Education

Intel® Teach Program
Getting Started Course

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

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Master or Participant Teacher Edition v.1.0

For Microsoft Office*

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Best regards,
Craig R. Barrett
Chairman of the Board
Intel Corporation

Welcome

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

Intel® Education Initiative

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

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

About the Institute of Computer Technology

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

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

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Module 1

21st Century Skills

Description: 21st century, student-centered learning differs from traditional, teacher-centered learning in that the two have different approaches to content, instruction, classroom environment, assessment, and technology. Learn more about what you can do to help your students develop the skills they need to learn to become successful in the 21st century workplace.

Exercise 1: Essential Skills

Step 1

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

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Step 2

Be prepared to share your list of essential skills with the large group as directed.

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Exercise 2: Learner Profiles

Most learners participating in the Intel Learn Program are likely to:

- Be between the ages of 8-16
- Have a wide range of learning abilities and challenges
- Come from rural and low or middle societies
- Be first-generation learners, currently enrolled in formal education
- Be able to read and write in their native language
- Possess limited or emerging technology literacy skills (Technology and Community learners) or intermediate-level technology literacy skills (Technology at Work learners)
- Have limited access to computers

Reflect on the learners who will attend your classes. Record your answers to the questions below. Be prepared to share your answers with the larger group.

- **What do you know about the learners in your community who will attend your classes? Who are they and what are they like? How might they differ from those described in the above profile?**

- **How do you know this about them? What are your sources of information?**

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Intervention Skills

There are many times when facilitators will need to intervene and provide feedback to learners. Listed below are several situations when intervention by the facilitator may be required.

Work with your partner to identify two or three feedback starters or statements for each situation that can be shared with learners. Be prepared to share your answers with the larger group.

1. When you agree with a learner ... (Example: "Good point!")

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

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

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

5. When a change should be suggested ... (Example: "Check that you have done all the things listed in the Review It section.")

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Exercise 2: Working with Windows

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

Microsoft Windows* is a popular operating system for many personal computers. Whenever you turn on your computer, Windows starts automatically. After your computer starts up, the computer's desktop will be displayed on the monitor screen. The desktop has small pictures, or icons, that represent some of the things that you can use the computer to do. Some of these icons stand for computer software. Other icons represent places on your computer where files and documents are stored.

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

Step 1

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

Step 2

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

Step 3

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

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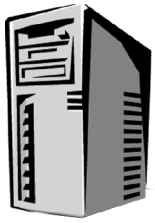
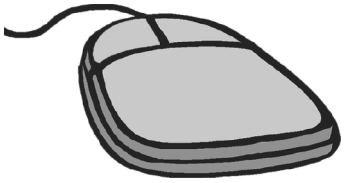
Exercise 1: Naming the Parts and Moving the Mouse

Before you begin using the computer, there are some basic things you should learn. This includes learning the names of some of the parts of the computer as well as learning how to move the mouse.

Step 1

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

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

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Linguistic Thinkers (Word Smart)

Characteristics	Use words effectively, love to play with words, show strength in the language arts: listening, speaking, reading, and writing
Like	Reading, telling stories, crossword puzzles, oral discussion or debate, writing reports, giving presentations, conducting interviews, creating slogans, keeping a journal or diary, developing word games, and writing letters, poems, stories, and descriptions
Learn Best	Reading interesting books, playing word board or card games, listening to recordings, using various kinds of computer technology, participating in conversation and discussions
Suitable Careers	Librarian, salesperson, archivist, translator, politician, curator, speech pathologist, writer, radio or television announcer, journalist, lawyer, secretary, editor, English teacher
Famous Examples	William Shakespeare, JK Rowlings, Anne Frank
Technology Interests	Word processing, email, desktop publishing, web publishing

Linguistic Thinkers (Word Smart)

Characteristics	Use words effectively, love to play with words, show strength in the language arts: listening, speaking, reading, and writing
Like	Reading, telling stories, crossword puzzles, oral discussion or debate, writing reports, giving presentations, conducting interviews, creating slogans, keeping a journal or diary, developing word games, and writing letters, poems, stories, and descriptions
Learn Best	Reading interesting books, playing word board or card games, listening to recordings, using various kinds of computer technology, participating in conversation and discussions
Suitable Careers	Librarian, salesperson, archivist, translator, politician, curator, speech pathologist, writer, radio or television announcer, journalist, lawyer, secretary, editor, English teacher
Famous Examples	William Shakespeare, JK Rowlings, Anne Frank
Technology Interests	Word processing, email, desktop publishing, web publishing

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What should action plans include?

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

Components	Characteristics
Goals	▪ Research suggests that individuals accomplish more when they set complex goals that challenge but do not overwhelm them ▪ The best goals for teachers focus on teacher behavior and student achievement ▪ Some teachers may want to break a large goal down into sub-goals that can be spread out over time ▪ Generally, goals are broad and address important issues ▪ Goal example: "The teacher will organize instruction so that students become more independent learners."
Instructional Strategies and Tasks	▪ Instructional strategies are research-based teaching methods that have been proved to result in improved student achievement ▪ Tasks are specific teaching and learning activities that show in concrete terms how the strategy will be applied ▪ Instructional Strategy Example: "I will provide students with more choices of processes, products, and content in projects." ▪ Task example: "Allow students to make physical models or virtual models of a cell for their final projects."
Challenges and Solutions	▪ Teachers know that even goals based on sound research may not be easy to implement ▪ Environmental factors such as room arrangement and furniture can be modified, while others such as room size will just have to be worked around ▪ Anticipating questions from administrators, colleagues, parents, and students about new methods can help a teacher be more successful ▪ Challenge example: "Principal's usual response to new ideas is negative." ▪ Solution example: "Meet with progressive administrator first to get support and then go to principal to explain what I'm going to be doing."

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Listening and Speaking Skills

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

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

Giving Directions Skills

Teachers who have good skills for giving directions:

- Are clear in their intentions and think through their instructions
- Wait and ensure that students are quiet before giving directions
- Provide directions orally and in writing
- Share directions a few steps at a time so as to not confuse or overwhelm students
- Model the expected steps for students
- Check for understanding to ensure that students know what is expected from them

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However, there are also several challenges with this approach, including:

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

21st Century, Student-Centered Instruction

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

Teacher-Centered Instruction	Student-Centered Learning
Content	
The content is established by a curriculum, and all students study the same topics at the same time.	Students study topics based on curriculum and standards but are allowed numerous choices within a topic of study.
Students have access to limited information, selected by the teacher or the school library.	Students have infinite access to unlimited information of varying degrees of quality.
Topics of study are often isolated and disconnected from each other, from other subject areas, and from the real world.	Students study content in connection with all subjects and with the real world.
Students memorize facts and occasionally analyze information critically.	Students frequently engage in high-level analysis, evaluation, and synthesis of a variety of kinds of material.
Students work to find a correct answer.	Students work to construct any one of a number of possible correct answers.
Teachers choose activities and provide materials at the appropriate level.	Students select from a variety of teacher-provided activities and often determine their own level of challenge at which to work.

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Appendix

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Appendix X

Assessment Handout

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

Plan It

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

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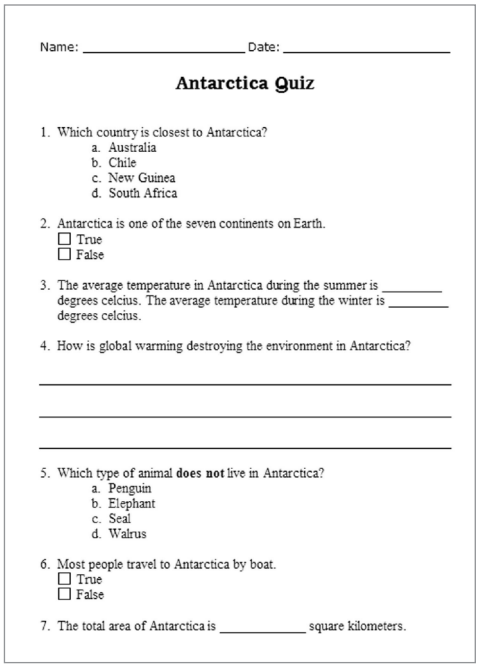

Name: _____ Date: _____

Antarctica Quiz

1. Which country is closest to Antarctica?
   a. Australia
   b. Chile
   c. New Guinea
   d. South Africa

2. Antarctica is one of the seven continents on Earth.
   ☐ True
   ☐ False

3. The average temperature in Antarctica during the summer is _____ degrees celcius. The average temperature during the winter is _____ degrees celcius.

4. How is global warming destroying the environment in Antarctica?

   _____

   _____

   _____

5. Which type of animal **does not** live in Antarctica?
   a. Penguin
   b. Elephant
   c. Seal
   d. Walrus

6. Most people travel to Antarctica by boat.
   ☐ True
   ☐ False

7. The total area of Antarctica is _____ square kilometers.

Assessment Handout Example

Think about the questions below, and discuss your ideas with your partner. It might be helpful to write your ideas on a sheet of paper and draw a rough sketch of what you want your stamp to look like.

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For help on how to do certain skills, look at the following groups in the *Resource Book:*

- **Graphics Group 1:** Getting to Know Microsoft Paint
- **Graphics Group 2:** Painting Shapes and Lines
- **Graphics Group 3:** Making Changes to Pictures and Photos in Microsoft Paint

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Do It

1. Start *Microsoft Paint*, and you will see a new, blank painting canvas.
2. If needed, change the size and shape of your painting canvas so it is about the size of your screen. (See Graphics Skill 2.12: To change the size of a painting canvas.)
3. Paint a rectangle for the outer edges of your stamp design.

> **Challenge:** Use the **Eraser/Color Eraser** tool to make the stamp's border look like it was torn from a sheet or a book of stamps. Make sure you pick the background color you want first! (See the Challenge Example at the end of this section.)

4. Use the different tools to paint the picture you want on your stamp. Be sure to pick the color you want in the Color Box before you paint any lines, shapes, or strokes. If you make any mistakes, just use the Undo command.
5. Zoom in if you need a close-up view of your painting.
6. Pick a place in your stamp where you want to put the price. Then, make a text box, and type a number that shows how much money the stamp is worth. (**Note:** You might want to make the box see-through, or transparent, so you do not get a big rectangle over your stamp design.)
7. Change the look of the price however you wish.
8. Repeat Steps 6 and 7 to put the name of your community in the stamp.
9. Save your work as directed.

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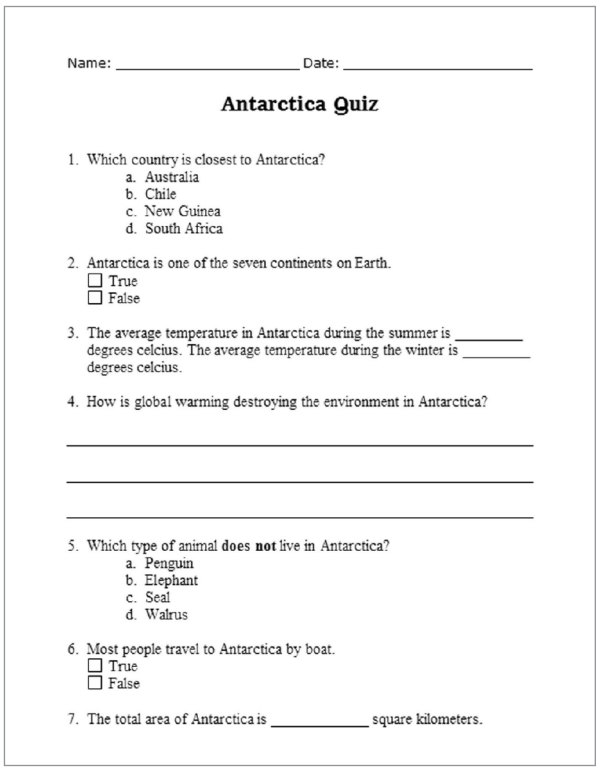

Name: _____ Date: _____

Antarctica Quiz

1. Which country is closest to Antarctica?
   a. Australia
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4. How is global warming destroying the environment in Antarctica?

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   _____

   _____

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   a. Penguin
   b. Elephant
   c. Seal
   d. Walrus

6. Most people travel to Antarctica by boat.
   ☐ True
   ☐ False

7. The total area of Antarctica is _____ square kilometers.

Assessment Handout Challenge Example (Page 2)

Review It

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

- a picture of an important person, place, thing, or event in your community
- the stamp's price
- the name of your community

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

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Share It

Be prepared to discuss your answers to the following questions:

- How did you decide on the picture you painted for your stamp? Why is that person, place, or thing important to your community?
- Which tools did you use to design your stamp? Which tool did you like the best? Why did you like that tool?
- How do you think stamps were created before the use of computers? Why is graphics paint software a good tool for creating stamps?

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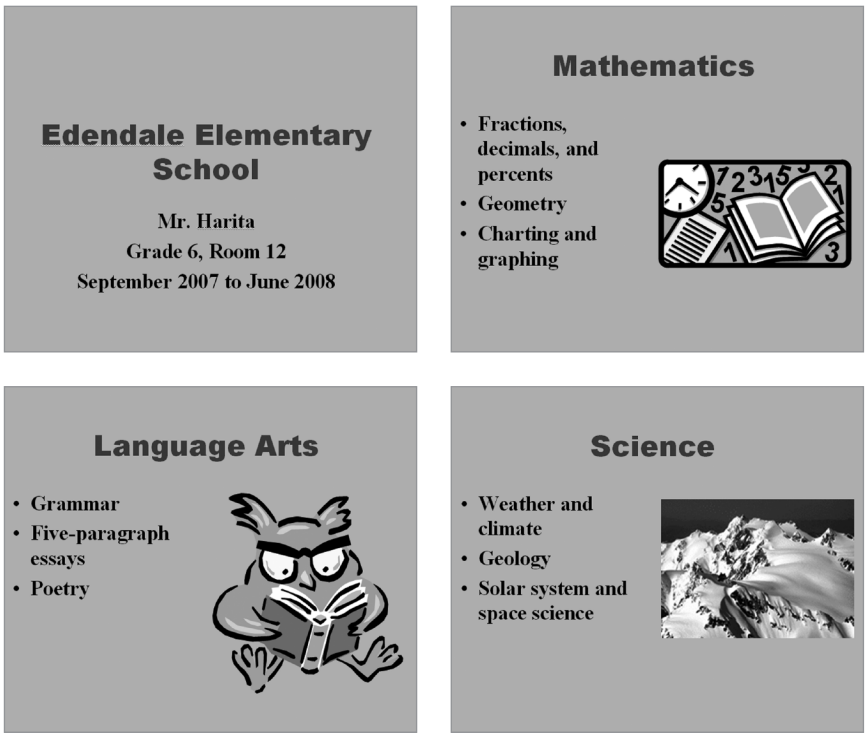
Appendix X:
Multimedia Activities

Curriculum Preview

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

Plan It

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



Curriculum Preview Example

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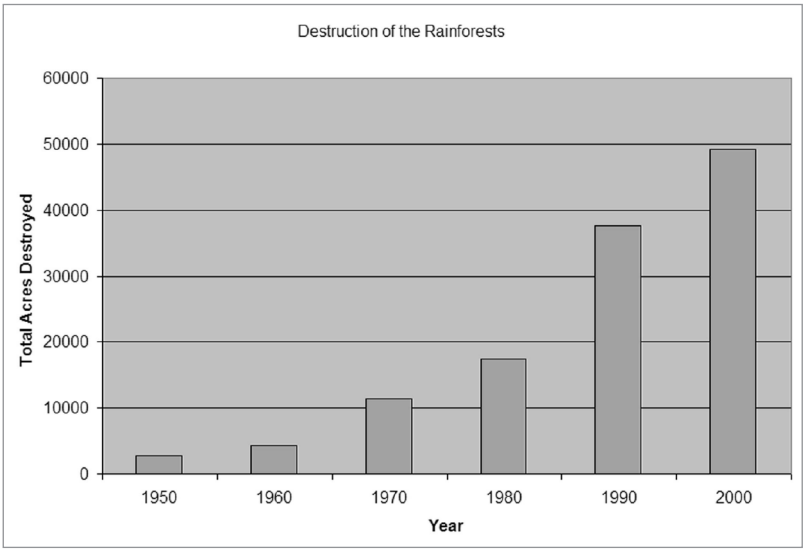
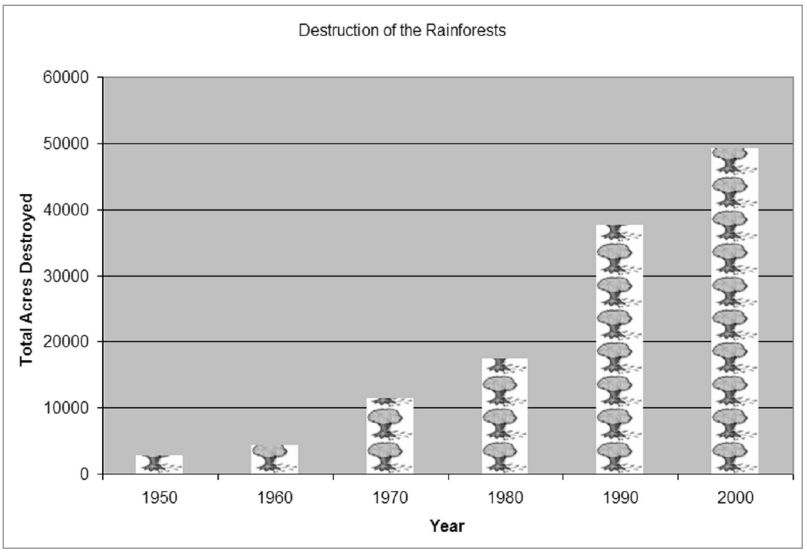


Column Chart Example



Pictograph Example

Think about the questions below, and discuss your ideas with your partner. It might be helpful to look at the completed survey forms that are saved on your computer as you write your ideas on a sheet of paper.

- How might you organize the survey questions and answers into a spreadsheet?
- How could you use spreadsheets to figure out which issue is the biggest concern?

Remember to use the Rubric as a guide as you plan, do, review, and share.

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Appendix X

Resources

Listed below are resources that you might consider reading to learn more about the featured educational theories and methods. **NOTE:** The localization team needs to insert the names of print and Internet resources available in the local language.

Books

Brooks, Jacqueline Grennon and Brooks, Martin G. (1999). *In Search of Understanding: The Case for Constructivist Classrooms.* Alexandria, VA: ASCD. ISBN: 0-87120-358-8.

Campbell, Linda, Campbell, Bruce, and Dickinson, Dee. (2004). *Teaching And Learning Through Multiple Intelligences,Third Edition*. Boston, MA: Allyn and Bacon. ISBN: 0-2-5-36390-3.

Johnson, David W., Johnson, Roger T., and Johnson Holubec, Edythe. (1998). *Cooperation In The Classroom, Seventh Edition*. Edina, MN: Interaction Book Company. ISBN: 0-939603-04-7.

Kagan, Spencer. (1994). *Cooperative Learning*. San Clemente, CA: Kagan Cooperative Learning. ISBN: 1-879097-10-9.

Katz, Lilian G. and Chard, Sylvia C. (2000). *Engaging Children's Minds: The Project Approach, Second Edition*. Stamford, CT: Ablex Publishing Corporation. ISBN: 1-56750-500-7.

Moursund, David. (2003). *Project-Based Learning Using Information Technology, Second Edition. Eugene*, OR: ISTE. ISBN: 1-56484-196-0.

Torp, Linda and Sage, Sara. (2002). *Problems as Possibilities: Problem-Based Learning for K-16 Education*. Alexandria, VA: ASCD. ISBN: 0-87120-574-2.

21st Century Skills Internet Resources

Digital Transformation: A Framework for ICT Literacy (2002)
www.ets.org (Research Monographs, 52 pages)

EnGauge 21st Century Skills (2003)
www.ncrel.org/engauge/skills/engauge21st.pdf (88 pages)

Learning for the 21st Century (2004)
www.21stcenturyskills.org/index.php?option=com_content&task=view&id=29&Itemid=42

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Master Teacher Appendix

Facilitating Technology Activities . . . . . **MT Appendix G**
Word Processing **G.01**
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MT Appendix X

Training Preparation Checklist

The following checklist identifies both required and suggested items for making your training run smoothly.

Required Items:

☐ Be sure you have ordered all training materials well in advance of the start of the training.

☐ Visit the computer lab several days prior to the start of the training. Talk to the technology contact and find out information on the lab rules, passwords, firewalls, downloading/saving restrictions or procedures, and so on. Ensure that the following minimum requirements for system configurations and software applications are met on each computer:

Hardware

- Intel® Pentium® processor 200 MHz (performance level or better) or compatible processor
- Microsoft Windows 2000* (including Service Pack 2 and Microsoft Paint*) operating system or above
- Minimum of 64MB of RAM (128MB preferred)
- Minimum of 500MB of hard disk drive space (1GB preferred)
- 800 x 600 screen resolution or higher
- Internet connection
- CD-ROM drive

Internet Browser

- Microsoft Internet Explorer 5.0* or above, set as the default browser Software
- Adobe Acrobat Reader 7.0* or above
- Microsoft Excel 2000* or above
- Microsoft PowerPoint 2000* or above
- Microsoft Word 2000* or above

☐ Have all your contact numbers with you, such as those of your LEA, technology contact, and so forth.

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MT Appendix X

Teaching Graphics

While many students will be excited to begin the student curriculum, some may feel a bit nervous. To provide an opportunity for all students to feel successful as they begin, graphics is presented as the first technology area. This decision is based on a few important factors.

First, most students have already used traditional materials (markers, crayons, paint, brushes, and paper) to draw or paint a picture. So even though students may not be familiar with an actual project, they know that the final product will be in the form of a picture. The same cannot be said about the other technology areas where tables, worksheets, charts, and slides may not be familiar final products.

Second, the buttons and tools that are used to create digital artwork are similar to the traditional materials they have already used and the shapes that they are already familiar with. When students see a **Pencil** or **Paintbrush** tool, they can safely assume that they will work like an actual pencil or paintbrush. When they see the **Line** or **Rectangle** tools, most students will understand that they can use those tools to create a line or a rectangle. This increases their confidence on the computer and reduces their initial frustrations.

Additionally, graphics activities provide good opportunities for students to practice basic mouse skills (including clicking, double-clicking, and dragging). At the same time, they develop basic keyboarding skills through activities that require minimal amounts of text. Because these graphics activities are more exploratory and openended than the activities in other technology areas, students have the chance to try and learn without having to worry about "being wrong."

Although many students will have limited computer skills, there will be some students with previous computer experience. It is likely that these students are already familiar with graphics technology, and they may claim that they "already know this." It is important to note that although basic graphics skills are required to complete these activities, the skills are presented in unique combinations or in specific sequences that students have not previously experienced.

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