



Infusing Technology Into Elementary Curriculum

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FUTUREKIDS, Inc.

June 2002 – First Printing

FUTUREKIDS, Inc.
1000 N. Studebaker Road
Long Beach, CA 90815

Manufactured in the United States of America
ISBN: 1-58739-401-4

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Part 1:

Introduction

Overview

Infusing Technology Into Elementary Curriculum is a practical new professional development tool for elementary school teachers. Whether used as a self-study guide or as part of an integration course, this innovative approach enables teachers to integrate technology into their curriculum after working through the process.

This guide leads teachers through the design, creation and implementation of a technology-infused lesson that is based on teachers' existing instructional plans. As a first step, the teacher works through one or several of the 20 classroom-ready sample integrated projects. Next, the teacher follows a step-by-step guide for creating a technology-infused project based on the teacher's currently available instructional materials. The guide also includes suggestions for considering teaching style, classroom needs, available technology tools, curriculum requirements and relevant standards. The organization of the course is flexible and adaptable and builds on teachers' strengths and content knowledge.

Infusing Technology Into Elementary Curriculum includes:

- A resource CD-ROM
- Practical advice for maximizing the benefits from every session
- Twenty (10 lower elementary and 10 upper elementary) standards-based projects for use as both samples and as actual classroom projects
- Suggestions for adapting the project creation process to individual teacher needs and styles
- A range of Internet resources
- A sample student assessment rubric
- Reference and resource material for the software applications used to create projects
- A glossary of technology terms

Teachers who are interested in integrating technology into their curriculum will find no better process than *Infusing Technology Into Elementary Curriculum*.

Required Materials

PC with at least 64 MB of RAM and Internet access

CD-ROM drive

USB or Zip drive

Infusing Technology Into Elementary Curriculum course book and a resource CD-ROM

Microsoft Office 2007 (includes *Access*, *Excel*, *PowerPoint* and *Word*)

Microsoft Publisher 2007

Internet Explorer or *Netscape Navigator*

Printer (color, if available)

Organization of the Course Materials

Course Book

The course book is divided into three parts and an appendix containing practical advice and simple techniques.

The **Introduction** presents an overview of the course and introduces the software applications used in each sample project.

The **Sample Projects** section includes 20 fully developed technology-infused projects that are ready for immediate use in the classroom. The model projects are practical, clearly outlined and adaptable to different grade levels. They involve a range of technology skills and software applications. Each project includes a teacher guide component and a student handout. The teacher guide includes materials, prerequisites, process overview, assessment ideas and extension activities. Each guide also cites relevant content standards from the National Council for Teachers of English (NCTE), National Science Education Standards (NSES), National Council for the Social Studies (NCSS) and the National Council of Teachers of Mathematics (NCTM), and performance indicators from the National Educational Technology Standards (NETS) established by the International Society for Technology in Education (ISTE). Projects requiring Internet resources include useful Web sites. In addition, a project analysis form provides a series of reflective and evaluative questions to gauge the effectiveness and usefulness of the sample technology-infused lessons.

The **Creation Process** section is a guide through the process of conceptualizing, developing and implementing original technology-infused projects. It also provides assessment tools for evaluating student performance and project quality.

The **Appendices** section contains a broad range of excellent resources found on the Web, reference material for the software applications on which the projects are based, and a glossary of useful technology terms.

Resource CD-ROM Contents

Electronic templates and lesson samples in *Office 2007*

Files of assessment tools

List of relevant Internet resources

Technology Reference Guide for *Office 2007*

Tips for troubleshooting computer problems

Glossary of computer terminology

Software Applications

<i>Microsoft Access 2007*</i>	A relational database program, <i>Microsoft Access</i> integrates and organizes data so that information can be found quickly and easily. Users can modify and explore existing templates to build an understanding of database functions and importance.
<i>Microsoft Excel 2007*</i>	This comprehensive spreadsheet program enables users to analyze, report and share data. <i>Microsoft Excel</i> can be used to manipulate and analyze data within a spreadsheet, as well as create tables, charts and graphs to display information.
<i>Internet Explorer</i>	This Web browser allows users to connect to the Internet and access a wide variety of information. <i>Internet Explorer</i> enables users to access search engines and directories, view Web sites and gain a thorough understanding of the Internet. <i>Netscape Navigator</i> may be substituted.
<i>Microsoft PowerPoint 2007*</i>	With <i>Microsoft PowerPoint</i> , users can create multimedia presentations to illustrate and deliver ideas.
<i>Microsoft Publisher 2007</i>	This desktop publishing program incorporates a grid system that splits parts of the page, providing users with a canvas for placing words and pictures. Functions allow for manipulation of images, text and graphics.
<i>Microsoft Word 2007*</i>	With this wordprocessing application, users may edit and format text, create tables, insert graphics, design headers and footers and link information between documents. The program features automatic Grammar and Spell Check functions as well as Internet capabilities.

*These programs are bundled as part of *Microsoft Office 2007*.

Microsoft Office 2007 is available in the following languages: Arabic, Basque, Brazilian, Chinese-Simplified, Chinese-Traditional, Croatian, Czech, Danish, Dutch, English, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Slovak, Slovenian, Spanish, Swedish, Thai, Turkish and Vietnamese.

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One Microsoft Way
Redmond, WA 98052-6399, USA
Sales: (800) 426-9400
Technical Support: (800) 936-4900
<http://www.microsoft.com>

Course of Self-Study

If using this guide as part of an integration class, then the instructor will provide directions for working with this book. If using it as a self-study tool, then the following steps are recommended:

Begin by reviewing the book. Glance through the sections and skim any projects that seem particularly applicable or interesting.

Set aside approximately two hours for the first session. The experience with the technology and project sampling during the first session will help gauge the time needed for future sessions. The session schedule suggested here should be considered only as a guide. Adapt it as needed.

1. Work through one of the model projects from *Part 2: Sample Projects* and use the project analysis form at the end of this part to reflect and compile ideas. If time permits, sample additional projects that require different software applications.
2. Design a project using the guidelines found in *Part 3: Creation Process*. Make an electronic template if applicable, and then create a student handout using those found in the sample projects as models. Check the steps by following the directions outlined on the student handout. Make any necessary adjustments to the project or the handout, and then finalize the documentation. Assess the project using the provided Project Self-evaluation Rubric (SELF-EVALUATION RUBRIC.DOC), then hone and revise the project as necessary.
3. Prepare the project for use in the classroom. Set up the network and prepare as needed. Make copies of the materials, such as handouts and assessment tools.
4. Implement the project and have the students work through it. Encourage them to work on their own or collaboratively, as appropriate.
5. When the students have finished the project, reevaluate its effectiveness with the Project Self-evaluation Rubric.

Part 2:

Sample Projects

Overview

This section includes 20 fully developed, hands-on projects that integrate technology applications and core content in language arts, math, science and social studies. Projects 1 to 10 are designed for lower elementary students and projects 11 to 20 are for upper elementary. All are correlated to national content standards and the ISTE technology standards for students.

The purpose of these projects is twofold. First, the sample projects offer ready-made activities that reinforce student learning in one or more content areas through the use of technology. The projects are intended to be flexible enough to suit a variety of teaching methods and address different learning styles. For example, rather than having the students work independently, you may choose to take the concepts from a given project and employ a different implementation method, such as whole class direct instruction or collaborative grouping, depending on your preferred teaching style and your knowledge of your students' skills and how they learn best. Other considerations include knowledge of students' reading abilities and, therefore, their ability to follow the student handouts, as well as the strength of their technology skills within a particular software application. The projects are designed to provide lesson outlines that are customizable to meet the unique learning needs of students.

Second, these projects provide a model for review and reflection, to help in preparation and creation of original technology-infused lessons. Examine one or more projects and determine which components may be applicable to the development of integrated projects. In addition, there may be some elements that would not work effectively within a particular classroom. Make a note of any ideas that will be valuable during the project creation process.

The following summary contains an overview of the sample projects included. If working through this guide as a self-study learner, set aside approximately two hours to review and try out one or more of the projects. Use the Project Analysis Form on page 111 to reflect on the projects and to begin to generate ideas for technology-infused project development.

Summary of Projects: Lower Elementary

Paint

Project 1: How Is the Weather?	10
<i>Content Foci: Science and language arts</i>	

Microsoft Publisher

Project 2: All About Me.....	14
<i>Content Foci: Language arts and science</i>	
Project 3: Circle of Friends	18
<i>Content Focus: Social studies</i>	
Project 4: Let Us Eat	21
<i>Content Focus: Science</i>	
Project 5: Martin Luther King, Jr.....	24
<i>Content Foci: Language arts and social studies</i>	
Project 6: What Is the Pattern?.....	29
<i>Content Focus: Math</i>	

Microsoft PowerPoint

Project 7: Water Cycle	35
<i>Content Foci: Science and language arts</i>	
Project 8: The Five Senses	39
<i>Content Focus: Science</i>	

Microsoft Excel

Project 9: Animal Names	43
<i>Content Foci: Math and science</i>	
Project 10: M&M Math	48
<i>Content Focus: Math</i>	

Summary of Projects: Upper Elementary

Microsoft Word

Project 11: A Simile's Point of View	52
<i>Content Focus: Language arts</i>	

Microsoft Publisher

Project 12: Events That Shaped History	57
<i>Content Foci: Language arts and social studies</i>	

Project 13: The Lives of Settlers.....	63
<i>Content Foci: Social studies and language arts</i>	

Project 14: The Spice Trade.....	70
<i>Content Foci: Social studies and language arts</i>	

Microsoft PowerPoint

Project 15: Biomes.....	77
<i>Content Foci: Science and language arts</i>	

Project 16: Animal Studies	84
<i>Content Focus: Science</i>	

Microsoft Excel

Project 17: Recycling Times.....	90
<i>Content Foci: Social studies and science</i>	

Project 18: Consumer Math	95
<i>Content Focus: Math</i>	

Project 19: Probability	100
<i>Content Focus: Math</i>	

Microsoft Access

Project 20: Alien Life.....	105
<i>Content Foci: Science and language arts</i>	

Project 1: How Is the Weather?

Teacher Guide

Description:

After studying various types of weather, students create graphics of sunny and rainy weather. On each graphic, they write a sentence describing the picture. They print the weather pages and share their work with the class.

Grade Range: Lower elementary

Suggested Time Frame: Two class periods

Materials:

Paint

SUNNY WEATHER.BMP

RAINY WEATHER.BMP

SUNNY WEATHER SAMPLE.BMP

RAINY WEATHER SAMPLE.BMP

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Foci: Science and language arts

NSES Science Content Standards (K–4):

- D.3.d All students should develop an understanding of changes in the earth and sky. Weather changes from day to day and over the seasons. Weather can be described by measurable quantities, such as temperature, wind direction and speed and precipitation.

NCTE Standards for the English Language Arts:

- 5 Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 6 Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 1, 3.2 Use a variety of media and technology resources for directed and independent learning activities.
- 2.7 Practice responsible use of technology systems and software.

Process:

Distribute *Project 1: How is the Weather?* student handout. Allow the students to follow the directions on the handout to create pictures of two different types of weather. After they have finished their illustrations, allow them to share their drawings with the class and to view SUNNY WEATHER SAMPLE.BMP and RAINY WEATHER SAMPLE.BMP. Compare the samples with the students' work and discuss.

Assessment:



Evaluate students on their ability to follow directions to create their pictures. Students should also be evaluated on the detail provided in their sentences and how well the pictures and sentences reflect the given types of weather.

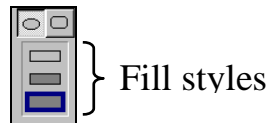
Extension:


Provide students with a journal in which they can keep a record of the weather each day for a specified period of time. Include an outline for them to follow that lists the date, time of day, type of weather and provides space for them to illustrate. Students can use the Internet to research the weather forecasts in their city for the following week; they can record these temperatures and compare them with the weather forecasts in a different city or state.

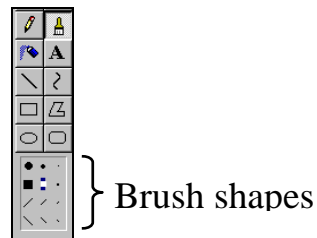
Project 1: How Is the Weather?


Student Handout

1. Launch Paint by clicking the START button → PROGRAMS → ACCESSORIES → PAINT.
2. Open SUNNY WEATHER.BMP by clicking FILE ↵ OPEN.
3. Click the FILL WITH COLOR tool . Select a green from the Color box. Click below the black line to make the grass green. Click a blue in the Color box. Click above the black line to make the sky blue.
4. Click the ELLIPSE tool  and select the third fill style at the bottom of the toolbar.




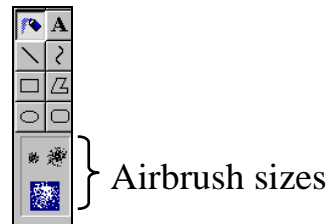
5. Choose YELLOW in the Color box, hold down the SHIFT key and drag to make a sun in the sky.
6. Click the BRUSH tool . Choose the second brush shape in the second row at the bottom of the toolbar.





7. Choose different colors to paint trees and flowers in your picture.
8. Click the TEXT tool  and make a big rectangle in the center of the grass. Type a sentence that describes your picture, such as *The sky is clear and blue and the weather is sunny*. Click VIEW → TEXT TOOLBAR to change the font and size of the text. Click the first drop-down list and choose ARIAL. Click the second drop-down list and choose 26.
9. Create a text box in the bottom corner of the page. Type your name in the text box.

Project 1: How Is the Weather? Student Handout [continued]

10. Save your work by clicking FILE → SAVE.
11. Print your work by clicking FILE → PRINT.
12. Open RAINY WEATHER.BMP.
13. Click the FILL WITH COLOR tool. Select GRAY in the Color box and click in the road to make the road gray. Choose GREEN from the Color box. Click the area next to the road to make the grass green. Click BLUE in the Color box and click above the black line to make the sky blue.
14. Choose WHITE in the Color box. Click the AIRBRUSH tool  and choose the largest airbrush size at the bottom of the toolbar.



15. Draw clouds in the sky. Choose LIGHT GRAY in the Color box and add gray clouds to the sky.
16. Click BLACK in the Color box. Use the LINE tool  to draw rain in the sky. Use the PENCIL tool  to draw birds in the sky.
17. Click the TEXT tool and make a big rectangle in the grass. Type a sentence that describes the picture, such as *I see dark clouds in the sky and the weather is rainy*. Click VIEW → TEXT TOOLBAR to change the font and size of the text. Choose ARIAL as the font and 16 as the text size.
18. Create a text box in the top-right corner of the grass and type your name.
19. Save your work by clicking FILE → SAVE.
20. Print your work by clicking FILE → PRINT.
21. Exit Paint by clicking FILE → EXIT.

Project 2: All About Me

Teacher Guide

Description:

The students will learn the locations of the parts of the body by labeling a diagram of a girl or boy. They will also learn how to write an acrostic poem by listing adjectives that describe their appearance or personalities and begin with the letters of their names.

Grade Range: Lower elementary

Suggested Time Frame: Two class periods

Materials:

Microsoft Publisher 2007

ALL ABOUT ME.PUB

ALL ABOUT ME SAMPLE.PUB

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Foci: Language arts and science

NCTE Standards for the English Language Arts:

- 5 Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 12 Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

NSES Science Content Standards (K–4):

- C.1.b All students should develop an understanding of the characteristics of organisms. Each plant or animal has different structures that serve different functions in growth, survival and reproduction. For example, humans have distinct body structures for walking, holding, seeing and talking.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 2.7 Practice responsible use of technology systems and software.
- 3-6.9 Use technology resources (e.g., puzzles, logical thinking, programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas and stories.

Process:

Distribute *Project 2: All About Me* student handout. Lead the class in a discussion of the parts of the body. Ask the students where the arm, eye, foot, hand, head, knee, leg, mouth, ribs and toes are located on the body. Define the word *adjective*, and allow the students some time to write down adjectives that describe themselves and that begin with the letters of their names. Then allow them to follow the directions in the student handout to label a diagram of a girl or boy's body and to create an acrostic poem describing themselves. When they have completed their projects, students can view ALL ABOUT ME SAMPLE.PUB and identify any adjectives in the sample that are the same or similar to the ones that they chose.

Assessment:





Evaluate students on their ability to label the parts of the body correctly on the diagram. Students should also be evaluated on their ability to follow directions to create an acrostic poem using adjectives.

Extension:

The students can use textbooks or other resources to include additional parts of the body in their diagrams and they can look up the definitions of each body part. They can also use the Thesaurus feature in *Word* to find synonyms for their adjectives and write a story about the person they labeled in the project template, incorporating the adjectives they used in the template in the story.

Project 2: All About Me

Student Handout

1. Launch *Microsoft Publisher*.
2. Open ALL ABOUT ME.PUB by clicking FILE → OPEN.
3. Read the *Parts of the Body* list. You will use this list to label a poster showing where the parts of the body are located.
4. If you would like to label a girl, click the PAGE 2 button  at the bottom of the page. If you would like to label a boy, click the PAGE 3 button .
5. To label the body parts, click each label and type the name of the body part that the label refers to. For example, click the green label and type the name of the body part that the green arrow is pointing to. If you cannot remember the name of a body part, you can click the PAGE 1 button  review the *Parts of the Body* list.
6. Click the PAGE 4 button .
7. Click in the first green box. Press the CAPS LOCK key and type the first letter of your name.
8. Press the DOWN arrow key and type the second letter of your name.
9. Continue pressing the DOWN arrow key and typing the letters of your name until you have typed your name in the green column.
10. Click inside the first blue box. Type an adjective that describes you and that starts with the first letter of your name. Press the DOWN arrow key and type an adjective that begins with the second letter of your name.
11. Continue pressing the DOWN arrow key and typing adjectives until you have typed adjectives for each letter of your name in the blue boxes.
12. Save your file by clicking FILE → SAVE.

Project 2: All About Me Student Handout [continued]

- 13.** Print your file by clicking FILE → PRINT. Print only the pages that you worked on. For example, if you labeled a girl then enter 2, 4 in the Pages box on the Print window and click OK.
- 14.** Exit the program by clicking FILE → EXIT.

Project 3: Circle of Friends

Teacher Guide

Description:

The students learn about the roles and responsibilities of the people who help keep communities safe, such as police officers, firefighters, paramedics and crossing guards. After choosing a favorite community safety officer, the students finish a poster about their chosen member of their community's "circle of friends."

Grade Range: Lower elementary

Suggested Time Frame: One class period

Materials:

Microsoft Publisher 2007

CIRCLE OF FRIENDS.PUB

CIRCLE OF FRIENDS SAMPLE.PUB

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Focus: Social studies

NCSS Standards and Performance Expectations for the Early Grades:

- 4.F Explore factors that contribute to one's personal identity, such as interests, capabilities and perceptions.
- 5.A Identify roles as learned behavior patterns in group situations, such as student, family member, peer play group member or club member.
- 6.A Examine the rights and responsibilities of the individual in relation to his or her social group, such as family, peer group and school class.
- 6.C Give examples of how government does or does not provide for needs and wants of people, establish order and security and manage conflict.
- 6.D Recognize how groups and organizations encourage unity and deal with diversity to maintain order and security.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, DVD's, audiotapes and other technologies.
- 1, 3.2 Use a variety of media and technology resources for directed and independent learning activities.
- 2.7 Practice responsible use of technology systems and software.
- 3.8 Create developmentally appropriate multimedia products with support from teachers, family members or student partners.

Process:

Lead the class in a discussion of the types of people who provide safety for the community, such as police officers, firefighters, paramedics and crossing guards. Make a class list of the types of safety personnel discussed and add some sentences or keywords as the group discusses the roles that these people play in safety. Distribute *Project 3: Circle of Friends* student handout. Tell the students to each choose a favorite safety role to focus on and to follow the directions in the student handout to create a safety poster. The printed posters can be placed around the room, creating the class “circle of friends.” When they have completed their projects, students can view CIRCLE OF FRIENDS SAMPLE.PUB and discuss similarities and differences between their projects and the sample.

Assessment:

Evaluate students on how well they follow the directions in the student handout to create their safety posters and how accurately they describe the helping behavior of their safety friend.

Extension:

Lead the students in a discussion about the community safety career they chose to focus on in their projects. As you discuss each career, write the name of the career on the board. Survey the class to find out how many students are interested in each career and record the totals on the board. Enter the information in *Excel* and create a pie chart showing the results.

Project 3: Circle of Friends

Student Handout

1. Launch *Microsoft Publisher*.
2. Open CIRCLE OF FRIENDS.PUB by clicking FILE → OPEN.
3. Double-click the text *Your Favorite*. Type the name of your favorite community safety team member, such as *Police Officer*, and click OK.
4. Double-click the blank line after the word *The* and enter the name of your community member again.
5. Double-click the next blank line and write *He* or *She* to make your community member a boy or a girl.
6. Double-click the next blank line and write about how your community member helps.
7. Double-click the last blank line and write what you like most about him or her.
8. Double-click the picture of the safety badge. Enter the name of your community member and click SEARCH. Click a picture to insert it in the document.
9. Save your project by selecting FILE → SAVE.
10. Print your project by selecting FILE → PRINT.
11. Exit the program by selecting FILE → EXIT.

Project 4: Let Us Eat

Teacher Guide

Description:

The students learn about the components of the food pyramid as they move graphics of foods into the correct sections of a diagram of the pyramid. The students then use what they have learned about the food groups to plan a menu for a nutritious breakfast, lunch, dinner and two snacks.

Grade Range: Lower elementary

Suggested Time Frame: Two class periods

Materials:

Microsoft Publisher 2007

LET US EAT.PUB

LET US EAT SAMPLE.PUB

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Focus: Science

NSES Science Content Standards (K–4):

- C.1.a All students should develop an understanding of the characteristics of organisms. Organisms have basic needs. For example, animals need air, water and food; plants require air, water, nutrients and light. Organisms can survive only in environments in which their needs can be met. The world has many different environments, and distinct environments support the life of different types of organisms.
- F.1.c All students should develop an understanding of personal health. Nutrition is essential to health. Students should understand how the body uses food and how various foods contribute to health. Recommendations for good nutrition include eating a variety of foods, eating less sugar and eating less fat.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 2.7 Practice responsible use of technology systems and software.
- 3.8 Create developmentally appropriate multimedia products with support from teachers, family members or student partners.

Process:

Lead the class in a discussion about the food groups and good nutrition. Ask students if they know the reason for the pyramid's shape. Distribute *Project 4: Let Us Eat* student handout. Allow the students to follow the directions in the handout to finish a diagram of the food pyramid and to create a nutritious menu for a breakfast, lunch, dinner and two snacks. Students can view LET US EAT SAMPLE.PUB when they have completed their projects. Then they can modify their menus, if desired, with ideas from the sample and other students' menus.

Assessment:




Evaluate how well the students follow the directions in the student handout to finish their food pyramid diagrams and menus.

Extension:

Allow students to use what they have learned about servings and food groups to plan a menu for a family member for an entire week. Students can use *Word* to write their menus and to explain why they chose specific foods. They can format the menus with colorful page borders and clipart.

Project 4: Let Us Eat

Student Handout

1. Launch *Microsoft Publisher*.
2. Open LET US EAT.PUB by clicking FILE → OPEN.
3. Drag the food pictures into the correct places on the pyramid.
4. Highlight the text *Fats and Sweets*. Click the FONT COLOR drop-down arrow  and choose a color for the text.
5. Change the color of the text *Dairy, Protein, Vegetables, Fruits and Grains*.
6. Click the PAGE 2 button  at the bottom of the page.
7. Click the word *Breakfast* and press the TAB key. Type the word *cereal*. Because cereal is a member of the grains food group, you can fill in one of the triangles next to the word *Grains* to show that you have used one serving of grains. To do this, click one of the triangles next to the word *Grains*. Click the FILL COLOR drop-down arrow  and choose the color orange, because that is the color that matches the word *Grains*.
8. Next to the word *cereal*, enter *milk, orange juice and toast*.
9. Fill in the correct triangles to show which food groups the milk, orange juice and toast are from.
10. Plan the rest of the menu, two snacks and a dinner. Make sure that your menu uses all the servings from the food groups.
11. Save your project by clicking FILE → SAVE.
12. Print your project by clicking FILE → PRINT.
13. Exit the program by clicking FILE → EXIT.

Project 5: Martin Luther King, Jr. Teacher Guide

Description:

Within the context of a lesson on the Civil Rights Movement, students learn about Martin Luther King, Jr. After discussing Martin Luther King Jr.'s contributions to society, they read a poem about him and complete a worksheet asking them to consider how certain symbols are representative of Martin Luther King, Jr.'s ideals and beliefs. Finally, they apply these symbolic connections by adding graphics to the poem.

Grade Range: Lower elementary

Suggested Time Frame: One class period

Materials:

Microsoft Publisher 2007

KING.PUB

KING SAMPLE.PUB

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Foci: Language arts and social studies

NCTE Standards for the English Language Arts:

- 5 Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 12 Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

NCSS Standards and Performance Expectations for the Early Grades:

- 5.E Identify and describe examples of tension between an individual's beliefs and government policies and laws.
- 6.H Recognize and give examples of the tensions between the wants and needs of individuals and groups, and concepts such as fairness, equity and justice.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 1, 3.2 Use a variety of media and technology resources for directed and independent learning activities.
- 2.7 Practice responsible use of technology systems and software.

Process:

Prepare students for the lesson by discussing Martin Luther King Jr.'s contributions to society. Include in your discussion biographical facts about his life and historical details of the Civil Rights movement. Encourage students to consider Martin Luther King Jr.'s ideals and beliefs, and ask them to name symbols they believe are representative of his life and work. Distribute *Project 5: Martin Luther King, Jr.* student handout and have students answer the four questions on *Project 5: Martin Luther King, Jr.* worksheet. Next, allow students to follow the directions in the student handout to read and embellish a poem about Martin Luther King, Jr. using four graphics that are symbolic of his beliefs and values. Then students can view KING SAMPLE.PUB and share their poems with the class or group.



Assessment:

Evaluate students on their ability to follow directions, place graphics in the appropriate places and correctly answer the questions on the worksheet.

Extension:

Locate a tape or online recording of Martin Luther King Jr.'s "I Have a Dream" speech and have students listen to the speech. Repeat the recording several times and have students take notes to help them remember some of the key phrases from the speech. Lead a class discussion by asking students to consider how the repetition of these key phrases contributes to the overall meaning and impact of the speech. Next, students can create a *PowerPoint* slide show on the symbolic and figurative language repeated throughout the speech. Identify a few examples (such as "American dream," "table of brotherhood" and "oasis of freedom and justice") and ask students to explain their meanings. Using one slide per symbol, they can insert graphics representing the symbols and enter the corresponding text of the speech.

Project 5: Martin Luther King, Jr. Student Handout

1. Launch *Microsoft Publisher*.
2. Open KING.PUB by clicking FILE → OPEN.
3. Read the poem and think about what things Martin Luther King, Jr. did for our country. Answer the questions on *Project 5: Martin Luther King, Jr.* worksheet at the end of this handout.
4. Look at the template again. Click the RECTANGLE button  on the Objects toolbar and draw a rectangle around the poem.
5. Click the LINE/BORDER STYLE button  on the Formatting toolbar to change the thickness of the border. Choose 3 PT to make the line wider.
6. Add a clipart picture of a heart. To do this, select INSERT → PICTURE → CLIP ART. Enter *heart* in the Search Text box on the Insert Clip Art Task Pane and click SEARCH. Click the picture you want in the Task Pane and the picture will appear on the page.
7. Click the heart and resize to make it bigger or smaller. Next, drag the heart to the top left-hand corner of the page.
8. Click the heart, then make a copy by clicking EDIT → COPY and EDIT → PASTE. Click the new heart and drag it to the bottom-left corner of the page. Copy and paste two more hearts and move them so that there is a heart in each corner of the page.
9. Add a clipart picture of a bell. Resize the bell and then create a copy. Move the two bells so that there is a bell on the left and on the right sides of the page, between the hearts.
10. Add a clipart picture of a pair of hands. Resize it and drag it to the top center of the page between two of the hearts.
11. Add a clipart picture of a globe. Resize it and drag it to the bottom center of the page between two of the hearts.

Project 5: Martin Luther King, Jr. Student Handout [continued]

- 12.** Save your work by clicking FILE → SAVE.
- 13.** Print your work by clicking FILE → PRINT.
- 14.** Exit *Publisher* by clicking FILE → EXIT.

Project 5: Martin Luther King, Jr. Worksheet

Name: _____ Date: _____

1. Why does a picture of a **heart** describe Martin Luther King, Jr.?

2. Why does a picture of a **bell** describe Martin Luther King, Jr.?

3. Why does a picture of **holding hands** describe Martin Luther King, Jr.?

4. Why does a picture of a **globe** describe Martin Luther King, Jr.?

Project 6: What Is the Pattern?

Teacher Guide

Description:

As a supplement to a lesson on patterns and sequencing, this project will have students identify different types of patterns. They will create several patterns using shapes, numbers and pictures. When they have created their patterns, they will apply their learned knowledge of patterns to answer several questions and share their finished projects with the class.

Grade Range: Lower elementary

Suggested Time Frame: One class period

Materials:

Microsoft Publisher 2007

PATTERNS.PUB

PATTERNS SAMPLE.PUB

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Focus: Math

NCTM Standards (PreK–2):

- 2.1.a Sort, classify and order objects by size, number and other properties.
- 2.1.b Recognize, describe and extend patterns, such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another.
- 2.1.c Analyze how both repeating and growing patterns are generated.
- 3.1.a Recognize, name, build, draw, compare and sort two- and three-dimensional shapes.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 2.7 Practice responsible use of technology systems and software.

Process:

Distribute *Project 6: What Is the Pattern?* Student Handout. Allow students to follow the directions on the handout to create patterns that include shapes, numbers and pictures. After they have finished, have them answer the questions on *Project 6: What Is the Pattern?* worksheet. When they have finished the project, students can view PATTERNS SAMPLE.PUB and share their patterns with the class or group.

Assessment:




Evaluate students on their ability to follow directions to create their patterns. Students should also be assessed on their answers on the *Project 6: What Is the Pattern?* worksheet.

Extension:

Students can draw their own patterns in class and share them with their classmates. They can also draw patterns and have their classmates complete the patterns they have created. They can create a descriptive story about their pattern and use the drawing tools in *Publisher* to re-create the patterns they developed first on paper.

Project 6: What Is the Pattern?

Student Handout

1. Launch *Microsoft Publisher*.
2. Open PATTERNS.PUB by clicking FILE → OPEN.
3. Look at row 1. Think about which shape comes next in the pattern. Discuss the answer with your teacher and the class. Click the RECTANGLE button  on the Objects toolbar. Drag to create a rectangle next to the red rectangle. Click the FILL COLOR drop-down arrow  and choose BLUE. Create a rectangle next to the blue rectangle. Fill the rectangle with red.
4. Look at row 2. Think about which shape comes next in the pattern. Discuss the answer with your teacher and the class. Click the OVAL button , press the SHIFT key and drag to create a circle next to the yellow circle. Click the FILL COLOR drop-down arrow and fill the circle with black.
5. Click on one of the yellow circles and click EDIT → COPY. Click EDIT → PASTE to paste the circle. Click EDIT → PASTE again and drag both circles to the correct places. Click the black circle and select EDIT → COPY and EDIT → PASTE. Drag the black circle to the right place.
6. Look at row 3. Which number comes next in the pattern? Discuss the answer with your teacher and the class. Click the empty purple rectangle. Type 8 and press the spacebar twice.
7. Finish the pattern by typing the correct numbers. **Hint:** You should have three 4's in the second purple box.

Project 6: What Is the Pattern? Student Handout [continued]

8. Look at row 4. Click one of the red hearts and click EDIT → COPY. Click EDIT → PASTE twice to paste two hearts. Click each heart and drag each one to the right place.
9. Click the happy face and click EDIT → COPY. Select EDIT → PASTE to paste the happy face, then drag it to the right place.
10. Finish the pattern. Your pattern should end with two hearts.
11. Look at rows 5 and 6. Copy and paste the shapes to finish the pattern. Remember: Click the shape you want to copy, click EDIT → COPY and EDIT → PASTE, then drag the shape to the right place.
12. Look at row 7. Click the yellow rectangle and finish the pattern. Click the pink rectangle and finish the pattern.
13. Save your work by clicking FILE → SAVE.
14. Print your work by clicking FILE → PRINT.
15. Exit *Publisher* by clicking FILE → EXIT.
16. Complete *Project 6: What Is the Pattern?* worksheet.

Project 6: What Is the Pattern? Worksheet

Name: _____ Date: _____

Example:



What is the color pattern above? Black, gray, gray, black, gray, gray, black

Answer the following questions about your patterns:

1. What is the color pattern in row 1?

2. What shape is in row 2?

What is the color pattern?

3. Fill in the pattern in row 3: Eight, six, _____, eight, _____, four,
_____, six, four, _____ six, _____, eight, _____, four

4. What is the shape pattern in row 4?

Project 6: What Is the Pattern? Worksheet [continued]

5. What is the shape pattern in row 5?

6. What is the color pattern in row 6?

7. What is the letter pattern in row 7?

Project 7: Water Cycle Teacher Guide

Description:

The students learn about the parts of the water cycle: evaporation, condensation and precipitation. During class discussion, the students participate in drawing a chart of the cycle on the board. They then demonstrate their understanding of the water cycle by creating a short presentation on the cycle including graphics and text.

Grade Range: Lower elementary

Suggested Time Frame: One class period

Materials:

Microsoft PowerPoint 2007

WATER CYCLE.PPT

WATER CYCLE SAMPLE.PPT

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Foci: Science and language arts

NSES Science Content Standards (K–4):

- B.1.c All students should develop an understanding of properties of objects and materials. Materials can exist in different states—solid, liquid and gas. Some common materials, such as water, can be changed from one state to another by heating and cooling.
- D.2.b All students should develop an understanding of objects in the sky. The sun provides the light and heat necessary to maintain the temperature of the earth.
- D.3.d All students should develop an understanding of changes in the earth and sky. Weather changes from day to day and over the seasons. Weather can be described by measurable quantities, such as temperature, wind direction and speed and precipitation.

NCTE Standards for the English Language Arts:

- 8 Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- 12 Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 1, 3.2 Use a variety of media and technology resources for directed and independent learning activities.
- 2.7 Practice responsible use of technology systems and software.

Process:

Provide the students with an overview of the water cycle. Discuss the terms *evaporation*, *condensation* and *precipitation*. As you discuss the cycle, allow student volunteers to help draw a chart on the board showing how the three parts of the cycle fit together. Distribute *Project 7: Water Cycle* student handout and allow students to follow the directions to complete a water cycle presentation using graphics and text. When they have completed their projects, students can view WATER CYCLE SAMPLE.PPT and compare it to their own work.

Assessment:


Evaluate students on how well they follow the directions in the student handout to create a presentation that correctly depicts the water cycle.

Extension:

Discuss how the water cycle sustains plant life on Earth. To illustrate the relationship between the water cycle and plant life, you can describe how a terrarium is made and how it works to sustain the life within it over long periods of time without the need for watering. You can allow the students to plan virtual terrariums, using *Word* to describe their terrariums. They should write about how they would create the soil, what plants or other objects they would include, how much sunlight they would expose their terrariums to and how much water they would give their terrariums. You can also have the class create an actual terrarium using a jar.

Project 7: Water Cycle

Student Handout

1. Launch *Microsoft PowerPoint*.
2. Open WATER CYCLE.PPT by clicking the OFFICE BUTTON  → OPEN.
3. Move to slide 2 by pressing the PAGE DOWN key.
4. Add pictures that show what the words *evaporation*, *condensation* and *precipitation* mean. To begin, click the INSERT tab → CLIP ART.
5. Enter a word that describes a picture you would like to use in the Search Text box of the INSERT CLIP ART Task Pane. For example, you might enter *sun* to find a picture of the sun to show evaporation. Click SEARCH. Click a picture to add it to the slide.
6. Move to slide 3. Click after the text *Evaporation:* and write a sentence that tells what happens at this stage of the water cycle.
7. Move back to slide 2, select the HOME tab and then select the evaporation picture. Click COPY. Move back to slide 3 and click PASTE.
8. Move to slide 4 and add a sentence about condensation. Copy the condensation picture on slide 2 and paste it on slide 4.
9. Move to slide 5 and add a sentence about precipitation. Copy the precipitation picture on slide 2 and paste it on slide 5.
10. Click the SLIDE SHOW tab and select FROM BEGINNING. Click once to move to slide 2.

Project 7: Water Cycle Student Handout [continued]

11. Click the word *Evaporation* to read more about evaporation. Click the word *Back* in the bottom-right corner of the slide to go back to the water cycle chart. Click the other words on the chart to read more about the other stages of the water cycle.
12. Press the ESCAPE key to end the show.
13. Save your project by clicking the OFFICE BUTTON → SAVE.
14. Print your project by clicking the OFFICE BUTTON → PRINT.
15. Exit *PowerPoint* by clicking the OFFICE BUTTON → EXIT POWERPOINT.

Project 8: The Five Senses

Teacher Guide

Description:

Students create presentations that illustrate objects they can see, hear, feel, smell and touch. Students add graphics, sentences and sounds to their presentations. When they have completed their work, they share their finished presentations with the class.

Grade Range: Lower elementary

Suggested Time Frame: Two class periods

Materials:

Microsoft PowerPoint 2007

Senses Pictures folder

FIVE SENSES.PPT

FIVE SENSES SAMPLE.PPT

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Focus: Science

NSES Science Content Standards (K–4):

- C.1.c All students should develop an understanding of the characteristics of organisms. The behavior of individual organisms is influenced by internal cues (such as hunger) and by external cues (such as a change in the environment). Humans and other organisms have senses that help them detect internal and external changes.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 2.7 Practice responsible use of technology systems and software.
- 3.8 Create developmentally appropriate multimedia products with support from teachers, family members or student partners.

Process:

Distribute *Project 8: The Five Senses* student handout. Allow students to follow directions to create a *PowerPoint* presentation with information on the five senses. They will add graphics, sentences and sounds to their presentations. After students have completed their presentations, they can view FIVE SENSES SAMPLE.PPT and share their presentations with the class or group.

Assessment:

Evaluate students on their ability to follow directions to create their *PowerPoint* presentations.

Extension:

Students can copy slides and then replace the graphics with other graphics that they choose to illustrate the senses. In addition, students can add an extra slide to the presentation that describes how they use their senses every day. For example, students might say that they use taste to help them get the nutrition they need every day, or hearing to enable them to communicate with their friends. They can use the Internet to find additional graphics and insert them into their new pages.

Project 8: The Five Senses

Student Handout

1. Launch *Microsoft PowerPoint*.
2. Open FIVE SENSES.PPT by clicking the OFFICE BUTTON → OPEN.
3. Click after the text *By:* and type your name.
4. Press the PAGE DOWN key to move to slide 2.
5. To insert a picture of a sunset, click the INSERT tab → PICTURE. Find the Senses Pictures folder, click the sunset picture and press ENTER. Drag the picture to the center of slide and resize it.
6. Click the rectangle at the bottom of the slide and type a sentence that describes the picture. Be sure to use the word *see* somewhere in the sentence.
7. Move to slide 3. Insert a picture of a cash register from the Senses Pictures folder and type a sentence that describes the picture using the word *hear*.
8. On slide 4, insert a picture of a boy eating ice cream from the Senses Pictures folder and type a sentence that describes the picture using the word *taste*.
9. On slide 5, insert a picture of a girl petting a kitten from the Senses Pictures folder and type a sentence that describes the picture using the words *feel* or *touch*.
10. On slide 6, insert a picture of a plate of cookies from the Senses Pictures folder and type a sentence that describes the picture using the word *smell*.
11. Press the PAGE UP key to move to slide 3.
12. To have the register make a sound in the slide show, select the ANIMATIONS tab.

Project 8: The Five Senses Student Handout [continued]

13. Click the TRANSITION SOUND drop-down menu and choose CASH REGISTER.
14. Save your work by clicking the OFFICE BUTTON → SAVE.
15. To view your slide show, click SLIDE SHOW → FROM BEGINNING and click to move through the presentation. Press the ESCAPE key to end the show.
16. Exit *PowerPoint* by clicking the OFFICE BUTTON → EXIT.

Project 9: Animal Names

Teacher Guide

Description:

Students practice counting skills as they tally the number of times letters are used to make up a list of animal names. Students total the tally marks and transfer the totals into a spreadsheet to display the information in chart form. The chart enables the students to problem solve and answer a series of questions about the animal names list.

Grade Range: Lower elementary

Suggested Time Frame: One or two class periods

Materials:

Microsoft Excel 2007

ANIMAL NAMES.XLS

ANIMAL NAMES SAMPLE.XLS

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Foci: Math and science

NCTM Standards (PreK–2):

- 1.1.a Count with understanding and recognize “how many” in sets of objects.
- 2.1.a Sort, classify and order objects by size, number and other properties.
- 5.1.c Represent data using concrete objects, pictures and graphs.

NSES Science Content Standards (K–4):

- C.1 All students should develop an understanding of the characteristics of organisms.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.

- 1, 3.2 Use a variety of media and technology resources for directed and independent learning activities.
- 2.7 Practice responsible use of technology systems and software.

Process:

Distribute *Project 9: Animal Names* student handout. Allow students to follow the directions on *Project 9: Animal Names* worksheet at the end of the handout to indicate with written tally marks how many times letters are used in a list of animal names. You may want to complete the tally marks for the first animal name as a class to get very young students started. Allow students to complete the spreadsheet and answer the questions at the end of the student handout. When they have completed their projects, students can view ANIMAL NAMES SAMPLE.XLS and compare the results with their own.

Assessment:

Evaluate the students on their ability to count the number of letters in the animal names list, enter these totals into the spreadsheet and create a chart. Also, evaluate students on how well they apply higher order thinking skills to complete *Project 9: Animal Names Questions* at the end of the student handout.

Extension:

Students can learn more about grouping and counting by counting the number of letters in each animal name. Have the students use *Excel* to enter the names in one column and the total letters for each name in a second column. Students can create a pie chart that shows how many animal names have the same number of letters.

Project 9: Animal Names

Student Handout

1. Follow the directions to complete *Project 9: Animal Names* worksheet at the end of this handout.
2. Launch *Microsoft Excel*.
3. Open ANIMAL NAMES.XLS by clicking the OFFICE BUTTON → OPEN.
4. Using *Project 9: Animal Names* worksheet, count the tally marks for the letter A, enter the total number of times the letter A appeared in the animal names list in cell B3 and press ENTER.
5. Continue entering the totals for each letter used in the animal names list.
6. Highlight cells A3 through B28 and click the INSERT tab.
7. Click on COLUMN and select the first option under 2-D.
8. Under CHART LAYOUTS choose Layout 9.
9. Click then highlight “Chart Title”. Type “Tally Totals” in the Chart Title box.
10. Click then highlight “Axis Title” on the y-axis. Type “Number” in the Axis Title box.
11. Click then highlight “Axis Title” on the x-axis. Type “Letter” in the Axis Title box.
12. Save your project by selecting the OFFICE BUTTON → SAVE.
13. Print your project by selecting FILE → PRINT.
14. Exit *Excel* by selecting FILE → EXIT.
15. Use your printout to help you complete *Project 9: Animal Names Questions* at the end of this handout.

Project 9: Animal Names Worksheet

Name: _____ Date: _____

Read the 10 animal names below. Now read the list again, making tally marks in the correct spaces to show how many times each letter is used to make these animal names. The tally marks for the letter A have already been written for you.

Animal names:

zebra, baboon, turkey, sheep, flamingo, leopard, coyote, horse, jaguar, whale

A <u> </u>	M <u> </u>	Y <u> </u>
B <u> </u>	N <u> </u>	Z <u> </u>
C <u> </u>	O <u> </u>	
D <u> </u>	P <u> </u>	
E <u> </u>	Q <u> </u>	
F <u> </u>	R <u> </u>	
G <u> </u>	S <u> </u>	
H <u> </u>	T <u> </u>	
I <u> </u>	U <u> </u>	
J <u> </u>	V <u> </u>	
K <u> </u>	W <u> </u>	
L <u> </u>	X <u> </u>	

Project 9: Animal Names

Questions

Name: _____ Date: _____

1. Which letter had the most tally marks? _____
2. Which letters had only one tally mark? _____
3. Which letters had no tally marks? _____
4. How did you figure out the total tally marks for each letter?

5. Write a sentence explaining why you think a certain letter appeared most frequently.

6. List at least three more animal names. Next to each name, write how many letters are used to make up that name.

Project 10: M&M Math Teacher Guide

Description:

Within the context of a math lesson, the students learn how to count candies and create a basic spreadsheet and chart. By dividing their candies into color groups, the students practice elementary grouping and categorization skills. They learn how a spreadsheet is used to facilitate addition.

Grade Range: Lower elementary

Suggested Time Frame: Two or three class periods

Materials:

Microsoft Excel 2007

M&M.XLS

M&M SAMPLE.XLS

M&M's (one bag per student)

Prerequisite Skills:

Students should know how to click, double-click and right-click; launch a program; enter text; select and drag objects; choose menu commands; view hidden toolbars; click buttons on toolbars; and respond to and close windows in a program.

Content Focus: Math

NCTM Standards (PreK–2):

- 1.1.a Count with understanding and recognize “how many” in sets of objects.
- 2.1.a Sort, classify and order objects by size, number and other properties.
- 5.1.b Sort and classify objects according to their attributes and organize data about the objects.
- 5.1.c Represent data using concrete objects, pictures and graphs.

NETS Performance Indicators for Technology-Literate Students (PreK–2):

- 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies.
- 2.7 Practice responsible use of technology systems and software.

Process:

Give each student a bag of M&M's and distribute *Project 10: M&M Math* student handout. Have the students count the total number of candies they have in their packet. Instruct them to separate their candies into piles of different colors and have them count each color to see how many candies they have in each group. Have them record their findings in the *Project 10: M&M Math* worksheet. Then allow the students to follow the directions in the student handout to enter their information in a spreadsheet and create a chart. After they have completed their spreadsheets and charts, allow them to view M&M MATH SAMPLE.XLS, compare their results and make inferences about the possible color tallies in an unopened bag of M&M's.

Assessment:


Assess students on the accuracy and readability of their graphs. Check to see if the legend was removed from the chart and if the chart is clearly formatted. Encourage students to identify at least three things that they learned from completing the project.

Extension:

Students can share their graphs with a friend (or friends if time permits) and draw a table of their findings. They can then identify who had more of each color. After students have shared their results, they can write about what they learned in this lesson and type their ideas in a *Word* document. Encourage students to report conclusions based on their comparison with their classmates. For example, do they think all bags have the same number of M&M's and the same amount of each color? Encourage them to explain their opinions.

Project 10: M&M Math

Student Handout

1. Launch *Microsoft Excel*.
2. Open M&M.XLS by clicking the OFFICE BUTTON → OPEN.
3. Click cell A2 and type the number of red M&M's. Type the number of blue M&M's in cell B2, the number of green M&M's in cell C2, the number of yellow M&M's in cell D2, the number of brown M&M's in cell E2 and the number of orange M&M's in cell F2.
4. Click cell G2, click the AUTOSUM button  and press ENTER to find the total number of M&M's.
5. Highlight cells A1 through F2 and click the INSERT tab. Click on COLUMN and choose the first option under 2-D.
6. Under CHART LAYOUTS choose Layout 9.
7. Click then highlight "Chart Title". Type your name and "M&M's" in the Chart Title box.
8. Click then highlight "Axis Title" on the y-axis. Type "Number" in the Axis Title box.
9. Click then highlight "Axis Title" on the x-axis. Type "Color" in the Axis Title box.
10. Click the bar above the word *Red* in the chart. You will see small squares around each of the bars. Click the bar again and you will see small squares around the first bar.
11. Click on the FORMAT tab. Under SHAPE FILL choose red from STANDARD COLORS. Repeat this step to color the other bars in the chart with the correct colors.
12. Save your work by clicking the OFFICE BUTTON → SAVE.
13. Print your work by clicking the OFFICE BUTTON → PRINT.
14. Exit *Excel* by clicking the OFFICE BUTTON → EXIT EXCEL.

Project 10: M&M Math Worksheet

Name: _____ Date: _____

Count your M&M's.
Write the number of M&M's under each color.

Red	Blue	Green	Yellow	Brown	Orange

1. How many red M&M's do you have? _____
2. How many blue M&M's do you have? _____
3. How many green M&M's do you have? _____
4. How many yellow M&M's do you have? _____
5. How many brown M&M's do you have? _____
6. How many orange M&M's do you have? _____
7. Red + Blue = _____
8. Green + Blue = _____
9. Orange + Green = _____
10. Brown + Yellow = _____

Project 11: A Simile's Point of View

Teacher Guide

Description:

Students learn about similes and how they can be used in writing to make comparisons. In small groups, students practice writing similes and then create a story for younger children using similes. They draw their own illustrations for their stories.

Grade Range: Upper elementary

Suggested Time Frame: One to two class periods

Materials:

Microsoft Word 2007

Paint

SIMILES.DOC

SIMILES SAMPLE.DOC

Prerequisite Skills:

Students should have basic familiarity with *Word*.

Content Focus: Language arts

NCTE Standards for the English Language Arts:

- 4 Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 5 Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3.4 Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits and facilitate learning throughout the curriculum.

- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication and publishing activities to create knowledge products for audiences inside and outside the classroom.

Process:

Introduce similes to students by writing the word *boy* on the board. Explain to the class that you want to describe a boy. Write descriptive phrases that the class suggests under the word *boy*. Ask follow-up questions such as “How big?” or “What shade of blue?” to elicit very specific descriptions. Tell the class to compare their descriptions with unlike things to create similes, such as *his eyes are as brown as chocolate*. When the class has finished creating similes for *boy*, write several other words, such as *clown, house, tower, apple, lion, baby* or *sky*. Have each student write a descriptive simile about one of the words. Allow the students to read their similes aloud so the class can guess which word is described.

Distribute *Project 11: A Simile’s Point of View* student handout. Divide the class into small groups and have the groups fill out *Project 11: A Simile’s Point of View* student worksheet. The groups can have one student write a short subject that includes a linking verb in the first column, have the next student write a simile in the second column without looking at the first column, and the third student write a phrase telling how, when, where or why in the third column. For example, the group might come up with *The tall boy’s hair is / as thick as a rug / when he runs*. The groups can share their sentences with the class. Continue until each student has had two turns to write in all three columns. Allow the students to follow the directions in *Project 11: A Simile’s Point of View* student handout to write and illustrate a story for younger children. Students can view SIMILES SAMPLE.DOC when they have completed their projects.

Assessment:

Evaluate the students on their creative use of similes in their stories as well as their efforts in creating illustrations for their stories.


Extension:


Students can use *Word* to create an illustrated story for young children using clipart rather than words to complete their similes. For example, a student could replace the word *train* in a simile such as *the wind whistled like a train* with a clipart picture of the train. Have students write the stories using words first, then highlight the words they wish to replace with clipart and select INSERT ☞ PICTURE ☞ CLIP ART. Students can find and insert an appropriate image to replace each of the words.

Project 11: A Simile's Point of View

Student Handout


1. Launch *Microsoft Word*.
2. Open SIMILES.DOC by clicking the OFFICE BUTTON → OPEN.
3. Highlight the text *Story Title* and write a title for your story. Click after the word *By* and enter the names of everyone on your writing team.
4. Insert a page border by selecting the PAGE LAYOUT tab → PAGE BORDERS. Click the PAGE BORDER tab. Choose a border from the ART drop-down box and click OK.
5. Scroll to the next page and highlight the text *Begin your story*. Have each student in your group write a section of the story. The first student can write the beginning, the second student can write the middle and the third student can write the end of the story.
6. To create page breaks for the story, choose the INSERT tab → PAGE BREAK.
7. Insert page numbers by clicking PAGE NUMBER → BOTTOM OF PAGE → PLAIN NUMBER 3.
8. Select the box next to Different First Page so that a check mark is displayed.
9. When the story is done, check your spelling and grammar by selecting the REVIEW tab → SPELLING AND GRAMMAR.
10. Save your story by choosing the OFFICE BUTTON → SAVE.
11. Launch Paint by clicking the START button → PROGRAMS → ACCESSORIES → PAINT.
12. Using the painting tools, create pictures for your story. Save each picture as a .BMP file.


To create a straight line, use the LINE tool .

To create a free-form line, use the PENCIL tool .

Project 11: A Simile's Point of View Student Handout [continued]

To create a shape, click the RECTANGLE , ELLIPSE , POLYGON  or the ROUNDED RECTANGLE tool .

To fill a shape or area with color, select the FILL WITH COLOR tool  and click an enclosed shape in your picture to fill the shape with the selected color.

To paint with a brush, use the BRUSH tool .

To erase part of the picture, use the ERASER/COLOR ERASER tool .

13. Switch to your *Word* document. To import the drawings into your story, select the INSERT tab → PICTURE. Locate the folder where you saved your pictures and click INSERT. Resize and reposition the graphics.
14. You can also insert clipart pictures. To do this, select the INSERT tab → CLIP ART.
15. Enter a keyword that describes the picture you want in the Search Text box on the INSERT CLIP ART Task Pane and click GO. Click the picture you want in the Task Pane and the picture will appear on the page.
16. Repeat the steps above to include the rest of the illustrations.
17. Save and print your story by selecting the OFFICE BUTTON → SAVE and OFFICE BUTTON → PRINT.
18. Exit *Word* by selecting the OFFICE BUTTON → EXIT WORD.

Project 11: A Simile's Point of View Worksheet

Name: _____ Date: _____

Subject with linking verb	Simile	Phrase telling how, when, where or why

Project 12: Events That Shaped History

Teacher Guide

Description:

The students work in pairs to describe one incident that affected the course of history. They identify the causes and effects of an historical event from a time period currently being studied by researching information in their textbooks and on the Internet. They organize the information by answering questions and create a one-page newspaper article.

Grade Range: Upper elementary

Suggested Time Frame: Two to three class periods

Materials:

Web browser

Microsoft Publisher 2007

NEWSPAPER.PUB

NEWSPAPER SAMPLE.PUB

Prerequisite Skills:

The students should have experience using a Web browser and be familiar with formatting a document in *Publisher*.

Content Foci: Language arts and social studies

NCTE Standards for the English Language Arts:

- 2 Students read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience.
- 4 Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 7 Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

NCSS Standards and Performance Expectations for the Early Grades:

- 2.D Identify and use various sources for reconstructing the past, such as documents, letters, diaries, maps, textbooks, photos and others.
- 4.G Analyze a particular event to identify reasons individuals might respond to it in different ways.
- 6.F Identify and describe factors that contribute to cooperation and cause disputes within and among groups and nations.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.
- 4, 5.7 Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom.

Process:

Provide the students with the necessary background information about the historical time period being studied. Distribute *Project 12: Events That Shaped History* student handout and provide an overview. Assign pairs of students an event or allow pairs to choose an event on their own. Explain that they will use their textbooks and the Internet to research the event and its causes and effects. Students will organize their facts by using the Five W's chart in the student handout. They will then create a one-page newspaper article written from the perspective of an actual observer. Explain to students that a newspaper article's first paragraph is called the lead-in paragraph, which basically answers the five W's: what, who, why, when and where. The paragraphs that follow will explain the event in more detail. After distributing printed copies of their completed projects, each pair of students will explain the content included in their articles. Allow students to view NEWSPAPER SAMPLE.PUB when they have completed their projects.

Assessment:

Evaluate students on the thoroughness of their research, their identification of cause and effect and how well they followed directions to lay out their news article.

Extension:

Direct the student pairs to identify a key person from their historical event with whom to conduct an interview. One student will generate interview questions and the second student will answer the questions from the perspective of the historical figure being interviewed. The students can write up their interviews in *Word*.

Project 12: Events That Shaped History

Student Handout

1. Decide which historical event you will be researching.
2. Launch the Web browser and access the following sites:

<http://www.historychannel.com>

Search any topic in history using keywords or a specific decade.

<http://historyplace.com>

This site has limited information on the historical eras, but has timelines of events for the Revolutionary War and Civil War. It contains many photos and hyperlinks of important events.

<http://www.americaslibrary.gov>

Click JUMP BACK IN TIME and locate the era in which your event occurred.

3. Find information about the event. Focus on the causes and effects of the historical event. Use The Five W's chart below to help organize your information.




The Five W's

What happened?
Who was there?
Why did it happen?

Project 12: Events That Shaped History Student Handout [continued]

When did it happen?

Where did it happen?

4. Save photos and other graphics for the article by right-clicking the desired images. Choose SAVE PICTURE AS and save each picture as a bitmap (.BMP) file on the hard disk drive.
5. Launch *Microsoft Publisher 2007*. Open NEWSPAPER.PUB by selecting FILE → OPEN.
6. Click the INSERT WORDART tool  on the Objects toolbar. Select a WordArt style for your headline and click OK.
7. Enter your headline, limiting it to less than five words. Use at least one adjective and one vivid verb in the headline.
8. Select a text font and size, choose whether to make the text bold or italic and click OK. Move the headline to fit below the newspaper masthead and above the two text boxes on the page. You can resize the headline by selecting it and dragging its selection handles.
9. Click to position your cursor in the first text box. Using The Five W's chart, write about the historical event as if you were a journalist who was there to see it happen. When the text box becomes filled, the overflow icon  will appear at the bottom of the text box.
10. To allow the text to flow into the next column, choose the CREATE TEXT BOX LINK button  on the Standard toolbar.
11. The pointer will take the shape of a pitcher. Click the empty text box. Continue writing the article.

Project 12: Events That Shaped History Student Handout [continued]

12. To include the graphics you saved during your research, select INSERT → PICTURE → FROM FILE. Select INSERT.
13. When you have inserted your pictures and entered the article text, make adjustments to your page to make the article more visually appealing. You can change the text font and size by highlighting the article text and choosing a new font and size.
14. You can select the graphics boxes and add borders by clicking FORMAT → PICTURE. Choose the COLORS AND LINES tab and select a line color, style and weight.
15. Save and print the file by clicking FILE → SAVE and FILE → PRINT.
16. Exit *Publisher* by clicking FILE → EXIT.

Project 13: The Lives of Settlers

Teacher Guide

Description:

The students work in pairs to investigate what life was like for people who settled in a new colony, territory, frontier or town in early America. The pairs record their research findings in tables that compare and contrast their own lives with settlers' lives. Once the research is complete, each pair creates a patchwork quilt with two pictures that are related to what life was like for pioneers.

Grade Range: Upper elementary

Suggested Time Frame: One to two class periods

Materials:

Web browser

Microsoft Word 2007

Microsoft Publisher 2007

QUILT.PUB

QUILT SAMPLE.PUB

Prerequisite Skills:

The students should have experience using a Web browser, importing graphics and formatting a document in *Publisher*.

Content Foci: Social studies and language arts

NCSS Standards and Performance Expectations for the Early Grades:

- 2.D Identify and use various sources for reconstructing the past, such as documents, letters, diaries, maps, textbooks, photos and others.
- 3.G Describe how people create places that reflect ideas, personality, culture and wants and needs as they design homes, playgrounds, classrooms and the like.
- 4.E Identify and describe ways family, groups and community influence the individual's daily life and personal choices.

NCTE Standards for the English Language Arts:

- 3. Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
- 7 Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- 12 Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3.4 Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits and facilitate learning throughout the curriculum.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.

Process:

This activity can be incorporated into a unit on the origins of a city or state. Begin a discussion of what a quilt is and the reasons pioneer women made them. You can read aloud to the students from books or other sources that describe quilting. Suggested books are:

The Seasons Sewn: A Year in Patchwork, by Ann Whitford Paul

This book shows how the patterns and pattern names in patchwork reflect life on the frontier in the 19th century.

The Quilt-Block History of Pioneer Days with Projects Kids Can Make, by Mary Cobb

To pioneers who went west, warm quilts were prized possessions, and the quilts they made reflected their adventurous lives. Each colorful pattern in this book tells a story about America's early days.

Distribute *Project 13: The Lives of Settlers* student handout. Allow at least one class period for student pairs to research how settlers lived. Students can use textbooks, other resource books and the Internet for their research. Have each pair organize the facts in a table according to the research questions given in the student handout to compare and contrast their own lives with the life of a child settler. When the pairs have finished the research, have them design a quilt using two pictures that help illustrate how a pioneer child lived. When they have completed their projects, allow students to view QUILT SAMPLE.PUB and draw conclusions about the apparent similarities and differences between the life of "their" child and the one depicted in the sample.

Assessment:

Using the tables that the students created during the project, evaluate students on the thoroughness of their research. Review their quilt publications to assess how well they followed the directions to create a quilt that represents settler life.

Extension:

The student patchwork quilt blocks can be combined to create a class quilt. Have each student pair choose one quilt block in their *Publisher* project. Have them select the block itself and the graphic on the block, then click **ARRANGE** ζ **GROUP**. Tell them to right-click the block, select **SAVE AS PICTURE**, and save the picture using their names as the filename in a central location. Create a new *Publisher* file. In the new file, select **INSERT** ζ **PICTURE** ζ **FROM FILE** to insert each quilt block. Arrange the blocks into a class quilt.

Project 13: The Lives of Settlers

Student Handout

1. Launch *Microsoft Word*.
2. Enter *Settler Research* at the top of the page as the title for your document. Enter your name and your partner's name as the authors.
3. Select the INSERT TAB → INSERT TABLE.
4. Enter 2 in the Number Of Columns box and 9 in the Number Of Rows box and click OK.
5. Label the first column *Pioneer Life* and the second *My Life*. Number each of the cells one to eight in the rows below the column headings. The first three rows of your table should look like this:

Pioneer Life	My Life
1.	1.
2.	2.

6. To guide your research on the daily life of a settler, consider how a settler your age might answer the following questions:
 1. What is your everyday dress?
 2. What might you have for dinner tonight?
 3. How do you spend your free time?
 4. How do you receive your education?
 5. What are your career opportunities? (Hint: What is a *trade*?)
 6. Do you receive an allowance?
 7. What types of chores do you do at home?
 8. What does your home look like?

Project 13: The Lives of Settlers Teacher Guide [continued]

7. You can use textbooks or other resource books and Internet searches for your research. Type your ideas from the research in the Pioneer Life column of your table. The following Web sites may be particularly helpful:

<http://www.pbs.org/ktca/liberty/perspectives/farmscene.html>

Click objects in this 18th century painting to learn more about daily life in colonial America.

<http://www.pioneerlife.ca/>

<http://library.thinkquest.org/J001587/>

8. In the My Life column of your table, answer the eight research questions as they relate to you and your partner.
9. Below your table, write answers to the following questions:
1. What parts of a pioneer's daily life have remained unchanged today? What parts have changed?
 2. If you lived during this time, how would your life be different? How would it be the same?
 3. What is the most interesting fact you have learned about a pioneer's daily life? Why is that fact so interesting to you?
10. Save and print your research document by clicking the OFFICE BUTTON → SAVE then OFFICE BUTTON → PRINT.
11. Exit *Word* by clicking on the OFFICE BUTTON → EXIT.
12. Launch *Microsoft Publisher*. Open QUILT.PUB by selecting FILE → OPEN.
13. Click to insert your cursor after the text *Designed by* and enter your name and your partner's name.

Project 13: The Lives of Settlers Teacher Guide [continued]

14. Notice that in the center of the page, a quilt with four empty blocks has been provided. To add a border for your quilt, select the outer rectangle and choose **FORMAT → AUTOSHAPE**. On the **COLORS AND LINES** tab, choose a fill color and a line weight and color. Click **OK**.
15. Select the first quilt block in the first row of two blocks and, holding down the **SHIFT** key, select the second block in the second row. Choose a line and fill color for these blocks. Select the two remaining blocks and choose a line and fill color.
16. Launch your Web browser again. Using Internet searches or the sites you used to help answer your questions in the beginning of this activity, locate two graphics related to settler life that you want to include as symbols on your quilt. For example, you might choose a picture of a settler house, a settler working in the field, a child playing or a farming tool.
17. To use the pictures on your quilt, right-click each graphic, choose **COPY**, switch back to your quilt publication and choose **EDIT → PASTE**.
18. Place the first graphic on the first quilt block. You can resize the graphic if you wish to by clicking it and dragging one of its corner selection handles while holding down the **SHIFT** key.
19. Create a copy of the graphic and move it to the second block in the second row of your quilt. You can do this in one step by clicking the graphic and holding down the **SHIFT** and **CONTROL** keys while dragging the graphic into place on the second quilt block.

Project 13: The Lives of Settlers Teacher Guide [continued]

20. Place the second graphic you found on the Internet on the second quilt block in the first row and a copy of the graphic on the first block in the second row.
21. You can add borders to the graphics if you wish to by selecting them and choosing **FORMAT → PICTURE**. Choose a line color and weight on the **COLORS AND LINES** tab and click **OK**.
22. Select the title *A Pioneer Quilt* and choose a font, size and color.
23. Save and print your quilt by selecting **FILE → SAVE** and **FILE → PRINT**.
24. Exit *Publisher* by clicking **FILE → EXIT**.

Project 14: The Spice Trade

Teacher Guide

Description:

The students work in pairs to research one of the European explorers who sought new sea routes to obtain spices during the Age of Discovery. They use a basic knowledge of maps, such as the locations and names of continents, oceans and the equator, to help them color a map that roughly illustrates the route of one of the voyages of their explorer. They also research the history of a particular spice that their explorer was seeking on his voyage and create an advertisement for the spice.

Grade Range: Upper elementary

Suggested Time Frame: Two to three class periods

Materials:

Web browser

Microsoft Publisher 2007

Paint

TRADE ROUTE.BMP

SPICE TRADE.PUB

SPICE TRADE SAMPLE.PUB

Prerequisite Skills:

The students should be able to conduct Internet research using keyword searches and be familiar with using Paint and formatting a document in *Publisher*.

Content Foci: Social studies and language arts

NCSS Standards and Performance Expectations for the Early Grades:

- 2.D Identify and use various sources for reconstructing the past, such as documents, letters, diaries, maps, textbooks, photos and others.
- 2.E Demonstrate an understanding that people in different times and places view the world differently.
- 3.B Interpret, use and distinguish various representations of the earth, such as maps, globes and photographs.
- 3.E Locate and distinguish among varying landforms and geographic features, such as mountains, plateaus, islands and oceans.

NCTE Standards for the English Language Arts:

- 4 Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 7 Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
- 8 Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.

Process:

Distribute *Project 14: The Spice Trade* student handout and provide an overview of the spice trade during the Age of Discovery, highlighting the great value that Europeans placed on spices, which they used not only to enhance their bland diets, but also to preserve food. Tell students that during the Age of Discovery, European explorers, particularly those from Portugal and Spain, were willing to risk their lives and spend months, if not years, in the most grueling conditions to find sea routes to reach India, Ceylon or the East Indies, where they could obtain spices. Traditional land routes, which were under constant attack by bandits, were very unreliable and were already dominated by Venice. While searching for economical spice trade routes, explorers sometimes made important unexpected discoveries, such as the discovery of the Americas. Depending on the map skills of the class, consider leading the students in a brief discussion about the locations of the continents, oceans and the equator, pointing these items out on a map in the classroom.

Have pairs of students each choose a famous explorer from the Age of Discovery, such as Bartolomeu Dias, Christopher Columbus, John Cabot, Vasco Da Gama or Ferdinand Magellan. Have the pairs use textbooks, other class resources and the Internet to research their explorer and to identify the route that the explorer took on one of his most famous

voyages. Have them also choose and research the history of a particular spice that their explorer was seeking on his voyage, such as salt, pepper, cinnamon, nutmeg, cloves or mace. Allow them to follow the directions in the student handout to create a map depicting the route and an advertisement for their spice that highlights the voyage of their explorer to locate the spice. Allow students to view SPICE TRADE SAMPLE.PUB when they have completed their projects. Encourage comparison to the sample and discussion about why student maps and advertisements may be different.

Assessment:

Evaluate students on whether their advertisements show thorough research on the history of their chosen explorer and spice as well as a creative use of graphics and other design elements.

Extension:





The students can use their research to create *PowerPoint* presentations on the famous voyage of their explorer. Have them launch *PowerPoint* and create a new presentation based on a design template by clicking FROM DESIGN TEMPLATE in the New group of the NEW PRESENTATION Task Pane and choosing a template. Tell the students to title their presentation with the name of their explorer and his voyage, such as *The Voyage of Christopher Columbus to the New World*, and include their names in the subtitle box on the first slide. Have them insert three additional slides that focus on a brief biography of the explorer; the sponsors, route and outcome of his famous voyage; and finally, the major contribution to history that the explorer made, such as opening up a trade route or discovering an area of the world. Tell students to include the map of the voyage route on the slide of the presentation that describes the voyage and to include other graphics from their Internet research.

Project 14: The Spice Trade


Student Handout

1. Choose a particular explorer to research and, using textbooks, other class resources and Internet searches, conduct research on your explorer. Consider the following questions to help guide your research:
 1. Where and when was your explorer born?
 2. When did your explorer's most famous voyage take place?
 3. What was the intended route of the voyage, and what was the actual route?
 4. What country sponsored the voyage?
 5. Are there other interesting details you can supply about the voyage, such as the names of the ships or the number of sailors?
 6. What spices was your explorer looking for on the voyage?
 7. Were there other items, such as gold, that your explorer was looking for?
2. Choose one particular spice that your explorer was looking for and research it further, using class resources and the Internet. Consider the following questions to help guide your research:
 1. When and where did your spice first become popular?
 2. Where was it traditionally grown and sold?
 3. What foods was your spice traditionally used for?
 4. Was your spice very valuable?
 5. Can you describe your spice? (Is it sweet? Does it have a strong aroma or color?)
3. During your research, save any graphics you want to use in your project, such as a picture of your explorer, your spice or even of a sailing ship, by right-clicking the graphics and choosing SAVE PICTURE AS. Save each picture as a bitmap (.BMP) file on the hard disk drive.
4. Open Paint by clicking START → PROGRAMS → ACCESSORIES → PAINT.
5. Open TRADE ROUTE.BMP by clicking FILE → OPEN.

Project 14: The Spice Trade Student Handout [continued]

6. Using your knowledge of the locations of the continents, oceans and the equator, color the map and add labels identifying these major geographic features. To color the oceans, click the FILL WITH COLOR tool  and choose a blue in the Color box. Click inside each ocean area on the map to fill the area with blue. Using the same process, color the continents green or brown.
7. To label the continents and oceans, select the TEXT tool . Click the cursor on the page and select a font and size from the Fonts toolbar. Choose a text color in the Color box. Type the name of an ocean or continent. With the text box still selected, you can drag the handles to resize the text box or drag the edge to move the text box. You can also change the formatting of the text. When your label is finished, click outside the label to deselect it. Note that once it is deselected, the label cannot be edited. Label the following oceans and continents: Atlantic Ocean, Pacific Ocean, North America, South America, Africa, Europe, Asia and Australia.
8. If you make a mistake when entering a label and want to change it, you can use the ERASER/COLOR ERASER tool  to erase the label and use the FILL WITH COLOR tool to refill the area with the appropriate color.
9. Select the BRUSH tool  and choose YELLOW from the Color box. Draw a line where the equator would be on your map. Label the equator.
10. With the BRUSH tool still selected, choose RED in the Color box. Using what you have learned in your research about a famous voyage of your explorer, draw a line that represents the route that the explorer took on his voyage. Label the beginning and end of the route.
11. Save your map by selecting FILE → SAVE.
12. Launch *Microsoft Publisher*.
13. Open SPICE TRADE.PUB by selecting FILE → OPEN.

Project 14: The Spice Trade Student Handout [continued]

14. Select the picture of a puzzle and choose INSERT → PICTURE → FROM FILE. Select one of the graphics you saved during your research and click INSERT to place it in your advertisement.
15. Select the text *Caption* and enter a caption describing the graphic that you chose for your advertisement.
16. Select the text *Upcoming voyage* and write about the voyage of your explorer as though you are advertising a voyage that is about to take place. Highlight how the voyage will bring large quantities of your spice at reasonable prices to Europe.
17. Select the headline text *Your Spice!* and enter the name of your spice.
18. Select the text *Spice history, properties and uses* and enter a brief description advertising your spice, mentioning its history, properties and uses as well as its high value.
19. In the text box at the bottom of the page, replace the text *your spice* with the name of your spice and *your explorer* with the name of your explorer.
20. Replace any of the other graphics in the advertisement you choose with graphics that you saved during your Internet research.
21. Select the dark brown boxes and select FORMAT → PICTURE. Select the RECOLOR button, choose MORE COLORS from the Color list, select a color and click OK twice.
22. Change text color if necessary by highlighting the text and selecting the FONT COLOR drop-down arrow .

Project 14: The Spice Trade Student Handout [continued]

23. To change the background color, select VIEW → MASTER PAGE.
24. Click to select the page. Select FORMAT → AUTOSHAPE. In the Fill group, select FILL EFFECTS from the Color list. Change the colors in the Colors group and click OK twice.
25. Select VIEW → MASTER PAGE again.
26. Save and print the file by clicking FILE → SAVE and FILE → PRINT.
27. Exit *Publisher* by clicking FILE → EXIT.

Project 15: Biomes

Teacher Guide

Description:

Students, in groups of two or three, conduct Internet research on the world's biomes, or ecological types, to discover similarities and differences among the six major land biomes. Students record their research findings on a fact sheet. They play the roles of city planners assigned to design a biome for the purpose of teaching the community about preservation. They create a slide show to present their ideas with a focus on the importance of the balance of nature.

Grade Range: Upper elementary

Suggested Time Frame: Two to three class periods

Materials:

Web browser

Microsoft PowerPoint 2007

Paint

BIOMES OF THE WORLD.BMP

BIOMES.PPT

BIOMES SAMPLE.PUB

Prerequisite Skills:

Students need to understand basic terms related to biomes. Students should be familiar with creating presentations in *PowerPoint* and importing graphics from the Internet.

Content Foci: Science and language arts

NSES Science Content Standards (3–4):

- C.3.b All students should develop an understanding of organisms and environments. An organism's patterns of behavior are related to the nature of that organism's environment, including the kinds and numbers of other organisms present, the availability of food and resources and the physical characteristics of the environment. When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.
- C.3.c All students should develop an understanding of organisms and environments. All organisms cause changes in the environment where they live. Some of these changes are detrimental to the organism or other organisms, whereas others are beneficial.

NSES Science Content Standards (5):

- C.4.a All students should develop an understanding of populations and ecosystems. A population consists of all individuals of a species that occur together at a given place and time. All populations living together and the physical factors with which they interact compose an ecosystem.
- C.5.a All students should develop an understanding of diversity and adaptations of organisms. Millions of species of animals, plants and microorganisms are alive today. Although different species might look dissimilar, the unity among organisms becomes apparent from an analysis of internal structures, the similarity of their chemical processes and the evidence of common ancestry.

NCTE Standards for the English Language Arts:

- 4 Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 5 Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 7 Students conduct research on issues and interests by generating ideas and questions and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3.4 Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits and facilitate learning throughout the curriculum.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.

Process:


Introduce this activity by asking students to define the following words or phrases: *environment*, *habitat*, *endangered animal*, *conservation* and *ecosystem*. From their responses, devise a class definition of the term *biome*. On the board, write the names of

the six land biomes that will be used in this activity: *rainforest*, *desert*, *grassland*, *deciduous forest*, *taiga* and *tundra*. Share with students a world map illustrating the locations of the six major land biomes. Distribute *Project 15: Biomes* student handout. Have groups of two to three students use Internet research to complete *Project 15: Biomes* worksheet at the end of the student handout. Have each group focus on creating a presentation about a biome to help educate the public on the importance of preserving the ecosystem of the biome. Explain that each presentation will have a total of six slides that focus on six characteristics of the biome, the climate of the biome and three animals and plants that are native to the biome. Allow students to view and discuss BIOMES SAMPLE.PUB when they have completed their projects.

Assessment:

Assess the comprehensiveness of students' answers on *Project 15: Biomes* worksheet. Also evaluate how well the students followed directions in the student handout and how creatively the students were able to illustrate details about their biomes in their final presentations.

Extension:

Allow students to make their presentations interactive by inserting links that enable a user to navigate to the presentation. To do this have the students open their presentations and move to slide 2. Select the INSERT tab and choose the TEXT BOX button . Click to position the cursor to the left of the map. Enter the text "Characteristics". Highlight the text and choose a font, color, and size. Select the INSERT tab → HYPERLINK. Choose PLACE IN THIS DOCUMENT in the Link To list and choose the corresponding slide, slide 3. Click OK. Repeat this process to add text boxes with hyperlinks to the Climate, Animals, and Plants slides. Move to slide 3. Add a text box containing the text "Back". Insert a hyperlink to slide 2 in the text box. Select the SLIDESHOW tab → HIDE SLIDE. Copy the text box containing the text "Back" and paste it on slides 4 through 6. Hide slides 4 through 6. Run the show, clicking the links to see how the interactivity works.

Project 15: Biomes

Student Handout




1. Launch your Web browser and use the following Web sites to complete *Project 15: Biomes* worksheet at the end of this handout. You can add extra information on the back of the worksheet.

<http://mbgnet.net/>

<http://ths.sps.lane.edu/biomes/index1.html>

<http://www.enchantedlearning.com/biomes>

<http://www.richmond.edu/academics/a&s/education/projects/webunits/biomes/biomes.html>

2. To save graphics that you encounter during your research for your presentation, right-click each graphic and choose SAVE PICTURE AS. Save the picture as a bitmap (.BMP) file on the hard disk drive.
3. Open Paint by clicking START → PROGRAMS → ACCESSORIES → PAINT.
4. Open BIOMES OF THE WORLD.BMP by clicking FILE → OPEN.
5. Choose one biome on which to focus for this project. Color the map to show the locations of your biome. The last Web site given above contains a map showing biome locations. You can use the MAGNIFIER tool  to view selected portions of the map in greater detail as you work. Use the PENCIL tool  to fully enclose the areas of the map you wish to color. Choose a bright color, such as red, and click the enclosed areas with the FILL WITH COLOR tool  to color them.
6. Save your map by selecting FILE → SAVE.
7. Launch *Microsoft PowerPoint*.
8. Select the OFFICE BUTTON → OPEN and open BIOMES.PPT.

Project 15: Biomes Student Handout [continued]

9. To replace every occurrence of the text *Your Biome* in the presentation with the name of your biome. Click on REPLACE under the HOME tab. Enter your biome in the Find What box and the name of your biome in the Replace With box. Select REPLACE ALL and then click CLOSE.
10. Position your cursor after the text *By* and enter your name and those of your partners or teammates.
11. Move to the next slide by pressing the PAGE DOWN key.
12. Switch to your open Paint file and click EDIT → SELECT ALL, then EDIT → COPY.
13. Switch to your presentation and under the HOME tab select PASTE.
14. Move to the third slide. Click the text *Click to add text* and enter at least six characteristics of your biome.
15. To include a saved graphic from your research, select the INSERT tab → PICTURE. If necessary, resize and move the graphic and text box to make room on the slide to display both.
16. On the remaining slides, enter several facts about the climate, animals and plants of your biome. Add a graphic to illustrate each slide.
17. Move to the first slide by pressing the PAGE UP key. To add a transition to this slide, select the ANIMATIONS tab. Click on the side transition that you have chosen.
18. Move to the other slides in the presentation, choosing a transition for each slide in the SLIDE TRANSITION Task Pane.
19. Select the VIEW tab → SLIDE MASTER.
20. To change the background of the presentation, under the SLIDE MASTER tab choose BACKGROUND STYLES → FORMAT BACKGROUND. Experiment with gradients, textures, patterns, or pictures. When you have chosen a background, click OK and then choose APPLY TO ALL → CLOSE.

Project 15: Biomes Student Handout [continued]

21. Select the text on the slide and change the formatting.
22. Make any other changes that you wish to be reflected throughout the presentation. For example, delete or alter the lines on the top and bottom of the slide or add a graphic that you want to have repeated on all slides in the presentation.
23. Click CLOSE MASTER VIEW to view changes to the presentation.
24. Save the presentation by selecting the OFFICE BUTTON → SAVE.
25. Run your presentation by selecting the SLIDE SHOW tab → FROM BEGINNING.
26. Exit *PowerPoint* by clicking the OFFICE BUTTON → EXIT POWERPOINT.

Project 15: Biomes Worksheet

Name: _____ Date: _____

Biome name _____

What does your habitat look like? (List at least six characteristics)
On which continents will you find this biome?
Describe the climate of your biome.
List at least three animals that live in your biome. What special features do they have to survive?
List at least three plants that live in your biome. What special features do they have to survive?

Project 16: Animal Studies

Teacher Guide

Description:

In this lesson, students organize information about three animals that live near water—African dwarf frogs, fiddler crabs and pond snails—into factual lists. The students then create a slide show that incorporates these facts. Finally, the students view the presentation and share the slide shows with the class.

Grade Range: Upper elementary

Suggested Time Frame: One class period

Materials:

Web browser

Microsoft PowerPoint 2007

ANIMAL STUDIES.PPT

ANIMAL STUDIES SAMPLE.PPT

Prerequisite Skills:

The students should be familiar with entering and formatting text in a *PowerPoint* presentation.

Content Focus: Science

NSES Science Content Standards (3–4):

- C.1.a All students should develop an understanding of the characteristics of organisms. Organisms have basic needs. For example, animals need air, water and food; plants require air, water, nutrients and light. Organisms can survive only in environments in which their needs can be met. The world has many different environments, and distinct environments support the life of different types of organisms.
- C.1.b All students should develop understanding of the characteristics of organisms. Each plant or animal has different structures that serve different functions in growth, survival and reproduction. For example, humans have distinct body structures for walking, holding, seeing and talking.

NSES Science Content Standards (5):

- C.1.a All students should develop an understanding of structure and function in living systems. Living systems at all levels of organization demonstrate the complementary nature of structure and function. Important levels of organization for structure and function include cells, organs, tissues, organ systems, whole organisms and ecosystems.
- C.3.d All students should develop an understanding of regulation and behavior. An organism's behavior evolves through adaptation to its environment. How a species moves, obtains food, reproduces and responds to danger are based on the species' evolutionary history.
- C.5.b All students should develop an understanding of diversity and adaptation of organisms. Biological evolution accounts for the diversity of species developed through gradual processes over many generations. Species acquire many of their unique characteristics through biological adaptation, which involves the selection of naturally occurring variations in populations. Biological adaptations include changes in structures, behaviors or physiology that enhance survival and reproductive success in a particular environment.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.

Process:

Distribute *Project 16: Animal Studies* student handout and preview the activity with the students. Provide an introduction to aquatic environments, such as beaches, fresh water shores and marshes or wetlands. Explain how particular animals have evolved to take advantage of their close proximity to a water source, using the water for essential tasks such as finding food, hiding from predators, or even, in the case of raccoons, for washing their food. Tell the students that in this lesson, they will research three aquatic creatures: African dwarf frogs, fiddler crabs and pond snails on the Internet and organize their information using the *Project 16: Animal Studies* worksheet. Allow the students to follow the directions on the handout to complete their presentations. When they have finished, they can view ANIMAL STUDIES SAMPLE.PPT.

Assessment:

Evaluate students on the depth of their Internet research and how well they were able to follow the directions given in the student handout to create their presentations.

Extension:

Lead the class in a discussion of the facts they discovered about African dwarf frogs, fiddler crabs and pond snails. Write these facts on the board during the discussion. After each creature has been discussed, ask the students to consider which facts they now think are most important or exciting about these creatures. Encourage students to make changes to the facts in their presentations to reflect new ideas that emerged during the discussion.

The students may also add slides and graphics to their presentations describing other animals that live near water, such as seagulls, turtles or alligators.

Project 16: Animal Studies

Student Handout

1. Launch *Microsoft PowerPoint*.
2. Choose the OFFICE BUTTON → OPEN and open ANIMAL STUDIES.PPT.
3. Review the information in the template. Click the text *Click to add title* and enter *Animal Studies: Animals That Live Near Water*. Click the text *Click to add subtitle* and enter your name.
4. Select the INSERT tab → TEXT BOX. Drag to create a text box below the picture of the African dwarf frog. Type *African Dwarf Frog* in the text box. Resize and reposition the text box as necessary.
5. Repeat the previous step to add the captions *Fiddler Crab* and *Pond Snail* to the two remaining graphics.
6. Move to slide 2 by pressing the PAGE DOWN key.
7. Click the text *Click to add title* and enter *African Dwarf Frog*.
8. Click the text *Click to add text* and enter three facts about the African dwarf frog.
9. Add clipart to this slide. To do this, double-click the graphic box on the right side of the slide.
10. Enter *frog* in the Search Text box and click GO. Click a picture of a frog to insert it.
11. Resize and move the graphic as needed.
12. Move to slide 3. Enter *Fiddler Crab* as the slide title.
13. Type three facts about the fiddler crab as the slide text.
14. Add a graphic of a crab to the slide. Follow the directions for adding clipart, replacing the word *crab* for *frog*.
15. Move to slide 4.

Project 16: Animal Studies Student Handout [continued]

16. Enter *Pond Snail* as the title for slide 4 and enter three facts about the pond snail as the slide text.
17. Add a graphic of a snail to the slide.
18. Move to slide 5.
19. Click the text *Click to add title* and enter *The End*.
20. To run the presentation, click the SLIDE SHOW tab → FROM BEGINNING. Click to view each slide in the show.
21. Stop the presentation by pressing the ESCAPE key.
22. Save and print the presentation by clicking the OFFICE BUTTON → SAVE then OFFICE BUTTON → PRINT.
23. Exit *PowerPoint* by clicking the OFFICE BUTTON → EXIT POWERPOINT.

Project 16: Animal Studies Worksheet

Name: _____ Date: _____

1. Write three facts about African dwarf frogs.
2. Write three facts about fiddler crabs.
3. Write three facts about pond snails.

Project 17: Recycling Times

Teacher Guide

Description:

The project encourages students to think about the need for recycling. Students research and compare the rates at which common items biodegrade. The students draw conclusions from the data, such as the need to recycle and reuse items that slowly decompose.

Grade Range: Upper elementary

Suggested Time Frame: Two to three class periods

Materials:

Web browser

Microsoft Excel 2007

RECYCLE TIMES.XLS

RECYCLE TIMES SAMPLE.XLS

Prerequisite Skills:

The students should have experience with Internet research and be familiar with entering data in *Excel*.

Content Foci: Social studies and science

NCSS Standards and Performance Expectations for the Early Grades:

- 3.H Examine the interaction of human beings and their physical environment, the use of land, building of cities and ecosystem changes in selected locales and regions.
- 3.K Consider existing uses and propose and evaluate alternative uses of resources and land in home, school, community, the region and beyond.

NSES Science Content Standards (3–4):

- C.3.d All students should develop an understanding of organisms and environments. Humans depend on their natural and constructed environments. Humans change environments in ways that can either be beneficial or detrimental for themselves and other organisms.
- F.4.b All students should develop an understanding of changes in environments. Changes in environments can be natural or influenced by humans. Some changes are good, and some are bad, and some are neither good nor bad.

Pollution is a change in the environment that can influence the health, survival, or activities of organisms, including humans.

NSES Science Content Standards (5):

- F.2.a All students should develop an understanding of populations, resources and environments. When an area becomes overpopulated, the environment will become degraded due to the increased use of resources.
- F.2.b All students should develop an understanding of populations, resources and environments. Causes of environmental degradation and resource depletion vary from region to region and from country to country.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3.4 Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.

Process:

Lead the class in a brief discussion of the three R's of environmentalism: *reduce*, *reuse*, and *recycle*. Explain that recycling not only stretches the earth's limited resources and reduces the space required for waste, but also, according to the Environmental Protection Agency, is an important way to decrease greenhouse gas emissions from decomposing trash, which are contributing to global climate changes. Distribute *Project 17: Recycling Times* student handout. Have the students work in pairs to define the words in the student handout, investigate the rate of decomposition for each item given in the project template and enter their findings in the template. Have them sort their findings for organized comparison, create a chart for better analysis and synthesize their findings by answering the question in the template. When students have finished the project, they can view RECYCLE TIMES SAMPLE.XLS.

Assessment:

Evaluate the students on the accuracy of their research, how well they followed directions in the student handout to create a chart of their findings and whether their conclusions drawn from the data reflect sound reasoning.

Extension:

Using *Publisher*, the students can create a poster about the need for recycling. In the NEW PUBLICATION Task Pane, choose SIGN in the Start From A Design group. Choose a sign type from the Signs palette. Click the text boxes to alter the poster content. Add appropriate clipart. Encourage students to share their posters and discuss things that they can do at home and at school to recycle and care for the environment.

Project 17: Recycling Times

Student Handout

1. Launch the Web browser and access the following site:
<http://www.dictionary.com>
2. Define the following vocabulary terms:
Decompose _____
Biodegrade _____
3. Launch *Microsoft Excel*.
4. Open RECYCLE TIMES.XLS by clicking the OFFICE BUTTON → OPEN.
5. Access the following Web sites to look up the time it takes for each type of trash to decompose:
<http://www.solcomhouse.com/recycling.html>
http://www.goerie.com/nietalkintrash/talkin__trash.html
6. Enter the time it takes for each item to decompose. For items that have a range, such as 10 to 20 years, enter the highest number in the range.
7. For items that take less than a year to decompose, enter a formula that divides the number of months for decomposition by the number of months in a year. For example, orange peels take six months to decompose. There are 12 months in a year, so the correct formula is =6/12.
8. The formulas for some items will create an answer with more than one decimal place. To format these numbers, select the cell and under the HOME tab choose FORMAT → FORMAT CELLS. Choose NUMBER in the Category list and make sure that the number 2 is in the Decimal places box. Click OK.
9. Highlight cells A2 through B12. Under the HOME tab click on SORT & FILTER → CUSTOM SORT. In the SORT BY list, choose TIME (YEARS). In the ORDER drop-down menu choose SMALLEST TO LARGEST. Click OK.

Project 17: Recycling Times Student Handout [continued]

Which trash item takes the longest to decay? _____

What does that information tell you about the need to recycle? _____

10. To chart the information, select cells A2 through B12. Select the INSERT tab → BAR and select the first option under 2-D.
11. Under the DESIGN tab select Layout 9 from the chart layouts.
12. Click on MOVE CHART. Click the AS NEW SHEET option and enter *Time Chart*.
13. Under the LAYOUT tab click on DATA TABLES → OUTSIDE END.
14. Click then highlight *Chart Title*. Type *Recycling Times* in the chart title box.
15. Click then highlight *Axis Title* on the y-axis. Type *Trash Item* in the axis title box.
16. Click then highlight *Axis Title* on the x-axis. Type *Time (years)* in the axis title box.
17. Click inside the text box once after the question mark and press the ENTER key twice.
18. Select the INSERT tab → HEADER & FOOTER. In the Left Section box enter the names of each partner.
19. Save and print the file by clicking the OFFICE BUTTON → SAVE and the OFFICE BUTTON → PRINT.
20. Exit *Excel* by clicking the OFFICE BUTTON → EXIT EXCEL.

Project 18: Consumer Math

Teacher Guide

Description:

In pairs, students research a popular item (e.g., a brand of sneakers, video games, phones, watches etc.) targeted to their age group. They collect advertisements from area stores that have their product on sale. They create a spreadsheet to compute percentage, amount saved, sale price, sales tax and total price. Finally, students write a conclusive paragraph stating which store offers the best buy.

Grade Range: Upper elementary

Suggested Time Frame: Two to three class periods. (One class period is needed to explain the project and collect advertisements.)

Materials:

Advertisements

Microsoft Excel 2007

Microsoft Word 2007

CONSUMER MATH.XLS

CONSUMER MATH SAMPLE.DOC

Prerequisite Skills:

Students should have some familiarity with using *Excel* for basic calculations.

Content Focus: Math

NCTM Standards (3–5):

- 1.3.b Develop fluency in adding, subtracting, multiplying and dividing whole numbers.
- 6.1.b Solve problems that arise in mathematics and in other contexts.
- 6.1.d Monitor and reflect on the process of mathematical problem solving.
- 8.1.b Communicate their mathematical thinking coherently and clearly to peers, teachers and others.
- 9.1.c Recognize and apply mathematics in contexts outside of mathematics.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3.4 Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits and facilitate learning throughout the curriculum.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.

Process:

Introduce this activity by asking students if they have ever gone shopping with their parents. Most students will answer “yes.” Next, discuss the criteria their parents apply to choose which brands to purchase or in which store to purchase items. Explain to students that it is their turn to be the smart shopper. Pair the students and allow them time to decide which product they will be researching. Explain that they will have to collect several advertisements from local area stores showing their item on sale. Once they have agreed on an item, discuss the meanings of some words and phrases they will need for this project: *discount percentage*, *sale price*, *sales tax* and *total sale price*. Next, show students how to compute sales tax, total price and amount saved. Allow students time to figure out how these operations are formulated on their own, promoting problem-solving skills. For example:

Sale price = original price – (original price × discount percentage)

Sales tax = sale price or original price × sales tax percentage

Total sale price = sale price + sales tax

Total original price = original price + sales tax

Amount saved = total original price – total sales price

Distribute *Project 18: Consumer Math* student handout. Once students have their advertisements, allow them to follow the directions on the handout to enter data and formulas into a spreadsheet and write a conclusive paragraph explaining where they would purchase their item. Allow students to view CONSUMER MATH SAMPLE.DOC when they have completed their projects.

Assessment:

Evaluate the students on their use of problem-solving techniques to create the equations needed to compute amount saved, sales price and total price. In addition, assess their conclusive statements about which deal is the best buy and why.

Extension:

Students can do a market research survey to determine which brand of the product is preferred by their peers and why. They can use *Excel* to create a spreadsheet for the data collected and create a graph to illustrate the information they gathered from their research survey.

Project 18: Consumer Math

Student Handout

1. Launch *Microsoft Excel*.
2. Open CONSUMER MATH.XLS by clicking the OFFICE BUTTON → OPEN.
3. Using the advertisements that you have gathered, enter the names of the stores where your product can be found in the Store Name column.
4. Format the cells in the Original Price, Sale Price, Total Original Price, Total Sale Price and Amount Saved columns to display currency. To do this, highlight each column. Under the HOME tab select FORMAT → FORMAT CELLS. Choose CURRENCY from the Category list and click OK.
5. Format the cells in the Discount Percentage and Sales Tax Percentage columns to display percentages. To do this, highlight each column, choose FORMAT → CELLS and select the NUMBER tab. Choose PERCENTAGE from the Category list and click OK.
6. Enter the original prices of your product in the Original Price column. Enter the discount percentages in the Discount Percentage column.
7. Ask your teacher what the sales tax is in your area. Enter the sales tax in the first empty cell in the Sales Tax Percentage column. To copy the sales tax into all the cells in your table, select this first cell and drag down to highlight all the cells you wish to fill with the sales tax. Select FILL → DOWN.
8. Click the first empty cell in the Sale Price column. Enter an equal sign. This sign alerts *Excel* that the numbers you are about to enter should be treated as a formula. What formula should be entered to calculate the sale price? Remember that *sale price* = *original price* – (*original price* × *discount percentage*). Enter the following formula: $B2 - B2 * C2$ and press ENTER.
9. Click the first empty cell in the Total Original Price column. Remember that *total original price* = *original price* + (*original price* × *sales tax percentage*). Enter the following formula: $=B2 + B2 * D2$ and press ENTER.

Project 18: Consumer Math Student Handout [continued]

10. Click the first empty cell in the Total Sale Price column. Remember that *total sale price* = *sale price* + (*sale price* × *sales tax percentage*). Enter the following formula: =E2 + E2*D2 and press ENTER.
11. Click the first empty cell in the Amount Saved column. Remember that *amount saved* = *total original price* – *total sale price*. Enter the following formula: =F2 – G2.
12. To copy the formulas you just created into all the cells in your table, select cells E2 through H2. Drag to select the remaining empty cells in the table and select FILL → DOWN.
13. Save and print your worksheet by clicking the OFFICE BUTTON → SAVE then OFFICE BUTTON → PRINT.
14. Launch *Microsoft Word*.
15. Write a paragraph that explains where you would purchase your product. Use the information in your spreadsheet to help you explain your reasoning.
16. Switch to your *Excel* worksheet and highlight the table. Under the HOME tab select COPY. Switch to your Word document and under the HOME tab select PASTE.
17. Add your name to the document. Go to the INSERT tab → HEADER → BLANK. Type your name and click CLOSE.
18. Save and print your document by clicking the OFFICE BUTTON → SAVE and OFFICE BUTTON → PRINT.
19. Exit *Word* and *Excel* by clicking the OFFICE BUTTON → EXIT WORD (or EXIT EXCEL)

Project 19: Probability Teacher Guide

Description:

Students work in pairs to predict how many M&M's of particular colors will be found in a bag. They compare their predictions with the actual number of candies in their bags. Students organize their predicted and actual numbers of candies in a pie graph and draw conclusions about probability.

Grade Range: Upper elementary

Suggested Time Frame: Two to three class periods

Materials:

M&M's (one bag for each student pair)

Microsoft Excel 2007

COLOR PROBABILITY.XLS

COLOR PROBABILITY SAMPLE.XLS

Prerequisite Skills:

Students should have some familiarity with using *Excel* for basic calculations.

Content Focus: Math

NCTM Standards (3–5):

- 2.3.a Model problem situations with objects and use representations such as graphs, tables and equations to draw conclusions.
- 5.1.c Represent data using tables and graphs, such as line plots, bar graphs and line graphs.
- 5.3.a Propose and justify conclusions and predictions that are based on data and design studies to further investigate the conclusions or predictions.
- 5.4.b Predict the probability of outcomes of simple experiments and test the predictions.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.

- 3.4 Use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits and facilitate learning throughout the curriculum.
- 5, 6.8 Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning and extended learning activities.

Process:


Explain to the students that probability is the likelihood that an event will occur. Help students to understand probability by discussing a common scenario, such as the probability of a teacher calling on a boy in the class versus a girl, or the probability of getting a blue tray versus other color options in the school lunch line. Discuss possible methods for predicting the probability of these events. Distribute *Project 19: Probability* student handout and provide an overview of the project. Assign pairs of students to work together to complete the project and give each pair a bag of M&M's. Explain that they will investigate the probability of finding each color of M&M in their bag. They will compare their predictions with actual data by opening their M&M bags and counting the colors inside. They will create pie charts of the predicted and actual information and then use this information to develop and write a conclusion about probability.

Assessment:

Evaluate students on how well they follow the directions in the student handout to create pie charts as well as their application of reasoning skills to draw a conclusion about probability.

Extension:

Students can compare their predictions and findings with the Mars company's M&M's color distribution chart using a Web browser. Have students launch their Web browser and navigate to <http://www.mms.com/us/about/products/milkchocolate.jsp>. Identify the color distribution chart as a pictograph and have students compare its readability with the pie charts that they created in this project.

Students can create their own pictograph using *Excel*. Have students locate images of differently colored M&M's on the Web site. Have them right-click the images and select SAVE PICTURE AS to save them to their hard disk drives. Tell students to reopen their *Excel* project files, select cells A1 through A7, hold down the CONTROL key and select C1 through C7. Have students create a bar graph of their data and recolor each of the bars in their graph to match the M&M's color by selecting each bar, clicking the FILL COLOR drop-down arrow  and choosing FILL EFFECTS. Have them click the PICTURE tab and locate the appropriately colored M&M's image for each bar. In the Format group, select STACK. Click OK.

Project 19: Probability


Student Handout

1. Predict the total number of M&M's you will find in your bag. _____
2. Predict how many M&M's of each color you will find in your bag. Remember, the amount of all of the colors must equal the predicted total number of M&M's.

Color	Predicted amount
Blue	
Brown	
Green	
Orange	
Red	
Yellow	

3. Launch *Microsoft Excel*.
4. Open COLOR PROBABILITY.XLS by clicking the OFFICE BUTTON → OPEN.
5. Click the first empty cell in the Prediction column. Enter a formula to display the probability of finding an M&M of the first color, blue, in your unopened M&M bag. To do this, enter an equal sign (=) to alert *Excel* that the information that follows should be treated as a formula. Enter your predicted amount of blue M&M's. Enter a division sign (/) and enter the predicted total number of M&M's. Press ENTER.
6. Repeat step 5 to add a formula for each color. The total for column B should be 100%.

Project 19: Probability Student Handout [continued]

7. Highlight cells A3 through B9. Select the INSERT tab → PIE. Select the first option under 2-D.
8. Under the DESIGN tab choose Layout 1 from CHART LAYOUT.
9. Choose NEXT. Verify that the AS OBJECT IN radio button is chosen and click FINISH. Move the pie chart to column D, resize the chart so that its width extends from the beginning of column D through column G.
10. Click the colored circle in the center of the chart, then click a single piece of the pie and handles will appear around it.
11. Under the FORMAT tab choose the Fill Color drop-down arrow  and choose a color that matches that candy color. Select each piece of the pie and fill it with the appropriate color.
12. How many M&M's are actually inside? _____
13. Sort the M&M's into color categories. Record the actual amounts for each color.

Color	Actual amount
Blue	
Brown	
Green	
Orange	
Red	
Yellow	

Project 19: Probability Student Handout [continued]

14. Click the first empty cell in the Actual Amount column. Based on your data, enter a formula to determine the actual percentage of each color in your M&M's bag. To do this, enter an equal sign (=), then your actual amount of blue M&M's. Enter a division sign (/) and enter the actual total number of M&M's. Press ENTER.
15. Repeat step 11 to add a formula for each color. The total for column C should be 100%.
16. Highlight cells A3 through A9. Hold down the CONTROL key and highlight cells C3 through C9. Under the INSERT tab click on PIE and choose the first option under 2-D.
17. Under the DESIGN tab choose Layout 1 from Chart Layouts.
18. Click the colored circle in the center of the chart, then click a single piece of the pie and handles will appear around it.
19. Under the FORMAT tab choose the fill color drop-down arrow and choose a color that matches that candy color. Select each piece of the pie and fill it with the appropriate color.
20. Compare the information in each chart. Consider possible reasons for the mismatch between actual data and your prediction. Based on the differences, write a conclusion about probability below your table.
21. Save and print your work by clicking the OFFICE BUTTON → SAVE and OFFICE BUTTON → PRINT.
22. Exit *Excel* by clicking the OFFICE BUTTON → EXIT EXCEL.

Project 20: Alien Life Teacher Guide

Description:

Pairs of students will use Internet research to gather information on the nine planets in the solar system. The students will record 10 facts for each planet in a database. Students will then choose a planet other than earth and design an alien life form that could live on the planet.

Grade Range: Upper elementary

Suggested Time Frame: Two to three class periods

Materials:

Web browser

Microsoft Access 2007

Microsoft Word 2007

Paint

SOLAR SYSTEM.MDB

ALIEN LIFE FORM SAMPLE.DOC

Prerequisite Skills:

Students should understand basic terms related to the solar system. The students should also be comfortable with using a Web browser, entering information in an *Access* database and entering text in a *Word* document.

Content Foci: Science and language arts

NSES Science Content Standards (3–4):

- A.1.d All students should develop abilities necessary to do scientific inquiry. They should learn to use data to construct a reasonable explanation.
- D.2.a All students should develop an understanding of objects in the sky. The sun, moon, stars, clouds, birds and airplanes all have properties, locations and movements that can be observed and described.
- D.2.b All students should develop an understanding of objects in the sky. The sun provides the light and heat necessary to maintain the temperature of the earth.

NSES Science Content Standards (5):

- A.1.c All students should develop abilities necessary to do scientific inquiry. They should learn to use appropriate tools and techniques to gather, analyze and interpret data.
- D.3.a All students should develop an understanding of earth in the solar system. The earth is the third planet from the sun in a system that includes the moon, the sun, eight other planets and their moons, and smaller objects, such as asteroids and comets. The sun, an average star, is the central and largest body in the solar system.

NCTE Standards for the English Language Arts:

- 4 Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 8 Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

NETS Performance Indicators for Technology-Literate Students (3–5):

- 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively.
- 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication and publishing activities to create knowledge products for audiences inside and outside the classroom.
- 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests.

Process:

This activity can be used as an introduction to the solar system. Explain to students that they will be responsible for researching 10 facts about each planet. On the board, write the following: *atmosphere*, *rotation period*, *revolution period*, *gravitational pull* and *composition*. Allow students time to formulate their own definitions for each word or phrase. Ask for volunteers to help create an acceptable class definition for each word or phrase. Distribute *Project 20: Alien Life* student handout. Introduce the students to the 10 facts that they will need to find to complete the database: rotation period, revolution period, size, temperature, atmosphere, gravitational pull, number of moons, distance from the sun, planet composition and ability to support life. Have students follow the directions in the student handout to complete their databases, choose a planet and design a life form that is capable of surviving in the planet's environment. When they have

completed their projects, allow students to view ALIEN LIFE FORM SAMPLE.DOC and compare the sample to their own projects.

Assessment:

Evaluate whether the students have provided the facts required to complete the database and how thoroughly and creatively they have answered the questions given in the student handout describing their alien life forms.

Extension:

Write the following questions on the board:

1. Which two planets have only one moon?
2. How many planets have a larger diameter than earth?
3. Which planets have a revolution period of less than 24 days and more than 100 days?
4. Which planet is closest to the earth in size?
5. On which planet would you weigh most?

To answer the questions, students will need to perform filters. To perform a filter, select RECORDS ⌵ FILTER ⌵ ADVANCED FILTER/SORT. Select the appropriate field from the drop-down list in the Field box in the first column, position the cursor in the Criteria box and enter a criteria, using the less than (<) or greater than (>) operators. Choose FILTER ⌵ APPLY FILTER/SORT. To remove the filter, select RECORDS ⌵ REMOVE FILTER/SORT.

Project 20: Alien Life


Student Handout

1. Launch *Microsoft Access*.
2. Open SOLAR SYSTEM.MDB by clicking FILE → OPEN.
3. To locate the information that you will need to complete the database, launch the Web browser and access the following sites:

<http://www.enchantedlearning.com/subjects/astronomy/solarsystem/>

http://spaceboy.nasda.go.jp/Db/Kensaku_html/Type27_e.html

http://starchild.gsfc.nasa.gov/docs/StarChild/solar_system_level2/solar_system.html

4. Enter information about each of the nine planets, starting with the planet that is closest to the sun. To enter the information, switch to the database and fill out each empty field in the database form, pressing the TAB key to move between fields in the form. (**Note:** The Planet Composition field requires that you choose GAS, ICE or SOLID. The Atmosphere field requires that you choose NONE, THICK or THIN. The Ability To Support Life field requires you to choose YES or NO. To calculate the revolution period, multiply the years of revolution by 365.)
5. Close the form window by clicking the CLOSE box in the top-right corner of the window.
6. Under the CREATE tab click REPORT WIZARD. Click REPORTS in the Objects list of the Solar System: Database window. To create a new report, double-click CREATE REPORT BY USING WIZARD.
7. Select the DOUBLE FORWARD arrow button  to move all of the fields from the Available Fields list to the Selected Fields list. Click the NEXT button.

Project 20: Alien Life Student Handout [continued]

8. To sort the records by planet, click NEXT again. Click the drop-down arrow in the first box and select PLANET NAME. Click NEXT.
9. Select JUSTIFIED in the Layout group, confirm that LANDSCAPE is chosen in the Orientation group and click NEXT.
10. Select FORMAL from the list of styles and click NEXT. Choose FINISH.
11. Print the report by selecting FILE → PRINT.
12. Exit *Access* by clicking FILE → EXIT.
13. Based on your research, choose a planet other than earth for which you would like to design an alien life form that is adapted to the features of the planet.
14. Launch *Microsoft Word*.
15. Title your document *Alien Life Form* at the top of the page. Be sure to enter your name and that of your partner at the top of the document as the authors.
16. In your document, answer the following questions:
 1. What planet does your alien live on?
 2. How and what does your alien eat? How does it move and communicate?
 3. How and what does it breathe?
 4. What types of daily activities does your alien do? What does it do for fun?
 5. What does its home look like?
 6. What clothes does your alien wear and why?
 7. Why does your alien have special features such as arms, sensors or legs? What does it use them for?


Project 20: Alien Life Student Handout [continued]


17. Save your document by clicking the OFFICE BUTTON → SAVE.
18. Open Paint by choosing the START BUTTON → PROGRAMS → ACCESSORIES → PAINT.
19. Using the painting tools, paint a picture of your alien.


To create a straight line, use the LINE tool .

To create a free-form line, use the PENCIL tool .

To create a shape, click the RECTANGLE , ELLIPSE , POLYGON  or the ROUNDED RECTANGLE tool .

To fill a shape or area with color, select the FILL WITH COLOR tool  and click an enclosed shape in your picture to fill the shape with the selected color.

To paint with a brush, use the BRUSH tool .

To erase part of the picture, use the ERASER/COLOR ERASER tool .

20. When your painting is complete, click EDIT → SELECT ALL and EDIT → COPY.
21. Switch to your *Word* document and click PASTE.
22. Save and print your document by clicking the OFFICE BUTTON → SAVE and OFFICE BUTTON → PRINT.
23. Exit Paint by clicking FILE → EXIT.
24. Exit *Word* by clicking the OFFICE BUTTON → EXIT WORD.

Project Analysis Form

Use this form to analyze sample projects and to take note of the ideas that you generate as you work through the steps.

1. Do the *Teacher Guide* and *Student Handout* components provide the information and steps needed to understand the project? Are the required skills appropriate for the students?
2. Describe the online research portion of the project if applicable. Is it a practical way to gather the necessary data? Why or why not?
3. Is the template format clear and useful? Does it provide an appropriate foundation for the project?
4. Does the project provide for student creativity? Will it engage student interest?
5. Which elements of the sample projects will be useful when you create your own technology-infused project?
6. Other ideas?

Part 3:

Creation Process

Overview

Planning a technology-infused lesson is similar to planning a traditional lesson. Common steps include identifying the purpose of the lesson and desired student outcomes, connecting relevant standards, developing the appropriate approach and creating one or more assessment tools. A technology-infused lesson includes all of these typical components and is supplemented by the integration of applicable technology standards, software applications and, in many cases, Internet resources.

This course provides a variety of tools to enable teachers to create technology-infused projects easily and efficiently. Before they begin the creation process, teachers can refer to the project self-evaluation rubric on page 130 to get a sense of the attributes of effective technology-infused projects. Teachers can keep these quality standards in mind as they develop their projects, and then use the rubric when their projects are complete to evaluate their work.

A. Concept Development Guide

This guide provides a step-by-step method for choosing a central focus for a project, determining the learning goals of the project, identifying educational objectives and standards that the project will help students accomplish, and considering how the use of technology compares with other methods for accomplishing the learning goals and objectives. Each step in the guide is illustrated with a description of the development of a hypothetical project on U.S. geography.

B. Selection of Software Applications

This document advises teachers on choosing the most effective technology to accomplish the learning goals and objectives of a project. Several examples of how various applications could be used to accomplish the goals of the U.S. geography project are given to inspire teachers to think creatively and to consider the intended student outcomes when choosing technology.

C. Creation Process Steps

The list of creation process steps is an organized plan that teachers can follow to create the materials needed for their projects, such as a teacher guide component including suggestions for whole-group discussion, extension activities and recommended time allotment; a student handout with step-by-step instructions for completing the activity; and a rubric for evaluating student performance. The creation process steps also include a list of questions to help teachers evaluate the effectiveness of the project and make any needed revisions to it before implementation in the classroom.

D. Project Development Guidelines

The project development guidelines are a series of questions designed to help teachers think through some essential issues before the hands-on project development begins. Teachers are encouraged to consider the project objectives, required materials, potential for Internet use, methods for evaluation, and possible ways to extend the project.

E. ISTE NETS Performance Indicators

The National Educational Technology Standards (NETS) Performance Indicators are essential standards for creating technology-infused projects. Teachers are provided a list of these standards for reference as they work on their projects.

F. Electronic Templates

The electronic templates document offers guidance on creating electronic templates to help students implement projects. Templates provide a way to make projects more focused and manageable, by allowing students to begin working on projects after many of the routine or irrelevant technology tasks have already been accomplished.

G. Assessment Tools

The rubric description provides suggestions for creating customized evaluation tools as well as benchmarks for assessment terms that teachers can use to review student performance on technology-infused activities. The Student Performance Review document can serve as a model or foundation for teachers as they create their own evaluation tools or can be used as it is when implementing one of the sample projects from this course in the classroom. The last assessment tool, the Project Self-Evaluation Rubric, allows teachers to review their own work in this part of the course and provides a set of quality standards that teachers can also strive toward during project development.

A. Concept Development Guide

Step-by-Step Guide	Model Project
Choose a central idea or focus for the project.	Understand the geography of the United States while developing reading and writing skills through correspondence with students at elementary schools throughout the country.
Determine the goals of the project. What will the students learn? How will this knowledge address the overall goals of the unit or curriculum?	<p>Students apply reading and writing skills to their correspondence with other elementary students. The correspondence enhances their knowledge of geography concepts including:</p> <ul style="list-style-type: none"> • Location • Human/environmental interaction • Movement • Regions <p>Their communication yields an understanding of the interrelationships between states and geography concepts.</p>
Identify what learning objectives and standards the students will achieve as they work through the project.	<p>NCSS Standards and Performance Expectations for the Early Grades:</p> <p>1.A Explore and describe similarities and differences in the ways groups, societies and cultures address similar human needs and concerns.</p> <p>1.D Compare ways in which people from different cultures think about and deal with their physical environment and social conditions.</p> <p>3.A Construct and use mental maps of locales, regions and the world that demonstrate understanding of relative location, direction, size and shape.</p> <p>3.G Describe how people create places that reflect ideas, personality, culture, wants and needs as they design homes, playgrounds, classrooms and the like.</p> <p>3.H Examine the interaction of human beings and their physical environment,</p>

	<p>the use of land, building of cities and ecosystem changes in the selected locales and regions.</p> <p>4.B Describe personal connections to place, especially as associated with immediate surroundings.</p> <p>NCTE Standards for the English Language Arts:</p> <p>1 Students read a wide range of print and nonprint texts to build an understanding of texts, of themselves and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction, nonfiction, classic and contemporary works.</p> <p>9 Students develop an understanding of and respect for diversity in language use and patterns and dialects across cultures, ethnic groups, geographic regions and social roles.</p>
<p>Consider how these objectives have been achieved previously without the use of technology.</p>	<p>In previous years, the students have used literature selections, textbooks and maps to build an understanding of geography concepts.</p>

B. Selection of Software Applications

There are many ways to determine which software applications would best address the purpose and objectives defined during the concept development phase of a project. A solid, content-based approach is to first decide the objectives and desired outcomes of the lesson and then brainstorm how different software applications could be used to achieve them. The examples below were created in this manner. Some software applications lend themselves to certain types of projects naturally, while others are more difficult to adapt to the same objectives. Considering all the available software applications and the achievement of lesson objectives through the different structures inherent to them will help teachers design engaging and meaningful projects.

Possible Projects

Use <i>Access</i> to build a database of the 50 United States. Data fields could be determined prior to soliciting postcards from other students to set criteria guiding the correspondence. Data might include the states' names, regional designation, total population and predominant industry. The database could be sorted to apply the collected data to students' understanding of geography concepts.	Use <i>PowerPoint</i> to make presentations about selected states. The presentations would represent student understanding of geography concepts. The students could scan postcards that they receive from students throughout the country to include in the presentation. Presentations could be composed of slides for each of the geography concepts.
Use <i>Excel</i> to record the total amount of postcards received from each U.S. region. When all the data are entered, a pie chart could be created that represents the percentage of postcards tallied from each region. Knowledge of graphics skills can be applied to customize the chart.	Use <i>Publisher</i> to design a postcard showcasing the landmarks of the students' home state. Include digital photographs, illustrations or scanned images that are representative of the students' home state. The student-designed postcards could be exchanged with cooperating schools. The Internet could be used to locate teachers throughout the country who are willing to contribute to the exchange of information.
Use <i>Word</i> to compose a friendly letter thanking schools for their participation in the project. Correspondence could continue through the use of monitored e-mail or the U.S. mail.	

C. Creation Process Steps

After thinking through the concept development and the appropriate software applications, the teachers create outlines for one or more technology-infused projects that address the given concept. The steps that follow illustrate an effective process for creating a technology-infused activity. This example focuses on student development and application of knowledge about U.S. geography through the construction of a *PowerPoint* presentation.

<p>Outline a logical progression of steps for student project construction.</p>	<ol style="list-style-type: none"> 1. Define the parameters of the presentation, such as the minimum number of required slides and the amount of class time that will be dedicated to making and presenting the project. 2. Identify the state that will be outlined, the geography concepts and how the concepts are exemplified through the selected state. 3. Sketch, outline or map the structure of the project. Decide what each page will contain. Use animation, sound, video, graphics, links and text as elements of the presentation. 4. Create two working files to hold all the components of the presentation—a digital file on the computer and a physical file for notes and sketches of the project. 5. Outline and store the text elements in the digital file. 6. Search for supplemental resources on the Internet. Make necessary copies for the digital file, carefully noting their sources. 7. Gather other needed resources such as video clips, hard copies and clipart. File resources in the digital and physical files as needed. 8. Create the presentation using the resources gathered. Find or write
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	<p>additional material as needed to complete the project.</p> <p>9. Test the presentation to ensure that all inserted media, links and other details work as anticipated. Make needed adjustments and corrections.</p> <p>10. Show and discuss the presentation.</p> <p>11. Reflect and revise as needed.</p>
Follow the steps that students will use to create their products, using a specific plan.	Using the steps above, construct a sample <i>PowerPoint</i> presentation. Keep notes detailing the steps in the process and make any needed modifications to the steps. These notes will form the foundation for the student handout.
Decide on a reasonable time frame for student completion of the entire project.	Three class computer lab sessions and two homework assignments will be dedicated to this <i>PowerPoint</i> presentation.
Finalize the student handout, taking care that the directions are sequential and easily understood.	Proof, test and revise the student handout as needed.
Consider what background information and activities should be discussed in class before students embark on the project.	Ensure that the students have an understanding of their home state and the connection of the geography concepts to their state.
Develop an assessment rubric or other tool to evaluate student performance on the project. (Refer to the sample on page 127.)	<p>Refer to the ISTE performance indicators that support the project's technology objectives, the provided sample rubric (page 127), and other appropriate criteria to develop an evaluation tool to assess the content and technology usage within the project.</p> <p>NETS Performance Indicators for Technology-Literate Students (3-5):</p> <p>4, 5.7 Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom.</p>

	<p>3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom.</p>
<p>Analyze whether additional technology applications will enhance the effectiveness of the project.</p>	<p>Students can use a projection device to support their presentations to the class.</p> <p>NCTE Standards for the English Language Arts:</p> <p>4 Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.</p> <p>They can also provide their resources in correct bibliographic form, prepared in <i>Word</i>.</p>
<p>Develop at least one technology enhancement of the project to foster further learning.</p>	<p>Have students create a map of the United State's using <i>Kid Pix</i>. The images could vary by depicting state capitals, geological features, landmarks, etc. The drawings can be assembled as a slide show to illustrate a comprehensive understanding of the geography of the United States.</p>
<p>Consider ways to extend the project by using related ideas for discussion or development.</p>	<p>Students can apply their knowledge of geography to develop an understanding of the world's continents. They can use a multimedia encyclopedia for the following:</p> <ul style="list-style-type: none"> • Access a variety of maps to broaden their understanding of location. • Listen to world languages to aid in defining place. • Take virtual tours of the world's landmarks to develop their knowledge of human/environmental interaction.

<p>Review and evaluate the effectiveness of the proposed project. Consider the questions listed on the right.</p>	<ul style="list-style-type: none">• Will the students be able to follow the handout successfully without the use of a template?• Will the discussion outlined in the Process section of the teacher guide provide sufficient context for the students to understand the purpose of the project? How might the discussion be improved or expanded?• How can this project assist the students in better understanding geography concepts? How will it help students to better understand how primary sources and active communication can stimulate and enhance their understanding of geography?• Does the project allow for sufficient student creativity? Will it engage student interest?• Other ideas?
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D. Project Development Guidelines

Directions:

Before developing a technology-infused project, consider and respond to each of the following questions. Use these ideas as a guide in the project development process.

1. What specifically is to be accomplished with this project?

2. What learning objectives will the students achieve with this project?

3. Have these objectives been achieved in the past without using technology? If so, how?

4. Which software applications would enliven, enrich, simplify or promote these objectives?

5. How will the use of Internet resources impact this project?

D. Project Development Guidelines [continued]

6. Will an electronic template be required? How complete should it be?
7. What is the logical progression of steps needed to work through the project?
8. Approximately how long should the project take to complete?
9. How will the results be evaluated?
10. Are there ways to extend this project to foster further learning? Can other technology applications enhance its effectiveness?

E. ISTE NETS Performance Indicators

International Society of Technology in Education (ISTE) NETS Performance Indicators for Technology-Literate Students (PreK–2):

All students should have opportunities to demonstrate the following:	
<p>The first numbers in each performance indicator refer to the standards category to which the performance is linked. The categories are as follows:</p> <ol style="list-style-type: none"> 1. Basic operations and concepts 2. Social, ethical and human issues 3. Technology productivity tools 4. Technology communications tools 5. Technology research tools 6. Technology problem-solving and decision-making tools 	<p>Prior to completion of grade 2, students:</p> <ol style="list-style-type: none"> 1.1 Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audiotapes and other technologies. 1, 3.2 Use a variety of media and technology resources for directed and independent learning activities. 1.3 Communicate about technology using developmentally appropriate and accurate terminology. 1.4 Use developmentally appropriate multimedia resources (e.g., interactive books, educational software, elementary multimedia encyclopedias) to support learning. 2.5 Work cooperatively and collaboratively with peers, family members and others when using technology in the classroom. 2.6 Demonstrate positive social and ethical behaviors when using technology. 2.7 Practice responsible use of technology systems and software. 3.8 Create developmentally appropriate multimedia products with support from teachers, family members or student partners. 3-6.9 Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas and stories. 4.10 Gather information and communicate with others using telecommunications, with support from teachers, family members or student partners.

NETS Performance Indicators for Technology-Literate Students (3–5):

All students should have opportunities to demonstrate the following:	
<p>The first numbers in each performance indicator refer to the standards category to which the performance is linked. The categories are as follows:</p> <ol style="list-style-type: none"> 1. Basic operations and concepts 2. Social, ethical and human issues 3. Technology productivity tools 4. Technology communications tools 5. Technology research tools 6. Technology problem-solving and decision-making tools 	<p>Prior to completion of grade 5, students:</p> <ol style="list-style-type: none"> 1.1 Use keyboards and other common input and output devices (including adaptive devices when necessary) efficiently and effectively. 1, 2.2 Discuss common uses of technology in daily life and the advantages and disadvantages those uses provide. 2.3 Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use. 3.4 Use general-purpose productivity tools and peripherals to support personal productivity, remediate skill deficits and facilitate learning throughout the curriculum. 3, 4.5 Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication and publishing activities to create knowledge products for audiences inside and outside the classroom. 4.6 Use telecommunications efficiently to access remote information, communicate with others in support of direct and independent learning and pursue personal interests. 4, 5.7 Use telecommunications and online resources (e.g., e-mail, online discussions, Web environments) to participate in collaborative problem-solving activities for the purpose of developing solutions or products for audiences inside and outside the classroom. 5, 6.8 Use technology resources (e.g., calculators, data collection probes, videos, educational software) for problem solving, self-directed learning and extended learning activities. 5, 6.9 Determine which technology is useful and select the appropriate tool(s) and technology resources to address a variety of tasks and problems. 6.10 Evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources.

F. Electronic Templates

Templates allow students to begin their work with an application within a structured framework. Depending on the learning goals and the technology skills of the students, templates can provide an effective starting place for technology-infused projects.

If needed, use the selected software program to create the data file that students will need to begin their projects. When the template is complete, give the file a descriptive name and save it on the server or on a floppy disk. In most *Microsoft* programs, such files can be saved as templates with extensions that describe them. To save the file as a template, choose FILE ↵ SAVE AS. Add the file name and choose the correct extension from the Save As Type list.

The standard template extensions for each software program are as follows:

Microsoft Access (*.MDB)

Microsoft Excel (*.XLT)

Microsoft PowerPoint (*.POT)

Microsoft Publisher (*.PUB)

Microsoft Word (*.DOT)

Project design, skill levels of the students, the nature of the software application selected and logistical considerations will dictate how students use the templates.

In general, expect students to be able to copy the templates to their hard disk drives from a floppy disk or the accompanying CD-ROM (for projects from Part 2 of this guide), and use the copies rather than the originals for their projects.

G. Assessment Tools

Rubrics

A rubric is an evaluation tool designed to assess performance. Often, a rubric consists of two sections, the first of which is a performance criteria checklist in which the students are evaluated in one or more areas. The second section provides the teacher with an open-ended space to make anecdotal comments about the student's performance. When using a rubric, teachers typically reflect on expected outcomes, classroom observations and experiences and also review student work and the skills checklist.

Student Performance Review

To use the Student Performance Review rubric that follows, make a determination about student performance in each area and place an *X* in each of the corresponding cells. The checklist and comments should provide the multiple measures of assessment necessary to make a fair and multifaceted evaluation of the student's work.

The benchmark descriptions below are offered as suggestions. The sample Student Performance Review is very general and designed to serve as a structural model. It may be modified to better match your school's quality benchmarks and criteria by using the Student Performance Review file (STUDENT PERFORMANCE REVIEW.DOC) on the accompanying resource CD-ROM.

(1) Unsatisfactory

An unsatisfactory mark should be rare. This designation is reserved for the student who seldom completes assignments, participates in activities or collaborates with peers.

(2) Needs Practice

A student who is new to the material or skills would fall into this category. The continuing student who acquires few of the expected skills and requires significant assistance should also receive this designation.

(3) Satisfactory

A satisfactory mark should be reserved for the student who attains most expected skills and completes most projects. Some additional practice may be needed in a few areas, but overall progress is acceptable.

(4) Mastered

A mastered designation indicates that a student has completed all of the projects and has attained all expected skills and objectives. This student can perform tasks automatically and consistently.

(5) Superior

This is for the pupil who exceeds all expectations. For example, a superior student may apply a combination of multimedia, other technical skills and problem solving to create innovative projects.

Project Self-Evaluation Rubric

When teachers have completed the creation process, they should complete the Project Self-Evaluation Rubric on page 130 to assess the strengths of their work and determine where improvement might be needed. After the teachers have taught the lesson, they will likely find it helpful to reassess their work using this tool to see what additional issues were discovered during the real-world implementation of the project.

Teachers can customize this rubric by using the Project Self-Evaluation Rubric file (SELF-EVALUATION RUBRIC.DOC) on the accompanying resource CD-ROM.

Student Performance Review

Student: _____ Date: _____

Reviewer: _____ Grade: _____

Performance Criteria	1 Unsatisfactory	2 Needs Practice	3 Satisfactory	4 Mastered	5 Superior
Content Skills <ul style="list-style-type: none"> ■ Strengthens targeted skills ■ Achieves stated lesson objectives ■ Understands how specific lesson fits into the larger theme/unit 					
Computer Skills <ul style="list-style-type: none"> ■ Effectively navigates menus and executes commands ■ Understands software functions ■ Selects appropriate software to complete a given task ■ Demonstrates facility with hardware 					
Participation and Teamwork <ul style="list-style-type: none"> ■ Actively participates in class discussions ■ Respects the ideas of others ■ Collaborates with partner/group 					
Project Completion <ul style="list-style-type: none"> ■ Follows activity directions ■ Completes all steps in an activity ■ Fulfills project requirements 					

Comments: _____

Project Self-Evaluation Rubric

Name: _____

Date: _____ Project Title: _____

Evaluation Criteria	1 Unsatisfactory	2 Needs Work	3 Satisfactory	4 Strong	5 Superior
Goals and Objectives <ul style="list-style-type: none"> ■ Purpose clearly articulated ■ Learning objectives achievable through project ■ Relevance of project to desired outcomes in core content area(s) 					
Software <ul style="list-style-type: none"> ■ Appropriate software applications utilized ■ Software capabilities enhance project 					
Content Enhancement <ul style="list-style-type: none"> ■ Use of critical thinking skills emphasized ■ Creative and original approach to content or skills established ■ Active engagement with content and technology necessary 					
Student Involvement <ul style="list-style-type: none"> ■ Strong encouragement of originality and creativity, and personal knowledge construction ■ Engagement of student interest and enthusiasm ■ Potential for further exploration 					
Integration of Technology <ul style="list-style-type: none"> ■ Technology as an essential tool to achieve learning objectives ■ New perspectives resulting from technology use ■ Strengthening of student technology skills 					

Comments: _____

Operating Systems: Hardware Basics

Hardware: Physical components that comprise a computer system.

Software: Applications that direct a computer to perform various operations.

The two major hardware platforms are **IBM compatibles** (IBM clones or PCs) and **Macintoshes**. IBM compatibles are made by such companies as IBM, Compaq, Dell, Hewlett-Packard, Gateway, Acer, Micron and Toshiba. Apple Inc. manufactures Macintoshes.

Computers work on Base 2 numbers, instead of Base 10 and only know two possible states, on (1) or off (0),

Computers store data as a 1 (one) or a 0 (zero). This digit is known as a **bit** (binary digit).

8 bits = 1 byte = 1 character

1 kilobyte = 1 K = 1,024 bytes

1 megabyte = 1 MB = 1,024 K = 1,048,576 bytes

1 gigabyte = 1 GB = 1,024 MB = 1,048,576 K = 1,100,000,000,000 bytes

A computer system contains input devices, processing components, storage devices and output devices.

Input Devices

Keyboard: Similar to a typewriter keyboard, with extra keys such as control (Ctrl), escape (ESC), alt, enter, arrow keys and function keys (F1, F2, etc.).

Mouse: Small handheld device with a rotating ball underneath that when moved across a flat surface, such as a mousepad, relays signals to move the cursor on the screen. The mouse button is pressed to perform tasks. Similar devices include the trackball, track pad and track point. Mice are also available in optical and laser, in place of the conventional ball mouse.

Scanner: Device that converts text or graphics from a printed page into an electronic file that can be stored or manipulated. Flatbed and handheld scanners are the two main scanner types.

Miscellaneous: Joysticks, touch screens, bar code readers, graphics tablets, digital cameras and microphones are also input devices.

Hardware Basics [continued]

Output Devices

Monitor: Video display unit. Monitors can display at least 65,000 colors using 16 bit color. Typical monitors these days display using 32 bit color which is about 16.7 million colors.

Printer: Device that allows users to obtain a hard copy of their documents. Two main types of printers are inkjet and laser. Printer quality is determined by dots per inch (dpi).

Speakers: Devices for audio output. Speakers today can produce stereo-quality sound.

Input and Output

Modem (modulator demodulator): A mechanism that converts the digital data from the computer to analog signals (waves as tones) so that information can be transmitted over telephone or cable lines. It also translates the incoming analog signals back to digital data. A modem's bps (bits per second) indicates how fast it can send and receive information. Modems can be external or internal to the computer system.

Peripherals: A term used to describe all input and output devices.

Processing Components

CPU (central processing unit): The speed of the microprocessor's internal clock, measured in megahertz (MHz), determines how many times it can transition between on (1) or off (0) each second. This is a prime, though not the only, indication of processing speed and power as every transition indicates instructions being executed. Pentium, Pentium II, Pentium III, Celeron and K6 are CPU type examples.

ROM (read-only memory): Fundamental instructions required for the computer to operate that cannot be erased. ROM is recorded during the computer's manufacturing.

RAM (random-access memory): "Working memory" accessed when software is used. RAM is cleared when the computer is turned off and can be upgraded to increase the memory capacity.

Hardware Basics [continued]

Storage Devices

Floppy disk drive: A device that allows a computer to read from and write to the floppy disk. The 3.5-inch floppy disk holds 1.5 megabytes of data enclosed in a plastic case. Floppy disks use a magnetically coated flexible Mylar disk enclosed in a plastic case.

Hard drive: A device that uses many rigid disks coated with magnetic material that are permanently mounted inside the encased part of the computer system. Hard disks have much more data capacity than floppy disks and can be accessed more quickly. External hard drives may also be purchased.

Floppy disks and hard disks are magnetic storage media.

CD-ROM (compact disc read-only memory): Information can be read from the disc but not written to it. It uses optical storage techniques to store up to 650 MB of data. Information can be accessed from a CD-ROM faster than from a floppy disk but slower than from a hard drive.

CD-ROM-RW (compact disc read-write): Information can be both written to and read from the disc. Optical storage techniques can store up to 700 MB of audio or data files. CD-R discs can be recorded but are permanent and are often used for audio files; CD-RW discs can be erased and re-recorded but may only be used for data.

ZIP Drive: Data can be stored on these “super” discs which hold 100 MB to 250 MB of information. These devices are often external peripherals, but they can be internal.

DVD (Digital Video Disc): DVD is becoming much more common due to the large storage capacity (over 4 GBs). DVD is an optical disc storage media format that can be used to store high video and sound quality. They resemble CDs but are encoded in a different format and a much higher density.

USB Flash Drive: Flash memory data storage devices integrated with a USB interface. These are typically small, lightweight, removable and rewritable. Memory capacity typically ranges from 8 megabytes up to 64 gigabytes.

Operating Systems: File Organization

Back up (*verb*): the act of copying information to a disk

Backup (*noun*): the information copied to a disk

It is important to back up all new document files. Files that have been backed up can be restored in case a file becomes corrupt (damaged).

Backing up should be performed regularly. Back ups should also be stored in a physically separate location from the main data to prevent loss from events that can cause the loss of the main data (i.e. fire, flood, earthquake).

Utility applications can be purchased that contain features to help back up files.

The *Microsoft Windows* backup utility can be launched by selecting START → ALL PROGRAMS → ACCESSORIES → SYSTEM TOOLS → BACKUP. Depending on your version of Windows, this might be slightly different.

Using Windows Explorer, files can be backed up manually by copying them to a floppy disk or to a networked drive.

Be careful when replacing a file or folder with another of the same name. In general, the newer version should replace the older. When in doubt, it is prudent to save the new file with a slightly different file name so that important data is not lost.

The following instructions apply to both Windows Explorer and My Computer.

To select more than one file:

1. Choose the first file.
2. Hold down the CONTROL key.
3. Select other files as desired.

or

1. Choose the first file.
2. Hold down the SHIFT key.
3. Select the last file, and all other files between the first and the last are highlighted.

To move files from one location on a drive to another location on the same drive:

1. Select the files.
2. Drag the files to another location on the same drive.

File Organization [continued]

To copy files from one location on a drive to a different drive:

1. Select the files.
2. Drag the files to another drive.

To copy files from one location on a drive to another location on the same drive:

1. Select the files.
2. Press and hold down the CONTROL key.
3. Drag the files from one location to another.

To format a floppy disk:

1. Insert the floppy disk into the floppy drive.
2. Right-click the floppy drive and choose FORMAT from the pop-up menu.
3. Choose the FULL radio button in the Format Type group.
4. Click start.
5. After the formatting is complete, select the CLOSE button when the summary appears.
6. Close the Format Floppy window.

Tips for Organizing the Hard Drive:

1. Organize the hard drive by using Windows Explorer or My Computer.
2. Use folders liberally to help categorize the files in a meaningful manner.
3. Hard drive organization will likely change with time and experience. Be certain to incorporate new techniques as they are learned.
4. Attempt to determine the most efficient way to organize files and folders with respect to the potential tasks and users.

Word Processing Basics

Word processing is the use of a computer application to create, edit, format and print documents.

Common word processing programs today are *Microsoft Word*, *WordPerfect*, *AppleWorks* and *WordPro*. Word processing applications specifically designed for children include *Storybook Weaver Deluxe*, *The Writing Center*, *Creative Writer* and *ClarisWorks for Kids*.

Word wrap is a word processing feature that automatically moves continuing text to the line below when the previous line becomes full. The ENTER key should be pressed only at the end of a paragraph to move the cursor to the next line.

The paragraph symbol ¶ indicates the end of each paragraph but does not appear on the printed document. Other non-printing characters include a raised dot • representing a space, and an arrow → for a tab. Users may choose whether to display these non-printing characters.

Word Processors today are WYSIWYG in format (pronounced wizzy-wig, short for What You See Is What You Get). The screen shows the appearance of the printed document.

The main features of word processing can be categorized as either editing or formatting functions. Editing features allow users to alter the content of text. Formatting features affect how information appears within a document. Formatting can be performed before the text is entered, while text is entered, or after the text is complete. To format text after it has been entered, highlight the text, then choose the desired formatting options.

Word processors allow users to access a variety of fonts. A font is an individual design of letters, numbers and punctuation characters. Many thousands of fonts exist. Fonts can be categorized as either serif or sans serif. Serif refers to cross strokes at the end points of letters and numbers, and sans is French for without. Compare the following:

Courier New is an example of a serif font.

Arial is an example of a sans serif font.

Consider using a serif font for text in the body of a document because it is easier to read. Sans serif fonts are typically used for shorter amounts of text, such as titles.

The size of a font is measured in **points**. One inch is equal to 72 points, and one centimeter is equal to 28 points. Font sizes of 10 or 12 point are common for text in the body of documents.

Word Processing Basics [continued]

The **font style** refers to the defining characteristics that can be applied to fonts. The most common font styles are *italic*, underline and **bold**. In general, avoid applying multiple styles, such as bold and italics, to text.

Bullets are symbols (often a solid circle or square) used to distinguish items in a list. Bullets are used when listing items of relatively equal importance. Numbers can be inserted automatically to signify order in a list of items.

Margins are the blank spaces at the top, bottom, left and right edges of a document. The word wrap feature keeps text within the specified margins. Most printers require margins of at least half an inch.

Text alignment (also known as justification) refers to how text appears in relation to the left and right margins. Alignment applies to all of the text within a paragraph. Compare the alignment of the following three sentences.

This sentence is left aligned.

This sentence is center aligned.

This sentence is right aligned.

Other sentences in this document are justified (also known as full justification), meaning the text is aligned with both the left and the right margins.

The **header** comprises the text or graphics that appear at the top of every page in a multi-page document. Text or graphics at the bottom of each page comprise the **footer**. Page numbers are often inserted into the header or footer. It is possible to create different headers and footers for odd and even pages, as well as for the first page of a document.

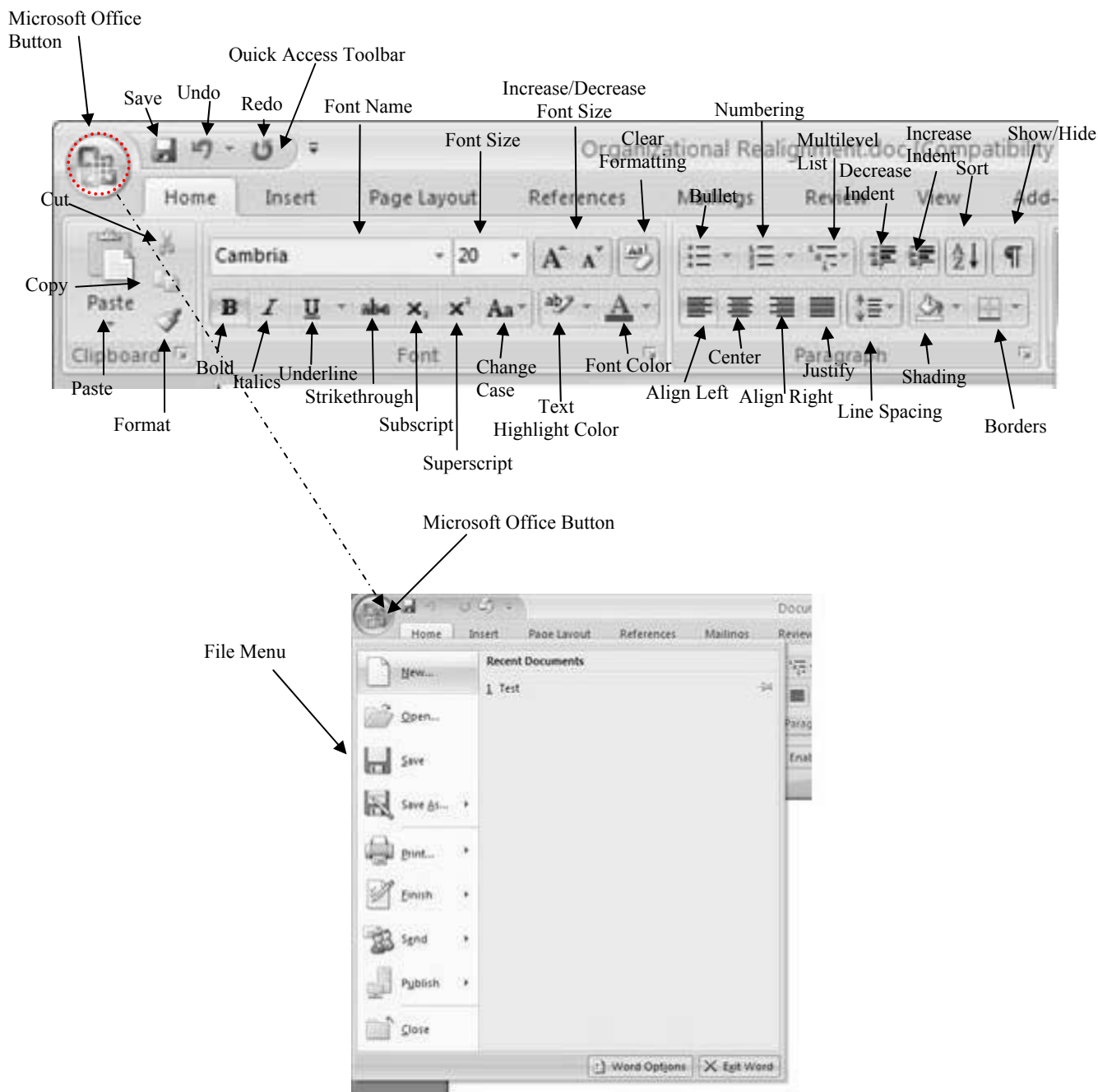
A **footnote** is a note of reference or a comment that appears at the bottom of a page. An **endnote** is a note of reference or a comment that appears at the end of the document. To let readers know that a footnote or an endnote exists for a particular section of body text, superscript numbers (or sometimes symbols) are inserted after the corresponding sentence.

Clip art is a collection of previously created graphics that can be added to documents.

Documents can be printed in different **page orientations**. **Portrait** orientation refers to a printed page that is taller than it is wide. Portrait orientation is the default printing option in almost all applications. **Landscape** orientation is used to print a page that is wider than it is tall.

Word Processing Basics: Using Microsoft Word 2007

The Ribbon




Using Microsoft Word 2007: Getting Started

To open an existing document:

1. From the MICROSOFT OFFICE button  in the top left corner choose OPEN.
2. Locate the file and click OPEN.

To create a new document:

1. From the MICROSOFT OFFICE button choose NEW. 
2. Select BLANK DOCUMENT and click CREATE.

To create a new document based on a template or a wizard:

1. From the MICROSOFT OFFICE button choose NEW.
2. Under Template Categories on the left, chose a document type. For some templates you must have internet access.
3. Select the desired document style and click CREATE.

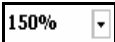
To display a document in Normal View:

- ☐ From the VIEW TAB select DRAFT.

To display a document in Print Layout View:

- ☐ From the VIEW TAB select PRINT LAYOUT.

To enlarge or to reduce the view of a document:

1. From the VIEW TAB click the ZOOM button, then choose a percentage from the preset choices or a custom percent with the PERCENT drop-down box. 
2. Select the desired percentage. Click OK.

To hide or to show non-printing characters:


- ☐ From the HOME TAB click the SHOW/HIDE button. 

To check spelling while typing:


1. From the REVIEW TAB select SPELLING & GRAMMAR. The document will be auto checked for spelling and grammar.
2. *Word* indicates possible spelling errors with wavy red underlines. To correct an error, right-click a word with a wavy red underline, then select the appropriate correction listed in the pop-up menu.

Using Microsoft Word 2007: Inserting Text and Objects


To insert a table:

1. Position the cursor where the table will be added.
2. From the INSERT TAB select the TABLE button. 
3. Highlight the appropriate number of cells from the menu.
4. Click the left mouse button to insert the table into the document.


To insert a picture from another file:

1. Position the cursor in the location where the picture will be placed.
2. From the INSERT TAB click on the PICTURE button. 
3. Locate and select the appropriate file, then click INSERT.

To insert clip art:

1. Position the cursor where the clip art will be added.
2. From the INSERT TAB click on the CLIP ART button. 
3. Select the clip art to be added and click the insert clip button from the menu on the right side of the screen.
4. Close the INSERT CLIP ART TAB.

To insert SmartArt (Diagram):

1. Position the cursor where the diagram will be added.
2. From the INSERT TAB click on the SMARTART button. 
3. Choose a DIAGRAM TYPE and click OK.

To insert WordArt:

1. From the INSERT TAB click on WORDART.
2. Choose a WordArt style and click OK.
3. Enter and format the text, then click OK.
4. Resize and reposition the WordArt as desired.

To insert a page break:


1. Position the cursor on the line below where the page break will be added.
2. From the INSERT TAB click on PAGE BREAK.

Using Microsoft Word 2007: Inserting Text and Objects [continued]



To insert page numbers:

1. Position the cursor in the footer or where the page numbers will be inserted.
2. From the INSERT TAB click on PAGE NUMBER.
3. Make the desired selections from the Position and Alignment drop-down lists.
4. The page number will be automatically added to the document.

To create a header or a footer:

1. From the INSERT TAB click on HEADER or FOOTER.
2. From the drop-down list choose the HEADER style.
3. To create a footer, click the GO TO FOOTER button in the NAVIGATION SECTION. 
4. Select the CLOSE button in the DESIGN TAB.


To insert a footnote or an endnote:

1. From the REFERENCES TAB click on INSERT FOOTNOTE. 
2. From the REFERENCES TAB click on INSERT FOOTNOTE. 

To insert a symbol not shown on the keyboard:

1. Position the cursor where the symbol will be added.
2. From the INSERT TAB click on SYMBOL.
3. From the drop-down menu, select the symbol or character to be inserted.

To insert the current date and time in a document:

1. Position the cursor where the date or time will be added.
2. From the INSERT TAB click on the DATE AND TIME logo. 
3. Choose the desired option from the Available Formats list, then click OK.

Tip: To automatically update the date or time whenever a document is opened or printed, check the UPDATE AUTOMATICALLY option in the Date and Time dialog box when inserting the date or time. Otherwise, the document will print the original date or time.

Using Microsoft Word 2007: Editing

To select all of the text in a document:

1. From the HOME TAB click on SELECT.
2. From the drop-down box click on SELECT ALL.

To find a keyword or a phrase in a document:

1. From the HOME TAB click on FIND.
2. Enter the keyword or phrase in the Find What text box, and select FIND NEXT.

Tip: The located text will be automatically highlighted. To edit the text, close the Find and Replace dialog box and make the necessary changes.

To replace a keyword or a phrase in a document:


1. From the HOME TAB click on REPLACE.
2. Enter the text to be replaced in the Find What text box.
3. Enter the replacement text in the Replace With text box.
4. Select FIND NEXT to locate the text.
5. Choose REPLACE to make the change, then click FIND NEXT to continue or select CLOSE.

Tip: If multiple occurrences of text are being replaced, choose the REPLACE ALL button.

To view a specific page within a multi-page document:


1. From the HOME TAB click on GO TO.
2. On the GO TO tab of the Find and Replace dialog box, verify that page is selected in the GO TO WHAT list box.
3. Enter the desired page number in the Enter Page Number text box, then click GO TO.
4. Click the CLOSE button to close the dialog box.

To copy text:


1. Highlight the text to be copied.
2. From the HOME TAB click on the COPY button. 

Using Microsoft Word 2007: Editing [continued]

To cut text from a document:


1. Highlight the text to be cut.
2. From the HOME TAB click on the CUT button. 

To paste text that has been copied or cut from a document:


1. Position the cursor where the text is to be pasted.
2. From the HOME TAB click on the PASTE button. 

Tip: The last text copied or cut to the Clipboard will be pasted.


To undo the last action performed:

1. Select the UNDO button  on the QUICK ACCESS TOOLBAR on the top left.

To undo one or more previous actions:

1. Select the drop-down arrow next to the UNDO button. 
2. Select the appropriate actions to be undone.

To redo the last action undone:

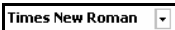
- Select the redo button  on the on the QUICK ACCESS TOOLBAR.

To replace text manually:


1. Highlight the text to be replaced.
2. Enter the new text.

Using Microsoft Word 2007: Formatting


To change the text font:

1. Highlight the text to be changed.
2. Select the appropriate font from the FONT drop-down list. 


To change the size of text:

1. Highlight the text to be changed.
2. Select a point size from the FONT SIZE drop-down list. 


To bold text:

1. Highlight the text.
2. Select the BOLD button  on the FONT GROUP of the HOME TAB.


To italicize text:

1. Highlight the text to be italicized.
2. Select the ITALIC button  on the FONT GROUP of the HOME TAB.


To underline text:

1. Highlight the text to be underlined.
2. Select the UNDERLINE button  on the FONT GROUP of the HOME TAB.


To change the color of text:

1. Highlight the text to be changed.
2. Click the FONT COLOR drop-down arrow. 
3. Select the appropriate color from the menu.


To center a paragraph of text:

1. Highlight the text to be centered.
2. Click the CENTER button  on the PARAGRAPH GROUP of the HOME TAB.

To align a paragraph of text to the left margin:


1. Highlight the text to be aligned.
2. Click the ALIGN LEFT button  on the PARAGRAPH GROUP of the HOME TAB.

To align a paragraph of text to the right margin:

1. Highlight the text to be aligned.
2. Click the ALIGN RIGHT button  on the PARAGRAPH GROUP of the HOME TAB.

Using Microsoft Word 2007: Formatting [continued]

To justify a paragraph of text:

1. Highlight the text to be justified.
2. Click the JUSTIFY button  on the PARAGRAPH GROUP of the HOME TAB.


To increase the indent of a paragraph:

1. Highlight the text to be indented.
2. Choose the INCREASE INDENT button  on the PARAGRAPH GROUP of the HOME TAB.


To decrease the indent of a paragraph:

1. Highlight the text to be changed.
2. Choose the DECREASE INDENT button  on the PARAGRAPH GROUP of the HOME TAB.


To change the vertical alignment of text in a document:

1. From the PAGE LAYOUT TAB, open the PAGE SETUP box by clicking  in the bottom right corner of the PAGE SETUP GROUP. This button is called the Dialog Box Launcher.
2. On the LAYOUT tab, choose a VERTICAL ALIGNMENT from the drop-down box.
3. Click OK.

To change line spacing:

1. Highlight the paragraphs to be changed.
2. From the PAGE LAYOUT TAB, open the PARAGRAPH box by clicking  in the bottom right corner of the PARAGRAPH GROUP.
3. On the INDENTS AND SPACING TAB, select an option from the LINE SPACING drop-down list.
4. Click OK.

To create a bulleted list from text:


1. Highlight the text to be bulleted.
2. Click the BULLETS button  on the PARAGRAPH GROUP of the HOME TAB.

To modify a bulleted list:

1. Highlight the bulleted list to be changed.
2. Click the drop-down arrow on the BULLETS button on PARAGRAPH GROUP of the HOME TAB.
3. On the BULLET drop-down, select a bullet.

Using Microsoft Word 2007: Formatting [continued]

To create a numbered list from text:

1. Highlight the text to be numbered.
2. Click the NUMBERING button  on the PARAGRAPH GROUP of the HOME TAB.


To modify a numbered list:

1. Highlight the numbered list to be changed.
2. Click the drop-down arrow on the NUMBERING button on the PARAGRAPH GROUP of the HOME TAB.
3. On the NUMBER drop-down list, select the appropriate options.

To add a border to a page in a document:

1. From the PAGE LAYOUT TAB choose PAGE BORDERS.
2. Select the desired options and click OK.

To format text as columns:

1. Highlight the text to be formatted as columns.
2. Choose the COLUMNS button  on the PAGE LAYOUT TAB.
3. Select the appropriate number of columns from the drop-down menu.

To set a tab:

1. Highlight the paragraphs to be formatted.
2. Click the horizontal ruler at the desired location for the tab.

Tip: If you do not see the ruler at the top of the screen, go to the VIEW TAB and click the checkbox next to RULER.

Using Microsoft Word 2007: Finishing Touches

To check spelling and grammar:

1. From the REVIEW TAB select SPELLING & GRAMMAR. The document will be auto checked for spelling and grammar.
2. *Word* indicates possible spelling errors with wavy red underlines. To correct an error, right-click a word with a wavy red underline, then select the appropriate correction listed in the pop-up menu.
3. When a possible spelling or grammatical error has been located, make the necessary changes in the Spelling and Grammar dialog box and select CHANGE.

Tip: To check spelling or grammar on a particular section of the document, highlight only that section before choosing the SPELLING & GRAMMAR button.


To count the number of words in a document:


- From the REVIEW TAB select WORD COUNT. 

To change the margins of a document:


1. From the PAGE LAYOUT TAB select MARGINS.
2. On the MARGINS drop-down, select the desired margin settings.

To save a new document:

1. From the MICROSOFT OFFICE button choose SAVE.
or
1. Click the SAVE button  on the QUICK ACCESS TOOLBAR.
2. Navigate to the appropriate location to store the document, enter a name for the document in the File Name box and select SAVE.

Tip: To save the document in a new folder, click the NEW FOLDER button  before selecting SAVE.

To save a document with the same name:


1. From the MICROSOFT OFFICE button choose SAVE.
or
2. Click the SAVE button  on the QUICK ACCESS TOOLBAR.

Using Microsoft Word 2007: Finishing Touches [continued]

To save a document with a new name:

1. From the MICROSOFT OFFICE button choose SAVE AS.
2. Navigate to the desired location and enter a new name in the File Name box.
3. Click SAVE.


To preview a document before printing:

1. From the MICROSOFT OFFICE button choose PRINT then PRINT PREVIEW.
or
1. Click the PRINT PREVIEW button  on the QUICK ACCESS TOOLBAR.
2. Select the CLOSE button to exit Print Preview.

Tip: The PRINT PREVIEW button may have to be added by customizing this toolbar.

To print a document:

1. From the MICROSOFT OFFICE button choose PRINT.
2. Enter the range of pages and the number of copies to be printed.
3. Click OK.

Tip: To print the whole document, click the PRINT button  on the QUICK ACCESS TOOLBAR.

To print an envelope:

1. From the MAILINGS TAB choose ENVELOPES.
2. On the ENVELOPES tab, enter the envelope size under OPTIONS and click ok.
3. Enter the delivery address and the return address (or select the OMIT check box) and click PRINT.

Tip: To print an envelope for an existing letter, select the name and address within the text body, then follow the steps above and verify that the delivery address appears on the ENVELOPES tab.

To close a document:

- ❑ From the MICROSOFT OFFICE button choose CLOSE.

Additional Features in Microsoft Word 2007:

Quick Access Toolbar:

1. Tools or commands that are not as readily available as you would like can be easily accessed by adding them to the QUICK ACCESS TOOLBAR.
2. To add a button right click on a feature in a tab, then click ADD TO QUICK ACCESS TOOLBAR. You may remove a button the same way, by right clicking and choosing REMOVE FROM QUICK ACCESS TOOLBAR.

Graphics Basics

The term graphics refers to the use of a computer to create and modify images. *Microsoft Paint 5.1* is an example of a graphics program. *Microsoft Office 2000 Professional* contains graphics tools that are collectively known as *Office Art*. The newest drawing tool to be added to the Microsoft family is called *SmartArt*, and is available in the Office 2007 Suite. *SmartArt* graphics allow you to create process charts, radial charts, organization charts, and more. More advanced graphics applications include *Adobe Illustrator*, *Adobe Photoshop*, *CorelDRAW* and *Dabbler by Fractal Design*.

Common graphics file formats include:

*.bmp (Bitmap graphics), *.jpg (Joint Photographic Experts Group), *.gif (Graphics Interchange Format) and *.tif (Tagged-Image File Format).

Painting Programs:

The two basic types of computer graphics applications are paint programs and draw programs. *Paint* is an example of a paint program.

1. Graphics are created by modifying pixels. A pixel is a single point in a graphic image.
2. Images are known as bitmap graphics (or raster graphics).
3. Painting tools mimic such real-life art tools as a pencil, an eraser, an airbrush, a paintbrush and a paint bucket.
4. Lines and shapes of varying thickness and color can be created.
5. Any portion of the picture can be selected to be moved, resized, flipped or rotated.
6. Clipart images can be inserted and modified.
7. Graphics become distorted (pixelated) when enlarged.
8. Painting programs are best suited for free-form artwork including delicate designs, shading and other artistic effects.

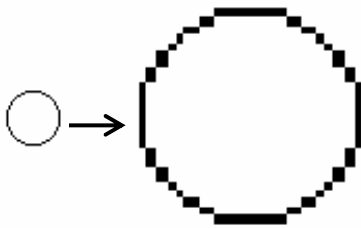
Drawing Programs:

Office Art is a set of drawing tools found in *Microsoft Word 2003*, *Excel 2003* and *PowerPoint 2003*, and is accessible through the Drawing toolbar. The Drawing toolbar is not available in most of *Microsoft Office 2007*, and has been replaced by the Ribbon.

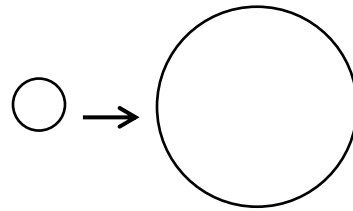
1. Images are known as object-oriented graphics (or vector graphics).
2. The directional lines (vectors) that constitute a graphic are stored as mathematical formulas.
3. Graphics are treated as separate objects.

Graphics Basics [continued]

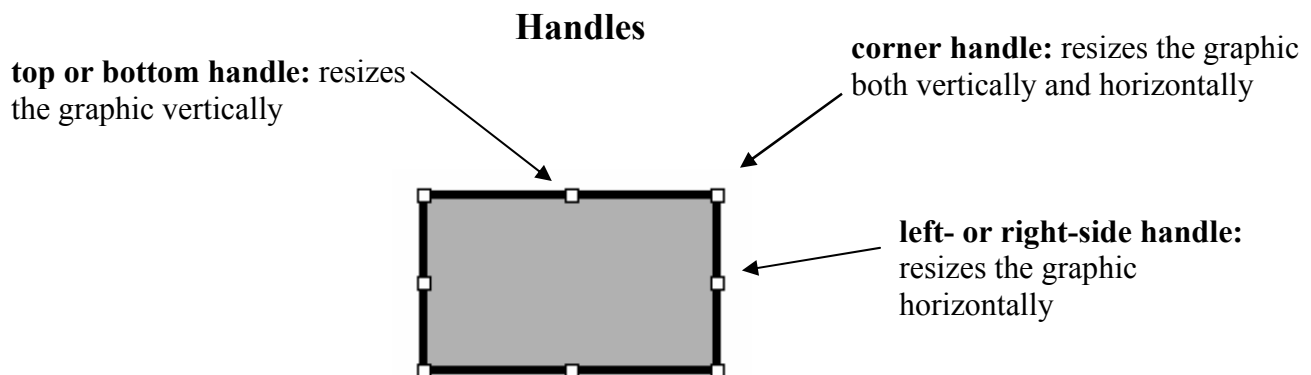
1. Graphics can be grouped and manipulated as one object or ungrouped and manipulated as separate objects.
2. Graphics are created in separate layers that can be reordered.
3. Graphics can be easily modified at any time.
4. Lines and shapes of various thickness and color can be created.
5. Objects can be selected and moved, resized, flipped or rotated.
6. Clip art can be inserted and modified.
7. Graphics do not become distorted when enlarged.
8. Drawing programs are best-suited for projects using shapes and lines in which the ability to reposition and resize is important.



This circle was enlarged in a painting program. Note the distortion.



This circle was enlarged in a drawing program. No distortion occurred.



Graphics Basics: Sources of Graphics

Original Work

Graphics created from scratch are considered original artwork. When time is limited, previously created graphics can be reused and modified. Some benefits of creating original images include fostering artistic and creative skills, ensuring the complete ownership of the material (no copyright issues) and promoting exploration and discovery of the capabilities of the graphics tools. Disadvantages include the time-consuming nature of creating original artwork, the difficulty of making realistic-looking images and the limitations of the graphics capabilities within some programs.

Scanners

Scanners are peripheral devices that convert artwork or text from a printed page to an electronic file which can be stored or manipulated in other programs. The conversion process is known as digitizing. The two main types of scanners are flatbed, which are similar to a photocopy machine, and handheld, which are dragged across the page. Like printer quality, scanner quality is determined by its dpi (dots per inch). Some advantages of scanning artwork include the abilities to use previously created images, to scan photographs and to personalize documents easily. Some disadvantages include potential copyright violations, the length of time required to scan many images and the storage space demands that result from the large file sizes of scanned photographs and pictures.

Digital Cameras

A digital camera is similar to a regular camera in that a user points the lens of the handheld device at a subject, looks through a viewfinder and presses a button to take a picture. A critical difference, however, is that a digital camera does not use film. Instead, images are saved digitally and can be copied to a computer's hard drive with a connecting cable. Benefits of using a digital camera include the elimination of expensive and time-consuming film processing and scanning, the portability of the camera and low operating costs. Some negative aspects include the high price of the camera, lower-quality pictures than film-based cameras, long downloading time and large hard drive space requirements.

Graphics Basics: Sources of Graphics [continued]

Clip Art

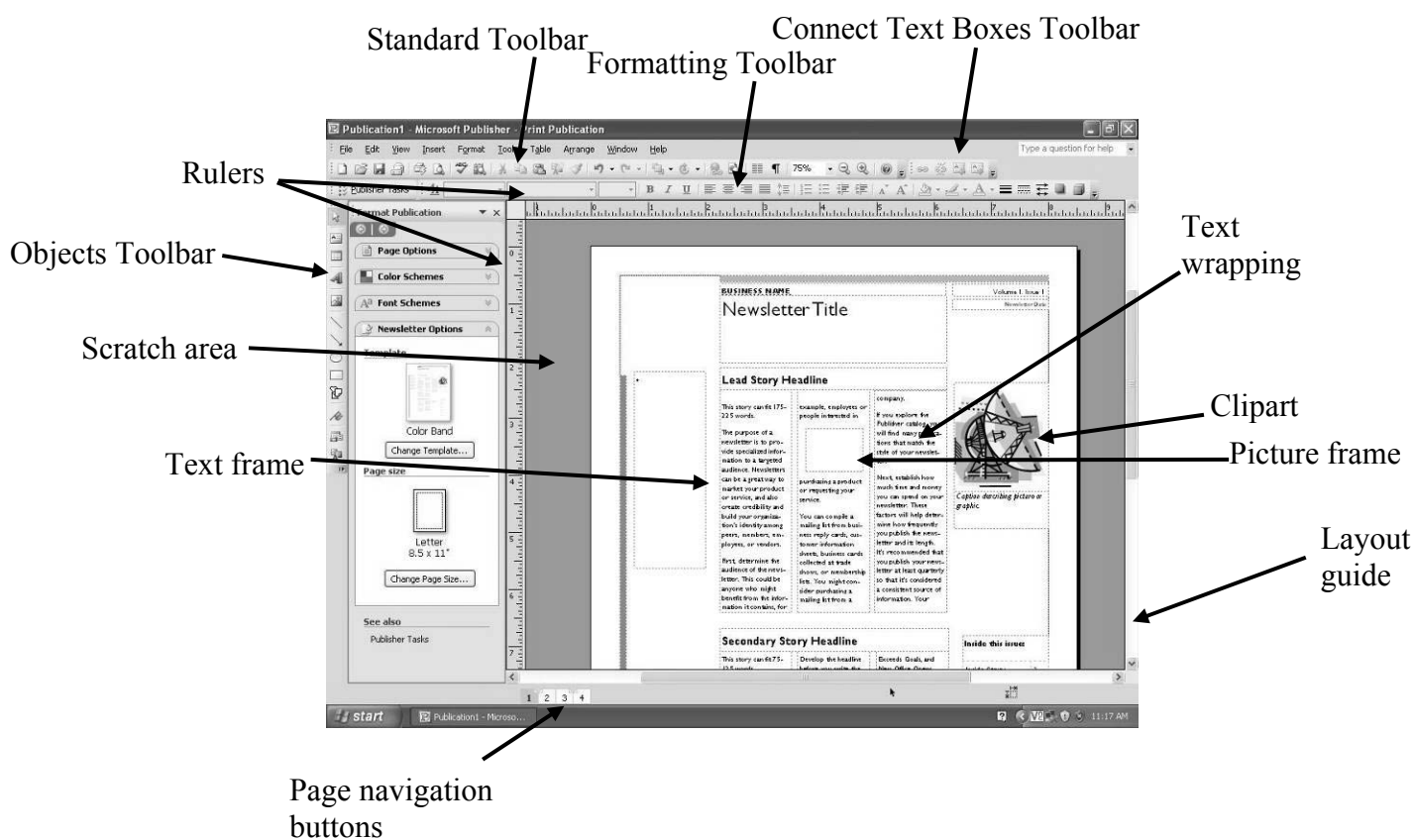
Clip Art is previously created digital artwork intended to be integrated into documents. A collection of clip art is known as a clip art library. To make it easier for users to browse and locate specific images, graphics in clip art libraries are often grouped in such categories as animals, food, household, maps and transportation. When some applications, including *Microsoft Word 2007* and *Microsoft Publisher 2007*, are installed, a clip art library is copied onto the computer's hard drive. With the exception of creating another clip art library, clip art can be used in any way without copyright violation. There are CD-ROMs that contain clip art libraries of images either within a particular category or with an assortment of categories.

Desktop Publishing: Basics

Desktop publishing is the process of using a computer to position text and graphics on a page to produce printed documents such as signs, newspapers, newsletters, magazines, brochures, banners, cards, calendars, letterheads, certificates, business cards, reports and resumes. The term desktop publishing was coined in the mid-1980s with the arrival of the Apple Macintosh, page layout software and the laser printer. For the first time, people could “publish” from their “desktop”, creating professional-looking printed materials at home.

Examples of desktop publishing applications include *Microsoft Publisher 2007*, *Adobe PageMaker* and *QuarkXPress*. Other software packages with desktop publishing features include the *Print Shop* series (from Broderbund), *Print Artist* (from Sierra On-Line), *The Children's Writing and Publishing Center* (from The Learning Company) and *Corel Print House*.

Desktop Publishing Terminology



Desktop Publishing Basics [continued]

background: the layer in which text and images that appear in the same location on every page of a document are placed

clip art: previously created digital artwork that is intended to be integrated into documents

foreground: the layer in which the text and images that vary from page to page in a document are placed

Greek text: a block of nonsensical text (representing the size and position of the actual text) used to evaluate the aesthetics of the page design

grouping: joining together separate objects so the components can be manipulated as one object

importing: the process of inserting text or graphics that originated in one program into another program

landscape: the page orientation in which the page is wider than it is tall

layers: invisible sheets on which users can place text or graphics so the objects are independent of other objects on other sheets

layout: the process of arranging text and graphics on a page

layout guides: nonprinting lines that can be helpful when placing text and graphics within a document

linking: connecting text frames so that the excess text from the first frame flows into the second frame

portrait: the page orientation in which the page is taller than it is wide

picture frame: a movable and resizable placeholder for a graphic

pull quote: a short phrase set in a larger type size that repeats information found within the article

rulers: on-screen bars that measure the page horizontally and vertically

scratch area: the nonprinting work area in which text and graphics can be placed before they are moved into a document

text frame: a placeholder for text, which can be moved or resized

text wrapping: the way that text flows around a graphic


wizard: a Help feature that guides users through multistep processes to create common documents; including creating cards, newsletters, banners and resumes

Desktop Publishing: Using Microsoft Publisher 2007

To create a new publication:

1. Choose FILE → NEW.
2. In the POPULAR PUBLICATION TYPES Task Pane, select the appropriate options to create the desired publication.
3. When finished click CREATE.

To create a bulleted list or a numbered list:

1. Highlight the desired lines of text.
2. Choose the BULLETS button  on the Formatting toolbar.

Tip: To apply customized bullets, choose FORMAT → BULLETS AND NUMBERING. From the BULLETS tab, choose the desired bullet shape and size and select OK.

To undo the last action:

- Choose EDIT → UNDO.

To insert page numbers on every page:

1. Choose INSERT → PAGE NUMBERS.
2. Select the POSITION and ALIGNMENT and click OK.

To create a calendar, an advertisement, a coupon or a logo for an existing publication:

1. Choose INSERT → DESIGN GALLERY OBJECT.
2. On the OBJECTS BY CATEGORY tab, select CALENDARS, ADVERTISEMENTS, COUPONS or LOGOS from the Categories list.
3. Choose the desired publication option in the menu to the right and click INSERT OBJECT.
4. Resize and reposition the object and make any desired changes.

Tip: You can double click on the desired publication option and it will be added to your document.

To insert a new page:

1. Select INSERT → PAGE.
2. Enter and choose the desired options and click OK.

To preview the document as it will be printed:

1. Select VIEW
2. Click on BOUNDARIES AND GUIDES to remove the checkmark.

Using Microsoft Publisher 2007 [continued]

To change the orientation of a page:

1. Select FILE → PAGE SETUP.
2. In the BLANK PAGE SIZES group, select a page type.
3. Choose a page option and click OK.

To view the page at a specific percentage:


- ❑ Click the ZOOM drop-down box on the Standard toolbar and choose a percentage.

To view a different page within a document:

- ❑ Click the appropriate PAGE NAVIGATION button at the bottom-left corner of the screen.

Text Formatting and Editing

To insert text:

1. Click the TEXT FRAME tool  on the Objects toolbar.
2. Drag to create a text frame.
3. Enter text.

To import text:




1. Confirm that a text frame is selected.
2. Choose INSERT → TEXT FILE.
3. Navigate to and select the desired text file and click OK.

To change the text font or text size:


1. Highlight the desired text.
2. Make the desired selections from the Font drop-down list or the Font Size drop-down list.

Using Microsoft Publisher 2007: Text Formatting and Editing [continued]





To change the text style:

1. Highlight the desired text.
2. Choose the BOLD button , the ITALIC button  or the UNDERLINE button  on the Formatting toolbar.




To change the color of text:

1. Highlight the desired text.
2. Select the FONT COLOR button  on the Formatting toolbar, then select a color.

To change text alignment:

1. Highlight the desired text.
2. Select the LEFT button , the CENTER button , the RIGHT button  or the JUSTIFY button  on the Formatting toolbar.

To link two text frames:

1. Verify that a second frame already exists. If not, create one.
2. Click the text frame containing the text. Confirm that the TEXT IN OVERFLOW button  is displayed on the frame's bottom edge.
3. Choose CREATE TEXT BOX LINK button  from the Connect Text Boxes toolbar on the top right.
4. With the pitcher-shaped pointer , select the second text frame into which the overflow text should be placed.

To change the number of columns in a text frame:

1. Select a text frame.
2. On the formatting toolbar choose the column button.
3. Highlight the number of columns.

To wrap text closely around an image:

1. Select a graphic.
2. Choose FORMAT → PICTURE.
3. In the LAYOUT tab, select the features you desire and click OK.



Using Microsoft Publisher 2007: Text Formatting and Editing [continued]

To insert the date or time into a text frame:


1. Position the cursor in the desired location within a text frame.
2. Choose INSERT → DATE AND TIME.
3. Select an option from the Available Formats list.
4. Choose the UPDATE AUTOMATICALLY check box if desired, then click OK.

Graphics Formatting and Editing


To insert clip art:

1. Select the PICTURE FRAME tool  on the Objects toolbar.
2. Choose the Clip Art logo  from the dropdown menu.
3. Enter a keyword or keywords in the Search For Clips box, then press the GO.
4. Choose the desired clip art image and it will automatically be entered into the document.
5. Close the Insert Clip Art window.

To insert a picture file:


1. Select the PICTURE FRAME tool  on the Objects toolbar
2. Choose PICTURE FROM FILE.
3. Drag and create graphics frame.
4. Navigate to and select the desired picture file from the Insert Picture box, then choose INSERT.

To create a straight line:

1. Choose the LINE tool  on the Objects toolbar.
2. Click and hold down the mouse button to establish the line's starting point, then drag to create the line.


Tip: Holding down the SHIFT key while dragging the mouse can create horizontal, vertical and 45-degree angle lines.

To create a straight line with one or two arrowheads:


1. Select an existing line, or draw a new line.
2. Choose the ARROW STYLE button  on the Formatting toolbar and choose an arrow style from the drop-down box.

Using Microsoft Publisher 2007: Graphics Formatting and Editing [continued]

To change the thickness and color of a line:


1. Select a line.
2. Choose the LINE/BORDER STYLE button  on the Formatting toolbar.
3. Select one of the displayed options in the menu, or choose MORE STYLES to select a customized line width, style and color.

To create an oval:

1. Select the OVAL tool  on the Objects toolbar.
2. Drag the mouse diagonally to create an oval.


Tip: Holding down the SHIFT key while dragging creates a circle.

To create a rectangle:

1. Click the RECTANGLE tool  on the Objects toolbar.
2. Drag the mouse diagonally to create a rectangle.


Tip: Holding down the SHIFT key while dragging creates a square.

To create a custom shape:

1. Select the CUSTOM SHAPES tool  on the Objects toolbar.
2. Click the desired shape from the pop-up menu, then drag to create the shape.


Tip: Holding down the SHIFT key while dragging creates a shape with the same horizontal and vertical proportions.

To crop a bitmap image:






1. Select an image.
2. Click the CROP PICTURE tool  on the Picture toolbar.
3. Drag a handle to crop the image.

Using Microsoft Publisher 2007: WordArt


To insert WordArt:

1. Click the WORDART FRAME tool  on the Objects toolbar.
2. Select the WordArt shape, font and font size as desired, then click OK.
3. Enter text into the Enter Your Text Here box, then click OK.
4. Resize WordArt frame if needed.




To change the style of the WordArt:

1. Make sure the WordArt is chosen, and click EDIT TEXT on the WordArt toolbar.
2. Use the BOLD button  to bold text and the ITALIC button  to italicize text.
3. From the WordArt toolbar select the SAME LETTER HEIGHTS button  to make all of the letters the same height.
4. To change the alignment of the WordArt text, click the JUSTIFICATION button  and select one of the alignment options.
5. Select the CHARACTER SPACING button  to change the spacing between the letters.

To change the orientation of the WordArt:

1. Verify that the WordArt toolbar is open. If it is not displayed, click the WordArt.
2. Select the WORDART VERTICAL TEXT button  to toggle the WordArt between Vertical and Horizontal.
3. From the Arrange Menu choose ROTATE OR FLIP to rotate the WordArt at specified angles

To change the color, shading, shadow and border for WordArt:

1. From the Formatting menu choose the FILL COLOR button  to change the color of the text.
2. Choose the LINE COLOR button  to change the color of the border around the text.
3. Choose the SHADOW STYLE button  to add shadow to the WordArt.

Using Microsoft Publisher 2007: Working with Objects


To group objects:

1. Hold down the SHIFT key and click the objects to select them.
2. Choose ARRANGE → GROUP OBJECTS.


To ungroup an object:

1. Confirm that the grouped object is selected.
2. Choose ARRANGE → UNGROUP OBJECTS.

To create a table:

1. Select the INSERT TABLE button  on the Objects toolbar.
2. Drag to create a table frame of the desired dimensions.
3. In the Create Table dialog box, enter the number of rows and columns, choose a table format and click OK.
4. Enter information into the cells of the table, pressing the TAB key to move to the next cell.

To change an object's layer:

1. Select an object.
 2. Choose the BRING FORWARD button  on the Standard toolbar.
- or
1. Select an object.
 2. Choose ARRANGE → ORDER → BRING TO FRONT or ARRANGE → ORDER → SEND TO BACK.

To move an object:

1. Select an object.
2. Position the pointer inside the object.
3. When the pointer takes the shape of a quad arrow with a moving-truck icon, drag the object.



Using Microsoft Publisher 2007: Working with Objects [continued]

To move an object in small increments:

1. Select an object.
2. Choose ARRANGE → NUDGE.
3. Click one of the arrow buttons to move the object in the desired direction.

Tip: Objects can also be nudged by holding down the ALT key and pressing one of the arrow keys on the keyboard.

To duplicate an object:

1. Select the object.
2. Choose the COPY button  on the Standard toolbar or select EDIT → COPY.
3. Choose the PASTE button  on the Standard toolbar or select EDIT → PASTE.


Tip: Use the keyboard shortcut of CONTROL + C for the COPY command and CONTROL + V for the PASTE command.

To resize an object:


1. Select an object.
2. Position the pointer on the handle.
3. When the pointer takes the shape of a double arrow labeled *resize*, drag the handle.

Tips: The corner handles resize the selection both horizontally and vertically. The left- and right-side handles resize the object horizontally. The top and bottom handles resize the object vertically. Holding down the SHIFT key will keep the proportions of the object intact as it is resized.

To fill an object with a solid color:


1. Select an object.
2. Choose the FILL COLOR button  on the Formatting toolbar and select a color or an option from the drop-down menu.

To fill an object with a pattern:


1. Select an object. Choose the FILL COLOR button  on the Formatting toolbar and select FILL EFFECTS.
2. Click the PATTERNS tab and choose a pattern style.
3. Make the desired selections from the FOREGROUND and BACKGROUND drop-down menus, then click OK.

Using Microsoft Publisher 2007: Working with Objects [continued]


To fill an object with a gradient:

1. Select an object. Choose the FILL COLOR button  on the Formatting toolbar and select fill effects. Click the GRADIENT tab and choose a gradient style.
2. Make the desired selections from the Color 1 and Color 2 drop-down menus, then click OK.

To add a border to an object:

1. Select an object. Choose the LINE/BORDER STYLE button  on the Formatting toolbar.
2. Choose one of the displayed line widths in the drop-down menu or select MORE LINES to customize the line width, style and color.



To add a shadow to an object:

1. Select an object.
2. Choose SHADOW STYLE button. 


To flip an object:

1. Select an object.
2. ARRANGE → ROTATE OR FLIP → FLIP HORIZONTAL button  or ARRANGE → ROTATE OR FLIP → FLIP VERTICAL button. 

To rotate an object 90 degrees:

1. Select an object.
2. ARRANGE → ROTATE OR FLIP → ROTATE RIGHT button  or ARRANGE → ROTATE OR FLIP → ROTATE LEFT button. 

To rotate an object any number of degrees:

1. Select an object.
2. ARRANGE → ROTATE OR FLIP → FREE ROTATE button. 
3. Rotate the object from the corners.

To align objects:

1. Select all of the objects to be aligned. Choose ARRANGE → ALIGN OR DISTRIBUTE.
2. Choose align left, align center, align right, align top, align middle or align bottom.

Multimedia Basics

Multimedia can be defined as the use of two or more media elements, such as text, graphics, sound, animation and video. Although a book containing text and graphics would be considered multimedia by this definition, most people consider television and computers typical multimedia environments. The term hypermedia is often used as a synonym for multimedia.

Common multimedia applications include *Microsoft PowerPoint 2007*, *HyperStudio* (by Knowledge Adventure) and *Director* (by Macromedia). For younger children, *Kid Pix Studio Deluxe* (by Broderbund) and *Storybook Weaver Deluxe* (by The Learning Company) are appropriate. Other common multimedia applications are encyclopedias on CD-ROM including *Microsoft Encarta*, *Grolier Multimedia Encyclopedia*, *Britannica CD* and *World Book Multimedia Encyclopedia*.

Many different media elements may be used when creating a multimedia presentation. The following is a list of file extensions and file formats.

- ❑ *.AVI (Audio Visual Interleave, a common *Windows* format for audio/video files)
- ❑ *.MOV (a Macintosh-based audio/video file)
- ❑ *.WAV (a *Windows* sound file)
- ❑ *.JPG (Joint Photographic Experts Group, a graphics format often found on the World Wide Web)
- ❑ *.GIF (Graphics Interchange Format, a graphics format often found on the World Wide Web)
- ❑ *.BMP (Bitmap, a common format for *Windows* bitmap graphics)
- ❑ *.WMF (Windows Metafile, a *Windows* object-oriented graphic)

Multimedia Basics [continued]

Related Terms:

animation: a series of still images displayed in rapid succession to create the illusion of movement

branching slide: a slide that is linked to another slide in a presentation, providing users with a choice of which slide to view next

digitalization: the process of transferring a film or video image to a format that a computer can use

hot spot: an area on the screen that can be selected to trigger an action, such as playing a sound, animating a graphic or displaying a different slide

medium: a single method used to communicate a message to an audience, including video, sound, text and graphics

multimedia: a computer-based method of presenting information by using more than one medium of communication, such as text, graphics, sound and video

slide: a screen in a *PowerPoint* presentation resembling an index card, on which users may arrange media elements

Slide Master: a special slide that can be used to determine the layout and formatting of all slides in a presentation

slide show: in presentation programs, several screens of information organized in a particular sequence

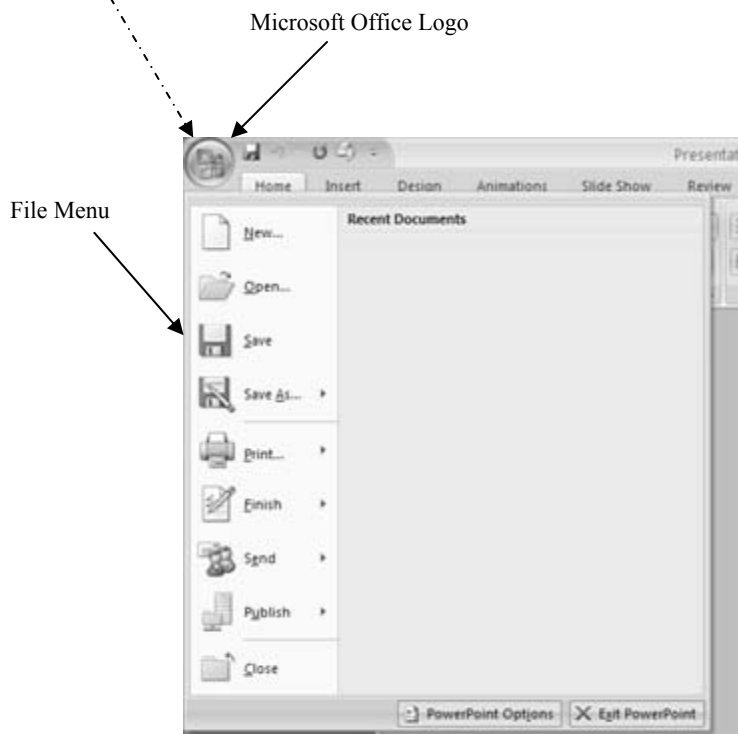
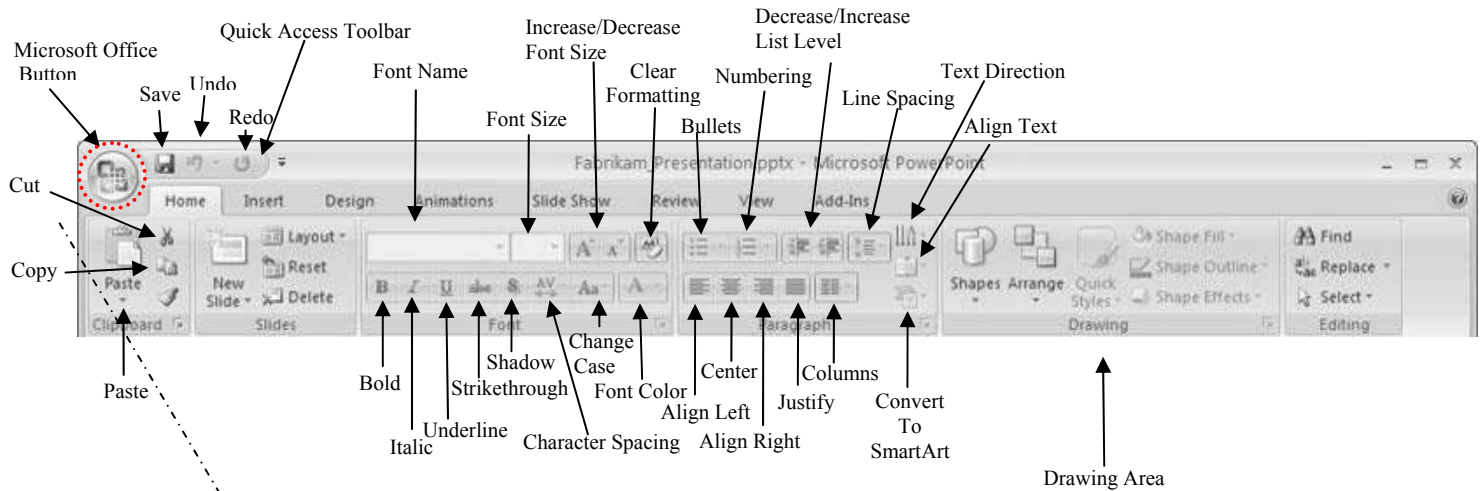
stereo: sound that is recorded and played back on two or more channels

storyboard: a series of panels on which a set of sketches is arranged for planning purposes

transition: the special effect that occurs when one slide advances to the next in a presentation


Using Microsoft PowerPoint 2007

The Ribbon



Using PowerPoint 2007: Getting Started

To create a new presentation:

1. From the MICROSOFT OFFICE button  in the top left corner choose NEW.
2. In the NEW PRESENTATION Task Pane, select BLANK PRESENTATION, click CREATE.
3. In the SLIDE GROUP of the HOME TAB, click on LAYOUT and select a slide layout for the first slide.

To open an existing presentation:

1. From the MICROSOFT OFFICE button in the top left corner choose OPEN.
2. Locate the file to be opened and click OPEN.

To create a new slide:

- In the SLIDE GROUP of the HOME TAB, click on ADD SLIDE.

To change the slide layout:

1. In the SLIDE GROUP of the HOME TAB, click on LAYOUT and select a slide layout.
2. This will only change the slide you are currently on.
3. Choose a new master style in the VIEW TAB on the MASTER LAYOUT GROUP to change the style of all slides.


To change the slide theme:

1. In the THEMES GROUP of the DESIGN TAB, click on a theme.
2. This theme will apply to all slides in the presentation.

Tip: You can scroll through the theme options by pressing the down arrow on the right side of the themes box.

Using Microsoft PowerPoint 2007: Inserting Text and Objects

To insert a text box:

1. Choose the TEXT BOX tool  on the INSERT TAB.
2. Hold down the mouse button and drag to create a text box.


To insert clip art:

1. Choose the CLIP ART tool on the INSERT TAB.
2. Enter a keyword or keywords in the Search text box, then press GO.
3. Choose the desired clip art image and it will automatically be added to the current slide.
4. Close the CLIP ART Task Pane.

To insert a picture from a file:


1. Choose the PICTURE tool on the INSERT TAB.
2. Navigate to the appropriate folder, select the file and click INSERT.

To insert WordArt:


1. Click the WORDART button  on the INSERT TAB.
2. Select a WordArt style.
3. Double click in the WordArt box to edit the text.
4. You can format the WordArt on the FORMAT TAB.

Using Microsoft PowerPoint 2007: Inserting Text and Objects [continued]


To insert a chart:

1. Click the CHART button  on the INSERT TAB.
2. Choose a chart style from the CREATE CHART box and click OK.
3. Edit the chart's contents in the Datasheet window.
4. Click a blank space on the slide to return to the presentation.
5. To close the Datasheet, go to the MICROSOFT OFFICE button in the top left corner choose CLOSE.
6. You can edit the data by choosing the EDIT DATA SOURCE button on the DESIGN TAB.

To insert a header or a footer:


1. From the INSERT TAB choose HEADER & FOOTER. 
2. Select the desired options and click APPLY TO ALL.

To insert the date and time:


1. From the INSERT TAB choose DATE & TIME. 
2. Mark the checkbox next to Date and time and click APPLY TO ALL.

Editing

To cut text from a presentation:


1. Highlight the text to be cut.
2. Choose the CUT button  on the HOME TAB.

To copy text:


1. Highlight the text to be copied.
2. Select the COPY button  on the HOME TAB.

Using Microsoft PowerPoint 2007: Editing [continued]


To paste the most recently copied or cut text:

1. Position the cursor where the text will be pasted.
2. Choose the PASTE button  on the HOME TAB.

To undo the last action:

- Select the UNDO button  on the QUICK ACCESS TOOLBAR on the top left.

To redo the last undone action:

- Select the REDO button  on the QUICK ACCESS TOOLBAR.

To delete a slide:

1. In Normal View, display the slide to be deleted.
2. Choose the DELETE button on the HOME TAB.

To duplicate an object in the presentation:

1. Select the object to be duplicated.
2. From the HOME TAB click on the PASTE drop-down menu and choose DUPLICATE.

Tips: Because clicking a text box once only positions the cursor, text boxes need to be clicked twice before the DUPLICATE command becomes available. To select more than one object at a time to be duplicated, hold down the SHIFT key while selecting objects.

To find text in a presentation:

1. Select FIND from the HOME TAB.
2. In the Find What box, enter the text to be located and click FIND NEXT.
3. After the text has been found, close the Find dialog box.

To replace text in a presentation:

1. Select REPLACE from the HOME TAB.
2. In the Find What box, enter the text to be replaced.
3. Enter the replacement text in the Replace With box and click FIND NEXT or REPLACE ALL.
4. After the text has been replaced, close the Replace dialog box.

Using Microsoft PowerPoint 2007: Formatting

To animate an object:

1. Select the object to be animated.
2. Click on the ANIMATIONS TAB and select the desired animation effect from the ANIMATE drop-down box.
3. To add sound effects to an animation, choose a sound from the TRANSITION SOUND drop-down box.

To format the slide color scheme:

1. From the DESIGN TAB click on the COLORS drop-down box.
2. Highlight a color and you will see a preview of your slide will look.
3. Once you click on a color it will apply to all slides.

To change the background color of the presentation:

1. From the DESIGN TAB click on the BACKGROUND STYLES drop-down box.
2. Select a color from the drop-down menu or click on BACKGROUND to add a gradient, texture or pattern fill.

To reorder slides within a presentation:

1. From the VIEW TAB choose SLIDE SORTER.
2. Drag the slide to be reordered to the appropriate location.
3. From the VIEW TAB choose NORMAL after the slides have been properly ordered.


Tip: You can also reorder the slides in the preview tab on the left side in NORMAL view.

To resize a text box or a picture:


1. Select the object to be resized.
2. Drag one of the object's handles until it is properly resized.

Using Microsoft PowerPoint 2007: Formatting [continued]


To bold text:

1. Select the text to be bolded.
2. Choose the BOLD button  on the HOME TAB.

To italicize text:

1. Select the text to be italicized.
2. Choose the ITALIC button  on the HOME TAB.

To underline text:

1. Select the text to be underlined.
2. Choose the UNDERLINE button  on the HOME TAB.

To change the text font:

1. Highlight the text.
2. Select a new font from the FONT drop-down list on the HOME TAB.


To change the text size:

1. Highlight the text.
2. Select a new font size from the FONT SIZE drop-down list.

To change the text color:

1. Highlight the text
2. Select a color from the FONT COLOR drop-down list. 

To increase or decrease line or paragraph spacing:


1. Highlight the text.
2. Choose the LINE SPACING drop-down menu  from the HOME MENU.
3. Make the desired selection or click on more for additional options then click OK.

Using Microsoft PowerPoint 2007: Formatting [continued]

To change text alignment:

1. Highlight the text.
2. From the HOME TAB choose the desired alignment option (Left/Center/Right/Justify).

To add bullets to text:

1. Highlight the text to be bulleted.
2. Select the BULLETS button  on the HOME TAB.

Tips: To apply custom bullets, or to change the appearance of existing bullets, choose BULLETS drop-down menu. A bullet is added each time the ENTER key is pressed.


Finishing Touches

To add a transition between two slides:

1. From the ANIMATIONS TAB click on a transition option in the TRANSITION TO THIS SLIDE GROUP.
2. You can scroll through all options by moving the scroll bar on the right of the transition options box. To see all options at one time click the MORE arrow at the bottom of the scroll bar.

Tip: Select APPLY TO ALL to apply a transition to all of the slides in a presentation.

To check the spelling in the presentation:

1. Select the SPELLING button  on the REVIEW TAB.
2. Follow the prompts to correct any misspelled words.

To preview slide animation:

1. From the ANIMATIONS TAB select PREVIEW.
2. To edit, choose CUSTOM ANIMATION, Modify as needed and click PLAY.
3. When the preview is complete, close the CUSTOM ANIMATION Task Pane.

Using Microsoft PowerPoint 2007: Finishing Touches [continued]

To view the slide show presentation:

1. From the SLIDE SHOW TAB choose FROM BEGINNING or FROM CURRENT SLIDE.
2. Hit the SPACEBAR to transition between slides more quickly.

Tip: Press the ESCAPE key to end the slide show and to return to Normal View.

To set slide show options:

1. From the SLIDE SHOW TAB choose SET UP SLIDE SHOW.
2. Select the desired options and click OK.

To change the page setup of the presentation:

1. From the DESIGN TAB click on PAGE SETUP.
2. Make the appropriate changes and click OK.

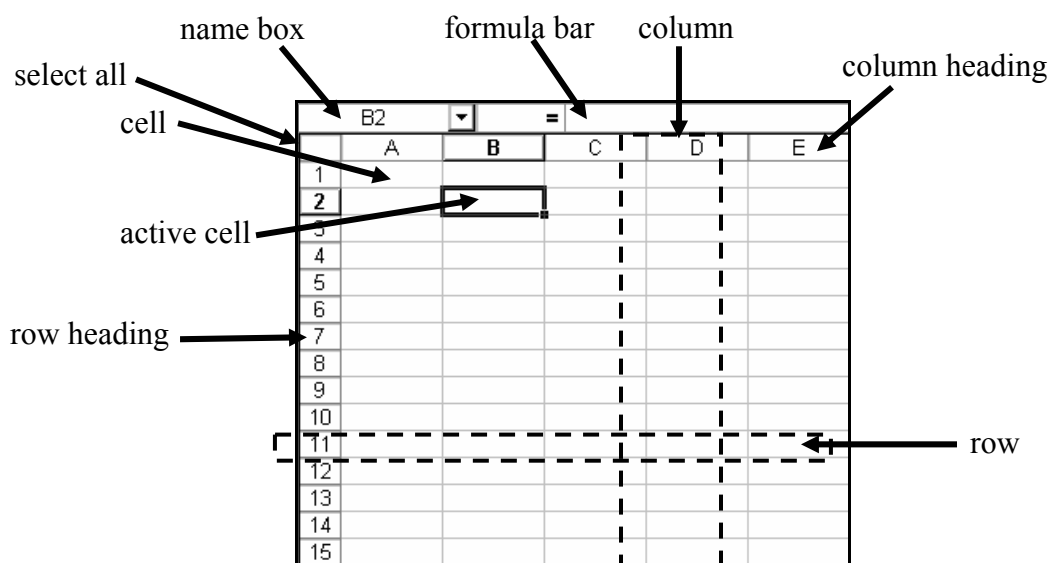
To print a presentation:

1. From the MICROSOFT OFFICE button choose PRINT
2. Choose the appropriate options in the Print dialog box and click OK.

Spreadsheet Basics

A **spreadsheet application** allows users to enter data, such as numbers and formulas, into an electronic worksheet and to use this data to perform multiple calculations. A document created by this type of program is called a **spreadsheet**.

The most popular spreadsheet applications are *Microsoft Excel 2007* and *Lotus 1-2-3*. Programs such as *AppleWorks* and *Microsoft Works* contain spreadsheet components. *The Cruncher*, by Knowledge Adventure, is a spreadsheet program for young children.



Related Terms:

absolute cell reference: a cell reference that does not change when a formula is copied or moved; contains a \$ symbol before the column letter and row number

active cell: the cell currently selected in a spreadsheet, identified by its black border

cell: a rectangle in a spreadsheet, formed by the intersection of a row and a column, which can contain text, numbers or a formula

cell reference: the coordinates of the column and row position of a cell, or a cell address

column: a vertical line of cells in a spreadsheet, identified by a letter

column heading: a letter at the top of a column that can be clicked to select the entire column

column label: text at the top of a row that indicates the type of information in that column

Spreadsheet Basics [continued]

formula: a mathematical equation that performs a calculation in a cell; formulas follow a specific structure beginning with an equal sign (=) followed by the elements to be calculated (the operands) and the calculation operators

formula bar: the bar at the top of a spreadsheet that displays the information contained or being entered in a cell

function: a ready-to-use formula that performs common calculations, such as averages and sums

name box: the box in a spreadsheet that lists the column letter and row number of a selected cell or a range of selected cells

range: a single cell or a rectangular group of adjacent cells within a spreadsheet

row: a horizontal line of cells in a spreadsheet, identified by a number

row heading: a number at the far-left side of a row that can be clicked to select the entire row of cells

row label: text at the left side of a row that indicates the type of information in that row

worksheet: a spreadsheet containing cells in columns and rows

Important symbols used in spreadsheet formulas:

= **equal sign:** used at the beginning of each formula entered (e.g., =A2+B2-C2)

+ **addition sign:** adds values (e.g., =A1+A2); also can be used at the beginning of a formula instead of an equal sign

- **subtraction sign:** subtracts values (e.g., =B3-B4)

* **asterisk:** multiplies values (e.g., =C2*C6)

/ **slash:** divides values (e.g., =D1/D3)

: **colon:** used to indicate a consecutive range of cells in a row or column (e.g., =SUM(A2:A10), indicating the sum of the values in cells A2 through A10)

, **comma:** used to indicate a series of non-consecutive cells in a formula, (e.g., =SUM(B6,C12,D15), indicating the sum of the values in cells B6, C12 and D15)

() **parentheses:** used in functions to indicate a range of values or cell references to be calculated (e.g., =AVERAGE(F1:F6), indicating the average of the values in cells F1 through F6)

Spreadsheet Basics: Charting Terminology

chart: a visual representation of data

labels: words or numbers, often found along the X axis and Y axis, which identify information in a chart

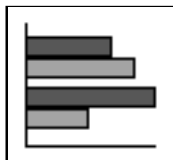
legend: the part of a chart in which the colors or patterns used in the chart are displayed with the items they represent

series: the basic unit of information in a chart, often contained in a single row or column.

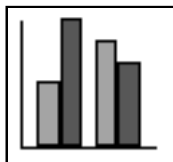
values: numeric entries within a spreadsheet

X series: the labels and data charted along the X axis, or horizontal axis

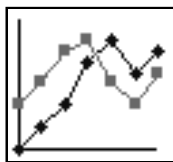
Y series: the labels and data charted along the Y axis, or vertical axis



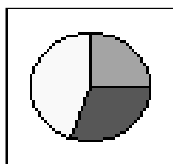
Bar chart: compares data or values horizontally without reference to trends over time



Column chart: compares data or values vertically without reference to trends over time



Line chart: shows trends or changes in values over time



Pie chart: shows the ratio of individual values to a total, or parts to a whole

Using Microsoft Excel 2007

To enter data into a cell:

1. Click the desired cell.
2. Use the keyboard to enter numbers or text; the entry will also appear in the Formula bar.
3. Press the ENTER key to accept the entered information and to advance to the cell below.

To edit the contents of a cell:

1. Double-click the cell.
2. Make the desired changes.
3. Press the ENTER key.

Tip: To replace the entire contents of a cell, single-click the cell and enter the new data.

To increase the width of a column manually:

1. Place the pointer on the right side of the heading of the column to be increased.
2. When the pointer takes the shape of a double arrow, hold down the mouse button and drag to the right to widen the column.

Tip: To make a series of columns the same width, select the appropriate columns, from the HOME TAB choose FORMAT, THEN WIDTH. Enter the desired width in the Column Width field and click OK.

To change the width of a column using the AutoFit feature:

1. Click the column heading to select the entire column.
2. From the HOME TAB choose FORMAT, then WIDTH. On the WIDTH drop-down menu choose AUTOFIT SELECTION.

To select a range of cells:

1. Click the first cell in the range and hold down the mouse button.
2. Drag to highlight the desired cells in the range, then release the mouse button.

To delete a row or column:

1. Click the appropriate row or column heading to select the entire row or column.
2. From the HOME TAB choose DELETE to delete the entire row or column.

Tip: To delete a row or column's contents without actually removing the cells from the spreadsheet, press the DELETE key on the keyboard instead of DELETE on the HOME TAB.

Using Microsoft Excel 2007 [continued]

To insert a row:

1. Click a cell in the row below where the new row will be inserted.
2. From the HOME TAB choose the INSERT drop-down menu, and choose INSERT SHEET ROWS.

To insert a column:

1. Click a cell in the column to the right of where the new column will be inserted.
2. From the HOME TAB choose the INSERT drop-down menu, and choose INSERT SHEET COLUMNS.

To insert a new worksheet:

- From the HOME TAB choose the INSERT drop-down menu, and choose INSERT SHEET.

Tip: To name the new worksheet, double-click the appropriate tab in the bottom-left corner of the screen and enter a new name.

To protect a worksheet:


1. From the HOME TAB choose the FORMAT drop-down menu then PROTECTION → PROTECT SHEET.
2. Enter a password (if desired) and select OK.

Formulas and Calculations

To enter a formula:

1. Enter the equal sign followed by the desired formula, then press the ENTER key.
2. Examples of basic formulas:
 - =45+67
 - =C4-C5 (the contents of C4 minus the contents of C5)
 - =D3*D6 (the contents of D3 multiplied by the contents of D6)
 - =A1/2 (the contents of A1 divided by 2)

To copy a formula from one cell into a series of cells:


1. Starting with the cell that already contains the formula; select the entire series of cells into which the formula will be placed.
2. In the HOME TAB, choose the FILL drop-down button 
3. You may fill DOWN, RIGHT, UP or LEFT.
4. Click one of the highlighted cells to confirm that the cell references in the formula were updated properly.

Using Microsoft Excel 2007: Formulas and Calculations [continued]


To sum a series of cells:

1. Click the appropriate cell.
2. Enter the sum formula into that cell.
3. Sample sum formula: =SUM(E4:E8). The contents of cells E4 through E8 will be added, and the sum will be displayed in the cell that was initially selected.

or

1. Highlight the cells to be added.
2. Choose the AUTOSUM button  on the HOME TAB, and the calculated total will be placed in the cell immediately below or to the right of the selected range.

or

1. Click the cell in which the calculated sum should be displayed and choose the AUTOSUM button  on the HOME TAB.
2. Accept the default cell range, or enter the corrected cell range in the formula bar.
3. Press the ENTER key to accept the formula.

To create a chart:

1. Select the cells to be included in the chart.
2. Choose the INSERT TAB then in the CHART GROUP choose a chart option.
3. From the DESIGN TAB you may edit the specific features of your chart.

To resize a chart:

1. Click the chart to select it.
2. Drag the handles to resize the chart.

To reposition a chart:

1. Click the chart to select it.
2. Drag the chart to reposition it on the worksheet.

To change the colors in a chart:

1. Click the chart. The DESIGN, LAYOUT and FORMAT TABS will appear in the Ribbon.
2. When you click on a specific area of the chart, this will be noted under the CURRENT SELECTION GROUP of the FORMAT TAB. You may now edit the colors of the chart by choosing SHAPE FILL.


Using Microsoft Excel 2007: Formulas and Calculations [continued]

To create an absolute cell reference:

1. When entering a formula, place a dollar sign (\$) before both the column letter and the row number of the cell or cells to be designated as absolute references. A sample formula would be =SUM(\$A\$5:B6).

Tip: In the above example, if the FILL or the COPY and PASTE commands are used to place the formula into additional cells, cell A5 will be referenced regardless of the new formula's column and row position. However, because the second cell in the formula is designated as a relative cell reference, it will change according to the location of the cell in which the formula is placed.

To insert a function:

1. Click the appropriate cell.
2. Choose the FUNCTION WIZARD  from the FORMULAS TAB.
3. Select the appropriate option from the Select a Function list and click OK.
4. Verify that the correct cell range is shown in the Number1 box and make any necessary changes.
5. Click OK.

Formatting

To bold text within a range of cells:

1. Select the cells.
2. Click the BOLD button  on the HOME TAB.

To underline text within a range of cells:


1. Select the cells.
2. Choose the UNDERLINE button  on the HOME TAB.

To italicize text within a range of cells:


1. Select the cells.
2. Click the ITALIC button  on the HOME TAB.

Using Microsoft Excel 2007: Formatting [continued]


To format a spreadsheet by applying Format as Table:

1. Select the cells to be formatted.
2. On the HOME TAB choose FORMAT AS TABLE. 
3. Select a table style.


To format numbers in cells as percentages:

1. Select the cells to be formatted.
2. On the HOME TAB choose the drop-down box in the NUMBER GROUP then choose PERCENTAGE
3. You can also select the Dialog Box Launcher  in the NUMBER GROUP to open the FORMAT CELLS box. On the NUMBER tab, select percentage from the Category list. If necessary, change the value in the Decimal Places box, then click OK.

Tip: This procedure can also be followed to customize appearance of existing percentages.
or

1. Select the cells to be formatted.
2. Click the PERCENT STYLE button  on the NUMBER GROUP of the HOME TAB.

To format numbers in cells as currency:

1. Select the cells to be formatted.
2. On the HOME TAB choose the drop-down box in the NUMBER GROUP then choose CURRENCY from the list.
3. You can also select the Dialog Box Launcher  in the NUMBER GROUP to open the FORMAT CELLS box. On the NUMBER tab, select CURRENCY from the Category list. If necessary, change the value in the Decimal Places box and select different options from the Symbol and Negative Numbers drop-down lists, then click OK.

or

1. Select the cells to be formatted.
2. Choose the CURRENCY STYLE button  on NUMBER GROUP of the HOME TAB.

To format cell values with commas in the thousandth place:


1. Select the cells to be formatted.
2. Choose the COMMA STYLE button  on the NUMBER GROUP of the HOME TAB.

To display cell values with an additional decimal place:

1. Select the cells to be formatted.
2. Choose the INCREASE DECIMAL button  NUMBER GROUP of the HOME TAB.

Using Microsoft Excel 2007: Formatting [continued]

To display cell values with one fewer decimal place:

1. Select the cells to be formatted.
2. Click the DECREASE DECIMAL button  on the NUMBER GROUP of the HOME TAB.


To change the font of characters within a cell:

1. Select the cell(s) to be formatted.
2. Choose the desired font from the Font drop-down list on the FONT GROUP of the HOME TAB.



To fill a cell with color:

1. Select the cell(s) to be formatted.
2. Click the FILL COLOR drop-down arrow  on the FONT GROUP of the HOME TAB and choose a color from the pop-up menu.

To change the color of characters within a cell:

1. Select the cell(s) to be formatted.
2. Click the FONT COLOR drop-down arrow  on the FONT GROUP of the HOME TAB and choose a color from the pop-up menu.

To sort rows:

1. Select the cells to be included in the sort.
 2. From the EDITING GROUP of the HOME TAB choose SORT & FILTER.
 3. From the SORT & FILTER drop-down list, select CUSTOM SORT to specify the column by which the information should be sorted.
 4. If you want to sort by column header, check MY DATA HAS HEADERS.
 5. As appropriate, click either A TO Z (ASCENDING) or Z TO A (DESCENDING) from the ORDER drop-down list
 6. If sorting according to another column, click ADD LEVEL then make the desired selections in the Then By group(s).
 7. Click OK.
- or
1. Select the cells to be included in the sort.
 2. Click the SORT A TO Z  button or the SORT Z TO A  button on the EDITING GROUP of the HOME TAB.

Using Microsoft Excel 2007: Formatting [continued]


To add headers or footers to a printed worksheet:

1. Choose FILE → PAGE SETUP.
2. Select the HEADER/FOOTER tab.
3. Choose the desired header text from the HEADER drop-down list or the desired footer text from the Footer drop-down list, then click OK.


or

1. Click the CUSTOM HEADER or CUSTOM FOOTER buttons, enter the desired text in the appropriate column and choose OK.
2. Click OK again.

To insert a picture into the worksheet:

1. From the INSERT TAB choose the PICTURE logo. 
2. Locate and select the desired graphics file and select INSERT.


or

1. From the INSERT TAB choose the CLIP ART logo. 
2. Enter a keyword or keywords in the Search For box, then press the ENTER key or choose GO.
3. Click on the desired clip art. It will be automatically inserted into the spreadsheet.

To change the page orientation:

1. On the PAGE LAYOUT TAB choose ORIENTATION.
2. From the drop-down menu select PORTRAIT or LANDSCAPE.

To modify print options:

1. On the PAGE LAYOUT TAB you can modify print settings from the PAGE SETUP GROUP.
2. You can also access all PAGE SETUP options by pressing  in the PAGE SETUP GROUP.
3. Select the SHEET TAB, then enter or choose the desired print options.
4. Click OK to return to the spreadsheet or select PRINT.

Database Basics

Data is information that can be processed and from which conclusions can be inferred. A **database** is a collection of related information. A **database application** is a computer program that allows users to enter, update, organize and retrieve information. Popular database applications today include *Microsoft Access 2007*, *FileMaker Pro*, *Lotus Approach* and *Microsoft Visual FoxPro*. There are also database components in *AppleWorks* and *Microsoft Works*. Database programs designed for children include *Tabletop Jr.*, *Tabletop Sr.* and *ClarisWorks for Kids*.

Although most databases today are stored on computers, databases can also be stored in paper form, such as a Rolodex or index cards. A box of index cards containing recipes is an example of this type of database. A **field** is the location reserved for a category of information within a database. Fields in a recipe database could include recipe name, ingredients, preparation time, directions and serving size. A **record** is a complete unit of categorized information. In the recipe example, each recipe written on a single index card would be a record. **Form** is the term often used to describe the display of one record at a time. Many users prefer to use a form when entering information into a database.

The screenshot shows a database form titled 'Countries' with the following fields and values:

Country:	Norway
Currency:	kroner
Official Language(s):	Norwegian
Capital:	Oslo
% Arable Land:	3
Literacy Rate:	100%
Bordering Countries:	Sweden & Finland

At the bottom, there is a status bar showing 'Record: 1 of 15', 'Unfiltered', and a search field.

A **table** is a way of displaying information in a database in which records appear in rows and fields appear in columns. The basic layout of a database table is similar to that of a spreadsheet.

The screenshot shows a database table titled 'Countries' with the following columns and data:

Country	Capital	Bordering Countries	Official Language(s)	% Arable Land	Literacy Rate	Currency
France	Paris	Spain & Italy	French	33.3	99%	euro
Italy	Rome	France & Switzerland	Italian	28	98%	euro
Spain	Madrid	Portugal & France	Spanish	29	97%	euro
Portugal	Lisbon	Spain	Portuguese	21	87.4	euro
The Netherlands	Amsterdam	Belgium & Germany	Dutch	27	99%	euro
United Kingdom	London	Republic of Ireland	English	26	99%	pound
Belgium	Brussels	France & the Netherlands	Dutch & French	25	98%	euro
Germany	Berlin	Denmark & Poland	German	34	99%	euro
Luxembourg	Luxembourg	France & Germany	French, German & Luxembourgish	25	100%	euro
Greece	Athens	Albania & Macedonia	Greek	22	97%	euro
Switzerland	Bern	Germany & Austria	German, French, & Italian	11	99%	franc
Austria	Vienna	Germany & Switzerland	German	17	98%	euro
Norway	Oslo	Sweden & Finland	Norwegian	3	100%	kroner
Denmark	Copenhagen	Germany	Danish	56	100%	kroner
Sweden	Stockholm	Norway & Finland	Swedish	7	99%	krona

At the bottom, there is a status bar showing 'Record: 1 of 15', 'No Filter', and a search field.

Database Basics [continued]

Sorting is rearranging data so it appears in ascending or descending order, either alphabetically or numerically. To sort information in a database, a field must be specified. A database can also be sorted by multiple fields.

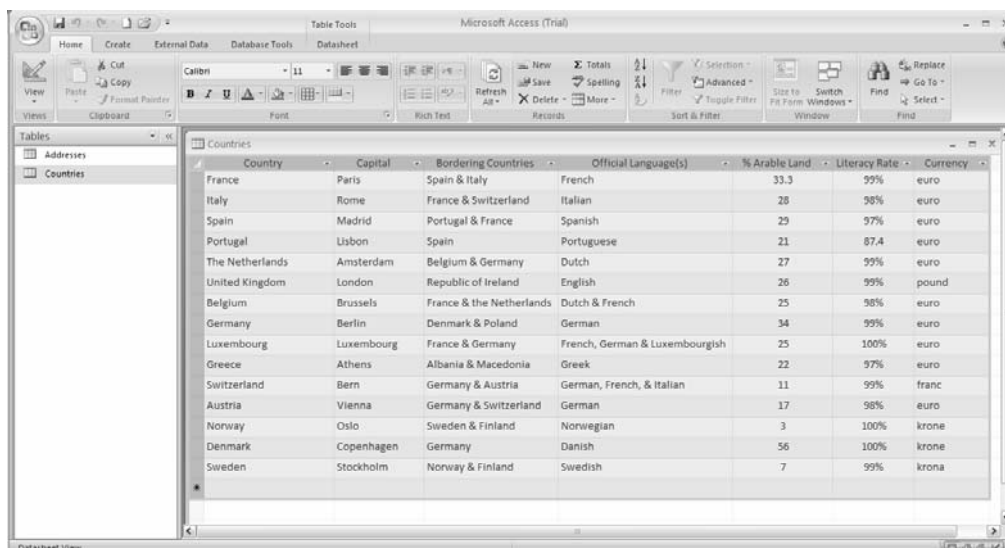
A **filter** is a set of criteria applied to records to show a subset of the records. Mathematical operations can be applied to build the criteria, including greater than ($>$), less than ($<$), greater than or equal to (\geq), less than or equal to (\leq) and not equal to (\neq). *And*, *or* and *not* are **Boolean operators**, which are used to specify the logical relationship between values. All of these terms can be used to broaden or narrow a filter.

Specifying criteria with a **query** is a method that can be used to indicate what records should be retrieved. Queries are more flexible and more advanced than filters, although both queries and filters can perform the same basic functions. If desired, queries can also be saved so the search results can be accessed in the future.

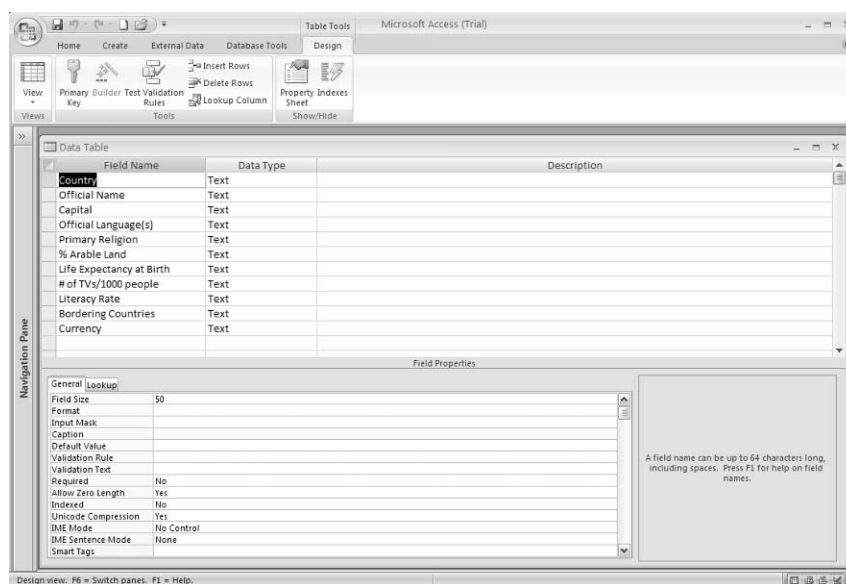
Mail merge allows information in a database to be inserted into a word processing document to create individualized letters, envelopes and labels. The most common way that mail merge is used is to personalize form letters.

A **report** is a way of printing the information in a database. There is considerable flexibility in the generation of reports. All aspects of the layout, as well as which fields and records are included, can be specified.

Using Microsoft Access 2007

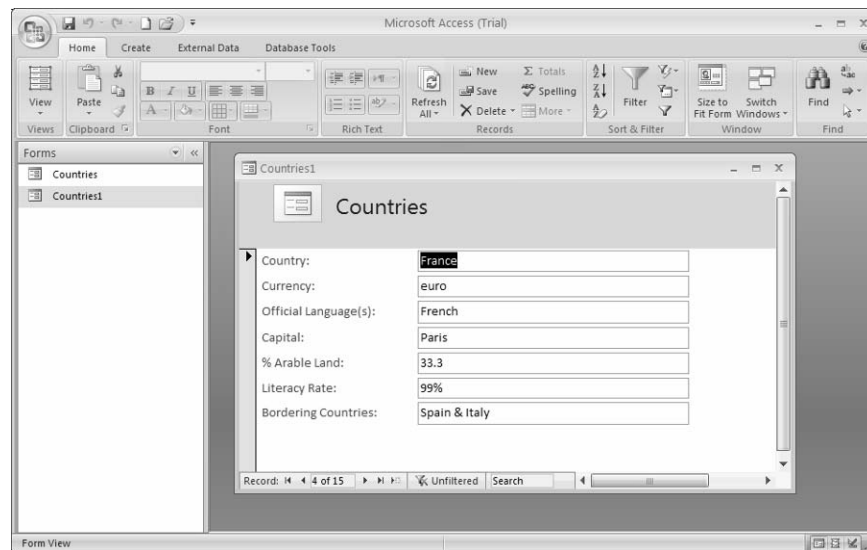


A table in Datasheet View can be used to add, edit or view the data in a table. Also in this view, it is possible to print the table, to sort or filter the records, to modify the appearance of the data and to insert or delete columns (fields) and rows (records).

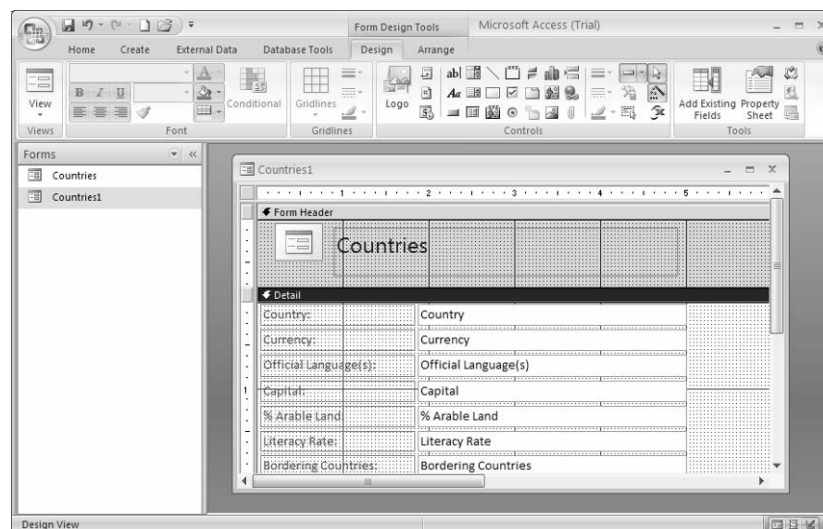


In Design View, an existing table's fields can be added, deleted or customized. Also, a new table can be created from scratch.

Using Microsoft Access 2007 [continued]

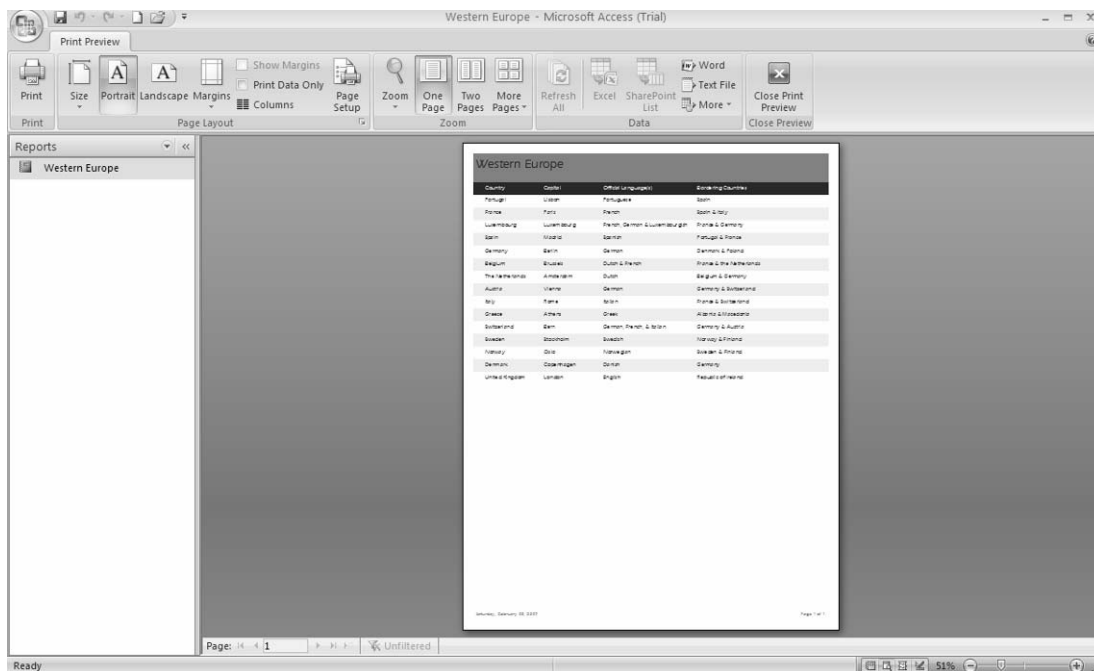


A form in Form View displays one record at a time, and this view is often used to enter and edit information within a database. In Form View it is also possible to sort and filter records.

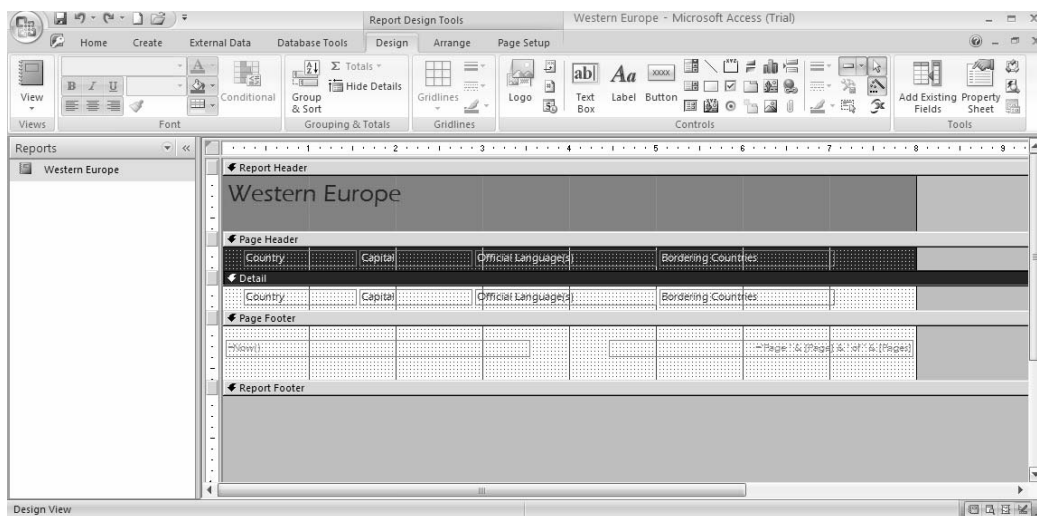


The appearance of a form can be modified in Design View. The label text can be edited and formatted. Fields can be added, moved and resized. Text color, background colors and graphics can be added, and header and footer text can be inserted.

Using Microsoft Access 2007 [continued]





A report in Print Preview is displayed the way that the report will be printed. A report is an effective way to present data in a printed format.



The appearance of a report can be modified in Design View. Label text, header and footer text, graphics and colors within a report can be altered in this view, with formatting options similar to those available for a form in Design View.

Using Microsoft Access 2007: Basic Database Management, Editing and Formatting


To create a new database:

1. From the MICROSOFT OFFICE button  choose NEW.
2. In the NEW BLANK DATABASE Task Pane, select BLANK DATABASE.
3. Enter a name in the File Name box on the right hand side of the screen. Click on the file folder button  to navigate to the location where the database should be saved, click OK and then choose CREATE.


To rename a table or a form within a database:

1. In the Database window, select the appropriate icon and right-click the name of the file to be changed.
2. Select RENAME and enter the new name.
3. Press the ENTER key on the keyboard.


To copy text:

1. Highlight the text to be copied.
2. Select the COPY button  on the HOME TAB.

To cut text:

1. Highlight the text to be cut.
2. Select the CUT button  on the HOME TAB.


To paste text that has been cut or copied:

1. Position the cursor where the text will be inserted.
2. Select the PASTE button  on the HOME TAB.



Tip: The most recently copied or cut text will be pasted.

Using Microsoft Access 2007: Creating Tables

To create a table:



1. In the Datasheet view, click the TABLE button  on the CREATE TAB.
2. To enter the first field name, double-click the field name *Add New Field*.
3. Enter the name for the first field then press the ENTER key to add another field.
4. Repeat until all the necessary fields have been added.

or


1. In the Design View, click the TABLE DESIGN button  on the CREATE TAB.
2. Enter the appropriate field names and click the SAVE button. 
3. Enter the table name and click OK.

To switch between Design View and Datasheet View of a table:

- ❑ Select the VIEW button  on the HOME TAB.

Tip: The VIEW button toggles between the DESIGN icon  and the DATASHEET icon  depending upon the current view.

To choose a primary key in a table:

1. In Design View, position the cursor in the row to be designated the primary key.
2. Click the PRIMARY KEY button  on the DESIGN TAB in the TOOLS GROUP.

Tip: Each entry in the primary key field must be unique.

To change a field's data type in a table:

1. In Design View, position the cursor in the data type field to be changed.
2. Select the desired data type from the DATA TYPE drop-down menu on the DATASHEET TAB.

To change a field size in a table:


1. In Datasheet View, position the pointer on the field name's right or left border.
2. When the pointer takes the shape of a double-arrow, drag to widen the field.

To select an entire field (column) in a table:

- ❑ Click the field name at the top of the column.



Using Microsoft Access 2007: Creating Tables [continued]

To add a row (record) to a table:




- In Datasheet View, select the NEW button  in the RECORDS GROUP on the HOME TAB.

Tip: The new record will be inserted at the bottom of the table.

To add a field to a table:



1. In Datasheet View, position the cursor in the column to the right of where the new column will be inserted.
2. Select the INSERT COLUMN button  on the DATASHEET TAB.
or
 1. In Design View, position the cursor in the row above where the new row will be inserted.
 2. Select the INSERT ROWS button  on the DESIGN TAB.

To delete a row (record) from a table:

1. In Datasheet View, position the cursor within the record to be deleted.
2. On the HOME TAB, click the drop-down arrow next to the DELETE button  and select DELETE RECORD. 
3. Click YES to confirm the deletion.
or
 1. Select the record to be deleted by clicking in the box to the left of the first field.
 2. Click the DELETE button  on the HOME TAB.
 3. Click YES to confirm the deletion.


Tip: Once a record has been deleted, it cannot be retrieved.

To delete a column (field) from a table:


1. In Datasheet View, select the column to be deleted by clicking on the field name at the top of the column.
2. Click the DELETE button  on the HOME TAB.
3. Click YES to confirm the deletion of the field.
or
 1. In Design View, position the cursor in the row to be deleted.
 2. Choose the DELETE ROWS button  on the DESIGN TAB.
 3. Click YES to confirm the deletion of the field.

Using Microsoft Access 2007: Creating Tables [continued]

To change the gridline layout in a table:


- ❑ In Datasheet View, click the GRIDLINES button  on the HOME TAB and make the desired selection.

To change the gridline color in a table:



1. In Datasheet View, click the Dialog Box Launcher button  on the HOME TAB in the bottom right-hand corner of the FONT GROUP to open the DATASHEET FORMATTING box.
2. In the Datasheet Formatting dialog box, make the desired selection from the GRIDLINE COLOR drop-down list and click OK.

Creating Forms



To create a form:

1. On the CREATE TAB in the Database window, click the MORE FORMS drop-down arrow and select FORM WIZARD. 
2. Make the appropriate selections to create the form.

To add a record to a form:


1. In Form View, click the NEW button  on the HOME TAB.
or
2. In Form View, choose the NEW (BLANK) RECORD button  in the bottom-left corner of the window.


To delete a record from a form:

1. In Form View, display the record to be deleted.
2. On the HOME TAB, click the drop-down arrow next to the DELETE button  and select DELETE RECORD. 
3. Click YES to confirm the deletion.

Tip: Once a record has been deleted, it cannot be retrieved.

To advance one record in Form View:


- ❑ Select the NEXT RECORD button  in the bottom-left corner of the window.

Tip: To advance to the final record, select the LAST RECORD button. 

Using Microsoft Access 2007: Creating Forms [continued]

To view the preceding record in Form View:

- ❑ Select the PREVIOUS RECORD button  in the bottom-left corner of the window.



Tip: To advance to the first record, select the FIRST RECORD button. 

Sorts, Filters, Queries and Reports


To edit an existing table, query, form or report:

1. In the Navigation Pane of the Database window, select the appropriate icon for the file to be edited.
2. Right-click the file to be edited and choose OPEN or DESIGN VIEW.

To sort a table or form by one field:

1. In Datasheet View or Form View, position the cursor in the field to be sorted.
2. Select either the ASCENDING button  or the DESCENDING button  in the SORT & FILTER GROUP on the HOME TAB.

To sort a table or form by more than one field:

1. In Datasheet View or Form View, click the ADVANCED FILTER OPTIONS button  on the HOME TAB.
2. Select ADVANCED FILTER/SORT from the menu.
3. Position the cursor in the Field box in the grid's first column.
4. From the drop-down list that appears, select the field to be sorted.
5. Position the cursor in the corresponding Sort box.
6. Select ASCENDING or DESCENDING from the drop-down list.
7. In the neighboring columns in the grid, choose additional fields to sort.
8. After all of the fields have been set, click the ADVANCED FILTER OPTIONS button and select APPLY FILTER/SORT.


Tip: The field farthest to the left in the design grid will be sorted first.

To remove a sort or a filter from a table or form:

- ❑ In Datasheet View or Form View, click the REMOVE ALL SORTS button  on the HOME TAB.



Using Microsoft Access 2007: Sorts, Filters, Queries and Reports [continued]

To perform a filter in a table or form:


1. In Datasheet View or Form View, click the ADVANCED FILTER OPTIONS button. 
2. Select ADVANCED FILTER/SORT from the menu.
3. Position the cursor in the Field box in the grid's first column.
4. From the drop-down list that appears, select the field to be filtered.
5. Position the cursor in the corresponding Sort box.
6. Select ASCENDING, DESCENDING or NOT SORTED from the drop-down list.
7. Position the cursor in the corresponding Criteria box.
8. Enter the desired value or expression.
9. Click the ADVANCED FILTER OPTIONS button and select APPLY FILTER/SORT.

Tip: To perform additional sorts or filters on the filtered data, click on the small filter graphic in the field which has been filtered. A pop-up menu will appear.


To create a query:

1. In Datasheet View, on the CREATE TAB click the QUERY DESIGN button. 
2. In the Show Table window, choose the table to be used in the query on the TABLES TAB and click ADD. Close the Show Table window.
3. Position the cursor in the Field box in the grid's first column.
4. From the drop-down list, select the field to be included in the query.
5. Make the desired selection from the Sort drop-down list and enter the desired value in the Criteria box.
6. In neighboring columns in the grid, add other fields to be included in the query and enter the desired sorting and criteria information.
7. Select the RUN button  from the DESIGN TAB.

To save a query:

1. Click the SAVE button  on the QUICK ACCESS TOOLBAR on the top left.
2. Enter a query name and select OK.

To create a report:

1. Click the REPORT WIZARD button  on the CREATE TAB.
2. Follow the instructions in the Report wizard and select FINISH when completed.

Using Microsoft Access 2007 [continued]

To start a mail merge document:

1. Launch *Microsoft Word 2007*.
2. On the MAILINGS TAB, click START MAIL MERGE and select STEP BY STEP MAIL MERGE WIZARD from the drop-down menu.
3. Choose a document type from the Mail Merge pane. For example, select the DIRECTORY document type to create a continuous document of entries, such as a bibliography.
4. At the bottom of the Mail Merge pane, click NEXT: STARTING DOCUMENT to continue to the next step.
5. Select the starting document and click NEXT: SELECT RECIPIENTS.

To link the mail merge document to an *Access* database:

1. Choose the USE AN EXISTING LIST radio button then click the BROWSE button to locate the data source for the recipients.
2. In the FILES OF TYPE list, choose ALL DATA SOURCES then locate the desired database file.
3. Select the table or query containing the desired data and click OK.
4. Review the list of recipients to include and click OK.
5. Click NEXT: WRITE YOUR LETTER.

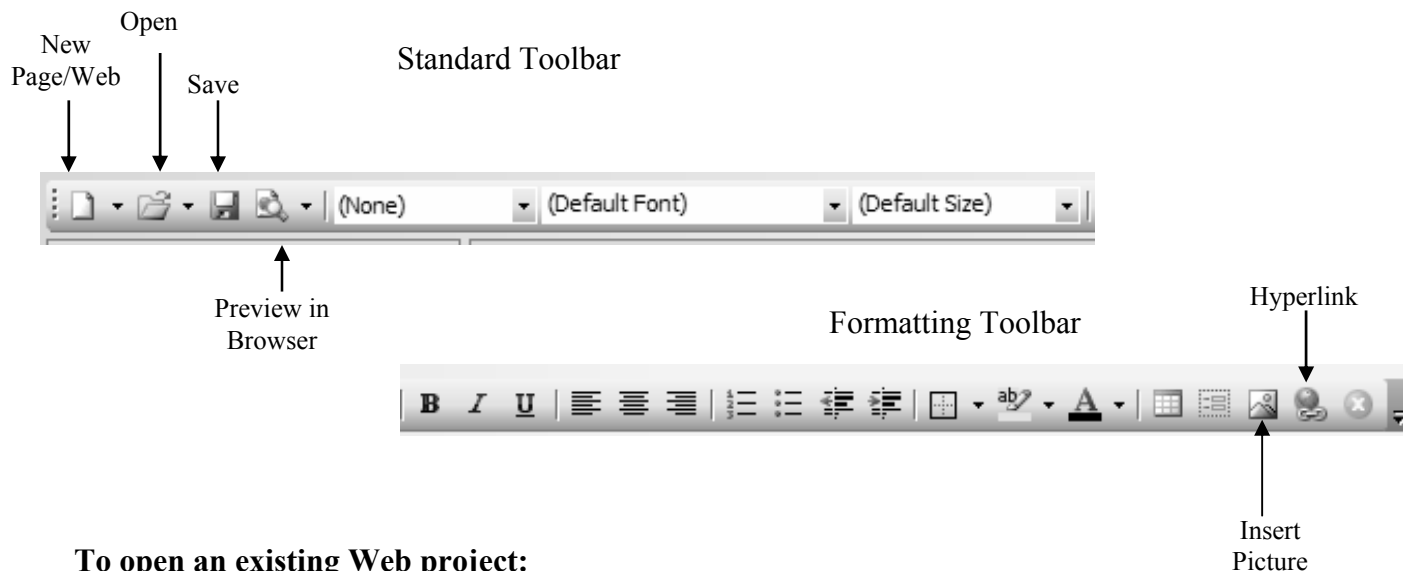
To add merge fields to the mail merge document:

1. Position the cursor where the first field will be placed on the page.
2. Select the desired item to merge from the Mail Merge pane.
3. Verify that the example is correct. If it is correct, click OK to close the window. If it is incorrect, click the MATCH FIELDS button to fix any errors.
4. Continue this process for all desired merge fields.

To merge the mail merge document with the data source:

1. Click the NEXT: PREVIEW YOUR LETTERS button. At the top of the Mail Merge pane, use the double arrows to preview all of the documents.
2. Click the NEXT: COMPLETE THE MERGE button. Individual documents may now be edited if desired. The merged documents can also be printed now.

Using Microsoft SharePoint Designer 2007



To open an existing Web project:

1. Select FILE → OPEN.
2. Locate the Web (.html, .htm, .asp) file containing the first page of the Web project and click OPEN.

To create a new Web page:

1. Choose FILE → NEW → PAGE.
2. In the New dialog box, choose GENERAL for a standard HTML page, or choose one of the CSS Layouts or Frames Pages for specific needs.
3. Click OK.

Tip: ASP.Net options are for advanced programmers.



To save a Web project:

1. Choose FILE → SAVE.
2. Locate the folder in which you wish to save the Web project and click SAVE.
3. When the Save Embedded Files dialog box appears, verify that all component files are saved in the Web project folder and click OK.

Tip: A Web project is composed of one or more linked HTML files, each representing one page of the project, along with files containing any components embedded in the HTML pages, such as pictures or music. The collection of files that make up a Web project is typically organized in one folder for convenience.

Using Microsoft SharePoint Designer 2007: Inserting Objects

To insert a hyperlink to a file:

1. Highlight the image or text that will serve as the starting point for the hyperlink.
2. Choose INSERT → HYPERLINK.
3. In the Insert Hyperlink dialog box, click the BROWSE THE WEB button  or the BROWSE FOR FILE button  to locate the destination file, or ending point, for the hyperlink and click OK.

To insert a hyperlink to a location within a page:

1. Mark the destination, or ending point, for the hyperlink by highlighting an image or text and selecting INSERT → BOOKMARK.
2. Enter a name for the bookmark and click OK.
3. Create the hyperlink by selecting the starting image or text for the hyperlink and choosing INSERT → HYPERLINK.
4. Delete any text in the Address box.
5. Click BOOKMARK. Select the bookmark name from the Select Place in Document dialog box and click OK twice.

To insert a picture:

1. Choose INSERT → PICTURE → CLIP ART.
2. Locate and click the desired clipart picture and select INSERT from the popup menu.

or

1. Choose INSERT → PICTURE → FROM FILE.
2. In the Picture dialog box, locate the desired picture file and click INSERT.

Using Microsoft SharePoint Designer 2007: Inserting Objects [continued]

To insert sound or music:

1. Choose FILE → PROPERTIES.
2. On the GENERAL TAB, select the BROWSE button in the Background Sound group.
3. Locate the desired music or sound clip and click OPEN.
4. Make sure that the FOREVER checkbox is selected or choose a number in the Loop spin box, then click OK.

To insert a button:

1. Choose INSERT → INTERACTIVE BUTTON.
2. In the Interactive Buttons dialog box, choose a button from the Buttons list.
3. Enter the text that should appear on the button in the Text box.
4. Select the BROWSE button to locate a destination for the button's hyperlink.
5. Choose a font and text size on the FONT TAB.
6. Select the colors and size of the button on the IMAGE TAB and click OK.

To insert a horizontal line:

1. Choose TASK PANES → TOOLBOX. The TOOLBOX will appear to the right of the main .htm pane.
2. Double-click on HORIZONTAL LINE.

To insert scrolling text:

1. Choose INSERT → WEB COMPONENT. Make sure DYNAMIC EFFECTS is selected under Component Type and select MARQUEE under Choose an Effect. Click FINISH.
2. Enter the text in the Text box.
3. Select LEFT or RIGHT for the direction and click OK.

Using Microsoft SharePoint Designer 2007: Inserting Objects [continued]

To insert a background picture:


1. Select FORMAT → BACKGROUND.
2. On the FORMATTING TAB, select the BACKGROUND PICTURE checkbox.
3. Click the BROWSE button.
4. Locate the desired picture and click OPEN.
5. Click OK to close the Page Properties window.

Designing a Page or Web Project

To choose a background color:

1. Select FORMAT → BACKGROUND.
2. On the FORMATTING TAB, click the BACKGROUND drop-down arrow, choose a color and click OK.

To preview a Web page as it would appear in a Web browser:



- ❑ Choose FILE → PREVIEW IN BROWSER and select the appropriate browser from the list.
- or
- ❑ Click the arrow next to the PREVIEW IN BROWSER button  on the Standard Toolbar and select the appropriate browser from the list.

Miscellaneous Topics:

Creating a Screen Shot

A **screen shot** is a graphic image of what appears on the computer screen. Screen shots can be helpful in acquiring an image of something on the screen for incorporation into another document. Remember that the screen shot will include everything that appears on your monitor.

Follow the steps below to create, insert and size a screen shot.

1. Choose an image that you want to insert into another document. You may want to choose a graphic, a picture file, or the desktop itself.
2. Press the PRINT SCREEN key on the upper right side on the keyboard to copy the image on the screen to the Clipboard. **Note:** The screen shot shows everything that appears on the computer screen. If you only want one small part or area of the screen shot, launch Paint by selecting START → PROGRAMS → ACCESSORIES → PAINT. Select EDIT → PASTE. Choose the SELECT tool or the FREE-FROM SELECT tool and select only the area that you want. Select EDIT → COPY or EDIT → CUT and close Paint.
3. Open the application into which you want to insert the screen shot, for example *Word 2007*.
4. From the MICROSOFT OFFICE button  in the top left corner choose NEW.
5. From the HOME TAB click on the PASTE button.
6. Your screen shot will have the Windows frame around it. To eliminate the frame and insure that you have exactly the image desired, click on the image.
7. Go to the PICTURE TOOLS/FORMAT TAB.
8. Click on the CROP tool  from the SIZE GROUP.
9. Position the CROP tool on the handles of the screen shot and crop unneeded portions of the image.
10. If you desire to change the size of the image, adjust the vertical and horizontal measurements on the SIZE GROUP on the FORMAT TAB. An alternative method to re-size the image is to click on the image, position the cursor at any corner and drag the image to the desired size.

Miscellaneous Topics: Troubleshooting Tips

Common problems and solutions:

Problem: After the computer starts up, a blank screen appears.

Potential Solutions:

Be certain that the monitor is turned on. Check for the lights on the surge protector (if applicable), the system unit and the monitor indicating that electricity is traveling through that component. Check the cable connections to and from each component, in case they have become loose.

If these measures do not solve the problem, insert a boot disk and restart the machine. An emergency boot disk is packaged with diagnostic programs such as *Norton Utilities*. A boot disk can also be created in *Microsoft Windows* by selecting the ADD/REMOVE PROGRAMS icon from the Control Panel, choosing the STARTUP DISK tab and following the directions. If the computer does not start using a boot disk, the problem may be with the hardware. The appropriate hardware vendor should be contacted for service instructions.

Problem: When attempting to print, nothing happens.

Potential Solutions:

Verify that the printer is turned on and check the cable connections. Look at the lights on the printer to see whether an error is indicated. If so, check the printer manual for interpretations and solutions: the printer could be out of paper or have a paper jam. Check the printer status by choosing START → SETTINGS → PRINTERS, then double-clicking the printer in question. Try printing another document or printing from another program (such as WordPad) to see whether the problem is with the particular file or application.

Problem: The computer is frozen.

Potential Solutions:

If possible, select the CANCEL or CLOSE button. If the computer is still not responding, press the CONTROL, ALT and DELETE keys simultaneously. From the Close Program dialog box, select the application that is not responding and click END TASK. If the computer is still frozen, the CONTROL, ALT and DELETE key combination can be used to restart the computer. The reset button on the computer system unit may need to be used to restart the computer. If the reset button does not work, turn the computer off, wait 15 seconds or so and turn it back on. Windows should detect that the computer was not shut down properly and will execute the Scandisk program to check the hard drive for errors. If the computer freezes each time the same particular action is performed, it may help to reduce the number of files or applications open at one time.

Miscellaneous Topics: Troubleshooting Tips [continued]

Problem: A “not enough memory” error message appears.

Potential Solutions:

Try restarting the computer and launching the program again. If the message still appears, disable the programs that automatically start up. To do so, select START → SETTINGS → TASKBAR & START MENU. Choose the START MENU PROGRAMS tab, then the ADVANCED button and select the PROGRAMS folder. Move the shortcuts from the Startup folder into another folder, and restart the computer. If the error message continues to appear, try removing unnecessary files (such as unnecessary or backed-up documents) from the hard drive to free space that *Windows* can use for memory management.

Problem: A “not enough disk space” message appears when installing a program or when copying files to the hard drive.

Potential Solutions:

Right-click the RECYCLE BIN icon on the desktop, and choose EMPTY RECYCLE BIN . Check the amount of free hard drive space by right-clicking the HARD DRIVE icon in Windows Explorer and selecting PROPERTIES. Choose the TOOLS tab and select CHECK NOW to check the hard drive for errors that may be taking up space. To free some hard drive space, back up files to floppy disks or delete files that are no longer needed.

To help prevent this type of problem, consider compressing the hard drive before it becomes too full. To do so, select START → PROGRAMS → ACCESSORIES → SYSTEM TOOLS → DRIVESPACE.

Problem: No sound is heard from the speakers.

Potential Solutions:

Verify that the speakers are turned on and check the volume knob and the cable connections. Be certain that the speakers are connected to the correct jack (often labeled *Out* or *Speaker Out*). From the Control Panel, double-click the SOUNDS icon and determine if sound is heard when the name of a sound is highlighted and the PLAY button selected. From the Control Panel, double-click the MULTIMEDIA icon, select the AUDIO tab and adjust the Playback volume control.

Miscellaneous Topics: Troubleshooting Tips [continued]

Problem: A software program does not run properly.

Potential Solutions:

First, create backups of any document files created by the program. Double-click the ADD/REMOVE PROGRAMS icon in the Control Panel window, choose CHANGE/REMOVE and follow the instructions to uninstall the program. If problems still persist, right-click the HARD DRIVE icon in Windows Explorer and select PROPERTIES. Verify that there is adequate hard drive space available. Choose the TOOLS tab, then select CHECK NOW and DEFRAGMENT NOW. Reinstall the program.

Problem: An error occurs when copying a file or when installing software.

Potential Solutions:

The actual file being copied could be damaged. Try copying the file or installing the program on other computers. If the same error message occurs during the same process on a few different machines, the floppy disk or CD-ROM could be defective or could contain a corrupt file. The appropriate software manufacturer must be contacted to receive replacement disks.

Problem: The colors on the screen appear unnatural.

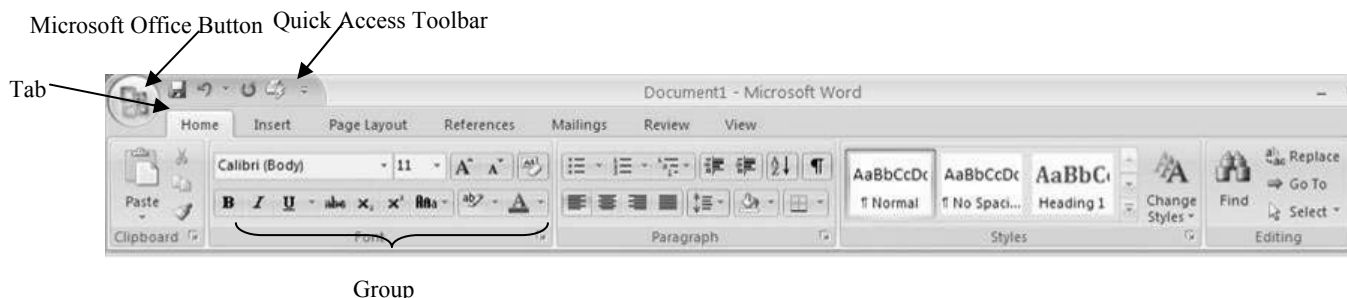
Potential Solutions:

The monitor display settings may need to be changed. Double-click the DISPLAY icon in the Control Panel window and click the SETTINGS tab. Choose a different option in the COLOR QUALITY drop-down list. Also, from the SETTINGS tab, select ADVANCED and click the MONITOR tab to verify that the correct monitor is chosen. If not, select CHANGE and choose another monitor.

Office 2007 Tips and Tricks

The Ribbon

The menus and toolbars in some programs have been replaced with the Ribbon, a panel that runs along the top of each application window.



The Ribbon is divided into a series of *tabs*. In Word, for example, you will see tabs for Home (the default tab view), Insert, Page Layout, References, Mailings, Review, and View. There are also tabs that only appear when needed. So, for example, if you insert a table in Word, you'll get a new Table tab, or if you insert a picture, you will see a Picture tab.


Commands are organized in logical *groups*, which are collected together under the tabs.

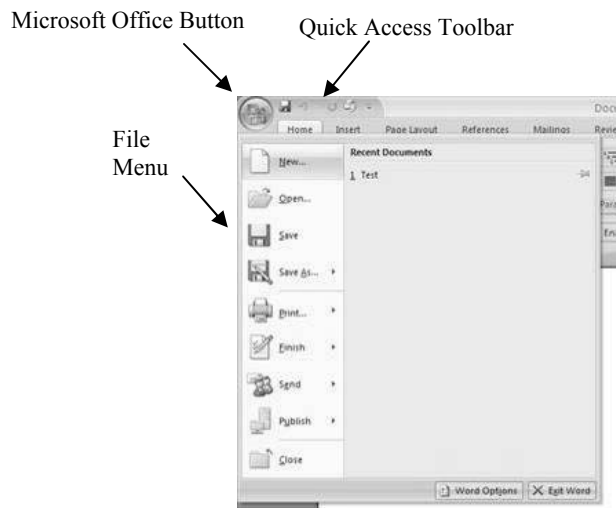
The groups on each tab are organized to help you complete a task.

The Ribbon can be found in Office Access 2007, Office Excel 2007, Office PowerPoint 2007, Office Word 2007 and Office Outlook 2007.

Office 2007 Tips and Tricks [continued]

Microsoft Office Button

The Microsoft Office Button  replaces the file menu. When you click the Microsoft Office Button, you see the same basic commands available in earlier releases of Microsoft Office to open, save, and print your file.



Quick Access Toolbar

Tools or commands that are not as readily available as you would like can be easily accessed by adding them to the quick access toolbar. To add a button right click on a feature in a tab, then click ADD TO QUICK ACCESS TOOLBAR. You may remove a button the same way, by right clicking and choosing REMOVE FROM QUICK ACCESS TOOLBAR.

Saving a File

Office 2007 saves files in a slightly different format, as compared to previous Office versions. To ensure you can access your 2007 files in other versions of Office, you must click on SAVE AS from the File menu. Choose *[Office Program] 97-2003 [File Type]* from the SAVE A COPY OF THE [FILE TYPE] list. Name the file and click SAVE.

For example from Word, you would choose *Word 97-2003 Document* from the SAVE A COPY OF THE DOCUMENT list.

Glossary

absolute cell reference: a cell reference that does not change when a formula is copied or moved; contains a \$ symbol before the column letter and row number

active cell: the cell currently selected in a spreadsheet, identified by its black border

animation: a series of still images displayed in rapid succession to create the illusion of movement

background: the layer in which text and images that appear in the same location on every page of a document are placed

Boolean operators: words used to specify a logical relationship *And*, *or* and *and not* are Boolean operators

bullets: symbols (often a solid circle or square) used to distinguish items in a list

branching slide: a slide that is linked to another slide in a presentation, providing users with a choice of which slide to view next

cell: a rectangle in a spreadsheet, formed by the intersection of a row and a column, which can contain text, numbers or a formula

cell reference: the coordinates of the column and row position of a cell, or a cell address

clip art: previously created digital artwork that is intended to be integrated into documents

column: a vertical line of cells in a spreadsheet, identified by a letter

column heading: a letter at the top of a column that can be clicked to select the entire column

column label: text at the top of a row that indicates the type of information in that column

data: information that can be processed and from which conclusions can be inferred

Glossary [continued]

database: a collection of related information

database application: a computer software program that allows users to enter, update, organize and retrieve information

digitalization: the process of transferring a film or video image to a format that a computer can use

field: the location reserved for a category of information within a database

filter: a set of criteria applied to records to show a subset of the records

footer: the text or graphics that appear at the bottom of a page

foreground: the layer in which the text and images that vary from page to page in a document are placed

formula: a mathematical equation that performs a calculation in a cell; formulas follow a specific structure beginning with an equal sign (=) followed by the elements to be calculated (the operands) and the calculation operators

formula bar: the bar at the top of a spreadsheet that displays the information contained or being entered in a cell

frames: a term related to the viewing and layout style of a Web site in which two or more Web pages are loaded at the same time within the same screen; Web pages with frames contain scroll bars for each embedded page that can be viewed independently

Function: a ready-to-use formula that performs common calculations, such as averages and sums

Greek text: a block of nonsensical text that represents the size and position of text so the aesthetics of the page design can be evaluated

grouping: joining together separate objects so the components can be manipulated as one object

hot spot: an area on the screen that can be selected to trigger an action, such as playing a sound, animating a graphic or displaying a different slide

Glossary [continued]

HyperText Markup Language (HTML): the special code that allows the Web browser to display the layout of a document

HyperText Transfer Protocol (HTTP): the Internet standard that enables access to documents on the World Wide Web

Importing: the process of inserting text or graphics that originated in one program into another program

landscape: the page orientation in which the page is wider than it is tall

layers: invisible sheets on which users can place text or graphics so the objects are independent of other objects on other sheets

layout: the process of arranging text and graphics on a page

layout guides: nonprinting lines that can be helpful when placing text and graphics within a document

linking: connecting text frames so that the excess text from the first frame flows into the second frame

mail merge: merging database information and word processing to create individualized letters, envelopes and labels

medium: a single method used to communicate a message to an audience, including video, sound, text and graphics

name box: the box in a spreadsheet that lists the column letter and row number of a selected cell or a range of selected cells

picture frame: a movable and resizable placeholder for a graphic

points: a font measure. One inch is equal to 72 points, and one centimeter is equal to 28 points. Font sizes of 10 point or 12 point are common for text in the body of documents.

Portrait: the page orientation in which the page is taller than it is wide

Glossary [continued]

pull quote: a short phrase set in a larger type size that repeats information found within the article

query: a method used to specify criteria to indicate what records should be retrieved from a database

range: a single cell or a rectangular group of adjacent cells within a spreadsheet

Record: a complete unit of fields (categorized information)

row: a horizontal line of cells in a spreadsheet, identified by a number

row heading: a number at the far-left side of a row that can be clicked to select the entire row of cells

row label: text at the left side of a row that indicates the type of information in that row

rulers: on-screen bars that measure the page horizontally and vertically

scratch area: the nonprinting work area in which text and graphics can be placed before they are moved into a document

slide: a screen in a *PowerPoint* presentation resembling an index card, on which users may arrange media elements

slide master: a special slide that can be used to determine the layout and formatting of all slides in a presentation

slide show: in presentation programs, several screens of information organized in a particular sequence

smart tags: a set of buttons shared across Office 2007 applications, smart tags appear as needed to provide options for completing a task quickly

sorting: rearranging data so that it appears in ascending or descending order, either alphabetically or numerically

spreadsheet: a document created by a spreadsheet application

spreadsheet application: allows users to enter data, such as numbers and formulas, into an electronic worksheet and to use this data to perform multiple calculations

Glossary [continued]

storyboard: a series of panels on which a set of sketches is arranged for planning purposes

table: Information displayed in rows and columns

task panes: located on the right side of the screen, allows users to access important tasks such as performing searches, opening documents, viewing the Clipboard, formatting documents and more

text alignment: (also known as justification) refers to how text appears in relation to the left and right margins

text frame: a placeholder for text, which can be moved or resized

text wrapping: the way that text flows around a graphic

transition: the special effect that occurs when one slide advances to the next in a presentation

Uniform Resource Locator (URL): A Web page's address, often beginning with *http://www*

wizard: a Help feature that guides users through multi-step processes to create common documents

Word wrap: a word processing feature that automatically moves continuing text to the line below when the previous line becomes full.

Worksheet: a spreadsheet containing cells in columns and rows