this is the case, simply confirm that the measurement numbers are correct.

Step 19: When you copy and paste your numbered questions, the new questions may start at number one again instead of number five. If this is the case, format the bullets and numbering options so that the numbering does not restart.

Challenge: If your assessment handout flows onto two pages, you might want to add a page number in the document's footer. (See the Challenge Example at the end of this section.) (For help, see Word Processing Skill 10.2: To put page numbers into a document.)

- 20. If needed, use the forms feature to remove the gray shading from the check boxes. Then, protect the form.
- 21. Save your work as directed.

Name: _____ Date: _____

Antarctica Quiz

1. Which country is closest to Antarctica?
 - a. Australia
 - b. Chile
 - c. New Guinea
 - d. South Africa
2. Antarctica is one of the seven continents on Earth.
 True
 False
3. The average temperature in Antarctica during the summer is _____ degrees celcius. The average temperature during the winter is _____ degrees celcius.
4. How is global warming destroying the environment in Antarctica?

5. Which type of animal **does not** live in Antarctica?
 - a. Penguin
 - b. Elephant
 - c. Seals
 - d. Walrus
6. Most people get to Antarctica by boat.
 True
 False
7. The total area of Antarctica is _____ square kilometers.

1

Assessment Handout Challenge Example (Page 1)

Name: _____ Date: _____

8. What do you think life would be like if you lived in Antarctica?

2

Assessment Handout Challenge Example (Page 2)



Review It

Look over your assessment handout. Make sure it has the following elements:

- Lines at the top of the page where students can write their name and the date
- An appropriate title
- A numbered list of various types of assessment questions including multiple choice, true or false, fill in the blank, and short answer

If any elements are missing, add them to the assessment handout now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- What types of assessment handouts might you create for students in your own classrooms? Which types of questions are you most likely to include? Why?
- Which new word processing skill that you learned today is the most difficult? Why?
- Which of the computer skills that you learned today might you use for other types of tasks?

Take-Home Exercise: Reflecting on Module 4

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. How did the cycle of planning, doing, reviewing, and sharing help you think critically and collaborate meaningfully? How might you incorporate this approach to activity design for your students?

2. Read and review the four elective word processing activities beginning on page 61. Which one or two activities interest you the most and might best enhance your productivity as a teacher? Why?

3. What resources would you want available for use as you complete the one or two activities that interest you most? How could the resources help? Remember to bring the resources with you to the next course session.

Module 4 Summary

Step 1

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: reflected on Module 3; explored word processing software; completed an assessment handout.

Step 2

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: the cycle of planning, doing, reviewing, and sharing can help students think critically and collaborate meaningfully; word processing can enhance my productivity as a teacher.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 5: Applying Word Processing.

Module 5

Applying Word Processing

Description: The objective of this module is to have you apply your word processing skills to create one or more additional productivity tools that you can use in your classroom. You will also learn how to be a critical friend, showcase and share your work, view the work of others, and exchange ideas and practices.

Pair and Share: Reflecting on Module 4

Share your answers to the Take-Home Exercise: Reflecting on Module 4 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

Exercise 1: Creating Word Processing Productivity Tools

Step 1

Learn more about the four elective word processing activities—Weekly Lesson Planner, Newsletter, Diagram, and Certificate.

Step 2

Determine which activity you want to do first. You can work alone to create a productivity tool that is uniquely meaningful and relevant for you in your classroom, or you may collaborate with a colleague who shares a similar interest or need.

Step 3

Plan, do, review, and share the activity or activities as directed.

Weekly Lesson Planner

When a teacher is absent, a lesson plan can help a substitute know what to teach and what work to assign students. In addition, some principals like to review and approve teachers' lesson plans. What information typically goes in a lesson plan? How could you use the computer to make a lesson plan?



Plan It

Create a lesson plan that shows the material you will be teaching your students and the assignments they will be doing for each day of a given school week. Look at the following example:

Mr. Thompson's Weekly Lesson Plan May 14-18, 2007					
	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 a.m.	Language Arts • Commas (pages 136-7) • Commas exercise A on page 138	Language Arts • More about commas (pages 139-40) • Commas exercise B on page 141	Language Arts • Commas quiz • Poetry introduction (pages 323-5)	Language Arts • Rhyme (pages 326-7) • Read and discuss the poem on page 328	Language Arts • Meter (pages 329-30) • Read and discuss the poem on page 331
9:00 a.m.	Math • Simplifying fractions (pages 231-3) • Complete exercise on page 234	Math • Multiplying fractions (pages 235-7) • Complete exercise on page 238	Math • Dividing fractions (pages 239-43) • Complete exercise on page 244	Math • Review fractions • Complete unit review exercise on pages 245-6	Math • Fractions test • Introduce decimals (pages 247-9)
10:00 a.m.	Break	Break	Break	Break	Break
11:00 a.m.	Science • Parts of a plant (pages 188-91) • Parts of plant handout	Science • Parts of a flower (pages 192-5) • Parts of flower handout	Science • Parts of a seed (pages 196-9) • Parts of seed handout	Science • Review parts of a plant, flower, and seed • Assign report on plants	Science • Begin writing report on plants • Plan diagrams to create on the computer next week
12:00 p.m.	Lunch	Lunch	Lunch	Lunch	Lunch

Lesson Plan Example (Page 1)

Applying Word Processing

1:00 p.m.	Social Studies <ul style="list-style-type: none"> Begin unit on Ancient Rome (pages 190-4) 	Social Studies <ul style="list-style-type: none"> More on Ancient Rome (pages 195-9) Answer and discuss questions on page 200 	Social Studies <ul style="list-style-type: none"> More on Ancient Rome (pages 195-9) Answer and discuss questions on page 200 	Social Studies <ul style="list-style-type: none"> Rome's democratic government (pages 201-6) 	Social Studies <ul style="list-style-type: none"> In-class essay about the effects of Rome's democratic government
2:00 p.m.	Music <ul style="list-style-type: none"> Learn new song for next month's graduation ceremony 	Computers <ul style="list-style-type: none"> Create a timeline of important events in Ancient Rome 	Library <ul style="list-style-type: none"> Pick a poetry book that students want to read for Language Arts 	Computers <ul style="list-style-type: none"> Internet research for science report 	Art <ul style="list-style-type: none"> Make posters for school recycling program

Lesson Plan Example (Page 2)

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper might be helpful.

- What time does the school day begin? What time does it end? If the schedule had a row for each hour of the school day, how many rows would be needed?
- How many days are in the school week? If you wanted a column for each day of the school week, how many columns would be needed?
- What school subjects do you teach? On what days of the week will you teach each subject? When will that teaching take place?
- What specific content will you teach for each subject? What specific assignments might you ask your students to complete?

For help on how to do certain tasks, look at the following groups in the Intel® Education *Help Guide*:

- Word Processing Group 2:** Typing and Changing Words
- Word Processing Group 3:** Changing the Look of Your Words
- Word Processing Group 6:** Designing Your Pages
- Word Processing Group 7:** Working with Tables

Some participants may be responsible for teaching all subjects in self-contained classrooms, while others may be subject-area teachers that teach the same content to different groups of students throughout the day. Each participant should develop a lesson plan that best suits the participant's individual needs.



Do It

1. Start the word processing software, and open a new, blank document.
2. Change the page setup to landscape orientation so it will print sideways.
3. If needed, zoom out so you can see the whole page on your screen.

Challenge: You might want to add a page border before you start adding your information. Feel free to change the color and the width of whatever style you pick. (See the Challenge Example at the end of this section.)

4. At the top of the page, type a title for your lesson plan. Then on the line below, type information about the time period the lesson plan covers.
5. Change the font, size, and style of the title and time period information. You might also want to change the text alignment.
6. Move the cursor down two lines. Then, insert a table with one column and one row more than the number of columns and rows you identified during your planning.
7. Zoom in to 100%.
8. Leave the first cell in the first row blank. Then, type the days of the school week in the other cells in the same row, across the top of the table.
9. Leave the first cell in the first column blank. Then, type the hours of the school day in the other cells in the same column along the left side of the table.
10. Refer to your planning ideas, and type the rest of the schedule information for each day of the school week. To save time, copy and paste any information that you use more than once.
11. If any lessons last more than one hour, merge together as many cells as you need in that day's column. Additionally, if any lessons last less than an hour, split cells into two cells.

Step 6: Although most of participants will feel confident about the number of columns needed, some participants may not be sure about the exact number of rows they want to include. Participants should make best guesses at this point. If needed, rows can be deleted or added later. If needed, refer to Word Processing Skill 7.6: To remove or delete a row or many rows, and Word Processing Skill 7.9: To add or insert a new row into a table.

Step 11: Although the processes of merging and splitting cells may seem difficult, they are fairly simple. If needed, refer to Word Processing Skill 7.13: To put two or more cells together, or to merge them, and Word Processing Skill 7.14: To divide or split a cell into many cells.

Applying Word Processing

Step 13: Word Processing Group 7 contains information on many ways to change the row height and column width. Participants should use the method that feels most comfortable for them.

Step 16: The process of saving a document as a template may be unfamiliar to many of you. If needed, refer to Word Processing Skill 10.4: To make and use your own document style, or template.

12. Change the look of the information as you wish so the lesson plan is easy to use. For example, you might want to make some words bold or a different color so they stand out. You might also want to create numbered or bulleted lists to make the information easier to read. (For help, refer to Word Processing Skill 4.6: To make a numbered list of information, and Word Processing Skill 4.7: To make a list of information with different symbols, or a bulleted list.)
13. To make the table look nice and even, change the table properties as needed so all of the rows are the same height and all of the columns are the same width. Then, change the placement or alignment of the words in the cells so the content all looks the same.
14. Remove the top and left borders from the empty cell in the top-left corner of the table. Change the width, color, and style of the borders of the other cells in your table. (For help, refer to Word Processing Skill 7.18: To make your own changes to the way your table looks.)
15. Change the look of the days of the school week in the first row and the times in the first column. To make the information stand out, fill the cells in the first row and the first column with a light shade of color.

Challenge: If your lesson plan flows onto a second page, consider inserting a page break to divide the table in an appropriate location. (For help, see Word Processing Skill 6.8: To end one page and start the next.) You might also want to insert a new row into the table at the top of the second page. Then, copy the column headings at the top of the table on page one and paste them into the first row of the table on page two. (See the Challenge Example at the end of this section.)

16. Save your lesson plan as a template so that a new schedule can be made quickly and easily next week.
17. To make sure the lesson plan template works, start a new document by picking your template file. Then, close the file without making or saving any changes.

Mr. Thompson's Weekly Lesson Plan
May 14-18, 2006

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 a.m.	Language Arts <ul style="list-style-type: none"> Commas (pages 136-7) Commas exercise A on page 138 	Language Arts <ul style="list-style-type: none"> More about commas (pages 139-40) Commas exercise B on page 141 	Language Arts <ul style="list-style-type: none"> Commas quiz Poetry introduction (pages 323-5) 	Language Arts <ul style="list-style-type: none"> Rhyme (pages 326-7) Read and discuss the poem on page 328 	Language Arts <ul style="list-style-type: none"> Meter (pages 329-30) Read and discuss the poem on page 331
9:00 a.m.	Math <ul style="list-style-type: none"> Simplifying fractions (pages 231-3) Complete exercise on page 234 	Math <ul style="list-style-type: none"> Multiplying fractions (pages 235-7) Complete exercise on page 238 	Math <ul style="list-style-type: none"> Dividing fractions (pages 239-43) Complete exercise on page 244 	Math <ul style="list-style-type: none"> Review fractions Complete unit review exercise on pages 245-6 	Math <ul style="list-style-type: none"> Fractions test Introduce decimals (pages 247-9)
10:00 a.m.	Break	Break	Break	Break	Break
11:00 a.m.	Science <ul style="list-style-type: none"> Parts of a plant (pages 188-91) Parts of plant handout 	Science <ul style="list-style-type: none"> Parts of a flower (pages 192-5) Parts of flower handout 	Science <ul style="list-style-type: none"> Parts of a seed (pages 196-9) Parts of seed handout 	Science <ul style="list-style-type: none"> Review parts of a plant, flower, and seed Assign report on plants 	Science <ul style="list-style-type: none"> Begin writing report on plants Plan diagrams to create on the computer next week
12:00 p.m.	Lunch	Lunch	Lunch	Lunch	Lunch

Lesson Plan Challenge Example (Page 1)

	Monday	Tuesday	Wednesday	Thursday	Friday
1:00 p.m.	Social Studies <ul style="list-style-type: none"> Begin unit on Ancient Rome (pages 190-4) 	Social Studies <ul style="list-style-type: none"> More on Ancient Rome (pages 195-9) Answer and discuss questions on page 200 	Social Studies <ul style="list-style-type: none"> More on Ancient Rome (pages 195-9) Answer and discuss questions on page 200 	Social Studies <ul style="list-style-type: none"> Rome's democratic government (pages 201-6) 	Social Studies <ul style="list-style-type: none"> In-class essay about the effects of Rome's democratic government
2:00 p.m.	Music <ul style="list-style-type: none"> Learn new song for next month's graduation ceremony 	Computers <ul style="list-style-type: none"> Create a timeline of important events in Ancient Rome 	Library <ul style="list-style-type: none"> Pick a poetry book that students want to read for Language Arts 	Computers <ul style="list-style-type: none"> Internet research for science report 	Art <ul style="list-style-type: none"> Make posters for school recycling program

Lesson Plan Challenge Example (Page 2)



Review It

Look over your lesson plan. Make sure it has the following elements:

- A title and words that explain what week the lesson plan is for
- A table with a column for each school day and a row for each hour of the day
- Column and row headings that explain what information is found in each column or row
- Information about the subjects you will teach and the assignments students will complete during each school day
- The page set up to print sideways

If any elements are missing, add them to the schedule now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might this lesson plan make your job as a teacher easier?
- What other types of information would you put in a table?
- Why might it helpful to save documents you might create over and over again as templates?

Newsletter

As a teacher, you want to let your students' parents know what their children are learning and doing each week in school. To meet this need, you can create a newsletter that can go home to all your students' parents. What do newsletters usually look like? What types of information might your newsletter contain? How might computers be used to make a newsletter?



Plan It

Create a newsletter that you or another teacher can use over and over again to make other newsletters in the future. Look at the following example:

Class 7 News

By Mrs. Romero
April 28, 2007

What Happened in Class This Week

- Students learned about latitude and longitude in social studies.
- In math, students learned about linear equations. They made graphs for a range of real-life situations.
- Students also wrote and recited their own poems.

What Will Happen in Class Next Week

- Students' science reports on volcanoes are due on Wednesday. Make sure your child finishes on time!
- Students will begin work on a family tree project. Please help your child gather pictures and stories about your family members.
- We will have a classroom spelling bee on Thursday. Remind your child to practice.

Remember!

The school play will be on Saturday, May 12th.
Bring the family!

Newsletter Example

Applying Word Processing

When you plan what to include in your newsletter, you should consider actual classroom events that happened in the past week and that may happen in the week ahead.

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper might be helpful.

- What are two or three events from this past week that you might want to let parents know about? What are two or three events scheduled for the upcoming week that might be worth writing about?
- What type of big announcement might you want to make about a special school or class event? How could you make announcement information really stand out?
- What sorts of pictures might go with the written information?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Word Processing Group 4:** Making Paragraphs and Lines of Words Look Good
- **Word Processing Group 5:** Adding Pictures to Your Pages
- **Word Processing Group 6:** Designing Your Pages
- **Word Processing Group 10:** Using Preset and Advanced Features



Do It

1. Start the word processing software, and open a new, blank document.
2. Make the page margins, or the empty spaces along the edges of the page, smaller so you have more room for your information. (For help, refer to Word Processing Skill 6.5: To set the empty spaces or margins around the edges of a page.)
3. Type a title for your newsletter at the top of the page. Change the look of the text so it looks like a title.
4. Below the title, make a text box that runs the width of the page.
5. Type "By" followed by your name. Then, set and use a right-aligned tab to move the cursor to the right side of the text box. Insert today's date, and pick whichever date format you like.
6. Change the look of the words inside the box. Then, change the line style, color, and width of the text box border. You can also fill the text box with color.

Step 2: When the page margins are made smaller, the actual measurements of the margins are not critical. The real purpose is simply to introduce the skill.

Step 5: Setting and using tabs can be challenging. You might refer to Word Processing Skill 4.4: To set and use a tab to space your words from left to right.

Applying Word Processing

7. Insert a section break below the text box. Then, format the page so the information below will split into two columns. You might want to add a vertical line between your columns.
8. Type a subtitle, or heading, for the newsletter section on last week's events.
9. Below the subtitle, write about the events that you decided on while planning individually or with a partner.
10. Change the look of that section's subtitle or heading so it stands out. Then, change the look of the lines of words so they are easy to read. You might want to change the amount of space between lines, indent the first line of each paragraph, or even make a bulleted list of items.
11. Save the look, or formatting, of your subtitle and the lines of words below as styles that you can use for the next section of the newsletter to save time.
12. Add a picture of one of the events that took place this last week. Change the text wrapping so the words flow tightly around the picture. Then, change the picture's size, and move it to the place you want.
13. Insert a column break. Then, type a subtitle for the section about what will happen in your class in the upcoming week. Below the subtitle, write about next week's events.
14. Use the formatting styles you just saved to quickly change the look of the subtitle and the lines of words below.
15. Add a picture of one of next week's events. Change the text wrapping so the words flow tightly around the picture. Then, change the picture's size, and move it to the place you want.

Challenge: You might want to add shadows to the pictures. Feel free to change the shadow's direction and color. (See the Challenge Example at the end of this section.)

Step 7: If you have trouble inserting a section break, click the **Insert** menu and choose the appropriate options from the menu. In addition, when formatting the information below the text box as two columns, make sure you select the options that apply the columns from that point forward. Otherwise, the title and text box may be forced into the two-column layout also. You might consider referring to Word Processing Skill 6.6: To set up a page with two columns, like a newspaper or magazine.

Step 11: The goal is for you to create a newsletter with subtitles and paragraphs that all look the same. Therefore, you should save your formatted text as styles that you can use later (see Step 14). This process may be new to many participants. For help, refer to Word Processing Skill 10.6: To make and use shortcuts to change the look of words.

Step 12: To add a picture to your newsletter, you can insert appropriate clip art or use the drawing tools in the word processing software. When changing the text wrapping, you may need to try a few different options to determine which works best for your particular picture.

Challenge: Depending on the method you used to add pictures to your newsletter, adding shadows might be challenging. If you inserted clip art or pictures that you created in a different application, you should not have any trouble. However, you may have difficulty adding shadows to any pictures that you created with the drawing tools in the word processing software.

Applying Word Processing

Challenge: Some participants may have trouble accessing the document's footer. For help, refer to Word Processing Skill 6.16: To add repeated information at the top and bottom of your pages, or to add headers and footers.

Steps 17 and 18: Some participants may not be familiar with the process of saving and using document templates. For help, refer to Word Processing Skill 10.4: To make and use your own document style, or template.

16. Make a text box in an empty space on the page. Type the information about the big announcement. Change the look of the words and the text box to make this information really stand out.

Challenge: You might want to add a catchy phrase or slogan at the bottom of the newsletter in the document's footer. Feel free to change the look of your words. (See the Challenge Example at the end of this section.)

17. Save the newsletter as a document template so that you, and other teachers, can use it over and over again to quickly and easily make newsletters in the future.
18. To make sure the newsletter template works, start a new document by picking your template file. Then, close the file without making or saving any changes.

Class 7 News

By Mrs. Romero

April 28, 2007

What Happened in Class This Week

- Students learned about latitude and longitude in social studies.
- In math, students learned about linear equations. They made graphs for a range of real-life situations.
- Students also wrote and recited their own poems.

What Will Happen in Class Next Week

- Students' science reports on volcanoes are due on Wednesday. Make sure your child finishes on time!
- Students will begin work on a family tree project. Please help your child gather pictures and stories about your family members.
- We will have a classroom spelling bee on Thursday. Remind your child to practice.




Remember!
The school play will be on Saturday, May 12th. Bring the family!

Thank you for supporting your child's learning!

Newsletter Challenge Example



Review It

Look over your newsletter. Make sure it has the following elements:

- A title that explains what sort of information is in the newsletter
- Your name and the date in a text box with a fill and a border
- Information and a picture about last week's and next week's events
- A text box with information about a big announcement

If any elements are missing, add them to the newsletter now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How does the newsletter let parents know about what their children are learning in your class?
- Of the new skills you learned today, which is the most useful? Why?
- How does saving your formatted words and paragraphs as styles help you to format documents with lots of written information?
- How might saving a finished newsletter as a template make your job easier?

Diagram

A diagram is a picture with labels that name and explain the items shown in the picture. Diagrams can help students understand various types of information. What types of diagrams have you seen? What information was found in the diagrams? What topics might your students understand better if you used a diagram?



Plan It

Create a diagram that you or another teacher can use to teach a specific topic. Look at the following example:

In an actual classroom setting, teachers could delete the label text and ask students to write the information themselves.

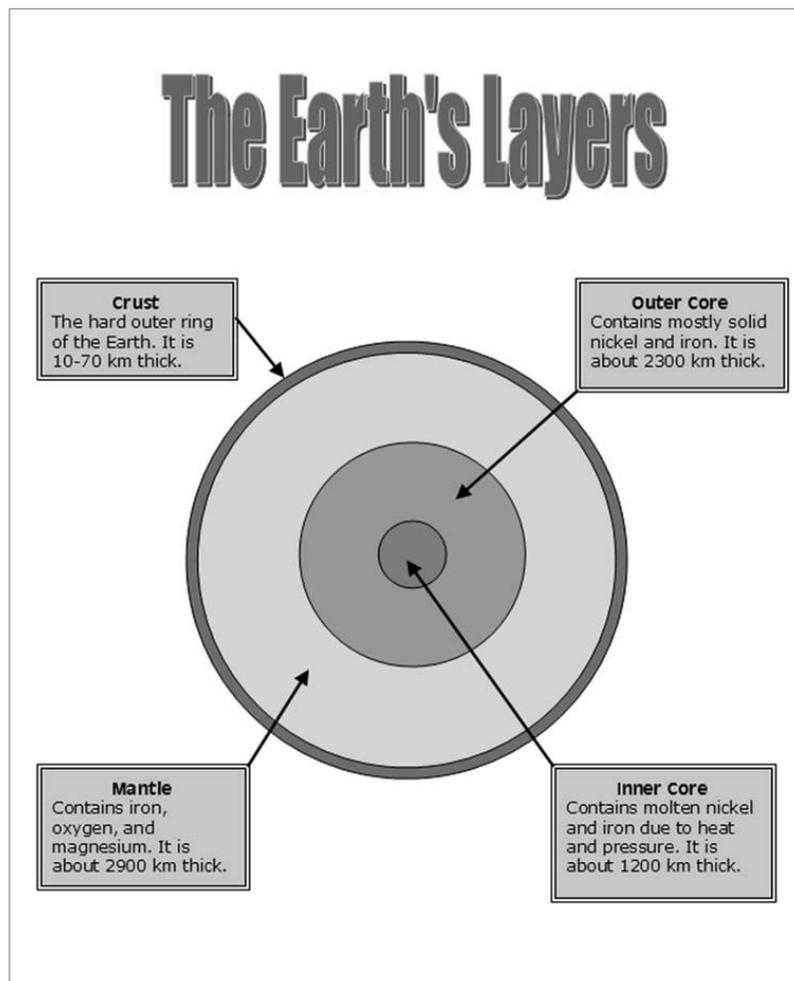


Diagram Example

Applying Word Processing

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper might be helpful.

- What specific topic do you want to feature in your diagram? How might this diagram help students understand the subject better?
- What type of picture might you use in the diagram? Where might you locate a picture that you can use? How might you use the computer to make your own picture?
- What individual parts in the picture should be labeled? How might each part be explained or described so students can understand?

To help participants decide on specific topics for their diagrams, they can think about the subjects they teach and consider any diagrams they have seen in students' books.

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Graphics Group 5:** Using the Drawing Tools
- **Graphics Group 6:** Changing the Look of Lines and Shapes
- **Graphics Group 7:** Adding Words to Your Drawings
- **Graphics Group 8:** Working with Objects in Your Drawings
- **Word Processing Group 5:** Adding Pictures to Your Pages
- **Word Processing Group 6:** Designing Your Pages



Do It

1. Start the word processing software, and open a new, blank document.
2. To help you size and place the objects in your diagram, make sure the rulers are shown. Also, turn on the page grid so it shows on the screen, and set the grid properties so that objects snap to the grid and to other objects. (For help, see Word Processing Skill 6.3: To use the page grid to place and size objects.)
3. Add a picture in the desired location on the page. You might insert a clip art picture or use a picture that you copied from a Web site. (For help, see Word Processing Skill 5.1: To add pre-made computer pictures, or clip art, and Word Processing Skill 5.3: To add a picture you have copied from a Web site or another document.) Or if you prefer, you can use the drawing tools to create your own picture.

Step 3: Depending on the shape and size of the picture, you may want to change the page orientation. As needed, refer to Word Processing Skill 6.4: To set up a document to print sideways, or landscape.

Applying Word Processing

Challenge: You can customize your artful title in many ways. Use the buttons on the WordArt or Fontwork toolbar to explore the possibilities. Remember, you can use the **Undo** function to undo your last action.

Step 9: You can copy and paste your text boxes by selecting the appropriate commands from the Edit menu, by right-clicking and choosing the desired commands on the shortcut menu, or by using the **CTRL+C** and **CTRL+V** keys. Use the method most comfortable for you.

4. Change the picture's text wrapping, and resize and move the picture as needed. (**Note:** If you used the drawing tools to create your own picture, you may not need to change the text wrapping. However, you might need to resize and move the individual shapes and lines.)
5. Add an artful title, such as WordArt or Fontwork, in an empty place in the diagram. Make sure the title explains what the diagram is. You might also change the text wrapping so you can easily move the artful title.

Challenge: Change the style, color, and shape of the artful title. (See the Challenge Example at the end of this section.)

6. Create a text box for the first item you want to label. Type a word or phrase that labels the item. Then on the line below, type a sentence that explains or describes the item.
7. Change the font, size, and color of the word or phrase that labels the item so that text stands out. Then, change the font, size, and color of the sentence that explains or describes the item. You might also want to change the alignment and line spacing.
8. Fill the text box with color, and change the border width, color, and style.

Challenge: You might want to add a shadow effect or apply a light gradient to the text box. (**Note:** Adding a shadow effect to a text box may be challenging in OpenOffice.org Writer*.) (See the Challenge Example at the end of this section.)

9. Copy and paste the text box as needed so you have one box for each item that you want to label. Move the boxes as needed, and refer to the rulers and the page grid to line up the boxes neatly.
10. Change the label text and the descriptive sentences as required. You might want to make the boxes bigger or smaller, depending on the amount of information inside.
11. Draw an arrow from each text box to the part of the diagram that you want to label. Change the style, width, and color of the arrows.
12. When you have finished your diagram, hide the page grid. Then, save your work as directed.

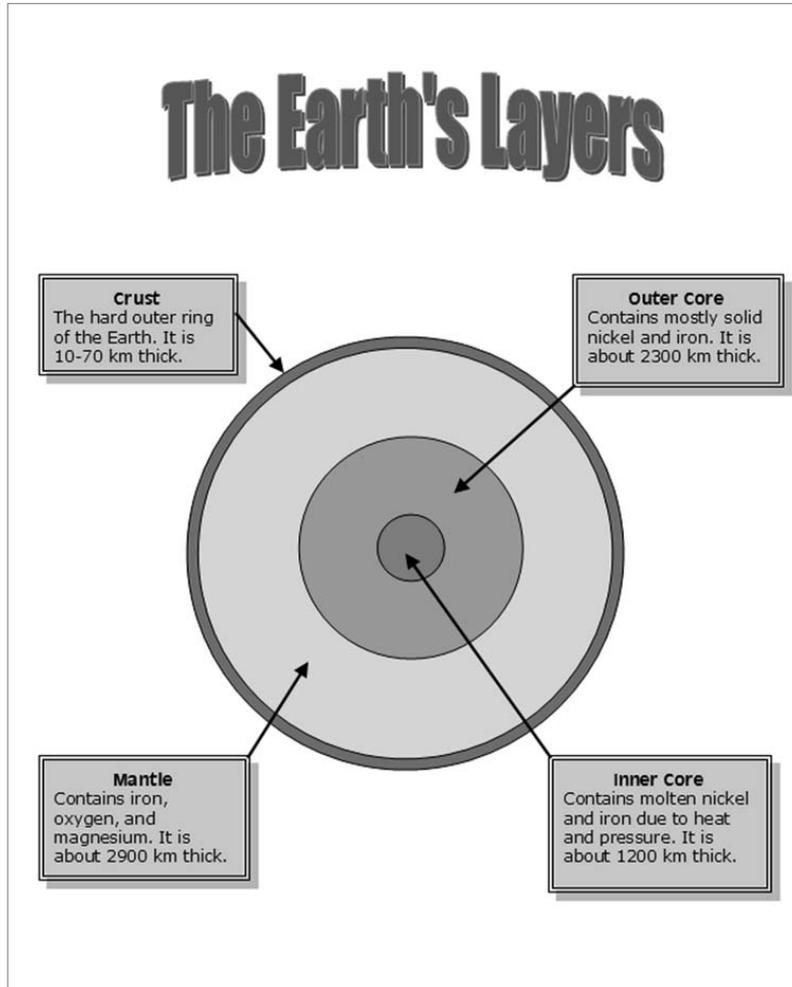


Diagram Challenge Example



Review It

Look over your diagram. Make sure it has the following elements:

- An artful title that explains what the diagram is
- An appropriate picture for the topic
- Text boxes with labels that identify the individual parts in the picture and with sentences that describe or explain each part
- Arrows that connect each text box to the part that it labels

If any elements are missing, add them to the diagram now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might diagrams improve student learning?
- What specific topic might your students understand better if they had a diagram?
- What might you do differently to create a diagram handout that students can complete on their own?
- Of the new skills that you just learned, which is the most valuable? How might you use that skill in the future?

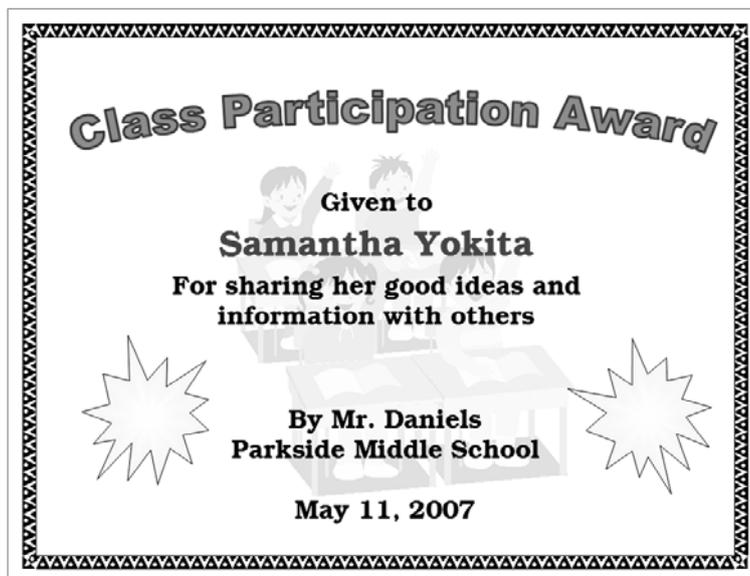
Certificate

As a teacher, you want to reward your students for their hard work and success. One way teachers celebrate their students' achievements is to give them certificates. Have you or someone you know ever given a certificate? What was the certificate for? What did the certificate say? How could you use the computer to make a certificate?



Plan It

Design a certificate that you can print and give to your students. Look at the following example:



Certificate Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper might be helpful.

- For what reason might you or another teacher decide to give your students a certificate? How could you say this in a certificate title?
- Who do you think should receive a certificate? What information, other than the title and student's name, might you include? What sort of picture might you add?
- Where might the words and pictures appear on the certificate?

Applying Word Processing

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Graphics Group 5:** Using the Drawing Tools
- **Graphics Group 6:** Changing the Look of Lines and Shapes
- **Word Processing Group 5:** Adding Pictures to Your Pages
- **Word Processing Group 6:** Designing Your Pages



Do It

1. Start the word processing software, and open a new, blank document.
2. Change the page setup to landscape orientation so it will print sideways.
3. To help you size and place the objects in your diagram, make sure the rulers are shown. Also, turn on the page grid so it shows on the screen, and set the grid properties so that objects snap to the grid and to other objects. (For help, see Word Processing Skill 6.3: To use the page grid to place and size objects.) Then, zoom out so you can see the whole page on your screen.
4. Add a colorful page border.
5. Add an artful title, such as a WordArt or Fontwork title, to the top of the certificate. Make sure the title explains what the certificate's for.

Challenge: If desired, you can change the shape and color of your artful title. (See the Challenge Example at the end of this section.)

6. Add a clip art picture that helps to show what the certificate is for. Change the picture's text wrapping so you can drag it to the middle of the page. Make the picture bigger so it covers most of the space inside the page border.
7. Turn the picture into a watermark. (For help, see Word Processing Skill 5.12: To add a light background picture, or a watermark.) If the watermark picture is too light or hard to see, try adding more contrast. (For help, see Word Processing Skill 5.10: To make a picture brighter or darker.) If the watermark picture includes many colors, you might want to recolor the picture to be shown in grayscale. (For help, see Word Processing Skill 5.11: To turn a color picture into a grayscale or black-and-white picture.)
8. Make a text box and type one of the pieces of information you decided on during your planning time. Change the look of the words.

Step 7: Depending on the type of clip art picture that you insert, creating a watermark might be problematic because some watermarked images may be too light to see clearly. Others might be too dark, which can make the text layered in front of it hard to read. If you experience either of these problems, you should first try to adjust the contrast by following the steps in Word Processing Skill 5.10: To make a picture brighter or darker. If you find that your watermark is still too light or too dark, then you should consider converting it into a grayscale by following the steps in Word Processing Skill 5.11: To turn a color picture into a grayscale or black-and-white picture. You may then need to adjust the contrast again after converting the picture to grayscale.

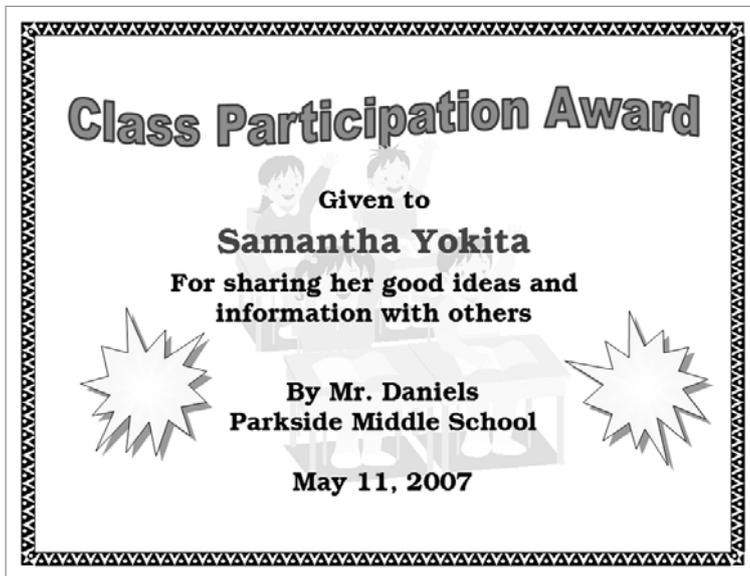
Applying Word Processing

9. Remove the border and fill color from the text box so you can see the watermark picture behind it.
10. Copy and paste the text box for the other pieces of information you want to type. Make the boxes bigger or smaller as needed, and use the rulers to help you put each box in a place that looks good. You can also change the look of the words in each box.
11. To complete the certificate, draw a decorative shape, such as a star or a banner, in an empty space. Add a texture, pattern, or gradient fill effect to the shape. You can also rotate the shape if you think it will look nice.

Challenge: You might want to add a shadow effect to your shape. (See the Challenge Example at the end of this section.) (For help, see Graphics Skill 9.7: To add a shadow to an object.)

Step 11: For guidance on how to apply different fill effects, refer to Graphics Skill 6.11: To fill a shape with a colorful pattern, Graphics Skill 6.12: To fill a shape with an interesting texture effect, and Graphics Skill 6.13: To fill a shape with colors that blend together, or a gradient. For information about how to rotate an object, refer to Graphics Skill 8.6: To spin or rotate an object in a drawing.

12. Copy and paste the shape if you want another one in your design. Move and rotate it as you see fit.
13. Save your work as directed.



Certificate Challenge Example



Review It

Look over your certificate. Make sure it has the following elements:

- A title and a watermark picture that help show what the certificate is for
- The page is set up so it prints sideways
- A colorful page border
- Text boxes without borders and fill colors
- A shape of a star or banner with a colorful fill effect

If any elements are missing, add them to the certificate now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How will your certificate help you or another teacher celebrate your students' hard work and success?
- For what other reasons might you present certificates to your students?
- What is your favorite part of the certificate you designed? Why?
- Which of the computer skills that you learned today might you use again? For what types of tasks might you use those skills?

Exercise 2: Being a Critical Friend

Throughout the planning, doing, reviewing, and sharing process, you often solicit advice from others. Think of a time when a colleague asked your opinion about something he or she said or did. Did you like or approve of what was said or done? Giving constructive feedback is easy when you like or approve of what was said or done. However, being a critical friend can be difficult when you do not like or approve of what was said or done. Knowing how to give feedback without hurting another person's feelings is an important skill.

As a critical friend, the feedback that you give must be presented in way that is helpful and kind. Before giving feedback, think about the following questions:

- Did I listen well?
- Do I understand all the ideas and information?
- Do I need to ask any questions before I give feedback?
- What specific aspects do I like?
- How might the ideas or product be improved? Should any elements be changed or added?
- How can I make my comments sound positive?

While giving feedback, you should start by saying what you like about someone's work. You might begin your statements in the following manner:

- *I like how you...*
- *You did a really great job with...*
- *I was really impressed with...*

After you say what you like about someone's work, you can nicely say what you do not like. The best way is to offer specific suggestions about how the ideas or product could be improved. You might consider starting your statements with phrases such as:

- *I am not sure I understand...*
- *I see what you are trying to do, but you might want to...*
- *I would have liked it better if you had...*

Applying Word Processing

Remember that your opinion is only one opinion, and others may have different opinions. Most importantly, be kind when giving feedback. Think about how you would feel if you were hearing your feedback about your ideas or product. Consider the following:

- Could your tone of voice or choice of words make a difference?
- Why should you say what you like about someone's work before saying what you think could be improved?
- What other suggestions do you have for being a critical friend?

Exercise 3: Showcasing Word Processing Productivity Tools

After you complete the activities for each technology area, you will have an opportunity to select a product that you have created and share it with others during a showcase. A showcase is a time for you to give and receive feedback, share ideas, and compliment each other on the work that has been completed.

Step 1

Before the Showcase Begins

1. Decide by yourself or with a colleague about which elective word processing product you would like to share with others.
2. Determine your answers to the following questions:
 - How might the product increase your productivity in the classroom?
 - How did others help you create this product?
 - What new technology skills did you learn?
 - What was one problem you had? How did you solve it?

Step 2

When It Is Your Turn to Share

1. Show your product to others.
2. Tell others:
 - How the product might increase your productivity in the classroom
 - How others helped you create the product
 - What new technology skills you learned
 - One problem you had and how you solved it
3. After you finish answering the questions, ask your colleagues the following questions:
 - What do you like about the product? Why?
 - What suggestions do you have to make the product better?
4. Thank your colleagues for their comments and suggestions.

Take-Home Exercise: Reflecting on Module 5

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. Reflect on the products shared during the showcase. Which ones might you want to create or learn more about? How might those products enhance your productivity in the classroom?

2. How might teaching your students about being critical friends and having them participate in showcases help to improve their critical thinking and collaboration?

Module 5

Applying Word Processing

Module 5 Summary

Step 1

Possible answers include: created word processing productivity tools; learned how to be a critical friend; participated in a word processing showcase.

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Step 2

Possible answers include: word processing can enhance my productivity in the classroom; teaching my students about being critical friends and having them participate in showcases can help improve their critical thinking and collaboration.

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 6: Discovering Multimedia.

Module 6

Discovering Multimedia

Description: The objective of this module is to have you learn about multimedia as you explore multimedia software, discuss multimedia skills, and identify multimedia resources. You will complete an activity that will require you to develop your multimedia skills to create a product that is useful in your role as a classroom teacher. The product you create may improve your productivity, and completing the activity will give you direct experience with 21st century teaching and learning skills and approaches.

Pair and Share: Reflecting on Module 5

Share your answers to the Take-Home Exercise: Reflecting on Module 5 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

Exercise 1: Exploring Multimedia Software

What are some ways people communicate with one another? When might you use words to explain something, and when might you use pictures to explain something else? Multimedia software lets you create presentations with words, pictures, sounds, and videos. Multimedia presentations can be used to share information as well as entertain.

The tasks may seem long and difficult, but many participants will find that they already know how to perform some of the basic multimedia tasks (such as adding a text box, typing text, and inserting a picture).

Several multimedia software applications are available, including Microsoft PowerPoint* and OpenOffice.org Impress*. Sharing one computer, work with a partner to start the multimedia software. Spend 10 minutes completing the tasks that follow.

1. Add a new slide with at least one box for words and another box for a picture.
2. Type your names in the slide.
3. Add a picture to the slide.
4. Add another new slide with a layout that is different from the first slide.
5. Add new words, pictures, or other elements to complete the slide.
6. Play the presentation.
7. Use the remaining time to discover what else you can do with multimedia software.

Exercise 2: Discussing Multimedia Skills

1. What is your favorite feature of multimedia software? Why?
2. What topic could you make a slideshow presentation about?

Exercise 3: Identifying Multimedia Resources

Step 1

To learn more about multimedia skills, check the Intel® Education *Help Guide* as you complete the exercises, activities, and action plan. The Multimedia section consists of nine skill groups:

- **Multimedia Group 1:** Getting to Know Multimedia Software (**Note:** This group name will change depending on the *Help Guide* version being used.)
- **Multimedia Group 2:** Viewing and Working with Slides
- **Multimedia Group 3:** Building Presentations
- **Multimedia Group 4:** Making Slides Look Good
- **Multimedia Group 5:** Adding Words
- **Multimedia Group 6:** Adding Pictures and Artistic Effects
- **Multimedia Group 7:** Adding Sounds, Movies, and Links
- **Multimedia Group 8:** Adding Animation and Special Effects
- **Multimedia Group 9:** Setting Up and Playing a Presentation

Step 2

What is one multimedia skill that you would like to learn how to do? In which skill group might you begin looking to learn how to do that skill?

Exercise 4: Using Multimedia Skills

You will have an opportunity to learn and use multimedia skills as you complete one required activity and at least one elective activity from the following list:

- **Required Activity:** Curriculum Preview
- **Elective Activity:** Student of the Week
- **Elective Activity:** Instructional Lesson
- **Elective Activity:** Classroom Rules and Expectations
- **Elective Activity:** Yearbook

Now you will learn about the required multimedia activity, Curriculum Preview. You will develop multimedia skills to create a product that may improve your productivity, and you will gain direct experience with 21st century teaching and learning skills and approaches. Turn to the next page to see the Curriculum Preview activity, and wait for further direction.

Curriculum Preview

At the beginning of the school year, students and their parents like to know what you will be teaching in your classroom. How might you accomplish this goal? One way is to create a multimedia presentation with text, pictures, and special effects.



Plan It

Create a curriculum preview presentation to inform students and parents of the content you will be teaching in the year ahead. Look at the following example:

Edendale Elementary School
Mr. Harita
Grade 6, Room 12
September 2007 to June 2008

Mathematics

- Fractions, decimals, and percents
- Geometry
- Charting and graphing

Language Arts

- Grammar
- Five-paragraph essays
- Poetry

Science

- Weather and climate
- Geology
- Solar system and space science

There is a lot of important and interesting material to study and learn.

I look forward to working with all of you in the year ahead.

Curriculum Preview Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper or drawing rough sketches of your slides might be helpful.

- At what school do you teach? What grade or class do you teach? What room do you teach in? When does the school year begin and end?
- What are three subjects or content areas that you intend to teach? For each of the subjects, what specific topics or skills will you teach? What related pictures might you add to help make the information clear?
- How might you summarize or conclude the presentation in one or two sentences?
- What are some ways you can make this information interesting to students and parents?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Multimedia Group 2:** Viewing and Working with Slides
- **Multimedia Group 3:** Building Presentations
- **Multimedia Group 4:** Making Slides Look Good
- **Multimedia Group 5:** Adding Words
- **Multimedia Group 6:** Adding Pictures and Artistic Effects

Participants who cover all subjects in self-contained classrooms should have no trouble thinking of three specific topics to teach for each of the three subjects. However, this task may be difficult for subject-area teachers who repeatedly teach the same content. For these teachers, instead of thinking of three subjects, they can identify three main groups or types of content in an individual subject taught.



Do It

1. Start the multimedia software, and open a new, blank presentation.
2. Insert a Title slide. If necessary, switch to Normal View.
3. Click the title text box at the top of the slide. Type the name of your school. Change the font, size, color, and style of the text.
4. Click the subtitle text box at the bottom of the slide. Type your name, your room or grade number, and the beginning and end dates for the school year. Change the font, size, color, and style of the text.

Challenge: Add a border to the title slide by drawing a large rectangle. Remove the fill color so you can see the text. Then, pick the desired line width and color. (See the Slide 1 Challenge Example at the end of this section.)

5. Insert a new slide with space for a title, text, and clip art.

Step 3: Text may be entered in the Outline Pane or on the Outline tab, or in the slide itself. Use the method you prefer.

Step 4: You are directed to include your name, room or grade number, and the dates of the school year. However, you should feel free to include whatever information you feel is most relevant to your own situation.

Discovering Multimedia

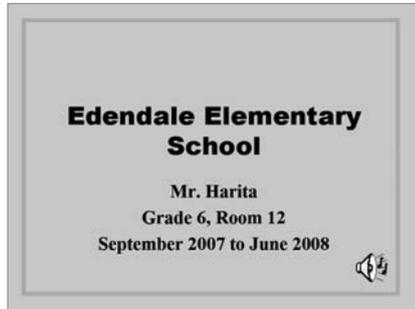
Step 6: Feel free to change the look of the text in your slides. However, your presentation will look more professional if you use two or three text formatting options consistently on all your slides.

Steps 9–11: Even though you are directed to duplicate your existing slide, you should feel free to insert another type of slide if you feel it is more appropriate for the information you want to add. You may also change the slide layout after you finish adding the information. As needed, refer to Multimedia Skill 3.1: To add or insert a new slide, and Multimedia Skill 4.4: To change a slide's current layout.

6. Click the title text box at the top of the slide. Type the name of the first content area or subject that you decided to include during planning. Then, change the font, size, style, and color of the text. To create a consistent visual look, this text should look similar to the presentation title on the first slide.
7. Click the text box in the bottom corner of the slide. Replace the text with a bulleted list of content area topics that you might teach in the year ahead. Change the look of the text.
8. Click, or double-click if necessary, the picture box in the opposite bottom corner of the slide. Insert a clip art picture that is related to the content area or one of the listed topics. Resize the picture if needed.
9. Insert a duplicate slide. Then, repeat Steps 6–8 to complete a slide with the second content area as the title, a list of topics to teach, and a related picture.
10. Insert another duplicate slide. Then, repeat Steps 6–8 to complete a slide with the third content area as the title, a list of topics, and an appropriate picture.
11. Insert a Title Only slide. In the title text box, type one or two sentences that summarize and conclude the presentation.
12. Now you are ready to add some final touches that will make your presentation more interesting. Return to Slide 1, and fill the slide background with color. Be sure to apply the same color to all the slides so the same color will appear in the background of all slides in the presentation. (For help, refer to Multimedia Skill 4.3: To change a slide's background color.)
13. To help the presentation flow smoothly from one slide to the next, add transitions between all of the slides. To create a consistent visual look, consider applying the same transition to all slides.

Challenge: After you add transitions to your slides, go back and insert music or sound effects. (For help, see Multimedia Skill 7.1: To add a sound or music file from the Clip Gallery/Organizer, and Multimedia Skill 7.2: To add a sound or music file saved on your computer.) (**Note:** An icon for either a sound file or a music file will appear in your slide.)

14. Play your presentation to make sure everything works correctly. Make any necessary changes.
15. Save your work as directed.



Curriculum Preview Slide 1 Challenge Example



Review It

Look over your curriculum preview presentation. Make sure it has the following elements:

- A title slide with your school's name, your name, information about the grade and classroom you teach in, and the dates of the school year that the presentation covers
- Slides for three classroom subjects that you plan to teach, in which each slide includes the name of the classroom subject or content areas, a list of three specific topics or skills, and a related picture
- A final slide with information that summarizes and concludes the presentation
- The same background fill color on all slides, and transitions that play between slides

If any elements are missing, add them to the curriculum preview presentation now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might the information in your curriculum preview presentation be helpful to students and parents?
- What are some ways that multimedia technology helps make this information more interesting for your audience?
- What is the most useful multimedia skill that you learned? Why?

Take-Home Exercise: Reflecting on Module 6

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. Read and review the four elective multimedia activities beginning on page 97. Which one or two activities interest you the most and might best enhance your productivity as a teacher? Why?

2. What resources would you want available for use as you complete the one or two activities that interest you most? How could the resources help? Remember to bring the resources with you to the next course session.

Module 6 Summary

Step 1

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: reflected on Module 5; explored multimedia software; completed a curriculum preview.

Step 2

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: multimedia can enhance my productivity as a teacher; multimedia technology can help make sharing information more interesting.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 7: Applying Multimedia.

Module 7

Applying Multimedia

Description: The objective of this module is to have you apply your multimedia skills to create one or more additional productivity tools that you can use in your classroom. You will also showcase and share your work, view the work of others, and exchange ideas and practices.

Pair and Share: Reflecting on Module 6

Share your answers to the Take-Home Exercise: Reflecting on Module 6 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

Exercise 1: Creating Multimedia Productivity Tools

Step 1

Learn more about the four elective multimedia activities—Student of the Week, Instructional Lesson, Classroom Rules and Expectations, and Yearbook.

Step 2

Determine which activity you want to do first. You can work alone to create a productivity tool that is uniquely meaningful and relevant for you in your classroom, or you may collaborate with a colleague who shares a similar interest or need.

Step 3

Plan, do, review, and share the activity or activities as directed.

Student of the Week

How can you help students feel good about themselves and the role they play in your classroom? What are some ways that students can learn more about each other? One way is to create a student of the week presentation. This multimedia presentation features information about a different student each week.



Plan It

Create a presentation that introduces your classroom's student of the week. Look at the following example:

<p style="text-align: center;">Jamaal Rodgers</p> <p style="text-align: center;">Student of the Week Room 6B April 23-27, 2007</p>	<p style="text-align: center;">Interesting Facts about Jamaal</p> <ul style="list-style-type: none"> • Jamaal is 12 years old. • He is an all-star soccer player. • He has a twin sister named Janeen. • He has a pet frog. 
<p style="text-align: center;">Jamaal's Classroom Accomplishments</p> <ul style="list-style-type: none"> • Jamaal runs the school recycling program. • His grades in science and social studies have increased. • He is a great participant in class and has many ideas to share. 	<p style="text-align: center;">Congratulations to Jamaal for being selected as Student of the Week!</p> <p style="text-align: center;">Keep up the great work!</p>

Student of the Week Presentation Example

Applying Multimedia

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper or drawing rough sketches of your slides might be helpful.

- What is the name of a student who you would like to be your classroom's student of the week? When does the student's term as student of the week begin and end?
- What are two or three personal facts that others may not know about the chosen student?
- What are two or three specific classroom accomplishments that you would like to share about the student?
- How might you summarize or conclude the presentation?
- What are some ways you can make the presentation interesting to others?

For help on how to do certain tasks, look at the following groups in the Intel® Education *Help Guide*:

- **Multimedia Group 3:** Building Presentations
- **Multimedia Group 4:** Making Slides Look Good
- **Multimedia Group 5:** Adding Words
- **Multimedia Group 6:** Adding Pictures and Artistic Effects
- **Multimedia Group 8:** Adding Animation and Special Effects



Do It

1. Start the multimedia software, and open new, blank presentation.
2. Insert a Title slide. If necessary, switch to Normal View.
3. Click the title text box at the top of the slide. Type the name of the student you have chosen as this week's student of the week.
4. Click the subtitle text box at the bottom of the slide. Type "Student of the Week". Then on the line below, type the date information for the student's term as student of the week.

Challenge: Add a sound or music file to play on the title slide. You might also consider adding a movie or video file. (See the Slide 1 Challenge Example at the end of this section.) (For help, see Multimedia Skill 7.1: To add a sound or music file from the Clip Gallery/Organizer, Multimedia Skill 7.2: To add a sound or music file saved on your computer, Multimedia Skill 7.6: To add a movie or video file from the Clip Gallery/Organizer, and Multimedia Skill 7.7: To add a movie or video file saved on your computer.)

Challenge: If Internet connectivity is available, feel free to download any media files that you want to include in the presentation.

Applying Multimedia

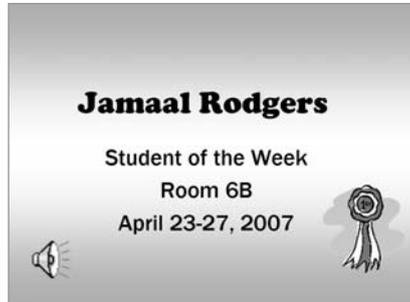
5. Insert a new slide with space for a title, text, and clip art.
6. Click the title text box at the top of the slide. Type a title that explains that the slide will contain interesting personal information about the student. Then, change the font, size, style, and color of the text. To create visual consistency, the text should look similar to the presentation title on the first slide.
7. Click the text box in the bottom corner of the slide. Replace the text with a bulleted list of interesting information about the student of the week. Change the look of the text.
8. Click, or double-click if necessary, the picture box in the opposite bottom corner of the slide. Insert a clip art picture that is related to the information about that student. Resize the picture if needed.
9. Insert a duplicate slide. Then, repeat Steps 6–8 to complete a slide about the student’s classroom accomplishments.
10. Insert a Title Only slide. In the title text box, type one or two sentences that summarize and conclude the presentation.
11. Return to Slide 1 and fill the slide background with a fill effect, such as a gradient or pattern/hatching. Be sure to apply that same color to the background of all slides in your presentation. (For help, refer to Multimedia Skill 4.3: To change a slide’s background color.)
12. To help the presentation flow smoothly from one slide to the next, add transitions between all of the slides. To create a consistent visual look, consider applying the same transition to all slides.

Challenge: After you apply transitions to your slides, go back and add animation effects to the text and pictures. (For help, see Multimedia Skill 8.3: To add animation or movement to an object, or Multimedia Skill 8.4: To add animation effects to words, or to add an animation scheme.) You may need to set the order and timing so they play properly. (**Note:** Because adding animation does not greatly affect the look of a slide, this is not reflected in the Challenge Example at the end of this section.) (For help, see Multimedia Skill 8.13: To set the order and timing on a slide with many special effects.)

Steps 9 and 10: You are provided with specific suggestions about the format of the new slides you insert. However, feel free to insert another type of slide if it is better suited for the content. You can also change a slide’s format later as needed. For help, refer to Multimedia Skill 3.1: To add or insert a new slide, and Multimedia Skill 4.4: To change a slide’s current layout.

Challenge: Animation effects can make presentations more interesting. However, too many animation effects can distract viewers and make information difficult to read or understand. Limit the amount of animation effects that you add to your slides. If you have many effects on the same slide, set the order and timing so they play in an organized manner.

13. Play your presentation to make sure everything works correctly. Make any necessary changes.
14. Save your work as directed.



Student of the Week Presentation Slide 1 Challenge Example



Review It

Look over your student of the week presentation. Make sure it has the following elements:

- A title slide that names the student of the week
- A slide with interesting personal information about the student of the week
- A slide with information about the student's classroom accomplishments
- Background fill effects and transitions that make the presentation interesting to viewers

If any elements are missing, add them to the student of the week presentation now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might the student of the week presentation help all of your students feel that they play an important role in your classroom?
- What was the most challenging skill or task in completing this presentation? How did you manage to complete that skill or task?
- What is your favorite multimedia skill? Why?

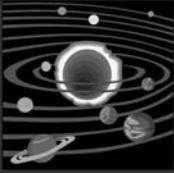
Instructional Lesson

As a teacher, you must continually introduce new content to your students. How do you typically introduce a subject or content area in your classroom? Is it easy for you to hold the students' attention? How might multimedia improve student learning? For what classroom content might you use multimedia to teach?



Plan It

Create an instructional lesson presentation that uses multimedia to teach classroom content. Look at the following example:

<p>Nicolaus Copernicus</p> <p>8th Grade Physical Science Ms. Watkins April 25, 2007</p>	<p>The Life of Nicolaus Copernicus</p> <ul style="list-style-type: none"> • He was born in 1473 in Poland. • He studied at the University of Krakow and at many universities in Italy. • He worked as a medical doctor and studied astronomy in his spare time.
<p>Copernicus's Theory</p> <ul style="list-style-type: none"> • The sun, not the Earth, was the center of the universe. • All other planets revolved around the sun. 	<p>Effects of Copernicus's Theory</p>  <ul style="list-style-type: none"> • Most astronomers thought his theory was wrong. • In 1687, Sir Isaac Newton proved his theory to be correct.  
<p>Nicolaus Copernicus changed the way people view the universe and the solar system.</p>	

Instructional Lesson Presentation Example

Applying Multimedia

When you think about the classroom content that you want to teach, you need to consider what content could benefit most from the use of multimedia. Multimedia may not be appropriate for all classroom subjects.

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper or drawing rough sketches of your slides might be helpful.

- For what classroom content might you use multimedia technology to teach? How might multimedia technology help students learn and understand the content better?
- What specific ideas, skills, or information do you want to teach? How might you organize the information onto different slides?
- Could you use pictures, tables, charts, or sound to help students understand the information better?
- How might you summarize or conclude the presentation?
- What multimedia effects might you include in your presentation?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Multimedia Group 3:** Building Presentations
- **Multimedia Group 4:** Making Slides Look Good
- **Multimedia Group 5:** Adding Words
- **Multimedia Group 6:** Adding Pictures and Artistic Effects
- **Multimedia Group 8:** Adding Animation and Special Effects



Do It

1. Start the multimedia software, and open new, blank presentation.
2. Insert a Title slide. If necessary, switch to Normal View.
3. Click the title text box at the top of the slide. Type the name of the specific classroom content that you plan to teach.
4. Click the subtitle text box at the bottom of the slide. Type any other information that you would like to include on the title slide, such as the name of the actual course or the general content area, your name as the teacher, and the date of the presentation.
5. To help all of the slides in your presentation look the same, open and view the Slide Master. (For help, see Multimedia Skill 5.14: To use the Slide Master to change the look of the words in all slides.)
6. Change the look of the words in both the top title text box and the large middle text box.
7. Return to Normal View. Notice that the changes you made on the Slide Master can now be seen on the title slide.
8. Insert a new slide. Be certain to pick the best slide layout for the information that you want to include.
9. Type the information that you want to include in the slide. Feel free to delete or add text boxes as needed.
10. Insert any other information that might help students better understand the content. For example, you might insert a clip art picture or a picture that you download and save from the Internet. You might also add a table of data or a chart. You can even add a sound or video file.
11. Repeat Steps 8–10 to create the remaining slides of your instructional presentation. Be certain to end the presentation with a slide that summarizes and concludes the lesson.

Steps 3 and 4: You may want to change the look of your text immediately after you finish typing it. However, you should avoid formatting your text at this point because you will format the text in the Slide Master in Steps 5 and 6.

Step 6: Working in the Slide Master is similar to working in a regular slide. However, you should remember that the choices you make now will affect the look of the other slides in your presentation (which you will add later).

Step 8: You might have trouble deciding which slide layout is most appropriate for the information in your new slides. Make your best guess, and know that you can manually add or remove information as needed later.

Step 10: Some participants may have difficulty identifying appropriate media files to include in their presentations. Participants should use whatever files are available for this practice presentation. However, note that teachers will need to use appropriate media files when creating actual multimedia instructional lessons for students.

Applying Multimedia

12. Return to Slide 1, and apply a standard color scheme to change the color of the text and background of all your slides. (**Note:** If you are using OpenOffice.org Impress*, access the Master Pages in the right Tasks pane and select from the Available for Use color scheme options.) (For help with the color scheme in Microsoft PowerPoint*, refer to Multimedia Skill 4.2: To pick and use a color scheme.)

Challenge: Create a custom color scheme for the slides in your presentation. (**Note:** If you are using OpenOffice.org Impress, this can be done by accessing the Master Slide and making changes there.) (**Note:** Because creating a custom color scheme does not greatly affect the look of the slides, a Challenge Example is not included at the end of this section.)

13. To help the presentation flow smoothly from one slide to the next, add transitions between all of the slides. To create a consistent visual look, consider applying the same transition to all slides.

Challenge: After you apply transitions to your slides, you might also add animation effects to the text and pictures. (For help, see Multimedia Skill 8.3: To add animation or movement to an object, or Multimedia Skill 8.4: To add animation effects to words, or to add an animation scheme.) You may need to set the order and timing so they play properly. (For help, see Multimedia Skill 8.13: To set the order and timing on a slide with many special effects.) (**Note:** Because adding animation does not greatly affect the look of a slide, a Challenge Example is not included at the end of this section.)

14. Play your presentation to make sure everything works correctly. Make any necessary changes.
15. Save your work as directed.



Review It

Look over your instructional lesson presentation. Make sure it has the following elements:

- A title that introduces the content of the instructional lesson presentation
- Individual slides with specific information that teaches the classroom content
- Text that looks the same in all slides, and slide layouts that suit the content
- Transitions, animation, and other multimedia effects that make the presentation more interesting to viewers

If any elements are missing, add them to the lesson now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might multimedia make your lesson's content more understood by a wider range of students?
- For what other classroom content might you use multimedia to teach? For what classroom content might multimedia not be appropriate? Why?
- How does formatting text in the Slide Master make it easy to change the look of the text in all of your slides?

Classroom Rules and Expectations

To ensure that all students have the chance to learn and grow, teachers need to establish clear classroom rules and expectations. What are some ways to inform students of the rules and expectations in your own classroom? One way is to create an informative and entertaining multimedia presentation.



Plan It

Create a multimedia presentation that explains the rules and expectations in your classroom. Look at the following example:

Room 18 Rules and Expectations

- Attendance
- Participation
- Homework
- Assessments

Attendance

- You are expected to come to class every day.
- You are expected to come to class on time.
- You must bring a note from your parent if you are absent or late.

Participation

- You are expected to participate in class discussions.
- You must raise your hand if you have a question or an idea to share.
- You must listen to the questions and ideas shared by other students.

Homework

- All homework must be turned in at the beginning of the class session when it is due.
- For each day an assignment is late, your grade will drop one full letter grade or 10 percentage points.

Assessments

- Students must complete all assessments.
- Assessments may be rescheduled only in the event of serious illness or a family emergency.

Classroom Rules and Expectations Presentation Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper or drawing rough sketches of your slides might be helpful.

- What main types or groups of rules and expectations do you have in your classroom? Do you have rules about attendance and class participation? Do you have rules about homework assignments and in-class assessments?
- What specific rules or expectations might you have for each main type or group?
- How might you organize the information on different slides?
- What multimedia skills might help you create an interesting and informative presentation?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Multimedia Group 3:** Building Presentations
- **Multimedia Group 4:** Making Slides Look Good
- **Multimedia Group 5:** Adding Words
- **Multimedia Group 6:** Adding Pictures and Artistic Effects
- **Multimedia Group 8:** Adding Animation and Special Effects



Do It

1. Start the multimedia software, and open a new, blank document.
2. Insert a slide with space for a title and a bulleted list. If necessary, switch to Normal View.
3. Click the title text box at the top of the slide. Type a title for your classroom rules and expectations presentation.
4. Click the text box below the title. Type a word or phrase that names each main type or group of rules that you decided to include during planning. Be certain to start each type or group on a new line.

Steps 3, 4, 6, and 7: You may want to change the look of your title text or format the items in the bulleted list immediately after you type the information. However, you should avoid performing these tasks at this point since you will apply a design template to your slides later in Step 13.

Applying Multimedia

Challenge: To make your presentation truly multimedia, consider adding sound and music files to your slides. You might also record your voice as you read and explain the information on your slides. (**Note:** An icon for either a sound file or a music file will appear on your slide.) (For help, see Multimedia Skill 7.1: To add a sound or music file from the Clip Gallery/Organizer and Multimedia Skill 7.2: To add a sound or music file saved on your computer.)

5. Insert a new slide with space for a title and a bulleted list.
6. Click the title text box at the top of the slide. Type a descriptive word or phrase for the first group or type of rules.
7. Click the text box below the title. Type the specific rules or expectations that you decided on for the group during planning.
8. Repeat Steps 5–7 to create a slide with a title and a bulleted list for the other main types or groups of rules that you want to include in your presentation. Be sure to refer to the ideas you wrote down during planning.
9. Return to Slide 1. Create a button next to the first item in the bulleted list. (**Note:** In Microsoft PowerPoint you must create an action button. In OpenOffice.org Impress, you must draw a rectangle and customize the interaction.) Link the button to the second slide in the presentation (the slide with the information about the first item in the bulleted list). (**Note:** For help, refer to Multimedia Skill 8.9: To add an action button that takes you to a certain slide when clicked.)
10. Go to Slide 2. Create a button at the bottom of the slide. (**Note:** If you are using Microsoft PowerPoint, you might want to pick the Home action button option.) Link the button back to the first slide in the presentation.
11. Repeat Steps 9 and 10 to create a button for each remaining list item on Slide 1. Link the button to the correct slide containing the corresponding information. Then on each linked slide, create a button that takes viewers back to the first slide.
12. To help the presentation flow smoothly from one slide to the next, add transitions between all of the slides. For added visual interest, animate the title text on your slides.

Step 9: To create more room for the buttons, you may want to press the **Enter** key to add an extra space between the items in the list. You might also remove the bullets from the list items.

Step 12: To create a consistent visual look, apply the same transition and animation effects to all slides.

Challenge: Consider creating your a custom animation effect to add to the titles in your slides. (For help, refer to Multimedia Skill 8.5: To make and add your own animation effect.) (**Note:** Because adding custom animation does not greatly affect the look of a slide, a Challenge Example is not included at the end of this section.)

13. Now that you have finished adding the required information and special effects, pick a design template to change the look of all of your slides. (For help, see Multimedia Skill 4.1: To pick and use a design template.) (**Note:** If you are using OpenOffice.org Impress, access the Master Pages in the right Tasks pane and select from the Available for Use template options.)
14. Play your presentation to make sure everything works correctly. Make any necessary changes.
15. Save your work as directed.

Step 13: After you apply the design template, you may need to fix the formatting and placement of the titles and bulleted list information on your slides.



Review It

Look over your classroom rules and expectations presentation. Make sure it has the following elements:

- A slide with a title that introduces the presentation and a list of main types or groups of rules
- Slides with information about specific rules for each main type or group of rules
- Buttons that link each of the list items on the first slide to the correct slide in the presentation, and a button on each content slide that links back to the first slide
- A design template to change the look of all slides in the presentation
- Transitions and animation effects to help the presentation flow smoothly and increase visual interest

If any elements are missing, add them to the presentation now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- What are the benefits of creating and playing a classroom rules and expectations presentation?
- What was the most difficult thing about adding buttons and linking them to the correct slides? How did you manage to complete that task?
- What is the benefit of using a design template to change the look of your slides?
- How might you use buttons or design templates in other multimedia presentations?

Yearbook

At the end of the school year, many students enjoy looking back on all that they have done and learned. Sometimes, students create a yearbook with pictures and information about the school year. How might you use multimedia technology to create an electronic yearbook for your students to enjoy?



Plan It

Design a yearbook presentation that you could play for your students at the end of the school year. Look at the following example:

<p style="text-align: center;">Our Classroom Yearbook</p> <p style="text-align: center;">Oak Street School Mrs. Marcos Grade 6, Room 18 2006-2007</p> 	<p style="text-align: center;">Yearbook Contents</p> <ul style="list-style-type: none"> <input type="checkbox"/> Classroom Learning <input type="checkbox"/> Special Events <input type="checkbox"/> Class Performances 
<p style="text-align: center;">Classroom Learning</p> <ul style="list-style-type: none"> • Students learned about fractions, decimals, and percents. • Students studied plant and animal biology.   	<p style="text-align: center;">Special Events</p> <ul style="list-style-type: none"> • Our class placed third in the city spelling bee. • We raised \$500 for new library books.   
<p style="text-align: center;">Class Performances</p>  <ul style="list-style-type: none"> • Our class musical performance was a big success. • Many students took part in the holiday dance program.  	<p style="text-align: center;">Congratulations to all students in Room 18!</p> <p style="text-align: center;">Best of luck next year as you begin grade 7.</p> 

Yearbook Presentation Example

Applying Multimedia

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper or drawing rough sketches of your slides might be helpful.

- What information might you include on a title slide for the yearbook presentation?
- What main types of information should be featured in the yearbook presentation? Would you include information about what students learned in different subjects? Could you include special events and performances, field trips, or holiday celebrations?
- What specific information would you like to present for each main type?
- How might you organize the information on different slides?
- What multimedia skills might you use to make the presentation fun and informative?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Multimedia Group 3:** Building Presentations
- **Multimedia Group 4:** Making Slides Look Good
- **Multimedia Group 5:** Adding Words
- **Multimedia Group 6:** Adding Pictures and Artistic Effects
- **Multimedia Group 8:** Adding Animation and Special Effects



Do It

1. Start the multimedia software, and open a new, blank document.
2. Insert a Title slide. If necessary, switch to Normal View.
3. Click the title text box at the top of the slide. Type a title for the yearbook presentation.

Steps 3 and 4: You may want to change the look of the text immediately after you finish typing it. However, you should avoid formatting the text at this point because you will format the text in the Slide Master in Steps 5 and 6.

Applying Multimedia

- Click the text box below the title. Type any other information that you want to include on the title slide including the name of the school, your name as the teacher, the class or room number, and the dates of the school year.

Challenge: To make your presentation truly multimedia, consider adding sound and music files to your slides. In some multimedia software programs, you might also be able to record your voice as you read and explain the information on your slides. (**Note:** An icon for either a sound file or a music file will appear on your slide.) (For help, see Multimedia Skill 7.1: To add a sound or music file from the Clip Gallery/Organizer, Multimedia Skill 7.2: To add a sound or music file saved on your computer, and Multimedia Skill 7.4: To record your voice or another sound on a single slide.) (**Note:** Because creating sound does not greatly affect the look of the slides, a Challenge Example is not included at the end of this section.)

Challenge: If you choose to record your voice, you need to speak clearly and loudly into the microphone. Otherwise, the microphones might pick up background noise from other participants.

- To help all of the slides in your presentation look the same, open and view the Slide Master. (For help, see Multimedia Skill 5.14: To use the Slide Master to change the look of the words in all slides.)
- Change the look of the words in both the top title text box and the large middle text box. You might also want to insert a small clip art picture in one of the corners of the slide. (For help, see Multimedia Skill 6.7: To use the Slide Master to add the same picture on all slides.)
- Return to Normal View. Notice that the changes you made on the Slide Master can now be seen on the title slide.
- Next you will create a contents slide for the presentation. Insert a new slide with space for a title and a bulleted list.
- Click the title text box at the top of the slide. Type a title for this contents slide, such as "Yearbook Contents".
- Click the text box below the title. Type a word or phrase that names each main type of yearbook information that you decided to include during planning. Make sure you start each type or group on a new line.
- Insert a new slide. Be certain to pick the best slide layout for the type of yearbook information that you want to include.
- Type the information that you want to include in the slide. Feel free to delete or add text boxes as needed.
- Insert any other information that might help students better remember the experience and enjoy the presentation. For example, you might insert a clip art picture or a picture that you download and save from the Internet. You can even add a sound or video file.

Step 6: Working in the Slide Master is similar to working in a regular slide. However, you should remember that the choices you make now will affect the look of the other slides in your presentation (which you will add later).

Step 11: You may have trouble deciding which slide layout is most appropriate for particular types of information. If that occurs, take your best guess, and know that you can manually add or remove information as needed later.

14. Repeat Steps 11–13 to create the remaining slides of your instructional presentation. Be certain to end the presentation with a slide that summarizes and concludes the multimedia yearbook.
15. Go back to Slide 2. Create a button next to the first item in the bulleted list. Link the button to the third slide in the presentation (the slide with the information about the first item in the bulleted list). **(Note:** In Microsoft PowerPoint you must create an action button. In OpenOffice.org Impress, you must draw a rectangle and customize the interaction.) **(Note:** For help, refer to Multimedia Skill 8.9: To add an action button that takes you to a certain slide when clicked.)
16. Go to Slide 3. Create a button at the bottom of the slide. **(Note:** If you are using Microsoft PowerPoint, you might want to pick the Home action button option.) Link the button back to the second slide in the presentation (the one with the yearbook contents).
17. Repeat Steps 15 and 16 to create a button for each remaining list item on the yearbook contents slide. Link the button to the correct slide containing the corresponding information. Then on each linked slide, create a button that takes viewers back to the yearbook contents slide.
18. To help the presentation flow smoothly from one slide to the next, add transitions between all of the slides. For added visual interest, animate the text and pictures on your slides.

Challenge: Consider creating your own custom animation effect to add to the titles in your slides. (For help, refer to Multimedia Skill 8.5: To make and add your own animation effect.) **(Note:** Because adding custom animation does not greatly affect the look of a slide, a Challenge Example is not included at the end of this section.)

19. Now that you have finished adding multimedia effects and animation to your slides, set the order and timing so the effects play as desired. (For help, see Multimedia Skill 8.13: To set the order and timing on a slide with many special effects.)
20. Return to Slide 1 and apply a standard or custom color scheme to change the color of the text and background of all your slides. **(Note:** If you are using OpenOffice.org Impress, access the Master Pages in the right Tasks pane and select from the Available for Use template options.) (For help, refer to Multimedia Skill 4.2: To pick and use a color scheme.)
21. Play your presentation to make sure everything works correctly. Make any necessary changes.
22. Save your work as directed.



Review It

Look over your multimedia yearbook presentation. Make sure it has the following elements:

- A title slide that introduces the presentation
- A contents slide that lists the types of information in the presentation
- Slides with specific information about each item listed on the contents slide
- Buttons that link each of the list items on the yearbook contents slide to the correct slide in the presentation, and a button on each content slide that links back to the contents slide
- Multimedia elements, transitions, and animation effects to help the presentation flow smoothly and increase visual interest

If any elements are missing, add them to the yearbook presentation now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- Why might your students enjoy viewing a multimedia yearbook presentation?
- What is your favorite multimedia skill that you used to complete the presentation? Why?
- For what other school or classroom events might you create a multimedia presentation? Why?

Exercise 2: Showcasing Multimedia Productivity Tools

Step 1

Before the Showcase Begins

1. Decide by yourself or with a colleague about which elective multimedia product you would like to share with others.
2. Determine your answers to the following questions:
 - How might the product increase your productivity in the classroom?
 - How did others help you create this product?
 - What new technology skills did you learn?
 - What was one problem you had? How did you solve it?

Step 2

When It Is Your Turn to Share

1. Show your product to others.
2. Tell others:
 - How the product might increase your productivity in the classroom
 - How others helped you create the product
 - What new technology skills you learned
 - One problem you had and how you solved it
3. After you finish answering the questions, ask your colleagues the following questions:
 - What do you like about the product? Why?
 - What suggestions do you have to make the product better?
4. Thank your colleagues for their comments and suggestions.

Take-Home Exercise: Reflecting on Module 7

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. Reflect on the products shared during the showcase. Which ones might you want to create or learn more about? How might those products enhance your productivity in the classroom?

2. How might you use the Internet, word processing software, multimedia software, and other technology to communicate and collaborate with your colleagues, your students' parents, and the community so that they can be partners in helping students learn?

Module 7

Applying Multimedia

Module 7 Summary

Step 1

Possible answers include: created multimedia productivity tools; participated in a multimedia showcase.

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Step 2

Possible answers include: multimedia can enhance my productivity in the classroom; Internet, word processing software, multimedia software, and other technology can be used to communicate and collaborate with my colleagues, my students' parents, and the community.

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 8: Discovering Spreadsheets.

Module 8

Discovering Spreadsheets

Description: The objective of this module is to have you learn about spreadsheets as you explore spreadsheet software, discuss spreadsheet skills, and identify spreadsheet resources. You will complete an activity that requires you to develop your spreadsheet skills to create a product that is useful in your role as a classroom teacher. The product you create may improve your productivity, and completing the activity will give you direct experience with 21st century teaching and learning skills and approaches.

Pair and Share: Reflecting on Module 7

Share your answers to the Take-Home Exercise: Reflecting on Module 7 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

Exercise 1: Exploring Spreadsheet Software

What types of mathematics problems do you solve in your everyday life? How do you find answers to the problems? In the same way that word processing software can help you with writing projects, spreadsheet software can help you solve mathematics problems—especially complicated problems about money and other quantities. One helpful feature of spreadsheet software is that it can automatically calculate new answers if you change any numbers used in the calculations. Spreadsheet software can also be used to make charts and graphs.

Several spreadsheet software applications are available, including Microsoft Excel* and OpenOffice.org Calc*. Sharing one computer, work with a partner to start the spreadsheet software. Notice that spreadsheets have boxes that are organized in tables with columns and rows. The **columns** are named with **letters**, and the **rows** are named with **numbers**. The box located where a column and a row cross is called a **cell**. Each cell is identified by its column letter and row number, such as A1. Spend 10 minutes completing the tasks that follow.

1. Type three different words in cells A1, A2, and A3.
2. Type three different numbers in cells B1, B2, and B3.
3. Click cell B4. Then, click the button that can find the sum of the numbers , and press **Enter**.
4. Change the width of the columns and the height of the rows.
5. Use the remaining time to discover what else you can do with spreadsheet software.

Exercise 2: Discussing Spreadsheet Skills

1. What happened in cell B4 when you clicked the button that finds the sum of the numbers?
2. What is your favorite feature of spreadsheet software?
3. When might you use spreadsheet software? What other types of calculations do you think you could do in a spreadsheet?

Exercise 3: Identifying Spreadsheet Resources

Step 1

To learn more about spreadsheet skills, check the Intel® Education *Help Guide* as you complete the exercises, activities, and action plan. The Spreadsheets section consists of nine skill groups:

- **Spreadsheet Group 1:** Getting to Know Spreadsheet Software (**Note:** This group name will change depending on the *Help Guide* version being used.)
- **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns
- **Spreadsheet Group 3:** Using Worksheets
- **Spreadsheet Group 4:** Adding and Working with Information
- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets
- **Spreadsheet Group 6:** Organizing Information
- **Spreadsheet Group 7:** Doing Math
- **Spreadsheet Group 8:** Making Charts
- **Spreadsheet Group 9:** Printing Worksheets

Step 2

What is one spreadsheet skill that you would like to learn how to do? In which skill group might you begin looking to learn how to do that skill?

Exercise 4: Using Spreadsheet Skills

You will have an opportunity to learn and use spreadsheet skills as you complete one required activity and at least one elective activity from the following list:

- **Required Activity:** Grade Book
- **Elective Activity:** Classroom Inventory
- **Elective Activity:** Seating Chart
- **Elective Activity:** Pictograph
- **Elective Activity:** Roll Book

Now you will learn about the required spreadsheet activity, Grade Book. You will develop spreadsheet skills to create a product that may improve your productivity, and you will gain direct experience with 21st century teaching and learning skills and approaches. Turn to the next page to see the Grade Book activity, and wait for further direction.

Grade Book

Many teachers keep track of their students' grades in a grade book. Typically teachers record the scores for different assignments and then use a calculator to calculate students' grades in a class or subject area. How might you be able to use a computer to make this process easier?



Plan It

Create a spreadsheet grade book based on the assignments and grading practices used in your classroom. Look at the following example:

	A	B	C	D	E	F	G	H
1	Ms. Pickering's Mathematics Grade Book							
2								
3	Student Name	Fractions Homework 1	Fractions Homework 2	Fractions Quiz	Decimals Homework 1	Decimals Quiz	Total Score	Average Score
4	Brown, Danielle	78	85	92	72	81	408	81.60
5	Gomez, Mauricio	92	88	94	100	95	469	93.80
6	Jones, Michael	69	74	52	80	75	350	70.00
7	Kim, Aisha	85	90	87	86	79	427	85.40
8	Thomas, Zachary	72	70	81	75	68	366	73.20

Grade Book Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a table that shows how you might put the information in order might be helpful.

- What school subjects do you teach? For which subject (or subjects) do you need to keep scores? Pick one subject for your grade book worksheet.
- What are the names of five students that could be used in the grade book?
- What are some possible scores that the students might have received for five different assessments or assignments?
- How might you organize the information so it is easy to read and understand?

Make sure you pick only one subject for your grade book worksheet. Some participants with contained classrooms may want to include multiple subjects.

Please note that you can include the grades for other subjects on another worksheet, as is done in the second challenge in this activity.

You should feel free to use whatever grading system you are familiar with. However, make sure you use numeric scores (such as a 10-point scale or percentages) and not assigned letter grades.

Depending on the system you use, you may have to create your own worksheet columns. For example, if a teacher uses pure percentages, then the Total Score column is not necessary.

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns
- **Spreadsheet Group 3:** Using Worksheets
- **Spreadsheet Group 4:** Adding and Working with Information
- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets
- **Spreadsheet Group 7:** Doing Math



Do It

1. Start the spreadsheet software, and open a new, blank worksheet.
2. Rename Sheet 1 with the name of the school subject you selected.
3. In cell A1, type a title for the worksheet. Change the look of the title.
4. Now you will add the column headings to your worksheet. Type “Last Name” in cell A3 and “First Name” in cell B3. Then in cells C3 through F3, type information that identifies four of the five assessments and/or assignments that you want to include in the grade book. Lastly, type “Total Score” and “Average Score” in cells G3 and H3.
5. Change the look of the headings in row 3.

Challenge: Consider rotating the column headings in cells C3 through H3 so they are placed at an angle. Then, add borders around the column heading cells. (See the Grade Book Mathematics Worksheet Challenge Example at the end of this section.) (For help, refer to Spreadsheet Skill 5.7: To change the alignment of information within a cell or cells.)

6. Change the width of columns B through H to fit the information. If your columns are still too wide, change the text wrapping so the information fits on two lines.
7. In cells A4 through A9, type the last names of the five students. Then in cells B4 through B9, type the students’ first names. Change the column width if needed.
8. Type the scores for each assessment or assignment in the four cells to the right of each student’s name.
9. In cell G4, insert a **Sum** function that will calculate the first student’s total score. Then, fill the **Sum** function into the four cells below.

Step 2: You may be inclined to overlook this step, but as you learn to complete spreadsheet projects with multiple worksheets, naming your worksheets becomes increasingly useful. You can rename worksheets in two main ways. If needed, refer to Spreadsheet Skill 3.2: To give a worksheet a new name.

Step 4: Make sure that you only include four of the five assignments in the grade book at this time. You will add the fifth item in Step 14, which will allow you to see how calculations are automatically updated when information is changed.

Steps 4 and 7: You may want to add more than five graded assignments or more than five students. Complete the activity as written first. Then if time permits, you can add columns and rows of information later.

Step 8: When you enter the scores, you need to type the actual numerals and not the words for those numeric quantities. (For example, you should type the numeral *80* instead of the word *eighty*.) If you do not type numerals, the formulas and functions will not work properly in Steps 9–11.

Discovering Spreadsheets

10. In cell H4, insert an **Average** function that will calculate the first student's average score. Make sure the cell range includes only the cells with assignment scores (cells C4 through F4) and not the total score (cell G4).
11. Fill the **Average** function into the four cells below cell H4.
12. Change the average scores so they all have two decimal places. Change the column width as needed.
13. To make sure the grade book will work as it should when new grade scores are added later, insert a column between columns F and G.
14. In cell G3, type the name of the fifth assessment or assignment. Then, type the grade scores that each of the five students received on the fifth assignment.

Notice that each student's total score and average score changes automatically when new information is added.

15. Use the students' last names in column A to put rows 4 through 8 in alphabetical or ascending order. (For help, see Spreadsheet Skill 6.7: To sort or change the order of rows based on certain information.)
16. Add borders around the worksheet cells. (For help, see Spreadsheet Skill 5.8: To add borders to cells, rows, columns, and worksheets.)

Step 15: The process of sorting information may be challenging. When you sort, do not select the rows containing the title and column headings. Also, explore various options until you achieve the desired results. If you do not sort correctly the first time, you can always use the **Undo** function to put the rows back in the previous order and try again.

Step 18: If you will be completing the Roll Book activity, you should save your work in a place where you can access it easily. If you will not be sitting at the same computer during the second activity, consider saving your file to a disk.

Challenge: You might want to make another grade book worksheet for a second school subject. To do this, duplicate the worksheet you just created and give it a new name. (For help, see Spreadsheet Skill 3.6: To make a copy of a worksheet.) Then, change the worksheet title, and put in new assessment or assignment scores for the students. You should also rename the worksheet's tab. (See the Challenge Examples at the end of this section.)

17. Delete any unused worksheets.
18. Save your work as directed.

	A	B	C	D	E	F	G	H	I
1	Ms. Pickering's Mathematics Grade Book								
2									
3	Last Name	First Name	Fractions Homework 1	Fractions Homework 2	Fractions Quiz	Decimals Homework 1	Decimals Quiz	Total Score	Average Score
4	Brown	Danielle	78	85	92	72	81	408	81.60
5	Gomez	Maruicio	92	88	94	100	95	469	93.80
6	Jones	Michael	69	74	52	80	75	350	70.00
7	Kim	Aisha	85	90	87	86	79	427	85.40
8	Thomas	Zachary	72	70	81	75	68	366	73.20

Grade Book Mathematics Worksheet Challenge Example

	A	B	C	D	E	F	G	H	I
1	Ms. Pickering's Science Grade Book								
2									
3	Last Name	First Name	Parts of a Cell Worksheet	Plant Cell Lab Worksheet	Cell Quiz	Photosynthesis Worksheet	Photosynthesis Quiz	Total Score	Average Score
4	Brown	Danielle	78	83	79	81	84	405	81.00
5	Gomez	Maruicio	89	84	81	82	79	415	83.00
6	Jones	Michael	75	73	68	77	83	376	75.20
7	Kim	Aisha	96	92	89	94	87	458	91.60
8	Thomas	Zachary	69	77	74	76	63	359	71.80

Grade Book Science Worksheet Challenge Example



Review It

Look over your grade book worksheet. Make sure it has the following elements:

- A title that explains the type of information in the worksheet
- The names of five students sorted in alphabetical order
- Formulas that calculate each student's total score and average score
- New names on all used worksheets, with all unused worksheets deleted

If any elements are missing, add them to the worksheet now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might this grade book improve your ability to calculate your students' grades? How would you modify the spreadsheet you created today for your own use?
- What is the most useful spreadsheet feature that you used today? Why?
- For what other types of activities might you use a spreadsheet's **Sum** and **Average** functions?

Take-Home Exercise: Reflecting on Module 8

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. Read and review the four elective spreadsheet activities beginning on page 131. Which one or two activities interest you the most and might best enhance your productivity as a teacher? Why?

2. What resources would you want available for use as you complete the one or two activities that interest you most? How could the resources help? Remember to bring the resources with you to the next course session.

Module 8 Summary

Step 1

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: reflected on Module 7; explored spreadsheet software; completed a grade book activity.

Step 2

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Possible answers include: spreadsheets can enhance my productivity as a teacher; using the grade book I made will improve my ability to calculate my students' grades.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 9: Applying Spreadsheets.

Module 9

Applying Spreadsheets

Description: The objective of this module is to have you apply your spreadsheet skills to create one or more additional productivity tools that you can use in your classroom. You will also showcase and share your work, view the work of others, and exchange ideas and practices.

Pair and Share: Reflecting on Module 8

Share your answers to the Take-Home Exercise: Reflecting on Module 8 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

Exercise 1: Creating Spreadsheet Productivity Tools

Step 1

Learn more about the four elective spreadsheet activities—Classroom Inventory, Seating Chart, Pictograph, and Roll Book.

Step 2

Determine which activity you want to do first. You can work alone to create a productivity tool that is uniquely meaningful and relevant for you in your classroom, or you may collaborate with a colleague who shares a similar interest or need.

Step 3

Plan, do, review, and share the activity or activities as directed.

Classroom Inventory

Classrooms contain many desks, chairs, books, supplies, and even computer equipment. Sometimes, keeping track of everything in a classroom can be challenging. What are some ways you might keep inventory of your classroom? One way is to use the computer to create a classroom inventory spreadsheet.



Plan It

Create an inventory worksheet of the furniture, equipment, and supplies in your classroom. Look at the following example:

	A	B	C	D	E	F
1	Room 6 Inventory					
2						
3	Category	Item	Product Number or Description	Quantity	Cost per Item	Item Subtotal
4	book	All About Dinosaurs	1-898722-35-7	1	\$14.95	\$14.95
5	book	Dictionary	1-365564-59-0	2	\$19.95	\$39.90
6	equipment	printer	223443-59C	1	\$250.00	\$250.00
7	equipment	monitor	1344-5BCN-45	1	\$200.00	\$200.00
8	equipment	computer	893-54CPX	1	\$800.00	\$800.00
9	furniture	desks	wood top with metal legs	30	\$100.00	\$3,000.00
10	furniture	chairs	brown plastic	30	\$50.00	\$1,500.00
11	supplies	paper	packages of lined writing paper	2	\$7.50	\$15.00
12	supplies	pencils	yellow pencils with erasers	53	\$0.25	\$13.25
13					Grand Total	\$5,833.10

Classroom Inventory Worksheet Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a table that shows how you might put the information in order might be helpful.

- What furniture, equipment, books, and supplies do you have in your classroom? How might you organize the individual items into groups of similar items?
- How many of each item do you have? What is the approximate cost of each item?
- What descriptive information might help you identify a particular item? Does your electronic equipment have serial numbers? Do books and supplies have ISBN or SKU numbers?

Applying Spreadsheets

For help on how to do certain tasks, look at the following groups in the Intel® Education *Help Guide*:

- **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns
- **Spreadsheet Group 3:** Using Worksheets
- **Spreadsheet Group 4:** Adding and Working with Information
- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets
- **Spreadsheet Group 7:** Doing Math



Do It

1. Start the spreadsheet software, and open a new, blank worksheet.
2. Rename Sheet 1 with a name that describes the information in the worksheet.
3. In cell A1, type a title for the worksheet.
4. Now you will add the column headings to your worksheet. Type “Category” in cell A3, “Item” in cell B3, “Product Number or Description” in cell C3, “Quantity” in cell D3, “Cost per Item” in cell E3, and “Item Subtotal” in cell F3.
5. Enter the Category, Item, Product Number or Description, Quantity, and Cost per Item information in columns A through E. Make sure you type the information in the correct columns. Change the column widths as needed.
6. Format the numbers in columns E and F so they look like money or currency. (For help, see Spreadsheet Skill 4.9: To show numbers as decimals, currency, and percentages.)
7. In cell F4, insert a formula that multiplies the quantity in cell D4 by the cost per item in cell E4. (For help, see Spreadsheet Skill 7.5: To multiply numbers by writing your own math sentence or formula.)
8. In the first empty cell in column E, type “Grand Total”. Then in the cell immediately to the right in column F, insert a **Sum** function to total all of the item subtotals. (For help, see Spreadsheet Skill 7.1: To sum or add the numbers in a row or column.)

Steps 3 and 4: You may want to immediately change the look of the worksheet title and your column labels. Note that you will change the look of the information in your worksheet later.

Step 5: When entering quantity and cost information, make sure you use actual numerals instead of writing out the numbers.

Step 7: If you have trouble entering your own multiplication formula, follow the instructions in Spreadsheet Skill 7.5: To multiply numbers by writing your own math sentence or formula.

Applying Spreadsheets

- 9. Sort the rows of information in an order that makes sense. For example, you might want to sort the information alphabetically according to the category or item. **Note:** Do not include the grand total information when sorting the information.

Challenge: You may want to sort the information alphabetically according to both the category and the item. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 6.7: To sort or change the order of rows based on certain information.)

Step 9: When you sort, select only the rows containing the information about the item, not the rows containing the title, the column headings, or the grand total. Then, try a few options and select the sorting option you like best. Remember that you can use the **Undo** function to return the rows to their original order.

- 10. Change the look of the worksheet's title.
- 11. Select all of the rows containing information (from row 3 to the grand total row). Change the look of the table by applying an AutoFormat. (For help, see Spreadsheet Skill: 5.11: To apply an AutoFormat to a worksheet.)

Challenge: After applying an AutoFormat, you might want to make minor changes to the text formatting, cell borders, and cell shading that are applied. Make these changes on your own as desired. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 5.8: To add borders to cells, rows, columns, and worksheets, and Spreadsheet Skill 5.9: To add background color or shading to cells, rows, or columns.)

Challenge: When you apply the AutoFormat, you should avoid selecting the top row containing the worksheet title. You should also explore a few AutoFormats before picking the one you want to use.

- 12. Delete any unused worksheets.
- 13. Save your work as directed.

	A	B	C	D	E	F
1	Room 6 Inventory					
2						
3	Category	Item	Product Number or Description	Quantity	Cost per Item	Item Subtotal
4	book	All About Dinosaurs	1-898722-35-7	1	\$14.95	\$14.95
5	book	Dictionary	1-365564-59-0	2	\$19.95	\$39.90
6	equipment	computer	893-54CPX	1	\$800.00	\$800.00
7	equipment	monitor	1344-5BCN-45	1	\$200.00	\$200.00
8	equipment	printer	223443-59C	1	\$250.00	\$250.00
9	furniture	chairs	brown plastic	30	\$50.00	\$1,500.00
10	furniture	desks	wood top with metal legs	30	\$100.00	\$3,000.00
11	supplies	paper	packages of lined writing paper	2	\$7.50	\$15.00
12	supplies	pencils	yellow pencils with erasers	53	\$0.25	\$13.25
13					Grand Total	\$5,833.10

Classroom Inventory Worksheet Challenge Example



Review It

Look over your classroom inventory worksheet. Make sure it has the following elements:

- A title that explains the type of information in the worksheet
- Information about the books, equipment, furniture, and supplies found in your classroom
- Multiplication formulas that calculate the subtotal cost for each item, and a **Sum** function that calculates the grand total
- Rows sorted in a way that makes sense, and an AutoFormat that makes the information easy to read

If any elements are missing, add them to the worksheet now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- What is the benefit of creating this type of classroom inventory worksheet? What other inventory worksheets might you or others use spreadsheets to complete?
- What new spreadsheet skill did you use today? How might you use that same skill again?
- What was the hardest step in completing this inventory worksheet? How did you manage to complete that step?

Seating Chart

At the beginning of a new school year, learning the names of all of your new students can be challenging. Learning students' names can be even more difficult for substitute teachers who may need to teach your students in your absence. What are some ways you can help a substitute teacher know the names of the students in your class? One way is to create a seating chart spreadsheet.



Plan It

Create a seating chart spreadsheet with the names of the students in your classroom. Look at the following example:

	A	B	C	D	E	F	G	H	I
1				Room 9A					
2				Mr. Thomason					
3				10th Grade World History					
4									
5				Front of Classroom					
6	Front Door								
7		Tabitha Adams	Dorian Douglas	Connor Jameson	Danielle Murphy	Keith Ryan			
8		Daniel Barnes	Amy Evans	Kevin Kohler	Nicole Myers	Monica Samuelson			
9		Natasha Bowden	Tracy Fredrickson	Hiroko Koyama	Brendan Nichols	Nicholas Strickland	Windows		
10		Jamaal Brown	Christopher Gacy	James Larsen	Marcie Pemberton	Annette Thompson			
11		Miguel Covarrubias	Susie Gingras	Kristen Lund	Brenda Prince	Natalie Underwood			
12	Back Door	Jackson Craig	Johnathan Handy	Noelle Mantegna	Stephen Rodgers	Thomas Werner			
13			Graciella Hernandez	Patricia Martinez	Parker Rutland				
14		Jamaal tends to talk a lot in class.		Graciella has a doctor's appointment on Wednesday and will have to leave at 1:00 p.m.	Kristen is a new student. She may need a little extra help.			Thomas is an exchange student from Germany, but his English is very good.	
15									
16									
17									
18									
19									

Seating Chart Worksheet Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a classroom seating diagram might be helpful.

- How many different classes of students do you teach during the day? What general information about each class might a substitute teacher need to know? How many different seating chart worksheets might you want to create?
- How many students are in each of your classes? How are the students' desks physically arranged in the classroom? How might you use the cells in a worksheet to show the arrangement of desks?
- What special information might you need to tell a substitute about specific students?

If you instruct the same group of students all day long, you may only need to create a single seating chart worksheet. However, if you teach the same subject to multiple classes, you may want to create more than one worksheet. Given the time required to complete each worksheet, if you have several different classes of students, please note that you are not expected to create a worksheet for each class or period. However, you should plan on creating a second worksheet for another period or class. You can then complete this worksheet during this activity's second challenge.

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns
- **Spreadsheet Group 3:** Using Worksheets
- **Spreadsheet Group 4:** Adding and Working with Information
- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets



Do It

1. Start the spreadsheet software, and open a new, blank worksheet.
2. In the cells at the top of the worksheet, type any general information that the substitute teacher may need to know. For example, you may want to type your name, your class or room number, and the subject that you teach. Change the look of the information.
3. Leave a blank row below the general information at the top of the worksheet. Then, type the names of your students in the cells below. Be certain to type the names in the cells that reflect where they actually sit in the classroom. Adjust the width of the columns as needed.
4. Change the look of the students' names. You might also want to change the position, or alignment, of the names in the cells.
5. Type labels that show the front of the classroom, the location of the doors and windows, and any other features. You may need to insert rows or columns first to create enough space for the labels. You might also want to cut the general information at the top of the worksheet and paste it into new cells so it is positioned properly.
6. Insert comments or notes that provide helpful information about some of your students. Be certain to delete any text that automatically appears in the comment box before you start typing. (For help, see Spreadsheet Skill 4.11: To type a comment in a worksheet cell.)

Challenge: Change the look of your comment boxes or note boxes. For example, you might change the font, pick a different border width and color, or add shading to the comment box. (See the Seating Chart Worksheet Period 1 Challenge Example at the end of this section.)

7. Add borders and fill colors to the cells. Remember that the goal is to help this worksheet look like your classroom.

Step 4: If you have trouble determining which cells you should type your students' names into, refer to the classroom seating diagram you drew during the planning stage.

Applying Spreadsheets

Challenge: Duplicate the worksheet and complete another seating chart for another class or period that you may teach. Replace the general information at the top of the worksheet and the students' names. (**Note:** Depending on class size, you may need to include more or fewer names.) You will also need to delete the old comments and add new comments about the students. (See the Seating Chart Worksheet Period 2 Challenge Example at the end of this section.)

8. Give your worksheet tabs new names that describe the information. Delete any unused worksheets.
9. Save your work as directed.

	A	B	C	D	E	F	G	H	I
1				Room 9A					
2				Mr. Thomason					
3				10th Grade World History					
4									
5				Front of Classroom					
6	Front Door								
7		Tabitha Adams	Dorian Douglas	Connor Jameson	Danielle Murphy	Keith Ryan			
8		Daniel Barnes	Amy Evans	Kevin Kohler	Nicole Myers	Monica Samuelson			
9		Natasha Bowden	Tracy Fredrickson	Hiroko Koyama	Brendan Nichols	Nicholas Strickland	Windows		
10		Jamaal Brown	Christopher Gacy	James Larsen	Marcie Pemberton	Annette Thompson			
11		Miguel Covarrubias	Susie Gingras	Kristen Lund	Brenda Prince	Natalie Underwood			
12	Back Door	Jackson Craig	Johnathan Handy	Noelle Mantegna	Stephen Rodgers	Thomas Werner			
13			Graciella Hernandez	Patricia Martinez	Parker Rutland				
14		Jamaal tends to talk a lot in class.		Graciella has a doctor's appointment on Wednesday and will have to leave at 1:00 p.m.					Thomas is an exchange student from Germany, but his English is very good.
15					Kristen is a new student. She may need a little extra help.				
16									
17									
18									
19									

Seating Chart Worksheet Period 1 Challenge Example

	A	B	C	D	E	F	G	H	I
1				Room 9A					
2				Mr. Thomason					
3				9th Grade Geography					
4									
5				Front of Classroom					
6	Front Door								
7		Norman Aaronson	Richard Denton	David Hendry	Shelley Martin	Tammy Rice			
8		Beatrice Atherton	Stephanie English	Peter Hsien	Steven Mondrian	Kathryn Sacks			
9		Nancy Bates	Jennifer Frank	Isaac Jackson	Thomas Ng	Jason Smith	Windows		
10		Sabrina Bowden	Martin Garcia	Marcia Jones	Kimberly O'Brien	Rodrigo Torres			
11		Javier Cardenas	Greg Hardin	Katie London	Lauren Orwell	Bradley Wong			Thomas is from Vietnam, and he sometimes has trouble understanding and communicating in English.
12	Back Door	Karen Christiansen	Norma Hassan	Stacey Lotus	Michael Peterson	Rachel Young			
13									
14		Sabrina is the class clown, and she can be a bit disruptive.		Greg always forgets his geography book at home. I have an extra for him to use, but don't let him leave class with it.					
15									
16									
17									
18									
19									

Seating Chart Worksheet Period 2 Challenge Example



Review It

Look over your seating chart worksheet. Make sure it has the following elements:

- General information about your class at the top of the worksheet
- Your students' names typed into cells that resemble the arrangement of desks in your classroom
- Helpful comments or notes about certain students
- Labels, cell borders, and cell shading to help the worksheet diagram look more like your actual classroom

If any elements are missing, add them to the seating chart now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might the seating chart be helpful to a substitute teacher?
- How is this activity different from the first spreadsheet activity that you completed?
- What other sorts of diagrams might you create in a spreadsheet?

Pictograph

For some classroom content, charts are used to explain numeric data in a way that can be easily understood. One type of chart, called a *pictograph*, uses pictures to make information even clearer than regular charts. What classroom content might you use a pictograph to teach your students? What numeric data might the pictograph show?

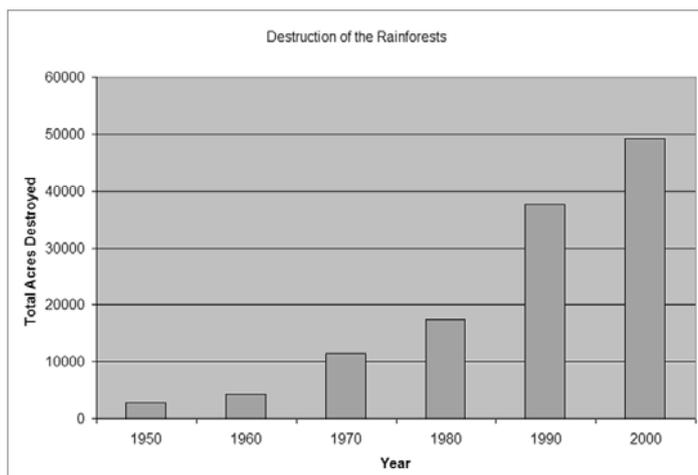


Plan It

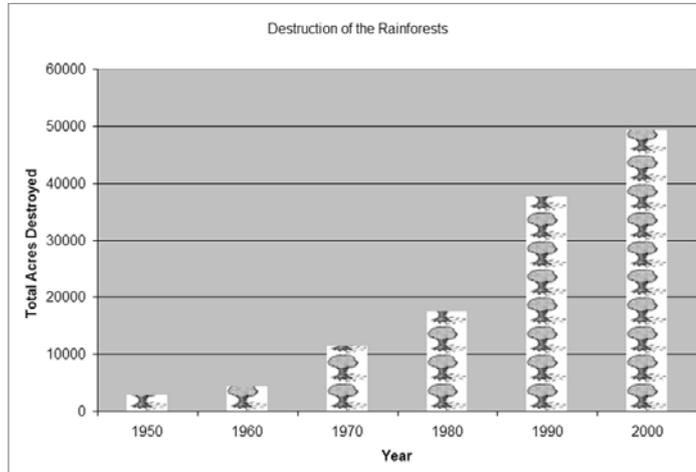
Create a worksheet, a column chart, and a pictograph that can be used to teach a specific topic. Look at the following examples:

	A	B	C	D
1	Destruction of the Rainforests			
2				
3	Year	Acres Cleared for Lumber	Acres Burned for Farmland	Total Acres Destroyed
4	1950	1250	1600	2850
5	1960	2270	1975	4245
6	1970	6900	4500	11400
7	1980	10350	7150	17500
8	1990	23100	14500	37600
9	2000	29800	19350	49150

Pictograph Worksheet Example



Column Chart Example



Pictograph Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a table that shows how you might put the information in order might be helpful.

To create a pictograph, pick a topic that compares quantities or values in the form of a column or bar chart. You may not achieve the desired result if you create a line chart that shows changes over time or a pie chart that shows the relationship of parts to a whole.

- What classroom content do you use charts to teach? For what specific topic might you create a pictograph?
- What numeric data do you want the pictograph to show? How might you organize the information into a worksheet that can be used to create the pictograph? What row and column labels might you use? What formulas might you need to include to calculate the information in your columns or rows?
- What pictures might you use in the pictograph to help make the information clear to students?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Spreadsheet Group 3:** Using Worksheets
- **Spreadsheet Group 4:** Adding and Working with Information
- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets
- **Spreadsheet Group 7:** Doing Math
- **Spreadsheet Group 8:** Making Charts

Because you will be completing this activity based on the content you teach, choose a subject that you know well. For best results, try to limit the amount of information that you want to show in your pictograph.



Do It

1. Start the spreadsheet software, and open a new, blank worksheet.
2. In cell A1, type a title for your new worksheet. Change the look of the title.
3. In cell A3, type a label for the first column of information that you want to include in your worksheet. Type the other column labels in the cells to the right.
4. If desired, change the text wrapping in each cell. You might also want to make the columns wider.
5. In the cells below the column heading in cell A3, type the row headings.
6. If desired, change the text wrapping in each cell. You might also want to make the columns wider.
7. Type the rest of the information you need to complete your worksheet. You might want to include row labels in column A in addition to the numeric information.
8. Format the numbers in your worksheet as needed. For example, you might want them to be displayed as currency, decimals, or percentages. (For help, refer to Spreadsheet Skill 4.9: To show numbers as decimals, currency, and percentages.)
9. Perform any required calculations. For example, you may want to insert a **Sum** or **Average** function. Or, you might want to write your own formulas to subtract, multiply, or divide numbers. (For help, refer to Spreadsheet Group 7: Doing Math.) Fill the function or formula into adjacent cells as needed.
10. Select the information that you need to create your chart. If you need to select information that is not in neighboring rows (such as the column labels and the calculation results), select one group of cells, hold down the **Control** key, and then select the next group of cells.
11. Make a column chart with the series in columns. Use the title on your worksheet as the title for your chart. You might also want to type labels for the X axis and Y axis. Save the chart as a new sheet. Delete the legend if you feel it is not needed. (For help, refer to Spreadsheet Skill 8.1: To make a column or bar chart that compares values or amounts.)

Challenge: Change the look of the chart's background area and the bars by picking different colors or adding a fill effect. You can also change the look of the main chart title and the two axis titles. (See the Column Chart Challenge Example at the end of this section.)

Step 9: Depending on the information you use in your worksheet, you may not need to perform any calculations. If you do need to perform calculations, make sure you insert a function or enter a formula instead of doing the math in your head and entering the results. For help, refer to the appropriate Spreadsheet Group 7 skills.

Step 10: When you select information for your chart, a good rule is to select the minimum amount of information that you think is required. Usually, you will want to select the column or row headings and the final calculation results.

Step 11: At this point, you may realize that you did not correctly select the information for your chart. If this is the case, delete the chart and try again.

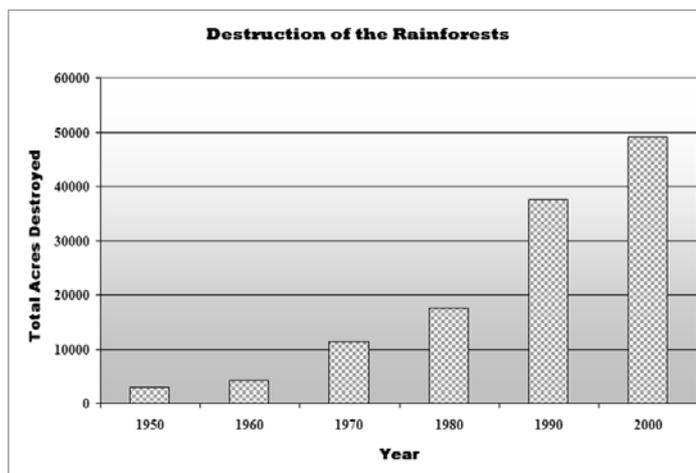
Applying Spreadsheets

Steps 13 and 14: The process for identifying a clip art picture and saving it on your computer may seem confusing, especially if you are unfamiliar with some of the software titles. However, you should experience no difficulty if you follow the instructions in the referenced graphics skills.

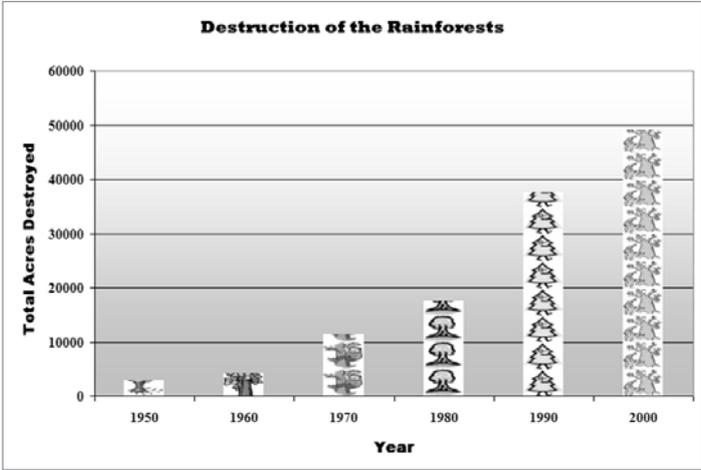
12. Duplicate, or make a copy of, the sheet with the column chart. Move the copied chart to the end.
13. Open the Clip Art Gallery, find a picture that you would like to use in your chart, and copy the picture. For best results, use a simple picture. **(Note:** If you are using OpenOffice.org Calc*, skip Steps 13 and 14.) (For help, see Graphics Skill 3.15: To copy and save a picture from the Clip Art Gallery/Clip Organizer.)
14. Start the graphics program, and paste the copied clip art picture into a blank canvas. As needed, resize the canvas so it is the same size as your picture. (For help, see Graphics Skill 2.12: To change the size of a painting canvas.) Then, save the new picture in a place where you can easily find the file.
15. Go back to the second chart in the spreadsheet program, and turn the chart into a pictograph by formatting the columns with the copied picture. If you are using OpenOffice.org Calc, format the columns with the preset bitmaps. (For help, refer to Spreadsheet Skill 8.10: To make a pictograph.)

Challenge: Repeat Steps 13 through 15 to use a different picture for each of the columns in the chart. **(Note:** If you are using OpenOffice.org Calc, use a different preset bitmap in the chart.) (See the Pictograph Challenge Example at the end of this section.)

16. Rename all of your worksheet and chart tabs, and delete any unused worksheets.
17. Put all of the tabs in order so the worksheet is first, the column chart is second, and the pictograph is third.
18. Save your work as directed.



Column Chart Challenge Example



Pictograph Challenge Example



Review It

Look over your spreadsheet. Make sure it has the following elements:

- A worksheet with numeric information about your chosen subject and any required calculations
- A column chart and a pictograph that show the information
- Worksheet tabs that have been renamed and put in the proper order

If any elements are missing, add them to the spreadsheet now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- What information does your pictograph show? In what ways does a pictograph make it easier to understand the information than a regular chart?
- What was the hardest task in completing your pictograph? How did you manage to complete the task?
- What other types of information might you show in a pictograph?

Roll Book

Many teachers have a roll book that contains their students' names and contact information. Teachers often use their roll books to also keep track of students' attendance in class. How might you be able to use a computer to create a classroom roll book and attendance record?



Plan It

Create a spreadsheet with a roll book worksheet and an attendance record worksheet. Look at the following examples:

	A	B	C	D	E	F	G	H
1	Roll Book							
2								
3	Last Name	First Name	Street Address	City	State	Postal Code	Telephone Number	Parents' Names
4	Brown	Danielle	1216 N. 1st Ave.	Lombard	KS	66002	555-7868	Mark and Donna
5	Gomez	Mauricio	822 W. State St.	Lombard	KS	66002	555-0034	Javier and Lupe
6	Jones	Michael	2344 E. Elm St.	Redwing	KS	66004	555-7094	Thomas and Nancy
7	Kim	Aisha	687 S. 8th Ave.	Dryden	KS	66005	555-1032	Donald and Marcy
8	Thomas	Zachary	1855 W. Oak Path Dr.	Redwing	KS	66004	555-4464	David and Susan

Roll Book Worksheet Example

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	
1	Attendance Record																								
2																									
3			Sept. 5-9				Sept 12-16				Sept 19-23				Sept. 26-30										
4	Last Name	First Name	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F		A=absent T=tardy	
5	Brown	Danielle		T																					
6	Gomez	Mauricio									A														
7	Jones	Michael			A																				
8	Kim	Aisha						T																	
9	Thomas	Zachary																A	A						

Attendance Record Worksheet Example

Think about the following questions, and if working with a partner, discuss your ideas. Writing your ideas on a sheet of paper and drawing a table that shows how you might put the information in order might be helpful.

- What important contact information should you have for each of your students? Will you need to know their address, telephone number, and their parents' or guardians' names?
- What type of attendance information do you record? Will you keep track of the days when they are absent or late to class?
- How might you organize the students' contact and attendance information on separate worksheets?

For help on how to do certain tasks, look at the following groups in the *Help Guide*:

- **Spreadsheet Group 2:** Selecting Cells, Rows, and Columns
- **Spreadsheet Group 3:** Using Worksheets
- **Spreadsheet Group 4:** Adding and Working with Information
- **Spreadsheet Group 5:** Changing the Look of Information and Worksheets



Do It

1. Start the spreadsheet software, and open the grade book spreadsheet that you previously completed.
2. Copy the worksheet to a new book. (For help, see Spreadsheet Skill 3.6: To make a copy of a worksheet.) Notice that the completed grade book worksheet is now in a new spreadsheet document. Close the original grade book spreadsheet.
3. Change the worksheet's title and the name on the tab to "Roll Book".
4. Keep the Last Name and First Name column headings in cells A3 and B3. Then, type the new column headings "Street Address" in cell C3, "City" in cell D3, "State" in cell E3, "Postal Code" in cell F3, "Telephone Number" in cell G3, and "Parents' Names" in cell H3. Delete any other column headings remaining in row 3.
5. Leave the students' last and first names in the cells below the headings in columns A and B. Then, complete the worksheet by typing the missing information in columns C through H. Delete any other grade scores from the original worksheet.

Step 4: If desired, you may type your own column labels based on the contact information you feel is most useful.

Step 5: Since you probably do not know the actual contact information for your students, you can use made-up information in your spreadsheet. Later, you can add the real information. At that time, you can also include other students' names and contact information.

Applying Spreadsheets

6. Change the text and the width of the columns as needed. You might also want to change the text wrapping and the alignment of the information in the cells.
7. Duplicate the worksheet. Change the worksheet's title and the name on the tab to "Attendance Record".
8. Delete the contents in columns C through H. Then, insert a new row above row 3.
9. In cells C4 through G4, type abbreviations for the days of the school week. Change the width of columns C through G to automatically fit the information.

Challenge: Select cells C3 through G3 and merge them into a single cell so you can type the date information in Step 10. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 5.10: To combine or merge cells.)

10. In a cell above the abbreviated days of the week, type information about the range of dates covered.
11. Repeat Steps 9 and 10 to create three more weeks of attendance columns (for a total of four).
12. Add borders and cell shading to separate the columns for the four weeks.
13. Type letters or symbols that could be used to show the days when students are absent or late. Then in an empty area on the worksheet, type information that explains what these letters or symbols mean.

Challenge: Insert comments or notes that provide additional information about a student's absence or lateness. (See the Challenge Example at the end of this section.) (For help, see Spreadsheet Skill 4.11: To type a comment in a worksheet cell.)

14. Save your work as directed.

Step 12: Keep in mind that you are adding borders and shading primarily for clarity, not necessarily for visual interest.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	Attendance Record																							
2																								
3			Sept. 5-9				Sept. 12-16				Sept. 19-23				Sept. 26-30				A=absent					
4	Last Name	First Name	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	L=late	
5	Brown	Danielle		L																				
6	Gomez	Mauricio						A																
7	Jones	Michael			A																			
8	Kim	Aisha																						
9	Thomas	Zachary																A	A					
10																								
11																								
12																								
13																								

Attendance Record Worksheet Challenge Example



Review It

Look over your completed spreadsheet. Make sure it has the following elements:

- A roll book worksheet with the contact information for students listed in the grade book worksheet that you previously completed
- An attendance record worksheet containing information about the days when students were absent or late
- Cell borders and shading that makes the information easier to see and understand

If any elements are missing, add them to the spreadsheet now. You should also make other desired changes. Remember to save your work when you are finished.



Share It

Be prepared to discuss your answers to the following questions during sharing time:

- How might the roll book and attendance record worksheets make your job as a teacher easier?
- What other information might you want to add to the worksheets? Why?
- How is this activity different from the first spreadsheet activity that you completed?

Exercise 2: Showcasing Spreadsheet Productivity Tools

Step 1

Before the Showcase Begins

1. Decide by yourself or with a colleague about which elective spreadsheet product you would like to share with others.
2. Determine your answers to the following questions:
 - How might the product increase your productivity in the classroom?
 - How did others help you create the product?
 - What new technology skills did you learn?
 - What was one problem you had? How did you solve it?

Step 2

When It Is Your Turn to Share

1. Show your product to others.
2. Tell others:
 - How the product might increase your productivity in the classroom
 - How others helped you create the product
 - What new technology skills you learned
 - One problem you had and how you solved it
3. After you finish answering the questions, ask your colleagues the following questions:
 - What do you like about the product? Why?
 - What suggestions do you have to make the product better?
4. Thank your colleagues for their comments and suggestions.

Take-Home Exercise: Reflecting on Module 9

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

- 1. Reflect on the products shared during the showcase. Which ones might you want to create or learn more about? How might those products enhance your productivity in the classroom?

- 2. How might you use the Internet, word processing software, multimedia software, spreadsheet software, and other technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning?

Module 9 Summary

Step 1

Possible answers include: created spreadsheet productivity tools; participated in a spreadsheet showcase.

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Step 2

Possible answers include: spreadsheets can enhance my productivity in the classroom; Internet, word processing software, multimedia software, spreadsheet software, and other technology can be used to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 10: Developing 21st Century Approaches.

Module 10

Developing 21st Century Approaches

Description: In 21st century classrooms, teachers typically spend 90 percent of their time facilitating learning and 10 percent of their time providing direct instruction. The objective of this module is to have you develop strategies for promoting the skills of listening and speaking, giving directions, observing and monitoring, questioning, encouraging, and intervening. You will also gain a better understanding of the process of accepting change.

Pair and Share: Reflecting on Module 9

Share your answers to the Take-Home Exercise: Reflecting on Module 9 with a colleague and the whole group as directed. Record any new and good ideas on the lines that follow.

Exercise 1: Facilitating Learning

Facilitating learning involves many skills, including listening and speaking, giving directions, questioning, observing and monitoring, encouraging, and intervening. Teachers must learn these skills. Students must also develop these skills, since they too are working with others.

Listening and Speaking Skills

To promote listening and speaking skills with students, teachers should consider doing and saying the following:

To Do	To Say
Model desired behaviors	<i>I hear better when I look at the person speaking.</i>
Reinforce desired behaviors by pointing them out	<i>I use a loud voice so everyone can hear.</i>
Remind students to use good listening skills	<i>Now Arturo and Graciella will share. You will have an easier time hearing what they are saying if you look at them.</i>
Guide students on what they should do if they cannot hear	<i>Raise your hand to let someone know that you cannot hear what he or she is saying.</i>
Restate what a student has said to clarify when needed	<i>Joseph, you said a drawing program would be the best tool. Rema wants to know why you think so.</i>
Respond in ways that are neither positive nor negative	<i>Dana shared one idea. Who wants to share another idea?</i>
Encourage students to elaborate further	<i>What else would you like to add?</i>
Include all the students	<i>Who else wants to ask a question?</i>
Alert students when changing direction	<i>Let us explore another solution.</i>

Giving Directions Skills

Teachers who have good skills for giving directions

- are clear in their intentions and think through their instructions
- wait and ensure that students are quiet before giving directions
- provide directions orally and in writing
- share directions a few steps at a time so as to not confuse or overwhelm students
- model the expected steps for students
- check for understanding to ensure that students know what is expected from them

Observing and Monitoring Skills

Good teachers

- always know what students are doing
- move around the room and listen to students' conversations
- take or record notes
- ask questions
- make decisions about when to intervene
- recognize that each student is special

Questioning Skills

Questioning can be an effective way to extend thinking. To grow and learn, we question. Questioning allows us to make sense of what is around us. Questioning also leads to the ability to create solutions, make decisions, and plan successfully.

Effective questioning strategies include the following:

- Using language that everyone can understand
- Asking questions that have more than one correct answer
- Replacing questions that can be answered with a Yes/No or one-word answer with questions that ask *How...?*, *Why...?*, or *Which...?*
- Encouraging sharing of answers with a partner or small group prior to the larger group
- Calling on students randomly and allowing students to call on other students to respond
- Listening actively to what students are saying
- Avoiding the temptation to interrupt or correct immediately
- Withholding judgments and responding in a nonevaluative manner
- Redirecting incorrect answers
- Having one student summarize the idea of another
- Asking follow-ups such as, *Why? Can you tell me more? What is another example?*
- Inviting students to "unpack their thinking" and share how they arrived at an answer
- Letting students develop their own questions to ask others

Developing 21st Century Approaches

Step 1

What are some other effective questioning strategies? As answers are shared, record good ideas on the lines that follow.

Step 2

Work with a partner. Identify two or three effective questions that appear in the content from an earlier module. Write the questions, where they are found, and why they are effective.

Step 3

Search for a question from an earlier module that you think could be improved. Write the question, where it is found, and why you think it could be improved.

Step 4

Now rewrite the question to make it more effective.

Developing 21st Century Approaches

Step 5

How has your change made the question more effective?

As part of good questioning skills, teachers provide *think time* or *wait time*. Think time (or wait time) is the time between a teacher's question and a student's response. It is also the time between a student's response and the teacher's or next student's response.

Research indicates that most teachers provide only one second of think time when at least three to five seconds are preferred. The benefits of allowing for think time include increased levels of:

- Responses from a greater number of students
- Listening among students
- Accurate and confident responses

Encouraging Skills

Good teachers build relationships with students and recognize the ways in which each student is special. This knowledge often results in a natural tendency to give praise to students. However, good teachers focus on encouragement rather than praise.

Praise advances the notion that work has no value unless it receives praise. In contrast, encouragement conveys respect and belief in students' abilities, and recognizes efforts rather than achievements. Other differences between praise and encouragement can be found in the following table.

Praise	Encouragement
Stresses how other people feel	Stresses students contributions, skills, and areas of improvement
Often focuses on <i>I...</i> statements, such as <i>I am so proud of you!</i>	Often focuses on <i>You...</i> statements, such as <i>You handled that very well!</i>
Cultivates selfishness	Cultivates self interest
Promotes fear of failure	Promotes acceptance of being imperfect
Advances dependency	Advances self sufficiency
Comes with judgment	Comes without judgment

Developing 21st Century Approaches

Some strategies to encourage students include:

- Being positive: *You worked a long time on that.*
- Focusing on strengths: *You used details in your drawings.*
- Encouraging students to strive for improvement: *Since you are not satisfied, what else can you do?*
- Being specific in identifying desirable behavior: *Thank you for being patient!*
- Encouraging effort: *Look at the progress you have made!*

Intervening Skills

Teachers who are effective facilitators carefully monitor students and make decisions about when to intervene.

Teachers intervene to

- provide feedback during project work
- provide confirmation with rationale
- ensure two-way communication
- enable a congenial relation to develop
- improve processes
- ensure fairness
- help clarify
- refocus
- assist in conflicts
- remind groups of ground rules

Teachers consider the following before intervening:

- What to say
- How to say it
- When to say it
- Who to say it to
- Why they should say it

Developing 21st Century Approaches

This page presents several situations in which intervening skills are required of teachers. Identify two or three feedback starters or statements for each situation. Be prepared to share your answers.

The facilitator will assign one group to each situation. Then, as each group reports out, participants can contribute new statements as well. No one correct statement exists for each situation.

1. When you agree with a student... (Example: *Good point!*)

2. When you disagree with a student... (Example: *There may be some other ideas to consider.*)

3. When you need to encourage a discouraged student... (Example: *Let us solve it together.*)

4. When you want to express empathy... (Example: *It sounds so frustrating.*)

5. When you suggest a change... (Example: *Check that you have done all the tasks listed in the Review It section.*)

Developing 21st Century Approaches

Watch two participants model the exercise before doing this as a whole group.

Exercise 2: Accepting Change

Now you and a partner will participate in an exercise about change. Listen to learn more about the exercise.

Change is a natural phenomenon, whether one likes it or not. However desirable change may be, it disrupts the normal state of affairs. Disruption is an essential element of growth. Look at the following table. Think about the various stages of change.

Stage of Change	Description of Stage
Awareness	People have had contact with the change. They know about it generally, without much detail.
<i>People must learn about change before they accept it.</i>	
Acceptance	People understand the details and have the opportunity to ask questions and toy with what the change will mean to them.
<i>DECISION POINT: People resist or accept the change.</i>	
Preparation	People are actively involved in deciding on and designing both the changes and the new behaviors that will be required.
Implementation	Change is actualized.
Adoption	After experiencing the change, people adopt it and are skilled enough in new behaviors not to need coaching for routine functions.
<i>People accept and commit to the change.</i>	

Excerpt from the *Handbook of Human Performance Technology*.

Exercise 3: Promoting Key Skills

Technology literacy, critical thinking, and collaboration are three broad areas of core skills that should be developed in 21st century classrooms. However, the question of how to teach 21st century skills is best answered by describing the characteristics of learning environments in which students can develop these skills. Effective learning environments for promoting 21st century skills often include the following core elements, all of which are also features of the Intel® Teach Getting Started Course.³

Developing 21st Century Approaches

- **Thematic instruction:** In thematic instruction, a set of exercises or activities focuses on a big idea or broad concept. A theme allows for the application of a wide variety of skills and the deepening, integration, and development of new knowledge.

What could be considered the theme of the exercises or activities featured in Getting Started?

- **Relevance:** Content that is relevant to the context of students' lives leads students to deeper engagement and deeper thinking. Relevance is enhanced by instruction that helps students draw connections between what they are learning and how they can put the knowledge to use, especially in developing solutions to challenges facing them or their communities.

In what ways has the content featured in Getting Started been relevant to you?

- **Active exploration:** Students are better prepared to acquire and remember new information, strategies, or skills once they have spent time exploring a challenge or problem for themselves—that is, without receiving explicit directions or answers at the outset of a lesson.

What opportunities for active exploration have been afforded to you in Getting Started?

Developing 21st Century Approaches

- **Choice and autonomy:** An environment that supports the development of 21st century skills provides students with a measure of choice in the activities they undertake, the strategies and tools they use, and the creative aspects of their plans, projects, or designs.

What opportunities for choice and autonomy have been afforded to you in Getting Started?

- **Cycles of creation:** Students' ability to use technology effectively, think critically, and collaborate meaningfully with others takes place best in a cycle of generating and improving their work—a cycle in which students plan, execute, revise, reflect on, and share their insights about the product or solution they are developing.

What cycles of creation have you experienced in Getting Started?

- **Authentic feedback:** In 21st century learning environments, students work on activities or projects that have no single, specific answers. Instead, students must assess their own work in relation to how well it serves the purposes for which it was intended. Feedback from teachers and peers helps students improve their work and develop their own critical perspective on it. Learning to give useful feedback to others also develops a student's critical thinking and collaboration capacity.

What opportunities for authentic feedback occur in Getting Started?

Developing 21st Century Approaches

- **Teacher as facilitator:** Rather than serving exclusively as an expert who provides information, the 21st century teacher facilitates students' own research, development and application of skills, and creation of original work products. The teacher as facilitator helps students actively build on their own strengths and incorporate their own interests into their work.

What examples of teacher as facilitator can be found in Getting Started?

³The characteristics of 21st century learning environments described in this section are from SRI International's *Review of Evaluation Findings for the Intel® Learn Program*, available at <http://ctl.sri.com/projects/displayProject.jsp?Nick=intellearn>. Used with permission.

Take-Home Exercise: Reflecting on Module 10

Reflect on the exercises, activities, skills, and approaches addressed in this module. Record your answers to the following questions and be prepared to share your answers at the beginning of the next module.

1. Which facilitation skills are you most interested in using with your students? How might the approaches support student learning?

2. Which 21st century, student-centered approaches might you accept or resist? Why? What additional information or experiences might you require before deciding? People must learn about change before they accept it.

Module 10

Developing 21st Century Approaches

3. As you consider the list of core elements identified in Exercise 3, which key skills could you promote in your classroom? How might you do this?

Module 10 Summary

Step 1

Possible answers include: reflected on Module 9; learned 21st century facilitation skills; accepted change; identified core elements of effective learning environments.

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Step 2

Possible answers include: good facilitation skills can support student learning; people must learn about change before they can accept it.

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 11: Planning and Doing Your Action Plan.

Exercise 1: Understanding Action Plans

Through your Take-Home Exercises and subsequent Pair and Share reflection discussions, you identified ways in which you want to incorporate technology literacy and 21st century teaching and learning skills and approaches in your classrooms. However, teachers can easily fall into familiar patterns and lose motivation and interest when the everyday pressures of life challenge the most well-intentioned plans. To help you become more successful in implementing your plans, spend time in Modules 11 and 12 creating action plans.

What is an action plan?

An action plan is a well-thought-out analysis of current practices and formal strategy to make positive change those practices. Action plans help teachers make significant changes in their instruction by asking them to identify the changes they want to make and describe how they want to go about making those changes. Effective action plans include tasks to be accomplished in chronological order.

How do action plans differ from unit plans?

Action plans detail the steps teachers intend to take to make positive changes to their current professional practices. In contrast, *unit plans* detail how teachers will deliver particular units of study to students. Your unit plan focuses on delivering information to students. Your action plan focuses on the personal changes you want to achieve as a teacher.

Why are action plans needed?

Research indicates that action plans serve three purposes in making changes happen:

- Action plans compel teachers to declare what they are trying to accomplish.

Research shows that people are more likely to make significant changes if they have specific, concrete goals. By putting a goal in writing, a person makes a commitment to an idea, and by sharing the goal with others, the person becomes accountable for achieving it.
- Action plans anticipate problems and identify resources.

While teaching, solving problems using new knowledge can be challenging, and going back to familiar methods might seem much easier. By predicting potential challenges, teachers can be proactive and create support systems that will help them when they need it.
- Listing the steps of a process of change can motivate teachers to continue as they check off both small and great accomplishments.

Success is a great motivator, and the feeling of accomplishment people get from small victories can inspire them to continue in the face of challenges.

Planning and Doing Your Action Plan

What should action plans include?

Action plans can vary greatly, but some components are common to all of them. Review the information in the following table to learn more.

Components	Characteristics
Goals	<ul style="list-style-type: none"> ▪ Research suggests that individuals accomplish more when they set complex goals that challenge but do not overwhelm them. ▪ The best goals for teachers focus on teacher behavior and student achievement. ▪ Some teachers may want to break a large goal into subgoals that can be spread out over time. ▪ Generally, goals are broad and address important issues. ▪ Goal example: <i>The teacher will organize instruction so students become more independent learners.</i>
Instructional Strategies and Tasks	<ul style="list-style-type: none"> ▪ Instructional strategies are research-based teaching methods that have been proved to result in improved student achievement. ▪ Tasks are specific teaching and learning activities that show in concrete terms how the strategy will be applied. ▪ Instructional strategy example: <i>I will provide students with more choices of processes, products, and content in projects.</i> ▪ Task example: <i>I will allow students to make physical models or virtual models of a cell for their final projects.</i>
Challenges and Solutions	<ul style="list-style-type: none"> ▪ Teachers know that even goals based on sound research may not be easy to implement. ▪ Environmental factors, such as room arrangement and furniture, can be modified, while others, such as room size, will just have to be worked around. ▪ Anticipating questions from administrators, colleagues, parents, and students about new methods can help a teacher be more successful. ▪ Challenge example: <i>Principal's usual response to new ideas is negative.</i> ▪ Solution example: <i>Meet with progressive administrator first to get support and then go to the principal to explain what I am going to be doing.</i>

(continued)

Planning and Doing Your Action Plan

Components	Characteristics
Timeline	<ul style="list-style-type: none"> ▪ Setting up a schedule for implementing the components of an action plan is essential for success. ▪ A timeline should include, at a minimum, dates by which tasks will be implemented and times for meeting with peers. ▪ A timeline could also include peer observations; video or audio taping; and conferences with administrators, students, and parents. ▪ Transferring important dates to an electronic or paper calendar can help keep an action plan on track.
Resources	<ul style="list-style-type: none"> ▪ Having a list of books, articles, and Web sites relevant to the subject of an action plan ready ahead of time can save scrambling to find them in the middle of the everyday stress of teaching. ▪ Other useful resources are like-minded peers or colleagues who will listen to successes and failures and provide constructive feedback.

How are action plans made?

Action plans are personal and can be made in a number of ways. Make sure that when you develop your actions plans, they fit your teaching and learning styles. Some people like making long lists of detailed steps and checking them off daily. Others can accomplish more with brief descriptions. Remember that action plans should both motivate you and hold you accountable. So however you design your action plans, keep your tasks as specific and concrete as possible so accomplishments can be assessed objectively.

Planning and Doing Your Action Plan

What does an action plan look like?

The following figure shows a sample action plan. The sample shows how one action plan was designed and may guide you as you begin forming your ideas. Keep in mind that your action plan should be customized to meet *your* goals and needs as a teacher. Therefore, your final action plan may look very different than the sample shown here.

Action Plan

Mrs. Romero
Newfield School
Mathematics, Grade 5

Long-term Goal

- Adopt 21st century teaching approaches to enhance students' appreciation of mathematics



Short-term Goals

- Change my questioning strategies with students to promote critical thinking
- Focus on encouraging students instead of praising
 - Focus on the mathematical process students use to get to an answer, not just the answer itself
- Encourage collaboration among students
 - Help students understand that they can use each other as resources

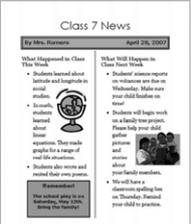
Instructional Strategies and Tasks

- I will provide more opportunities for students to answer questions that require higher-order thinking
- I will provide students with time for group discussion
- I will ask questions that require students to explain how they came to an answer
- I will allow students to gather in randomly assigned groups or pairs to discuss how to best solve mathematical problems

Solutions to Anticipated Challenges

Challenges	Solutions
A. The principal may not agree with my new approach	A. I will share the course manual and my notes from this course with my principal
B. Parents may not understand my methods	B. I will use my new word processing skills to create a newsletter to inform parents of my new methods
C. I do not own a computer	C. I will stay after school to use a computer in the school's computer lab to create productivity tools
D. There may be some students who do not want to work together	D. I will randomly group students to encourage collaboration with all class members

Newsletter Sample



Timeline



September: I will focus on questioning skills

November: I will focus encouragement, rather than praise

January: I will work on creating collaborative groups or pairs

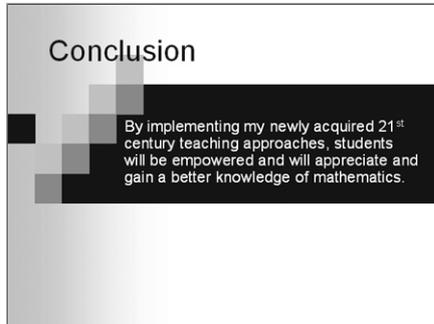
March: I will successfully adopt 21st century teaching approaches in my classroom

Resources

- other teachers who teach my same grade and subject
- Internet
- word processing, multimedia, and spreadsheets applications
- Intel® Teach Program Getting Started Course manual

Action Plan Example Slides 1-8

Planning and Doing Your Action Plan



Action Plan Example Slide 9

Exercise 2: Planning Your Action Plan

You will now work alone or with one or more of your colleagues to plan and do your action plan. During the final module, you will review and share your action plan. As part of sharing, you have approximately five minutes to present your action plan to your colleagues and invited guests. You also get to watch and listen to presentations by your colleagues. However, before you create your action plan, you must first begin by planning your action plan.

Step 1

Start by going back and reviewing your answers to the Take-Home Exercises and your notes for the Pair and Share reflections. Recall some of the ways in which you planned to apply the technology literacy and 21st century teaching and learning skills and approaches to enhance your productivity and professional practices in your classroom.

Step 2

Read the questions that follow. Work alone or with one or more of your colleagues to determine and record your answers.

1. What are your key goals?

Planning and Doing Your Action Plan

6. How will you organize your action plan when you present it to others? What will be at the beginning, middle, and end?

7. What software applications will you use? What pictures, tables, and documents might you design in the word processing software? What type of presentation would you build in the multimedia software? What worksheets and charts might you make in the spreadsheets software?

8. How long do you think it might take to create your presentation? What is the sequence in which the steps must be completed?

Planning and Doing Your Action Plan

9. How will you engage your audience and convince them that applying technology literacy and 21st century teaching and learning skills and approaches will enhance your productivity and professional practices in your classroom?

Step 3

Review your answers. If any questions have not been answered, answer them now. Make any other desired changes as well.

Step 4

Share your plan as directed. Be prepared to answer additional questions. You might even be asked to do more planning and to share your revised plan before approval is given.

Exercise 3: Doing Your Action Plan

Now that your plan has been approved, you are ready to begin doing your action plan. Your goal is to complete work on your action plan by the beginning of the next module. Therefore, make sure you use your time wisely!

Step 1

Reread your approved plan.

Step 2

Gather all your resources and complete any required research. Use available resources such as books, the Internet, or colleagues to find the information you need.

Step 3

Should you need ideas about how to perform a certain task, refer to the activities you completed in earlier modules. Also, look in the Intel® Education *Help Guide* for help with the software.

Challenge: To assist you while you to give your presentation later, type notes for yourself. If you are using multimedia software, type notes in your slides in the Notes area. If you are using word processing software, insert notes as comments where appropriate. Your notes should contain instructions or cues that you should follow while presenting. (For help, see Multimedia Skill 5.15: To add notes to slides for the presentation speaker to use, or Word Processing Skill 11.3: To use Comments to review a document.)

Step 4

Organize your presentation as needed.

Step 5

Save your work as directed.

Note: Module 11 does not have a Take-Home Exercise. Instead, teachers are encouraged to use any available time to complete their action plans prior to the start of Module 12.

Module 11

Planning and Doing Your Action Plan

Module 11 Summary

Step 1

Possible answers include: reflected on Module 10; learned about action plans; planned and did my action plan.

What key points are addressed in this module? List your ideas and those of others as directed on the lines that follow.

Step 2

Possible answers include: an action plan can help me make significant changes in my instruction; an action plan includes goals, instructional strategies and tasks, challenges and solutions, timeline, and resources.

What did you accomplish in this module? List your ideas and those of others as directed on the lines that follow.

Step 3

Ask any questions and share any comments. Learn about and prepare for Module 12: Reviewing and Sharing Your Action Plan.

Module 12

Reviewing and Sharing Your Action Plan

Description: The objective of this module is for you to review your action plan, then share it with your colleagues during a showcase and participate in a constructive feedback session. This will empower you to leave the course with an exciting action plan that details how you will implement new teaching strategies and approaches in your classroom. You will also receive information about developing collaborative work groups, and celebrate your accomplishments.

Exercise 1: Reviewing Your Action Plan

Now that you have finished creating your action plan presentation, you need to review your work and make any changes. You also need to practice giving your presentation to make sure that it lasts approximately five minutes, everything works properly, and your plan is clear and easy to follow.

Step 1

Practice your presentation from start to finish.

Step 2

As you practice, make sure you speak slowly and clearly so that the audience will be able to understand you and your ideas.

Step 3

Make sure your presentation and any associated links, transitions, videos, animations, and sounds work properly on the presentation computer.

Step 4

Print any materials that are needed for the presentation.

Step 5

Consider any questions that you think the audience might ask, and come up with answers in advance.

Reviewing and Sharing Your Action Plan

Step 6

Save your work as directed.

Step 7

Look over your action plan presentation. Make sure it has the following elements:

- Goals that challenge you to make a change in your teaching related to what you have learned
- Tasks that adequately describe specific applications of appropriate instructional strategies
- Practical solutions to anticipated challenges in different areas
- A timeline that includes all the specific tasks you need to accomplish to achieve your goals
- A list containing both the names of a few individuals with whom you can discuss your goals and a collection of varied resources that will help you achieve your goals
- Convincing examples of how applying technology literacy and 21st century teaching and learning skills and approaches will enhance your productivity and professional practices in your classroom

If any of these elements are missing, add them to your presentation now. Share your presentation materials with your trainer. Make any desired changes based on the feedback you receive. Save your work when you are finished.

Exercise 2: Sharing Your Action Plan

You will now share your presentation with your colleagues and invited guests as part of an action plan showcase. A showcase such as this one allows participants to assume the role of critical friends, celebrating accomplishments and providing constructive feedback. Another benefit of holding a showcase is that, when the individuals creating the presentations realize that a wider audience will be viewing their work, they tend to invest more time and develop better presentations. Also, the audience may become excited and encourage presenters to implement their plans.

Reviewing and Sharing Your Action Plan

Step 1

When it is your turn, give your action plan presentation. Remember to speak slowly and clearly so people can understand what you are saying. When you are finished, allow members of the audience to share what they liked and their ideas for improvement.

Step 2

As other teachers give their action plan presentations, watch and listen quietly, and pay attention to the information they are sharing. Think about what you like and ideas for improvement.

Step 3

Are you interested in learning more about action plans? Consider the following next steps.

- Have your students use action plans.

Teaching students to develop their own action plans is an important step on the road to self-directed learning. Even very young children can divide a complex project into individual tasks, anticipate problems, and make timelines. Teachers can scaffold students' development of action plans by giving them a large amount of structure at first and then gradually taking away prescribed components until students are creating an entire action plan on their own. The kind of thinking required for planning and executing an action plan is useful in school, on the job, and in everyday life.

- Engage in action research.

Action research can be a logical next step to an action plan. Action research encompasses many of the features of action plans, but it also includes additional components that formalize an investigative process. Both plans and research focus on goals related to teaching and learning, but action research generally includes a review of relevant research, makes a hypothesis about expected changes in student achievement based on an instructional intervention or innovation, and involves the systematic collection and analysis of data.

Reviewing and Sharing Your Action Plan

Exercise 3: Developing Collaborative Work Groups

Consider generating or obtaining a list of the names and contact information of all individuals participating in the course. After the course concludes, the hope is that you will continue to collaborate and work together with your colleagues from the course as well as with others in your school or learning community who share similar interests and goals. Remember that such individuals can help motivate you and hold you accountable for implementing your action plan. Should you require further assistance beyond this group, check Appendix B for additional information on resources.

Now you are ready to complete a short 15-minute Teacher Training Survey. This survey is for course evaluation. Your feedback is valuable and will help improve the course design and implementation and assure that it meets course goals. Findings from this survey will be reported in statistical summaries only, and feedback from individuals will not be identified.

Exercise 4: Concluding the Course

Step 1

Clean up your work.

You may be asked to save the work you did during the Intel® Teach Getting Started Course to a specified location. After you have done so, remove all files that you created or added during the course from the computer. Clean up your work as needed.

Step 2

Celebrate your accomplishments.

Receive your certificate. Congratulations on successfully completing the course!

Appendix

Frameworks for Describing Thinking **Appendix A**
Resources **Appendix B**
Index **Appendix C**

Appendix

Appendix A

Frameworks for Describing Thinking

Teaching Higher-Order Thinking

Thinking beyond the level of knowledge acquisition is considered complex thinking. Complex thinking requires effort and produces outcomes that may differ from one person to another. The outcomes are not predictable because the process of higher-order thinking is not mechanical. Central to higher-order thinking is the ability to work through new challenges with understanding and empathy and rise to meet those challenges. Current research on higher-order thinking points to a clear conclusion. Instruction that builds on and encourages the use of higher-order thinking skills yields greater levels of student learning. Gains on learning and intelligence measures have been tied to instruction that use a variety of specific techniques (Cotton, 1991), including:

- CREATIVE AND CRITICAL THINKING SKILLS, such as decision making, problem solving, fluency, observation, exploration, classification, and generating hypotheses
- METACOGNITION, including awareness, self-monitoring, and self-regulating

To learn more about teaching thinking, explore the Teaching Thinking section of the Intel® Education *Designing Effective Projects* Web site at:

<http://educate.intel.com/en/ProjectDesign/ThinkingSkills/TeachingThinking/>

Many frameworks have been developed by educational thinkers to help educators and researchers identify and categorize thinking skills. As you read through the following frameworks, consider which ways of looking at thinking best suit your teaching style and subject area.

Bloom's Taxonomy of Educational Objectives (Traditional)

In 1956, Benjamin Bloom wrote *Taxonomy of Educational Objectives: Cognitive Domain*, and his six-level description of thinking has been widely adapted and used in countless contexts ever since. His list of cognitive processes is organized from the simplest, the recall of knowledge, to the most complex, making judgments about the value and worth of ideas.

Frameworks for Describing Thinking

Skill	Definition	Key Words
Knowledge	Recall information	Identify, describe, name, label, recognize, reproduce, follow
Comprehension	Understand meaning, paraphrase concepts	Summarize, convert, defend, paraphrase, interpret, give examples
Application	Use information or concepts in new situations	Build, make, construct, model, predict, prepare
Analysis	Break information or concepts into parts to understand it more fully	Compare/contrast, break down, distinguish, select, separate
Synthesis	Put ideas together to form something new	Categorize, generalize, reconstruct
Evaluation	Make value judgments	Appraise, critique, judge, justify, argue, support

Revised Bloom’s Taxonomy

In 1999, Dr. Lorin Anderson, a former student of Bloom’s, and his colleagues published an updated version of Bloom’s Taxonomy that takes into account a broader range of factors that impact teaching and learning. This revised taxonomy attempts to correct some of the shortcomings found in the original taxonomy. Unlike the 1956 version, the revised taxonomy differentiates between *knowing what* (the content of thinking) and *knowing how* (the procedures used in solving problems).

Cognitive Processes Dimensions

Remembering—Produce the right information from memory Recognizing, recalling
Understanding—Make meaning from educational materials or experiences Interpreting, exemplifying, classifying, summarizing, inferring, comparing, explaining
Applying—Use a procedure Executing, implementing
Analyzing—Break down a concept into its parts and describe how the parts relate to the whole Differentiating, organizing, attributing
Evaluating—Make judgments based on criteria and standards Checking, critiquing
Creating—Put pieces together to form something new or recognize components of a new structure Generating, planning, producing

(continued)

Frameworks for Describing Thinking

The Knowledge Dimension

<p>Factual Knowledge—Basic information Terminology, specific details and elements</p>
<p>Conceptual Knowledge—Relationships among pieces of a larger structure that make them function together Classifications and categories; principles and generalizations; theories, models, and structures</p>
<p>Procedural Knowledge—How to do something Subject-specific skills, algorithms, techniques, and methods; criteria for determining when to use appropriate procedures</p>
<p>Metacognitive Knowledge—Understand of thinking in general and your thinking in particular Strategies, cognitive task requirements, self-knowledge</p>

For more information about the traditional and revised Bloom’s frameworks for describing thinking, visit the following Web site:

http://educate.intel.com/en/ProjectDesign/ThinkingSkills/ThinkingFrameworks/Bloom_Taxonomy.htm

Marzano’s New Taxonomy

Robert Marzano, a respected educational researcher, has proposed what he calls *A New Taxonomy of Educational Objectives* (2000). Marzano developed his new taxonomy to respond to the shortcomings of the widely used Bloom’s Taxonomy and the current environment of standards-based instruction. Marzano’s model of thinking skills incorporates a wide range of factors that affect how students think and provides a strong research-based theory to help teachers improve students’ thinking.

The Three Systems and Knowledge

Self-System		
Beliefs about the Importance of Knowledge	Beliefs about Efficacy	Emotions Associated with Knowledge

Metacognitive System			
Specifying Learning Goals	Monitoring the Execution of Knowledge	Monitoring Clarity	Monitoring Accuracy

(continued)

Frameworks for Describing Thinking

Cognitive System			
Knowledge Retrieval	Comprehension	Analysis	Knowledge Utilization
Recall Execution	Synthesis Representation	Matching Classifying Error Analysis Generalizing Specifying	Decision Making Problem Solving Experimental Inquiry Investigation

Knowledge Domain		
Information	Mental Procedures	Physical Procedures

For further information about Marzano’s Taxonomy, visit the following Web site:
http://educate.intel.com/en/ProjectDesign/ThinkingSkills/ThinkingFrameworks/Marzano_New_Taxonomy.htm

Related Frameworks

While the taxonomies of Bloom and Marzano continue to be the most well-known ways of describing levels of thinking, other educators have also contributed significant ideas to this important field.

Paulo Freire and Critical Literacy

The educational approaches of Brazilian educator Paulo Freire have had a significant impact around the world, but particularly in Latin America. Freire’s framework, which is based on his experience teaching literacy to poor adults in South America, focuses on the role of education in empowering people to transform their lives.

Freire’s work critiques what he calls the “banking” theory of education. From this perspective, teachers hold all the important knowledge. They “deposit” the knowledge into the minds of their students, and students “patiently receive, memorize, and repeat” what they have learned (Freire, 1993, p. 43). Freire proposes that individuals learn in the context of the world they live in, with real-life problems and situations.

Freire’s model of education emphasizes higher-order thinking, but the kind of thinking he promotes is situated in a revolutionary context. He maintains that all aspects of a person’s life, reading and writing as well as everyday tasks, take place in a political and social arena. Learning to read the “world” as well as the “word” helps people understand how they have been oppressed and empowers them to become liberated. This process from oppression to liberation is called praxis, “the action and reflection of men and women upon their world in order to transform it” (Freire, 1993, p. 51).

Frameworks for Describing Thinking

Freire's approach to education is often called *critical literacy*. This approach is similar to what other thinkers in this area would call *critical thinking*, but critical literacy incorporates a decidedly political perspective. Critical thinking, in the traditional sense, asks thinkers to examine their own biases and assumptions, so they can ask questions of texts and ideas, in order to discover the truth. In contrast, critical literacy assumes that language is always used for a political purpose. When people are critically literate, they go beyond recognizing the flaws in their own thinking to identifying how language preserves oppressive power structures.

For further information about Freire and his educational theories, visit the following Web sites:

Paulo Freire: Chapter 2 of *The Pedagogy of the Oppressed*

www.webster.edu/~corbetre/philosophy/education/freire/freire-2.html

The second chapter of Freire's landmark book on pedagogy and critical literacy

Paulo Freire

www.ibe.unesco.org/publications/thinkers.htm (PDF, 16 pages, English, French, Spanish)

A biography of Freire and his theories published by UNESCO (United Nations Educational, Scientific, and Cultural Organization)

Howard Gardner and Multiple Intelligences

Throughout the last decade, a growing number of educators have adopted Howard Gardner's theory of multiple intelligences. Logical/mathematical and linguistic intelligences—the two ways of thinking most valued in schools—are only two of eight intelligences described by Gardner. According to Gardner's biological and cultural research, the other six intelligences are spatial, musical, bodily/kinesthetic, interpersonal, intrapersonal, and naturalist.

Logical-Mathematical	Ability to detect patterns, reason deductively, and think logically. This intelligence is most often associated with scientific and mathematical thinking.
Linguistic	Mastery of language. This intelligence includes the ability to effectively manipulate language to express oneself rhetorically or poetically. It also allows one to use language as a means to remember information.
Spatial	Ability to manipulate and create mental images in order to solve problems. This intelligence is not limited to visual domains.
Musical	Capability to recognize and compose musical pitches, tones, and rhythms.

Frameworks for Describing Thinking

Bodily-Kinesthetic	Ability to use one’s mental capacities to coordinate one’s own bodily movements. This intelligence challenges the popular belief that mental and physical activity are unrelated (ERIC, 1996, p. 2).
Interpersonal	Core capacity to notice distinctions among others; in particular contrasts in their moods, temperaments, motivations, and intentions (Gardner, 1993, p. 42).
Intrapersonal	Access to one’s own feeling life, one’s range of emotions, the capacity to effect discriminations among emotions and eventually to label them and to draw on them as a means of understanding and guiding one’s own behavior (Gardner, 1993, p. 44).
Naturalist	Expertise in the recognition and classification of plants and animals. The same skills of observing, collecting, and categorizing might also be applied in the “human” environment (Campbell, 2003, p. 84).

Costa and Kallick and 16 Habits of Mind

Art Costa and Bena Kallick identified the 16 Habits of Mind used by effective thinkers when confronted with a challenging problem. Art Costa says a habit of mind “is knowing how to behave when you don’t know the answer” (Costa & Kallick, 2000–2001). Employing a habit of mind requires many skills, attitudes, and learned behaviors. These behaviors are not performed in isolation but in clusters. The 16 Habits of Mind (shown in the following table) is not a complete list, but it’s a beginning point for discussion on how people display their intelligence.

16 Habits of Mind	Description
Persisting	Ability to sustain a problem solving process over time.
Managing Impulsivity	Ability to think before acting, intentionally forming a plan before beginning a task.
Listening to Others with Understanding and Empathy	Ability to listen to other people, to empathize with and to understand their points of view.
Thinking Flexibly	Capacity to change one’s mind as additional data is received. Ability to approach a problem from a new angle using a novel approach.

(continued)

Frameworks for Describing Thinking

16 Habits of Mind	Description
Thinking about Thinking (Metacognition)	Ability to develop a plan of action, maintain that plan in mind over a period of time, and then reflect on and evaluate the plan after its completion. Aware of one's actions and the effect of those actions on others and on the environment. Ability to explain one's strategies of decision making.
Striving for Accuracy and Precision	Valuing of accuracy, precision, and craftsmanship.
Questioning and Posing Problems	Knowing how to ask questions to fill in the gaps between what is known and unknown. Ability to recognize discrepancies and phenomena in one's environment and probe into their causes.
Applying Past Knowledge to New Situations	Ability to abstract meaning from one experience, carry it forth, and apply it in a new and novel situation.
Thinking and Communicating with Clarity and Precision	Striving to communicate accurately in both written and oral form, taking care to use precise language, define terms, and use correct names, universal labels, and analogies.
Gathering Data through All Senses	Deriving information from the environment by observing or taking it in through the senses.
Creating, Imagining, and Innovating	Trying to conceive problem solutions differently, examining alternative possibilities from many angles, using analogies, starting with a vision and working backward, taking risks, and pushing the boundaries of one's perceived limits.
Responding with Wonderment and Awe	Maintaining curiosity, enthusiasm, and passion about learning, inquiring, and mastering.
Taking Responsible Risks	Accepting confusion, uncertainty, and the higher risks of failure as part of the normal process. Learning to view setbacks as interesting, challenging, and growth producing.
Finding Humor	Using humor and laughter to liberate creativity and provoke such higher-level thinking skills as anticipation, finding novel relationships, visual imagery, and making analogies. Having a whimsical frame of mind, finding incongruity, and perceiving absurdities, ironies, and satire.
Thinking Interdependently	Heightened ability to think in concert with others. Ability to justify ideas and to test the feasibility of solution strategies on others. Willingness and openness to accept the feedback from a critical friend.
Learning Continuously	Constantly searching for new, better ways and always striving for improvement, growth, knowledge, self-modification, and self-improvement.

Summarized from: Costa & Kallick's "Describing 16 Habits of Mind".

Frameworks for Describing Thinking

Learn more about the 16 Habits of Mind by visiting the following Web site:

http://educate.intel.com/en/ProjectDesign/ThinkingSkills/BeliefsAndAttitudes/Habits_of_Mind.htm

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Appendix B

Resources

You might consider reading the resources in this section to learn more about the featured educational theories and methods. **[NOTE: The localization team needs to insert the names of print and Internet resources available in the local language.]**

Books

Brooks, J. G., & Brooks, M. G. (1999). *In search of understanding: The case for constructivist classrooms*. Alexandria, VA: ASCD. ISBN: 0-87120-358-8.

Campbell, L., Campbell, B., & Dickinson, D. (2004). *Teaching and learning through multiple intelligences, 3rd edition*. Boston, MA: Allyn & Bacon. ISBN: 0-2-5-36390-3.

Johnson, D. W., Johnson, R. T., & Johnson Holubec, E. (1998). *Cooperation in the classroom, 7th edition*. Edina, MN: Interaction Book Company. ISBN: 0-939603-04-7.

Kagan, S. (1994). *Cooperative learning*. San Clemente, CA: Kagan Cooperative Learning. ISBN: 1-879097-10-9.

Katz, L. G., & Chard, S. C. (2000). *Engaging children's minds: The project approach, 2nd edition*. Stamford, CT: Ablex Publishing Corporation. ISBN: 1-56750-500-7.

Moursund, D. (2003). *Project-based learning using information technology, 2nd edition*. Eugene, OR: ISTE. ISBN: 1-56484-196-0.

National Research Council. (2000). *How people learn: Brain, mind, experience, and school, expanded edition*. Washington, DC: National Academy Press. ISBN: 0309070368.

Torp, L., & Sage, S. (2002). *Problems as possibilities: Problem-based learning for K-16 education*. Alexandria, VA: ASCD. ISBN: 0-87120-574-2.

21st Century Skills Internet Resources

Digital Transformation: A Framework for ICT Literacy (2002)

www.ets.org (Research Monographs, 52 pages)

EnGauge 21st Century Skills (2003)

www.ncrel.org/engage/skills/engage21st.pdf (PDF, 88 pages)

Learning for the 21st Century (2004)

www.21stcenturyskills.org/index.php?option=com_content&task=view&id=29&Itemid=42

Bloom's Taxonomy of Thinking Skills Internet Resources

Bloom's Revised Taxonomy

<http://coe.sdsu.edu/eet/articles/bloomrev/index.htm>

Task Oriented Question Construction Wheel Based on Bloom's Taxonomy

www.stedwards.edu/cte/resources/bwheel.htm

Learning Domains or Bloom's Taxonomy

www.nwlink.com/~donclark/hrd/bloom.html

Applying Bloom's Taxonomy

www.teachers.ash.org.au/researchskills/dalton.htm

Facilitation Skills Internet Resources

Coaching to Improve Classroom Literacy Instruction

http://cri.cps.k12.il.us/workshop_materials/classroom_observations.ppt

Facilitation: A Different Pedagogy?

By Ms Shu Moo Yoong

www.cdtl.nus.edu.sg/link/mar2002/tm4.htm

Graduating from Teacher to Facilitator in the Technology-Rich Classroom

www.4teachers.org/testimony/webb/index.shtml

Introduction to Teaching: Facilitation Skills

<http://discovery.rp.edu.sg/home/CED/facilitators/skills.htm>

On Giving Good Directions

www.youthlearn.org/learning/teaching/directions.asp

Starter Activities: Belief Circles—Suggested Statements

www.sda-uk.org/statements.html

The Teacher as Facilitator by Vito Perrone

www.learningpod.com/article/0,1120,5-2166,00.html

Other Internet Resources

A Lexicon of Learning: What Educators Mean When They Say...

www.ascd.org/cms/index.cfm?TheViewID=1112

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MT Appendix D

Course Delivery Guidelines

The Intel® Teach Getting Started Course is organized in a modular format to allow for a flexible delivery schedule. However, to maintain high quality, the following delivery guidelines have been established:

- Start implementing your first course for Participant Teachers within 30 days of completing your Master Teacher training.
- Finish implementing your first course for Participant Teachers within 90 days of completing your Master Teacher training.
- Complete modules in order.
- Choose a course agenda to fit your Participant Teachers' needs. The course can be implemented in two ways:

24-Hour Course

Module	Hours
Course Introduction and Module 1: Developing 21st Century Skills	2
Module 2: Learning Computer Basics and the Internet	2
Module 3: Fostering Critical Thinking and Collaboration	2
Module 4: Discovering Word Processing	2
Module 5: Applying Word Processing	2
Module 6: Discovering Multimedia	2
Module 7: Applying Multimedia	2
Module 8: Discovering Spreadsheets	2
Module 9: Applying Spreadsheets	2
Module 10: Developing 21st Century Approaches	2
Module 11: Planning and Doing Your Action Plan	2
Module 12: Reviewing and Sharing Your Action Plan	2
Total Hours	24

(continued)

Course Delivery Guidelines

32-Hour Course

Module	Hours
Course Introduction and Module 1: Developing 21st Century Skills	2
Module 2: Learning Computer Basics and the Internet	2
Module 3: Fostering Critical Thinking and Collaboration	2
Module 4: Discovering Word Processing	2
Module 5: Applying Word Processing	4
Module 6: Discovering Multimedia	2
Module 7: Applying Multimedia	4
Module 8: Discovering Spreadsheets	2
Module 9: Applying Spreadsheets	4
Module 10: Developing 21st Century Approaches	2
Module 11: Planning and Doing Your Action Plan	2
Module 12: Reviewing and Sharing Your Action Plan	4
Total Hours	32

Note: The 32-hour course affords Participant Teachers more time for applying word processing, multimedia, and spreadsheets, and for reviewing and sharing their action plans.

- The course must be implemented for a minimum of four hours per week. Accordingly, the 24-hour course must be completed within 6 weeks, and the 32-hour course must be completed within 8 weeks of the start date.

MT Appendix E

Training Preparation Checklist

The following checklist identifies both required and suggested items for making your training run smoothly.

Required Items

- Be sure you have ordered all training materials well in advance of the start of training.
- Visit the computer lab several days prior to the start of training. Talk to the technology contact and find out information on the lab rules, passwords, firewalls, downloading/saving restrictions or procedures, and so on. Ensure that the following minimum requirements for system configurations and software applications are met on each computer:

Hardware

- Intel® Pentium® processor 200 MHz (performance level or better) or compatible processor
- Microsoft Windows 2000* (including Service Pack 2 and Microsoft Paint*) operating system or above
- Minimum of 128 MB of RAM (256 MB preferred)
- Minimum of 500 MB of hard disk drive space (1 GB preferred)
- 800 x 600 screen resolution or higher
- Internet connection
- CD-ROM drive

Internet Browser

- Microsoft Internet Explorer 6.0* or above, set as the default browser, or
- Mozilla Firefox 1.5* or above, set as the default browser

Software

- Adobe Acrobat Reader 7.0* or above
- Spreadsheet software (Microsoft Excel 2000* or above, or OpenOffice.org Calc 2.0* or above)
- Multimedia software (Microsoft PowerPoint 2000* or above, or OpenOffice.org Impress 2.0* or above)
- Word processing software (Microsoft Word 2000* or above, or OpenOffice.org Write 2.0* or above)

Training Preparation Checklist

- Prepare and test the Intel® Education *Help Guide* application.
- Have all your contact numbers with you, such as those of your LEA, technology contact, and so forth.
- Ensure a working phone (with an outside line) is in the computer lab and find out if any access numbers are necessary, or bring a cell phone.
- Ensure that Pair and Share strategies and materials are ready. See MT Appendix F.01 for more information on Pair and Share exercises.
- Print class attendance sheets, if needed.
- Prior to the start of Module 2: Exercise 2, ensure that the shortcut for the Internet browser exists on all desktops.

Suggested Items

- Prior to each required activity, follow the steps to make a sample to share with the participants. Consider sharing real-world samples when applicable.
- Check on the use of a copy machine and bring a ream of paper.
- Use red cups, a flag system, or some other method to know when participants need help.
- Create name tags and name tents.
- Distribute comment and question cards to elicit feedback from participants. Collect the cards at the end of each module, and address comments and answer questions at the beginning of the next module.
- Create a food sign-up sheet. On the first day, have participants sign up to bring snacks for one of the modules, and have drinks available.
- Distribute a map and/or list with local places to eat if you will be breaking for meals.
- Have extra pens, pencils, highlighters, and sticky notes available.
- Ensure supplies are available, such as markers for white boards, printer paper, chalk, and so on.
- Have contingency plans prepared that address potential technical problems or power outages.
- If you are training at a location other than your own, talk to the custodian and secretary, introduce yourself, confirm dates, and confirm start and end times.
- Contact participants to ensure they know course details.

MT Appendix F: Facilitating Exercises and Activities

Pair and Share

Beginning in Module 2 and continuing through Module 11, participants are asked to Pair and Share their reflections from the previous module. As you facilitate each Pair and Share, consider the following implementation and pairing strategies.

Suggested Implementation Strategies

- Explain that Pair and Share reflections are part of almost every module and are considered to be an important part of the learning process, helping individuals process information, develop communication skills, and refine their thinking.
- Tell participants that a Pair and Share should be more of a discussion and exchange of ideas, rather than a situation in which two or more partners are taking turns telling their answers.
- Consider having the participants use the 3-2-1 model: Ask three questions about the other person's answers, comment on two things you liked, and then offer one suggestion.
- If Pair and Share is a new concept for many participants, consider having a pair model what should be done in front of their colleagues.
- During a Pair and Share, monitor, walk around to see and hear what is being discussed, reinforce desired behaviors, and intervene as needed.
- Upon conclusion, summarize both common and interesting ideas.

Sample Pairing Strategies

- **Buttons:** Gather pairs of identical buttons. Each pair should be unique, each with its own special size, shape, texture, color, and so on. Place the pairs of buttons in a bag, and ask each participant to select one button. Participants with matching buttons become partners for Pair and Share.
- **Name Tags:** Collect the name tags from half the participants, and place them in a bag. Ask the remaining participants wearing name tags to select a name tag to determine partners for Pair and Share.
- **Playing Cards:** Using a deck of playing cards, have participants each draw a card, then look for the matching card. For example, a participant who draws a jack of spades looks for another participant holding a jack of any other suit.
- **Stickers:** Collect pairs of stickers. Each pair should have a unique image, size, shape, texture, color, and so on. Place the stickers in a bag, and ask each participant to select one sticker. Participants with matching stickers become partners for Pair and Share.

Required Activities

Master Teachers must facilitate required technology activities with the whole group in three instances during the Intel® Teach Getting Started Course:

- **Module 4:** Discovering Word Processing (Assessment Handout)
- **Module 6:** Discovering Multimedia (Curriculum Preview)
- **Module 8:** Discovering Spreadsheets (Grade Book)

The following shows a generic description of the sequence of learning events that should occur. Approximate times for each learning event appear in parentheses. Specific details relating to each activity can be found within the corresponding margin notes of the curriculum manual.

Introductory Paragraph (5 minutes)

1. Ask participants to read along as you read aloud the paragraph; as questions appear, allow time for participants to respond before continuing.
2. Show participants an appropriate and locally relevant example of the product (such as an assessment handout, a curriculum preview, a grade book, and so on) that they are to make on the computer.

Plan It (10 minutes)

1. Show participants the example appearing within the Plan It section, as well as an appropriate and locally relevant example of the product that you created on the computer.
2. Facilitate discussion regarding the planning questions, telling participants that they must plan on paper and get their plans approved before they can begin doing and using the computer.
3. Remind participants to use the identified *Help Guide* resources as they plan, do, review, and share.

Do It (30 minutes)

1. After the plans of most participants are approved, briefly highlight a few key steps from the Do It section and stress the importance of reading and following the directions in the order in which they appear.
2. Remind participants that the Challenges and corresponding Challenge Examples may either be required or optional for those who are interested.

Facilitating Exercises and Activities

Review It (5 minutes)

1. After most participants have completed all the steps in the Do It section, introduce the list of required elements, and ask participants to make any required or desired changes.
2. Direct participants to save their work to the corresponding folder (such as Word Processing, Multimedia, Spreadsheets, and so on) in a predetermined location.

Share It (10 minutes)

1. Ask participants to display on screen the product they want to share.
2. Divide the class in half, and ask one half to walk around and view products created by their colleagues while the other half remains seated at their computers to introduce their products and to answer questions. After a few minutes, the two halves switch roles.
3. After a few minutes, ask all participants to return to their seats.
4. Have participants share their answers for each question.
5. Ask participants to close and exit any software applications.

Word Processing

Some adult computer users have never created a digital picture, completed a spreadsheet table, or designed a multimedia presentation. However, practically all adult computer users have used word processing technology to write a letter, prepare a report, or create a greeting card. Among adults, word processing is perhaps the most common use of computer technology.

Despite the many common uses of word processing applications, adults often consider word processing to be their least favorite technology area. One reason is that many adults' keyboarding skills are limited. As a result, typing lots of information into a document is often difficult and time-consuming for adults.

The word processing activities have been developed in a way that allows teachers to learn basic word processing skills without having to type lots of information. Unlike other traditional word processing classes in which teachers are provided with multi-page templated documents that they use to edit and format text, the word processing activities consist of single-page documents that teachers create from scratch. In fact, many of the word processing projects resemble documents that teachers would normally complete in a desktop publishing application. The limited amount of text and heavy use of images increases teacher interest in the technology. It also lets them learn basic text formatting and editing skills while simultaneously providing opportunities to move beyond the commonly perceived limitations of word processing technology.

General Strategies

The featured word processing activities provide opportunities for teachers to practice their mouse and keyboarding skills while they complete a range of projects related to their profession. Teachers begin by applying basic text and paragraph formatting skills to complete the required Assessment Handout activity. Afterwards, teachers who want to explore some of the graphics and desktop publishing features in the word processing software may decide to complete either the Certificate or Diagram activity. Meanwhile, teachers who are interested in more advanced word processing skills may choose to complete the Weekly Lesson Planner activity, which introduces word processing tables, or the Newsletter activity, which involves complex page layout and automated text formatting skills.

Facilitating Exercises and Activities

When teachers complete the word processing activities, consider the following general strategies:

- The provided samples in the manual may include more text than teachers will be able to type. Instruct teachers to do what they can. In most instances, they can complete all of the word processing skills by typing only a few sentences.
- Unless teachers are specifically instructed to create a text box before typing their text, teachers are expected to type the information in the body of the document. By providing opportunities to learn different ways of typing and formatting text, teachers develop more complete understandings of word processing technology.
- Some teachers will spend too much time experimenting with various text fonts, sizes, and styles. When completing these word processing activities, consider encouraging teachers to write first and then format their text later.
- To complete certain projects, teachers need to identify and include appropriate clip art. Because many of the options they will find in the clip art gallery/organizer or online may not be ideal for teachers, consider locating clip art in advance. Then, save the files in an easy-to-locate folder on each computer's hard disk drive or on a shared network server.
- Scanners, digital cameras, and other devices are not required to complete the word processing activities. However, teachers should feel free to use these devices if they are available.

Multimedia

Despite multimedia's technical complexity, it is the technology area that teachers are most excited to work with. The movement, sound, animation, and video featured in multimedia software and other multimedia programs are fun to explore. Additionally, some teachers may have some familiarity with multimedia technology, having had some experience using multimedia CDs.

Multimedia involves the use of many methods of communication (such as words, pictures, sound, animation, and video) to effectively convey information. By definition, many of the projects that teachers have already completed could be considered "multimedia" because they contain both words and pictures. However, most computer users think that other elements, such as music, sound, animation, and video, are needed to create a true multimedia project. Regardless of how many types of media are included in a presentation, multimedia technology helps teachers become active learners. It also increases interest and motivation.

The featured multimedia activities provide good opportunities for teachers to learn important multimedia skills, as well as practice many of the graphics and word processing skills that they have learned in the previous technology area. Conceptually, these activities are deceptively difficult because teachers must consider ways to organize and present their information on multiple slides, not on a single-page document. Additionally, teachers need to consider the most effective way to communicate different types of information. Sometimes, text alone is more effective than text, sound, pictures, and animation. Other times, animation and special effects are appropriate. By making multimedia design decisions, teachers develop critical thinking and evaluation skills.

General Strategies

The featured multimedia activities enable teachers to develop higher-order thinking skills while they learn important ways to use technology in their classrooms. Teachers begin by applying a variety of fundamental multimedia skills in the creation of the required Curriculum Preview activity. Teachers may then decide to complete the Student of the Week or Instructional Lesson activities, which provide opportunities to expand on basic multimedia skills by adding transitions and preset animation. However, teachers with more advanced multimedia skills may choose to complete the Classroom Rules and Expectations or Yearbook activities, in which action buttons are used to create branching presentations. Teachers who are ready for additional challenges also have opportunities to insert sound and music files, record their voices, adjust the timing of special effects, and create custom animation effects.

Facilitating Exercises and Activities

When teachers complete multimedia activities, consider the following general strategies:

- Teachers will enjoy adding transitions, animation, sound effects, and other multimedia features to their presentations. In fact, the challenge with multimedia technology is less technical than aesthetic. Teachers may be inclined to add so many effects to their slides that their information may be hard to read and understand. For the purposes of learning and exploring, teachers should be allowed to include whatever features and effects they have the time and ability to add.
- In all preceding activities, teachers have completed products that consist of a document. In the multimedia activities, teachers must complete presentations with multiple slides. This might be difficult for some teachers because they are used to putting all of their information on a single page. During the planning stage, teachers must begin to think about how they might organize their information on multiple slides. As a result, the planning process should focus more on informational organization and structure (sometimes called storyboarding) and not on the actual appearance or design of each slide.
- To complete certain projects, teachers need to identify and include appropriate clip art, sound and music files, and perhaps animation and video clips. Because much of the artwork they will find in the clip art gallery/organizer or online may not be ideal for teachers, consider locating suitable multimedia files in advance. Then, save the files in an easy-to-locate folder on each computer's hard disk drive or on a shared network server. If using the Microsoft Windows* platform, many usable sound files can be found in the Media folder located in the Windows folder on a computer's hard disk drive.
- Be certain to adjust the volume on the computers' speakers so teachers will be able to hear the sound and music in their presentations. Even if the computers do not have external speakers, most have built-in speakers in the CPU or on the monitors that will play sound.
- In some activities, teachers have the opportunity to record their voices. If available, handheld microphones should be used because they produce the best recorded sound. Many computers also contain a built-in microphone (often on the monitor). These may be used, but the quality of any voice recordings may be poor. If no microphones are available, teachers should skip these steps.
- To help teachers add text and pictures to their slides, they are usually instructed to insert a specific type of slide. However, teachers may insert another type of slide instead. If needed, they can follow the same procedures they used during the previous word processing activities to create a text box or insert a picture. They can also delete any text or picture boxes that they do not need.
- When you transfer a presentation to a disk, CD, another computer, or an external storage device, all of the sound and video files must be saved with the presentation. Be certain to use the Pack and Go wizard (**File** ⇒ **Pack and Go**), or equivalent, to conveniently save all required media files with a presentation file.

Spreadsheets

Some computer technologies come naturally to teachers. Word processing poses few challenges because most teachers have already completed equivalent handwritten projects, such as writing a letter or a report. Despite multimedia's complexity, many teachers manage to complete multimedia projects because they have already experienced interactive design through multimedia CDs or even informational kiosks at museums or train stations.

Unfortunately, the same cannot be said about spreadsheet technology, which can pose unique challenges to teachers. The challenges do not lie with the actual spreadsheet programs or the inherent difficulty of the technology. Rather, complications arise because few teachers have experience gathering, organizing, manipulating, and interpreting large amounts of numeric data. Additionally, few teachers possess an understanding of why a particular type of chart is the most suitable visual representation for a specific set of data.

Given these potential challenges, some trainers may wonder why they should teach spreadsheets to teachers. The answer lies in the fact that certain computer technologies, including spreadsheets, are more likely to develop higher-order thinking skills than other technologies, including word processing and multimedia. While "show-and-tell" applications such as word processing and multimedia provide teachers with unique and effective ways to communicate ideas, spreadsheet applications offer greater opportunities for analysis, synthesis, and evaluation.

By using spreadsheet technology, teachers use abstract and concrete reasoning as they gather and manipulate numeric information that reflects real-world phenomena. Critical-thinking skills are required to organize, arrange, and classify data; to perform calculations; to analyze and interpret data and results; and to make predictions and form conclusions. Despite all of these advantages, spreadsheet technology is rarely used in classrooms, and in instances when teachers have the opportunity to complete spreadsheet activities, they are typically limited to inputting and charting information. This limited use is little more than another example of a "show-and-tell" application. To maximize the educational value of spreadsheet technology, teachers should be expected to use the numeric information and charts to answer questions or solve problems. This critical element to spreadsheet activities both requires higher-order thinking and approximates real-life application of the technology.

General Strategies

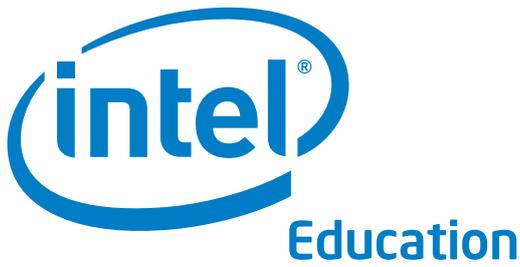
The featured spreadsheet activities provide instruction in the various ways that teachers may use spreadsheet technology in their daily lives. First, all teachers complete the required Grade Book activity, which features critical spreadsheet skills, such as entering and formatting data, sorting information, and performing calculations. Teachers looking to develop more advanced knowledge of traditional spreadsheet skills, including entering their own mathematical equations and generating charts based on numeric data, may then choose to complete the Classroom Inventory or Pictograph activity. Other teachers may be more interested in learning some of the less traditional and less difficult applications of spreadsheet technology by completing the Seating Chart or Roll Book activity.

When teachers complete spreadsheet activities, consider the following general strategies:

- The system of lettered columns (labeled along the top edge of the worksheet) and numbered rows (labeled down the left side of the worksheet) may initially confuse some teachers. During the spreadsheet exploration, point out that the letter and number of the cells that teachers click is shown in the name box above the worksheet window. Also, mention that the column letter and the row number changes whenever teachers click a cell. Either (or both) of these strategies can be used to help teachers become familiar with cell references and the system of rows and columns.
- Whenever teachers enter numeric information into a worksheet, they need to type the actual numerals and not the words for those numeric quantities. (For example, teachers need to type the numeral 5 instead of the word *five*.) If they do not type numerals, their formulas, functions, and charts will not work properly.
- Sometimes, a spreadsheet task can be completed in more than one way. (For example, teachers can sort alphabetically by clicking a toolbar button or by choosing the desired commands from a menu.) Encourage teachers to use whichever methods they are most comfortable with.
- Some teachers may decide that performing mathematical calculations on their own and typing the answers is easier than inserting functions and formulas. However, teachers should be instructed to insert functions and formulas as directed. Then, teachers will be able to use the **Fill** command to perform the same calculations in neighboring cells. In the process, teachers will also develop better understandings of the benefits of spreadsheet technology.
- Many teachers feel that spreadsheet activities are like mathematics problems, and as such, teachers might be concerned about “getting the correct answer.” Let teachers know that they should focus on learning how to use spreadsheets, not on getting the correct answer. They can learn a lot about spreadsheets even when they make mistakes, and mistakes can be fixed. Over time, teachers will become more familiar with the technology and develop confidence in their abilities to try new things.

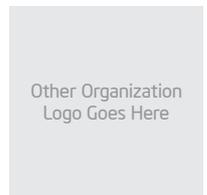
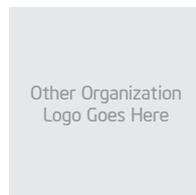
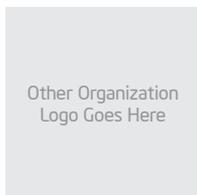
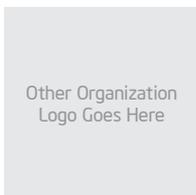
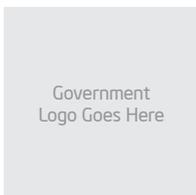
Facilitating Exercises and Activities

- Spreadsheet applications enable teachers to quickly perform calculations, organize information, and generate charts. Skilled spreadsheet users consider the automated features invaluable. On the other hand, the same features can create a sense of discomfort and anxiety in novice users. When teachers use the automated spreadsheet features, they will notice that something has happened. However, they may not understand what has happened or know if they have achieved the desired results. You can increase teacher understanding in a number of ways:
 - Whenever teachers perform calculations (such as using the **Sum** function), encourage them to check their answers. Because the mathematics in the activities is easy for most teachers, they can often determine if they have correctly selected the cells and performed the calculation if they add the numbers themselves. If they find that they have made a mistake, they can use the **Undo** function (or delete the formula) and try again.
 - Although teachers may initially find the process of sorting information to be difficult, encourage them to explore until they achieve the desired results or until they find a sequence that makes sense to them. Remind them that they do not have to get it right the first time. They can always use the **Undo** function to put the rows back into the previous order and try again.
 - Some teachers are unfamiliar with the unique purpose of the various charts they create. However, by generating the charts and discussing the visual display of worksheet data, their understanding will develop gradually. Teachers may also experience difficulty selecting the required information to correctly create the chart. They may also be unable to determine if their generated charts are correct. Encourage teachers to compare their charts to the sample charts in their books. If they think that they may have made a mistake, instruct them to try again until their charts look correct. Later, they can delete any worksheets containing incorrect charts. (They can also select and delete any incorrect charts mistakenly placed in the worksheet itself.)
- Most teachers enjoy changing the look of the information in their worksheets and applying borders and shading to cells, rows, and columns. As a result, they often invest too much time in this task and avoid the steps that they perceive to be more difficult. You might need to encourage teachers to move on to the remaining steps so they can complete the activity and review their work in the allotted time. They can always make additional changes later if time permits.
- In the activities that involve creating charts, teachers are instructed to save them in a separate sheet. However, teachers can also save their charts in the worksheet.



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Statement of Alignment

The International Society for Technology in Education reviewed the **Intel® Teach Getting Started Course** on November 27, 2006 and determined that the program clearly supports the implementation of the ISTE National Educational Technology Standards (NETS) for Teachers in a specific, carefully reviewed and documented manner and prepares participants to substantially meet the following standards:

NETS-T ALIGNMENT

- Meets: : I.A., IV.B., V.C.
- Supports significant growth for: I.B., IV.A., V.A., V.B., V.C.

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Version 2.0 XXXX/XXX/XXX/XX/XX XXXXXX-001XX