

COMPUTER USES IN PUBLIC WORKS

Objective:

This session provides introductory information on the various uses of computer programs and equipment in the Public Works Industry. Specific software applications and/or keyboarding skills are not taught in the cadet curriculum. (4 hours)

- I Introduction of subject and instructor
- II Work Management Systems
 - A. Inventory of Infrastructure
 - B. Used to manage and schedule maintenance/repair work required on infrastructure
 - C. Track history of maintenance/repair work for specific assets
- III Asset Management Systems
 - A. Inventory of infrastructure
 - B. Scheduling of preventative maintenance work
 - C. Estimate life cycle of infrastructure
 - D. Budget Analysis (best way to spend \$\$)
 - E. Voice Recognition
- IV GIS programs
 - A. Maps
 - B. Inventory information
 - C. GPS
- V Other Misc. Computer Programs commonly used:
 - A. Spreadsheets
 - B. Database
 - C. Word Processing
 - D. CADD
 - E. Report Designers (Crystal Reports)
 - F. Imaging
- VI Review
 - A. Questions & Answers
 - B. Written Test



TIDEWATER COMMUNITY COLLEGE

**The Public Works Academy
in partnership with
Tidewater Community College & Mary Greer Landon
presents
Basic Computer Skills for the Workplace**

Spring 2003



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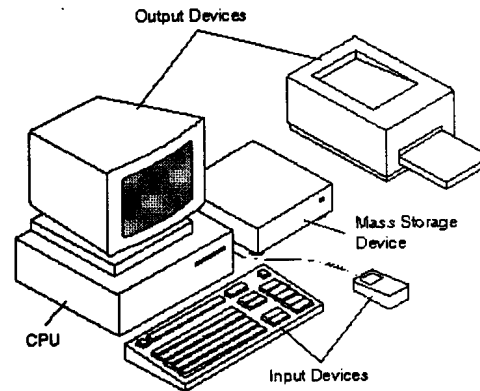
Objective:

Using Microsoft Office 2000 this Module of the Public Works Academy Program introduces and familiarizes the participants with the following:

- Essential computer hardware and software concepts
- Word terminology
- Creation and editing of a Word Document
- Excel terminology
- Creation and editing of an Excel Worksheet
- Use of the ChartWizard
- PowerPoint terminology
- The basics of creating and viewing slides in a presentation.

Students will successfully print one document from each of the three programs introduced showing their ability to complete each project.

Computer Parts



A programmable machine. The two principal characteristics of a computer are:

- It responds to a specific set of **instructions** in a well-defined manner.
- It can **execute** a prerecorded list of instructions (**a program**).
- Modern computers are electronic and digital.
 - The actual machinery -- wires, transistors, and circuits -- is called hardware.
 - The instructions and data are called software.

All general-purpose computers require the following hardware components:

- **memory** : Enables a computer to store, at least temporarily, data and programs.
- **mass storage device** : Allows a computer to permanently retain large amounts of data. Common mass storage devices include disk drives and tape drives.
- **input device** : Usually a keyboard and mouse, the input device is the conduit through which data and instructions enter a computer.
- **output device** : A display screen, printer, or other device that lets you see what the computer has accomplished.
- **central processing unit (CPU)**: The heart of the computer, this is the component that actually executes instructions.

In addition to these components, many others make it possible for the basic components to work together efficiently. For example, every computer requires a bus that transmits data from one part of the computer to another.

Computers can be generally classified by size and power as follows, though there is considerable overlap:

- **personal computer** : A small, single-user computer based on a microprocessor. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.
- **workstation** : A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.
- **minicomputer** : A multi-user computer capable of supporting from 10 to hundreds of users simultaneously.
- **mainframe** : A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- **supercomputer** : An extremely fast computer that can perform hundreds of millions of instructions per second.

Essential Computer Concepts

What is a computer?

A computer is an electronic device that accepts input, processes data, stores data, and produces output. It is a versatile tool with the potential to perform many different tasks. It has several advantages for you:

- Speed
- Storage so you don't have to create it over and over
- Personal as well as clerical tasks
- Sharing data and output with others conveniently and quickly

Computer system:

Computer:

Hardware - Physical components of a computer to accomplish input, output, and storage functions

Peripheral devices - Printers, speakers, Mouse, etc.

Software - intangible components of the computer system such as programs or specific task instructions

Example: Microsoft Word enables you to type memos, letters, and reports.

The hardware and software of a computer system work together to process data.

Design and construction of a computer:

Architecture, or Configuration - ex: configured to include a printer

Specification - ex: print speed of eight pages per minute or capacity to print color

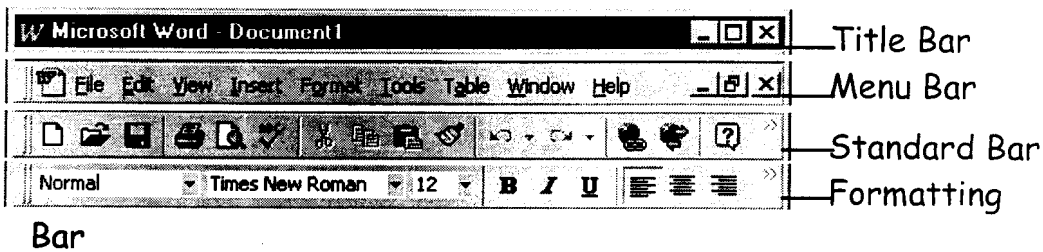
Terminology Review:

Input	What you type in to a computer.
Input devices	Keyboard and mouse (used to input data and issue commands).
Processing	Creating documents according to your commands and the instructions contained in the software.
Main circuit board	"Motherboard" Computer's major electronic components where all the processing takes place.
Processing hardware	Electronic components of the main circuit board.
Types of computers	<p><u>Microcomputers</u> - also called Personal Computers (PC)</p> <p><u>Desktop</u> - fits on a desk, runs on power from an electrical wall outlet with the display screen on top of the desktop case</p> <p><u>Tower</u> - similar to desktop but with a vertical case that is larger and allows more room for expansion</p> <p><u>Notebook</u> - Smaller, lighter and portable. Runs on batteries or from an electrical outlet</p> <p><u>Personal Digital Assistant</u> - palm top computer even more portable than a Notebook due to shrinking or eliminating some standard components such as the keyboard. Usually touch sensitive and easily connected to desktop to update information.</p>
Mainframe computers	Large, powerful and processes for multiple users. Provide centralized storage and management of large amounts of data.

Click on "Start"
 Look for "Programs"
 Let's find the programs we will be working with this semester:

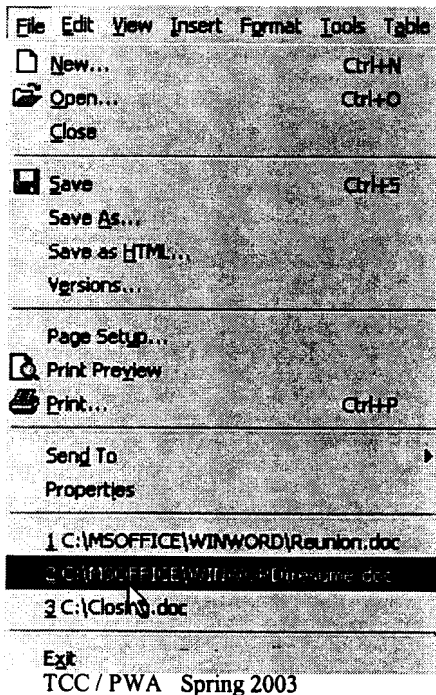
What can they do for you?

Let's start with Microsoft Word:
 Click on Microsoft Word to open a Word Document



Bar

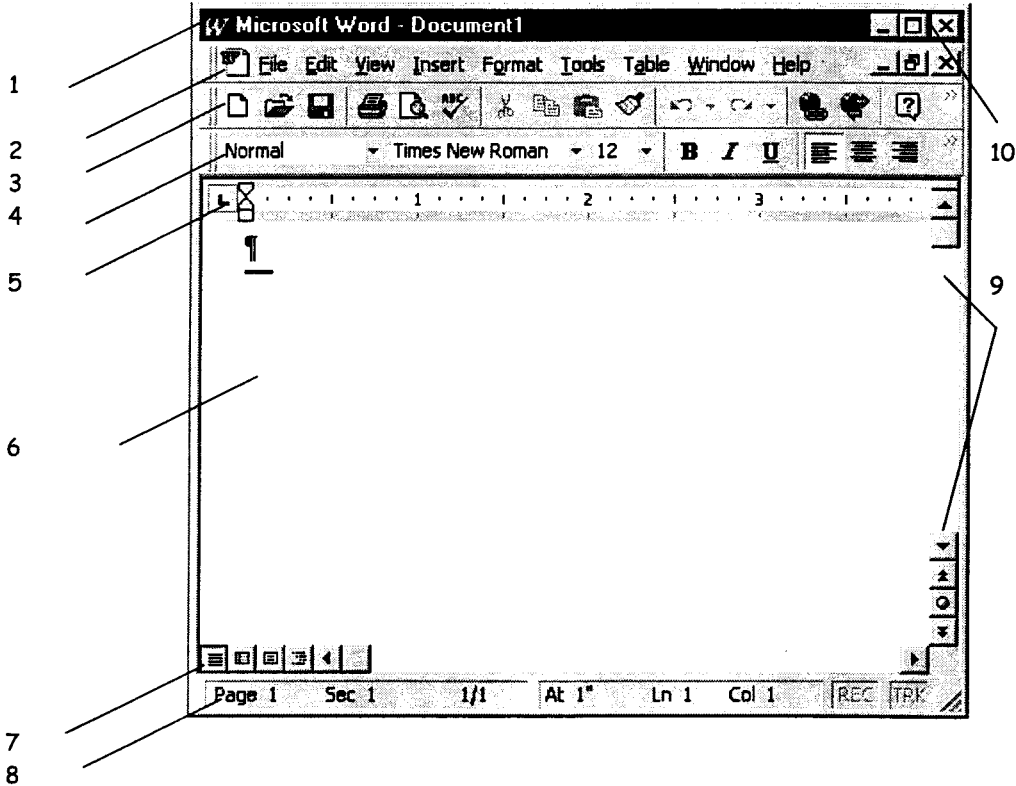
Microsoft Word



Recently Used File List

- Open a new document
- Open a saved document
- Close a document
- Save a document
- Save as ... different name on your disk
- Set up your page
- Preview your document before you ...
- Print your document
- Document Properties (size of file)

Click on each header in the Menu Bar. Review the functions of each.



1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Type in the text area your:

- The Title of this Course
- Your Name
- Three sentences stating why you are in the PWA program and what you have learned so far
- What you hope to get out of this particular computer course

Pull down the "File" menu



Click on "Save"



(or click the **SAVE** BUTTON on the Standard Toolbar)
 Give the file a name "PWA Your Name" Pull down the "File" menu Click on "Close"

Now Let's Edit your Word Document:
 Click on File and Open



(or click the Open Button on the Standard Toolbar)
 Choose your Document and let's work together with it.

1. Choose your title and change the font style.
 Basic Computer Skills for the Workplace > Basic Computer Skills for the Workplace
2. Choose your first sentence and increase the size of the font.
 I am in this PWA Course because > **I am in this PWA Course because**
3. Choose your last five words and change the color of the font.
 increase my skill and techniques. > increase my skill and techniques.
4. Choose all "the's" and make "the" **BOLD**.
 In **the** tools of **the** trade and **the** job safety program I . . .
5. Choose your name and *italicize* it.
 Mary Greer Landon > *Mary Greer Landon*

6. Insert a 2 row/ 2 column table at the end of your document.

7. Make the 1st row of the column a shaded color.

8. Give the 1st row of the column a more solid border.

9. Put the names of each of your fellow classmates on either side of you in the first row.

John Smith	Margaret Blake

10. Highlight one whole line / Click on EDIT / Click on COPY / Move to the bottom of your document and Click on EDIT / Click on PASTE

11. Click on INSERT / Go down to PICTURE / Click on CLIP ART / Choose one / Click INSERT



12. Click on TOOLS / Click on SPELLING / either choose the corrections by clicking on CHANGE or IGNORE if the corrections are not valid.

Why would the corrections not be valid?

13. Highlight a word / Click on TOOLS / Click on LANGUAGE / Click on THESAURUS

A resource for you to find alternate ways of saying things.

14. Highlight 2 lines in a row / Click on FORMAT / Go to Bullets / Choose a bullet / OK

Some of the courses we have had are:

- CPR
- Safety

Tools of the Trade

15. Try the same 2 lines in a row / Click on FORMAT / Go to Numbers / Choose a number format / OK

1. CPR

2. Safety

Tools of the Trade

16. Rename your file as "PWA Your Name Doc2"

- Click on FILE
- Click on SAVE AS
- Place your new name in the FILE NAME box

Now Print your Document

Click on:

File

Print

OK



A Helpful Hint about Spell check

Don't forget to use your spell check, your dictionary, and use words that you CAN spell while remembering to ask yourself.... How reliable is "spell check"?

Consider the following:

Eye halve a spelling chequer

It came with my pea sea;

It plainly marques four my revue

Miss steaks eye kin knot sea.

Eye strike a key and type a word

And weight four it two say

Weather eye am wrong oar write

It shews me strait a weigh.

As soon as a mist ache is maid

It nose bee fore too long

And eye can put the error rite

Sew know won seize its wrong.

Microsoft Excel

Microsoft Excel

Microsoft Excel is a powerful spreadsheet program that allows you to organize data, complete calculations, graph data, and develop professional looking reports.

Click on **Start**

Click on **Programs**

Click on **Microsoft Excel**

Excel displays a blank workbook page

Elements of Excel 2000

Menu Bar



Title Bar

Displays the name of the program you are currently using

Standard Toolbar



Formatting Toolbar



Active Cell

The selected cell

Formula Bar

Displays the value or formula of the active cell

Column Heading

Column reference letter

Row Heading

Row reference number

Sheet Tab

Identifies the current sheet name

Drawing Toolbar

Contains the drawing tools

Status Bar

Displays info about a selected command or operation in progress

Vertical Scroll Bar

Use to scroll up and down your worksheet

Performing Calculations:

Equal = begins all calculation formulas

Addition +

Subtraction -

Multiplication *

Division /

Percent %

Colon :

Connects the range of numbers

= 2 + 3 * 2 equals 8 (because Excel calculates multiplication before addition)
= (2 + 3) * 2 equals 10 (you can control the order of calculation by using parentheses to group operations that should be performed first.)

The order of the elements in a formula determines the final result of the calculation. Excel performs the operations from left to right according to the order of precedence.

Create a Grade Sheet for each of these classes.

Use Row 1 to enter titles of each column.

	A	B	C	D	E
1	Name	CPR	Job Safety	Tools	
2	Joe	95	89	92	
3	Judy	78	82	90	
4	Martha	86	93	95	
5	Larry	98	100	92	
6					
7					

List grades for each student for each class.

Place your cursor in E2

Type: =AVERAGE(B2:D2)

Press Enter. The average will appear.

Do this for each succeeding line in Column E. (B3:D3), (B4:D4), and B5:D5)

Go to B6. Click on the Auto Sum Symbol and hit Enter. You will see the total of the scores for Assignment 1.

To find the average of all students for Assignment 1:

Go to B7. Type = 357/4 (this is the total in B6 divided by 4 students then enter to see the average.

Go to the bottom of the sheet and double click on Sheet 1.

Name this sheet PWA Grade Comparisons.

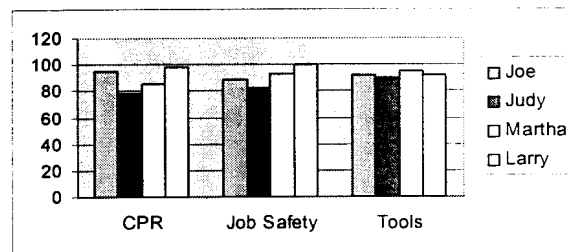
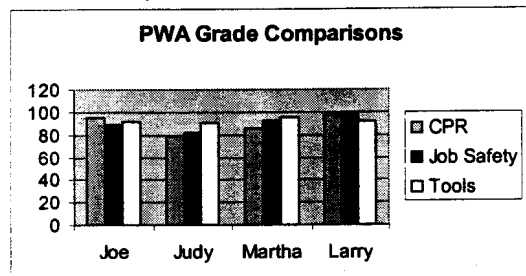
Creating a Graph from your worksheet

Highlight all the blocks from A1 through D5.

Click on the Graph symbol.

Choose a type of graph that is easy for you to read. You can press and hold to view your sample before you choose it.

Choose either rows or columns depending on what you are trying to show (the assignment comparisons or the students' grade comparisons).



Name your chart.

Now Print your Document

Click on:

File

Print

OK

Microsoft PowerPoint

Microsoft PowerPoint

Microsoft PowerPoint is a complete presentation graphics program that allows you to produce professional-looking presentations. A PowerPoint presentation is also called a slide show. The slides can be used on a projection device or printed out as overhead transparencies. Paper printouts can also be created for participants and/or as speaker notes.

- PowerPoint is a software program designed to enhance presentations.
- Treat it with respect. Use it with dignity.
- Do not hide your message with too many special effects.

It is a fun and easy-to-use presentation graphic program.

- Combines:
 - Text
 - Clip art
 - Drawing features
- Creates self-running or interactive displays
- Supports instruction, presentations, meetings, etc.
- Made up of slides

Types of PowerPoint Presentations:

- Slide shows using animation and looping
- Slides that are printed to be used on overheads
- Handouts for participants
- Notes pages with both the slide picture and your text notes

Starting PowerPoint

Start

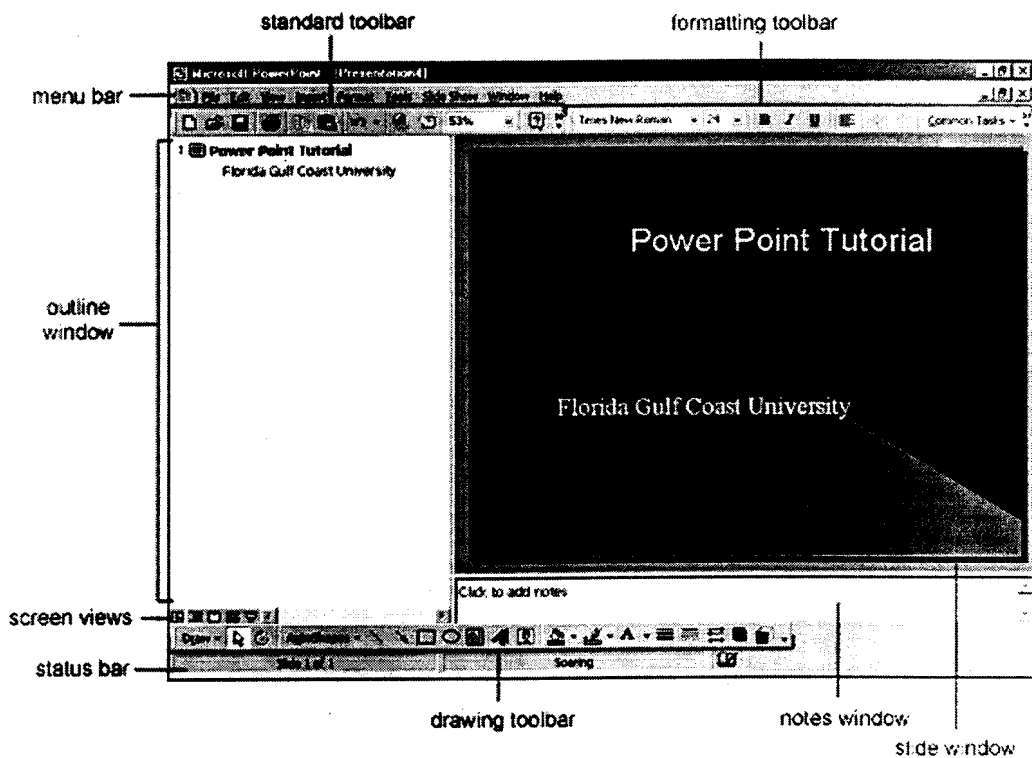
Programs

Microsoft PowerPoint

PowerPoint Dialogue Box appears. Create a new presentation. Selections are:

- **Auto Content Wizard** - Creates a slide set within the theme you select. Can save you time.
- **Template** - Creates slides from pre-designed slide sets.
- **Blank Presentation** - Creates slides that you design from scratch (or)
- **Open an existing presentation.**

Microsoft PowerPoint Screen

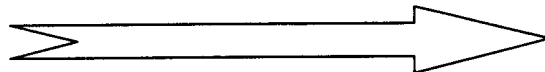


Class Exercise 1:

1. Open a template presentation
2. Choose a title slide
3. Type in a "title" and "by Your Name"
4. Insert a second slide
5. Choose a slide that has a title and bullet point boxes
6. Type in a title for the second slide (Ex: Job Safety)
7. Type in bullet points that fall within that title (Ex: Safety Glasses/ Appropriate clothing, etc.)
8. Insert a third slide
9. Choose a slide that has a picture in it
10. Double click on the graphic box and insert a picture
11. Add a title relative to the slide and the other 2 slides you have already created

Class Exercise 2:

1. Open a blank presentation
2. Choose a blank slide
3. Using the Auto Shapes and following your Word Timeline create an arrow across the center of your slide



4. Insert a text box or Word Art and create the title.



5. Insert a second slide
6. Choose a slide that has a title and bullet point boxes
7. Type in a title for the second slide (Ex: CPR Techniques)
8. Type in bullet points that fall within that title (Ex: Body Position/ Breathing, etc.)
9. Insert a third slide choosing one that has a graphic icon in the center .
10. Double click on the graphic icon and choose a graphic to insert.

Changing the Views of your slides

Click on:

- Slide View
- Outline View
- Slide Sorter View

Navigate Slides

- Move forward and back
- Use the Scrollbar
- Insert a New Slide
- Delete a slide
- Using the Slide Sorter View
 - Drag a slide
 - Duplicate a slide

Slide Transition

- Use the Slide Sorter view
- From the Slide Sorter Toolbar click the Slide Transition button
- Choose from the Effect drop-down box
- Choose a Speed: Slow Medium Fast
- Choose how to Advance: On Mouse Click Automatically

Now Print your Document

Click on:

Slide Sorter view

File

Print

Select 6 slides to a page OK

Pre-test

Score _____ / 25



1. What type of toolbar is above? Circle the correct letter of the answer.
- a. Standard
 - b. Formatting
 - c. Drawing

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

16	17	18	19	20	21	22	23	24

2. Match the toolbar button to the function.
Place the correct number in the box next to its description.

<input type="text"/>	Font size	<input type="text"/>	Format Painter	<input type="text"/>	Text Style
<input type="text"/>	New Document	<input type="text"/>	Align left	<input type="text"/>	Cut
<input type="text"/>	Undo	<input type="text"/>	Font Style	<input type="text"/>	Copy
<input type="text"/>	Align Center	<input type="text"/>	Insert Hyperlink	<input type="text"/>	Office Assistant
<input type="text"/>	Open Saved Document	<input type="text"/>	Print Preview	<input type="text"/>	Paste
<input type="text"/>	Web Toolbar	<input type="text"/>	Save	<input type="text"/>	Redo
<input type="text"/>	Italicize Text	<input type="text"/>	Print	<input type="text"/>	Underline Text
<input type="text"/>	Spell check	<input type="text"/>	Bold Text	<input type="text"/>	Align right

Instructor's Guide

Pre-test for Working with Text

Score ____/25



1. What type of toolbar is above? Circle the correct letter of the answer.

- a. Standard
- b. Formatting
- c. Drawing

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

16	17	18	19	20	21	22	23	24

2. Match the toolbar button to the function.

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18	Font size	10	Format Painter	16	Text Style
1	New Document	22	Align left	7	Cut
11	Undo	17	Font Style	8	Copy
23	Align Center	13	Insert Hyperlink	15	Office Assistant
2	Open Saved Document	5	Print Preview	9	Paste
14	Web Toolbar	3	Save	12	Redo
20	Italicize Text	4	Print	21	Underline Text
6	Spell check	19	Bold Text	24	Align right