Computer Application in Agriculture

(Reading Materials for Village Level Workers)

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Organized by

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&

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Lesson-01

Identification of computer hardware components

Computers have two main parts

1. Computer hardware
2. Computer software

Computer hardware

Computer hardware is the physical part of the computer system, the machinery and equipment.

Monitor : T.V. like screen used to show pictures and words

CPU : This stands for Central Processing Unit. This is where most of the computer's calculations take place. In terms of computing power, the CPU is the most important element of a computing system.

Keyboard: This device is used to type information into the computer and contains the numbers 0-9.

Mouse: A small device, which is moved across the top of the desk to move the pointer or cursor on the screen.

Printer : This is used to make a paper copy of the information present in the computer.

Image Scanner : An electronic device that generates a digital representation of an image for data input to a computer.

Digital camera : A device that take photo and video and feed them into the computer.

Computer software

• Computer Softwares are programs that tell the computer what to do.

Examples

• Microsoft Word - word processing programme

• Microsoft Power Point - presentation programme

• Microsoft Excel - work book programme used to track, calculate, and analyze numeric data

Computer input devices

• Computer devices that input information in the computer

Examples

• Key board

• Mouse

• Scanner

• Digital camera

Computer output devices

• Computer devices that output information from the computer.

Examples

• Monitor

• Printer

Setting up a desktop computer

Step 1- Unpack the computer from the box/case.

View after unpacking the computer and peripherals

Step 2- Locate the monitor cable

A VGA cable

Step 3- Connect the monitor cable to the VGA port

Connecting the monitor cable to the VGA port

Step 4- Plug the keyboard into a USB port

Plugging the keyboard into a USB port

Step 5- Plug the mouse into USB port

Plugging the mouse into a USB port

Step 6- Plug the speakers into the audio port

Plugging the speakers into the audio port

Many computers have color-coded ports. Speakers or headphones connect to the green port, and a microphone can connect to the pink port. The blue port is the line in, which can be used with other types of devices.

Step 7- Plug the power cable into UPS

Plugging the power cable into UPS

Step 8- Plug the UPS into wall outlet

Plugging the surge protector into a wall outlet

Maintenance of hardware

- Physical cleaning- Keyboard, mouse, monitor, CPU case.
- Keep the system away from dust and moisture.
- Keep it cool.

Protect computer from malware

Malware is any type of software that is designed to damage computer or gain unauthorized access to personal information. It includes viruses, worms, Trojan horses, spyware, and other types. Most malware is distributed over the internet often bundled with other software. The best way to guard against malware is to install antivirus software such as <u>BitDefender</u>, <u>Norton</u>, <u>Kaspersky</u> or Quikhill. Antivirus software helps to prevent malware from being installed, and it can also remove malware from computer. New malware is being created all the time, so it's important to update antivirus software frequently. Most antivirus programmes can do this automatically but it is necessary to make sure that this feature is enabled.

Back up computer

External hard drives
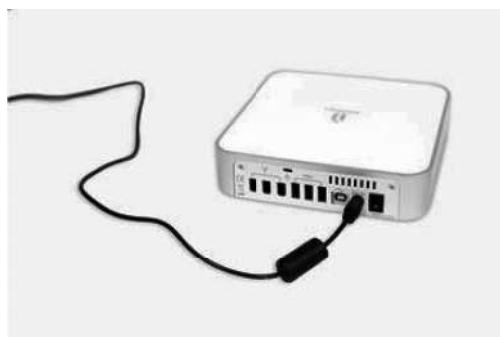
An external hard drive

Other maintenance techniques
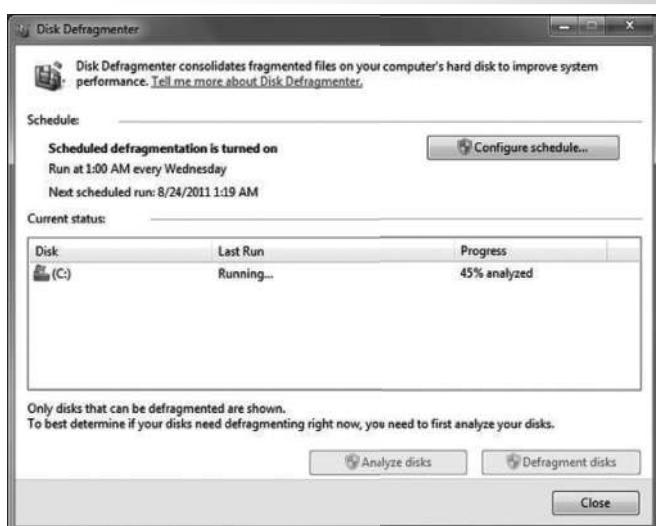
Disk Cleanup

To keep computer running smoothly, it's important to keep the files and folders **uncluttered**. Cluttered or unorganized folders make it more difficult to find the needed files. Additionally, unwanted files can eventually fill up **hard drive**, which will make computer slower and harder to use. Here are a few things to delete unwanted files and improve performance of computer.

- **Delete files :** If there are unwanted files, you can delete them manually. To do this, simply drag them into the **Recycle Bin** (or **Trash**), and then empty the Recycle Bin.

- **Disk defragmenter :** Windows includes a **disk defragmenter** programme in the control panel. It **scans** the files on hard drive and then **rearranges** them so that it can read them faster.

- **Disk cleanup :** Windows also includes a **disk cleanup** programme in the control panel. It scans computer for **temporary files** and other files that can be deleted.

Disk Defragmenter
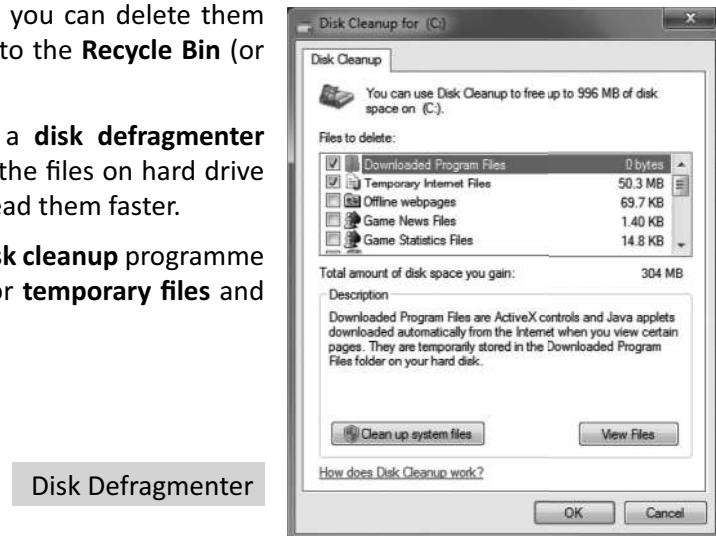
Computer ergonomics

- **Adjust your chair :** Make sure your chair is adjusted to allow you to sit in a comfortable position.

An ergonomic keyboard

- **Keep the keyboard at a comfortable height :** Try to place the keyboard in a position that allows you to keep your wrists straight and relaxed, to avoid wrist strain. Many desks have a keyboard tray that may keep the keyboard at a better height. One can also buy an **ergonomic keyboard** that is designed to minimize wrist strain.

- **Keep the mouse close to the keyboard :** If possible, place the mouse right next to the keyboard If the mouse is **too far away**, it may be uncomfortable or awkward to reach for the mouse.

- **Place the monitor at a comfortable distance :** The ideal position for a monitor is **20 to 40 inches** away from your eyes. It should also be **at eye level** or **slightly lower.**

- **Avoid clutter :** The computer area can quickly become **cluttered** with papers, computer accessories, and other items. By keeping this area as uncluttered as possible, you can improve your productivity and also prevent strain or injury.

- **Take frequent breaks :** It's important to take breaks while you're working at your computer. To avoid eye strain, you should **look away from the monitor** every once in a while. You can also **stand up and walk around to avoid** sitting in the same position for long periods of time.

Lesson-02

Exercise on MS Word with special reference to MS Office Word 2007
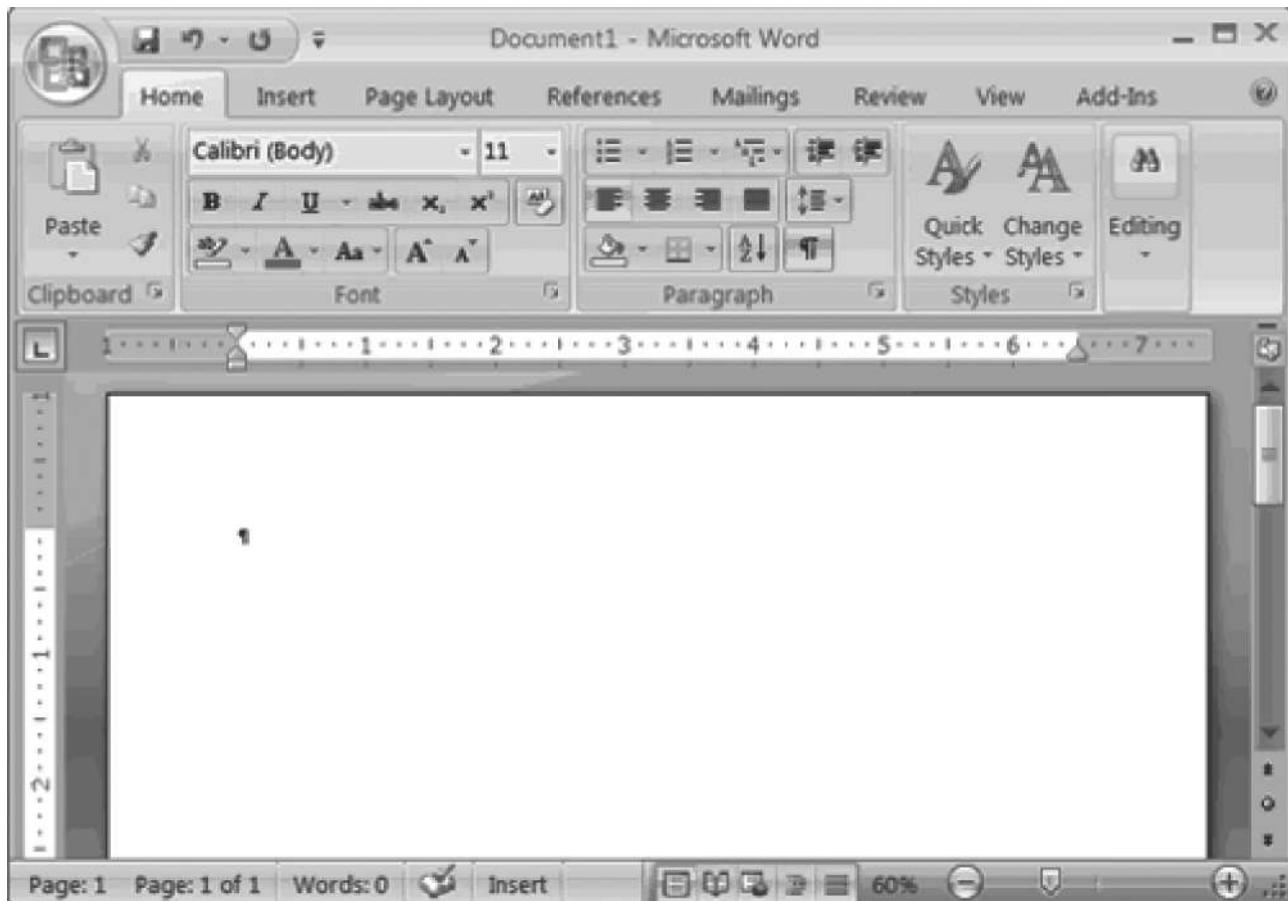

Screen display in MS Word 2007

Microsoft Office button

In the upper-left corner of the Word 2007 window is the Microsoft Office button. When you click the button, a menu appears. You can use the menu to create a new file, open an existing file, save a file, and perform many other tasks.

Quick access toolbar

Next to the Microsoft Office button is the quick access toolbar. The Quick Access toolbar provides you with access to commands you frequently use. By default Save, Undo, and Redo appear on the quick access toolbar. You can use Save to save your file, Undo to rollback an action you have taken, and Redo to reapply an action you have rolled back.

Title bar

Next to the quick access toolbar is the title bar. The title bar displays the title of the document on which you are currently working. Word names the first new document you open Document 1. As you open additional new documents, Word names them sequentially. When you save your document, you assign the document a new name.

Document1 - Microsoft Word
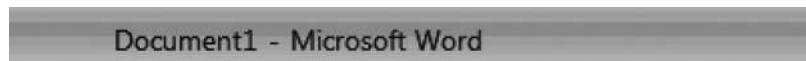
Ribbon

In Microsoft Word 2007, Ribbon is used to issue commands. Ribbon is located near the top of the screen, below the quick access toolbar. At the top of the ribbon there are several tabs; clicking a tab displays several related command groups. Within each group there are related command buttons. Buttons can be clicked to issue commands or to access menus and dialog boxes. There is also a dialog box launcher in the bottom-right corner of a group. Clicking the dialog box launcher gives access to additional commands via a dialog box.
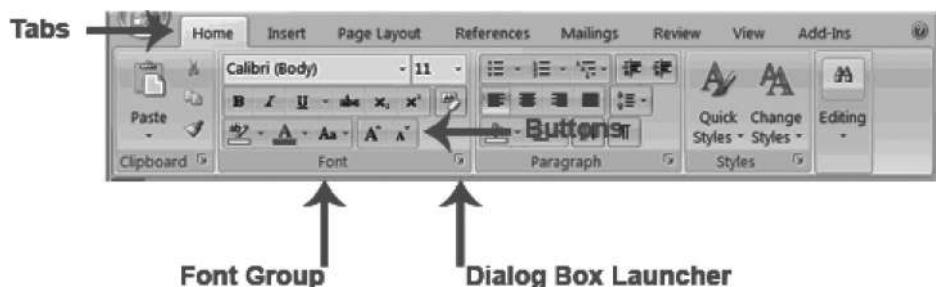
Ruler

The ruler is found below the ribbon.

Ruler can be used to change the format of document quickly. If ruler is not visible, follow the steps listed here:

1. Click the View tab to choose it.

2. Click the check box next to ruler in the Show/Hide group. The ruler appears below the ribbon.

Text area

Just below the ruler there is a large area called the text area. Document is typed in the text area. The blinking vertical line in the upper-left corner of the text area is the cursor. It marks the insertion point. As one types, text displays at the cursor location. The horizontal line next to the cursor marks the end of the document.
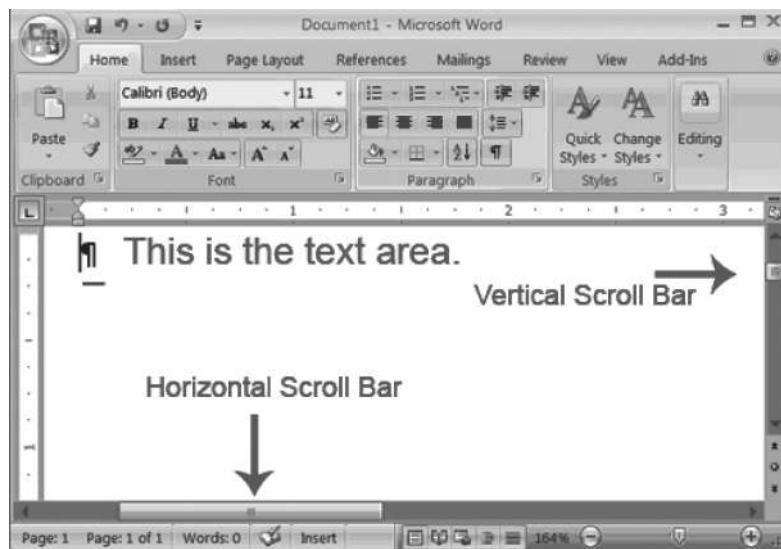
Vertical and horizontal scroll bars

The vertical and horizontal scroll bars enable to move up, down, and across window simply by dragging the icon located on the scroll bar. The vertical scroll bar is located along the right side of the screen. The horizontal scroll bar is located just above the status bar. To move up and down document, click and drag the vertical scroll bar up and down. To move back and forth across document, click and drag the horizontal scroll bar back and forth. Horizontal scroll bar is not visible if the width of document fits on screen.

Status bar

The Status bar appears at the very bottom of window and provides such information as the current page and the number of words in document. One can change what displays on the status bar by right-clicking on the status bar and selecting the options from the customize status bar menu. Click a menu item to select it. Click it again to deselect it. A check mark next to an item means it is selected.

Understanding document views

In MS Word 2007, document can be displayed in one of five views: Draft, Web Layout, Print Layout, Full Screen Reading, or Online Layout.

Draft view

Draft view is the most frequently used view. Draft view is used to quickly edit document.

Web layout

Web layout view enables to see document as it would appear in a browser such as Internet Explorer.

Print layout

Print layout view shows the document as it will look when it is printed.

Reading layout

Reading layout view formats screen to make reading document more comfortable.

Outline view

Outline view displays the document in outline form. You can display headings without the text. If heading is moved, the accompanying text moves with it.

You should use Draft view for these lessons. Before moving ahead, make sure you are in Draft view:
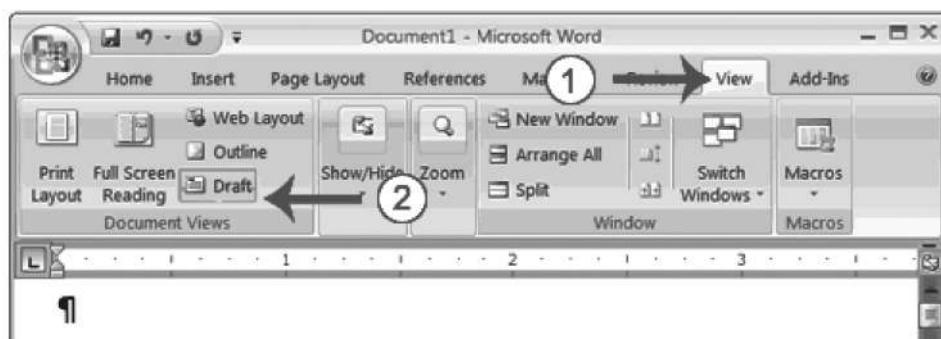
1. Click the view tab.

2. Click draft in the document view group. When the draft option is selected it appears in a contrasting color.

Click

When asked to click :

1. Point to the item.

2. Press left mouse button once.

If asked to double-click an item:

1. Point to the item.

2. Quickly press left mouse button twice.

If asked to right-click:

1. Point to the item.

2. Press right mouse button.

If asked to choose a tab, click the tab.

Understanding non-printing characters

Certain characters, called non-printing characters, do not print and will not appear in printed document but do affect document layout. One can elect to see these characters on the screen as one types or one can elect to have them remain invisible. For these lessons, opt to see them on screen.

Character	Denotes
→	A tab
.	A space
¶	The end of a paragraph
Hidden	Hidden text

To view nonprinting characters:
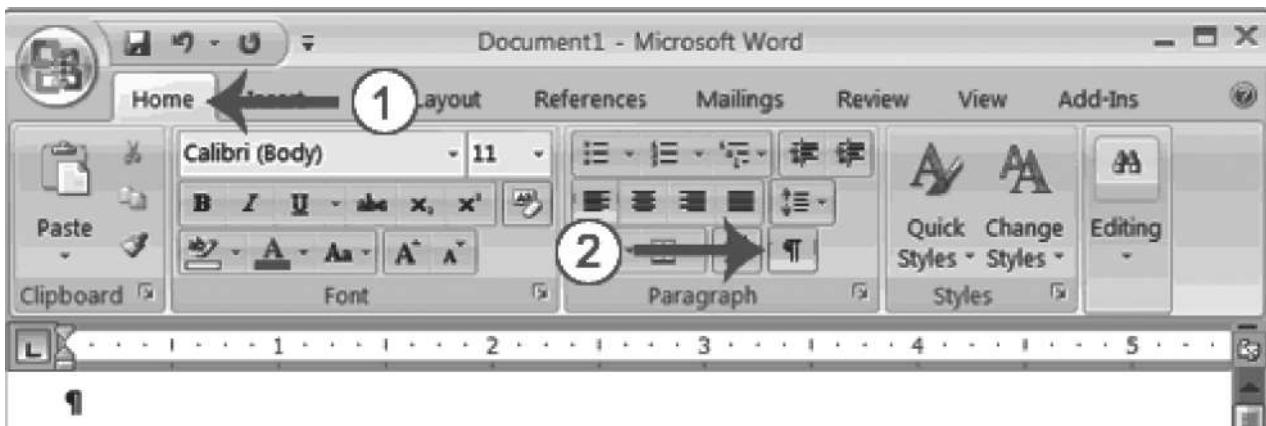
1. Choose the Home tab.

2. Click the Show/Hide button ¶ in the paragraph group . The Show/Hide button appears in a contrasting color, when it is selected.

How to create sample data

Create sample data

1. Type **= rand()**.

2. Press Enter. Three paragraphs appear in your document.

Select with the shift and arrow keys

1. Place your cursor before the word.

2. Press and hold down the Shift key, which serves as an "anchor" showing where text you wish to select begins or ends.

3. Press the right arrow key until the first line of text is highlighted.

4. Press the down arrow key until the first paragraph is highlighted.

5. Click anywhere outside the highlighted area to remove the highlighting.

Select with the mouse

1. Place cursor before the word in the paragraph.

2. Press and hold down the left mouse button.

3. Drag the mouse until you have highlighted the paragraph.

4. Click anywhere outside the highlighted area to remove the highlighting.

Place the cursor

Place the cursor by moving the cursor to the specified location and pressing the left mouse button or by using the arrow keys to move to the specified location.

Arrow keys

1. Use the down arrow key to move down your document.

2. Use the right arrow key to move to the right.

3. Use the up arrow key to move up.

4. Use the left arrow key to move to the left.

Cursor

1. Move around document by using mouse and clicking in a variety of location.

2. Click in a location and type.

How to close and save

Close and save—Windows XP

1. Click the Microsoft Office button. A menu appears.

2. Click Exit Word, which is in the bottom-right corner.

3. You will be prompted: "Do you want to save changes to Document ?" To save changes, click Yes. Otherwise, click No. If you click Yes, the Save As dialog box appears.

4. Specify the correct folder in the Save In box.

5. Name your file by typing **Lesson One.doc** in the file name field.

6. Click Save. Word saves file.

Type, backspace, and delete

Type and backspace

1. Type the sentence

2. Delete a word using either the arrow keys or the mouse

3. Press the backspace key until the selected word is deleted.

Delete

1. Select the word and hold down the Shift key, and then press the right arrow key until the word is highlighted.

2. Press the Delete key

Insert and overtype

Placing the insert / overtype button on the status bar

1. Right-click the status bar. The customize status bar menu appears.

2. Click overtype. The insert / overtype button appears on the status bar.

3. If the word insert appears on the status bar, you are in Insert mode.

4 If the word overtype appears on the status bar, click the word overtype and it will change to insert, thereby changing word to insert mode.

Insert

1. Place the cursor after the space between the words.

2. Type the word.

3. Press the space bar to add a space.

Overtype

One can type over the current text (replace the current text with new text) in the overtype mode. Do the following to change to the overtype mode.

• Click "insert" on the status bar. The word insert changes to overtype.

Bold, Italicize, and Underline

Alternate method—All three with the ribbon

1. Select the words .

2. Choose the home tab.

3. Click the bold button ▯ in the font group.

4. Click the Italic button ▯ in the Font group.

5. Click the underline button ▯ in the font group.

6. Click anywhere in the text area to remove the highlighting.

Alternate method—All three with keys

1. Select the words

2. Press Ctrl+b (bold).

3. Press Ctrl+i (italicize).

4. Press Ctrl+u (underline).

Note: One can remove formatting by highlighting the text and pressing Ctrl+spacebar.

5.   Click anywhere in the text area to remove the highlighting.

Save a file and close word

Save a file—Windows XP

1.   Click the Microsoft Office button. A menu appears.

2.   Click Save. The Save As dialog box appears if you are saving document for the first time.

3.   Specify the correct folder in the Save In box.

4.   Name document in the File Name box.

5.   Click Save.

6.   Click the Microsoft Office button. A menu appears.

7.   Click Exit Word, which is located in the bottom-right corner of the window. Word closes.

Formatting paragraphs and working with styles

Open a blank document

To begin a new word project, start by opening a new document.
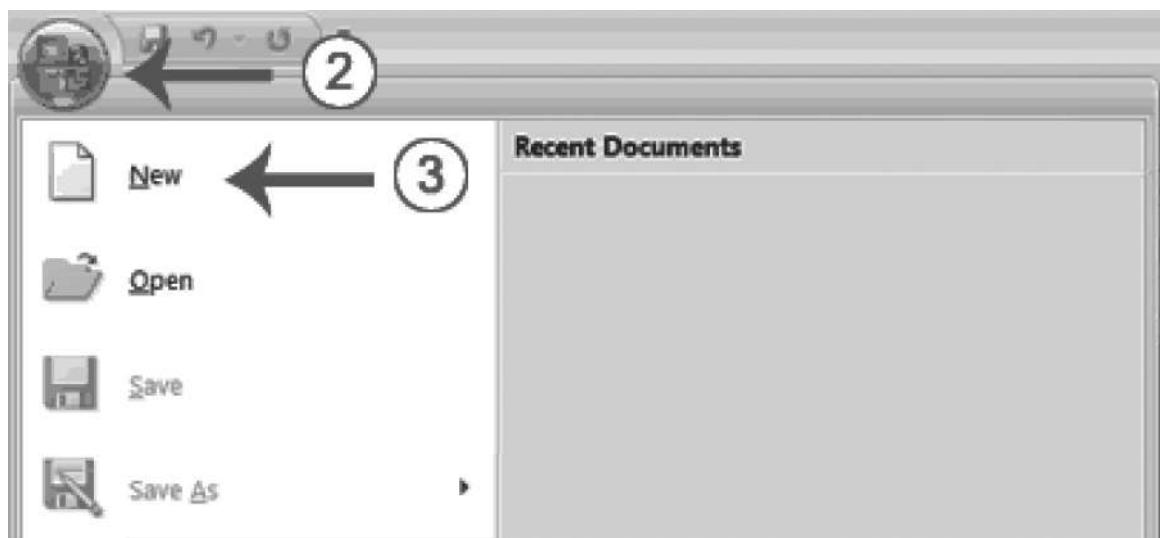
1.   Open Word 2007.

2.   Click the Microsoft Office button. A menu appears.

3.   Click new. The New Document dialog box appears.

4.   Click blank document.

5.   Click create. A new blank document opens.
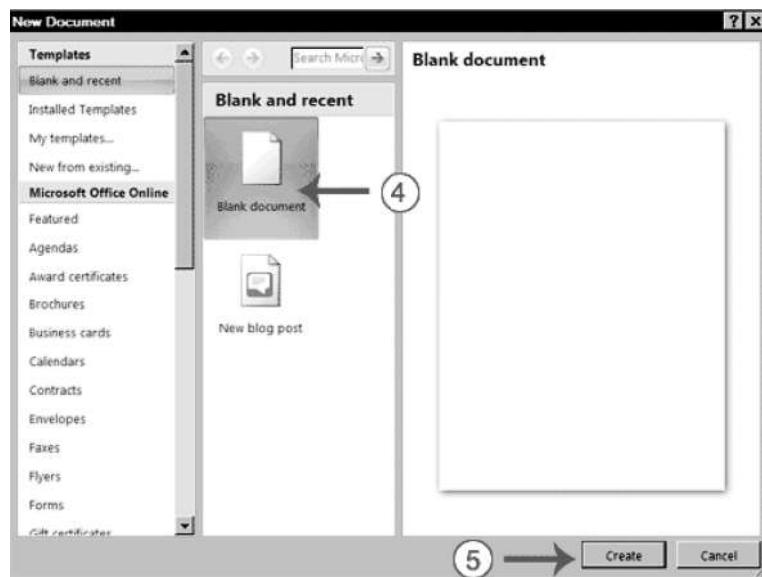
Add sample text

Add sample text

1. Type =rand().

2. Press the Enter key. The following text appears:

Add Space before or after paragraphs
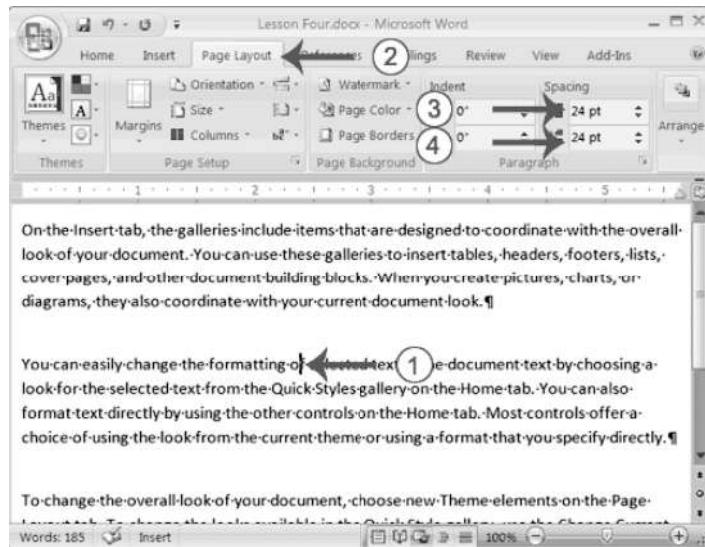
1. Place cursor anywhere in the paragraph of the text.

2. Choose the page layout tab. The default spacing appears in the spacing before field.

3. Click the up arrow next to the spacing before field to increase the space before the paragraph.

4. Click the up arrow next to the spacing after field to increase the amount of space after the paragraph.

Change line spacing
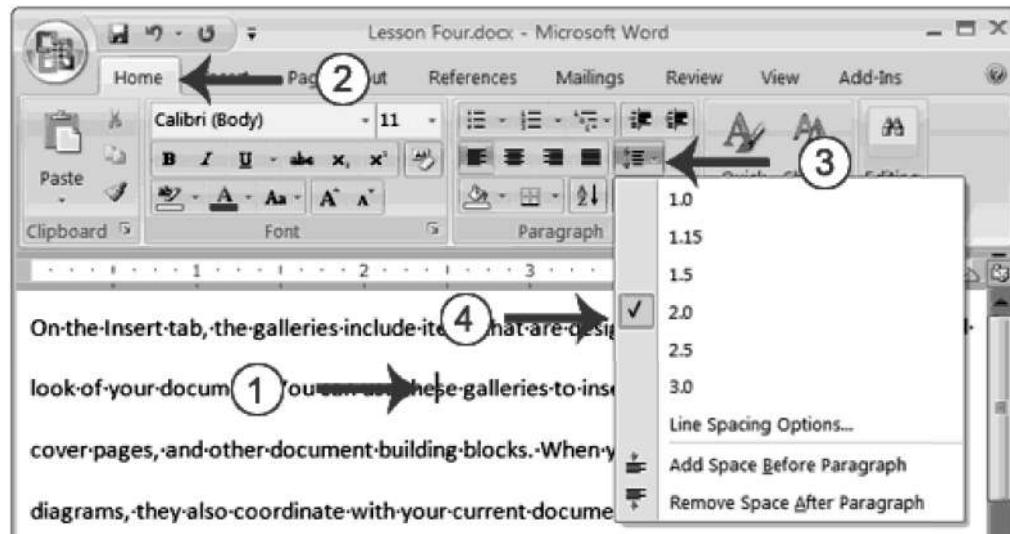
1. Place cursor anywhere in the paragraph of the text.

2. Choose the Home tab.

3. Click the line spacing button ⬚ in the paragraph group. A menu of options appears.

4. Click 2.0 to double-space the first paragraph.

Create a first-line indent
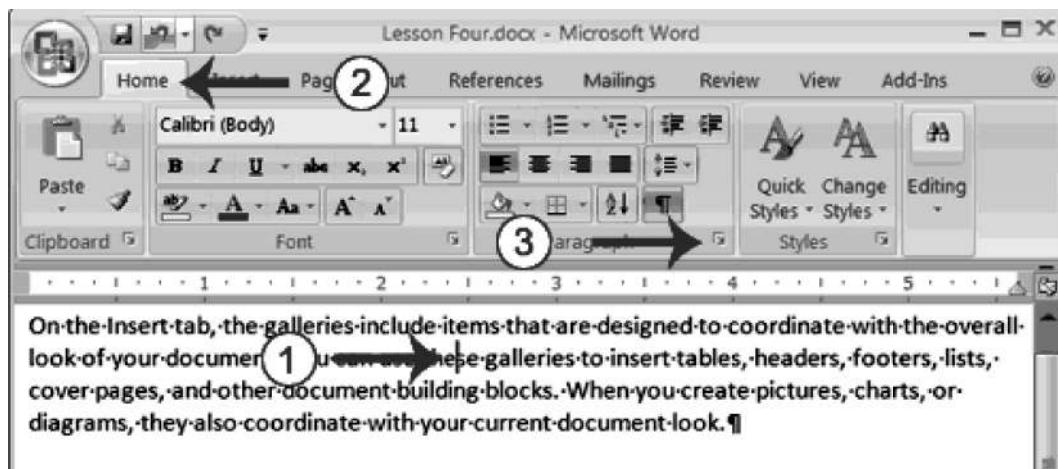

1. Place cursor anywhere within the paragraph of the text.

2. Choose the Home tab.

3. In the Paragraphs group, click the launcher. The paragraph dialog box appears.

4. Choose the indents and spacing tab.

5. Click to open the drop-down menu on the special field.

6. Click first line.

7. Enter 0.5" in the by field.

8. Click OK. The first line of paragraph is now indented half an inch.
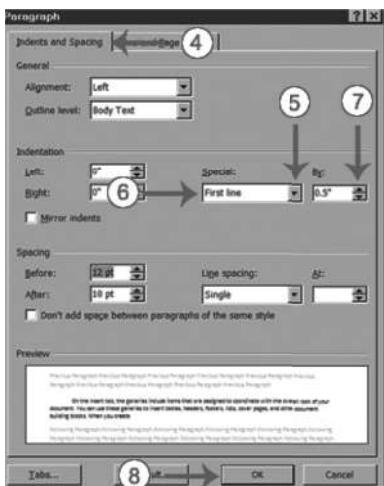
1. Place the cursor anywhere in the paragraph.

2. Choose the Home tab.

3. In the paragraphs group, click the launcher. The paragraph dialog box opens.

4. Choose the indents and spacing tab.

5. Click the down arrow next to the special field and then click none.

6. Click OK.

Indent paragraphs

1. Place cursor anywhere in the paragraph of the text.

2. Choose the page layout tab.

3. Type **1"** in the indent left field or use the up or down arrows to set the field value to 1".

4. Type **1"** in the indent right field or use the up or down arrows to set the field value to 1". Paragraph is now indented one inch from both the left and right margins.

Align paragraphs

Right-align
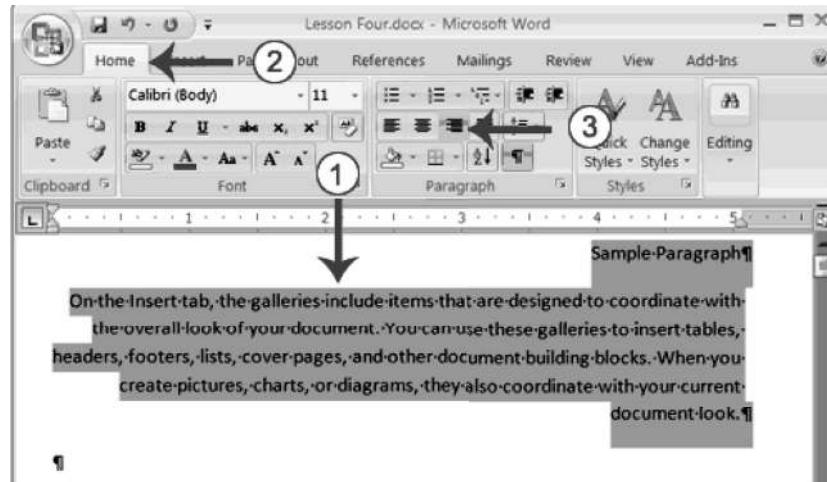
1. Select the paragraphs.
2. Choose the Home tab.
3. Click the Align-right button ▤ in the paragraph group. Word right-aligns paragraphs.

Left-align

1. Select the paragraphs.
2. Choose the Home tab.
3. Click the Align-left button ▤ in the Paragraph group. Word left-aligns paragraph.

Center

1. Select the paragraphs.
2. Choose the Home tab.
3. Click the Center button ▤ in the Paragraph group. Word centers paragraph.

Justify

1. Select the paragraphs.
2. Choose the Home tab.
3. Click the Justify button ▤ in the paragraph group. Word justifies paragraph.

Alternate method—Right-justify with keys

1. Select the paragraphs.
2. Press Ctrl+r. The paragraph is now right-aligned.

Alternate method—Left-justify with keys

1. Select the paragraphs.
2. Press Ctrl+l. The paragraph is now left-aligned.

Alternate method—Center with keys

1. Select the paragraphs.

2. Press Ctrl+e. The paragraph is now centered.

Alternate method—Justify with keys

1. Select the paragraphs you created.

2. Press Ctrl+j. The paragraph is now justified.

Create a hanging indent
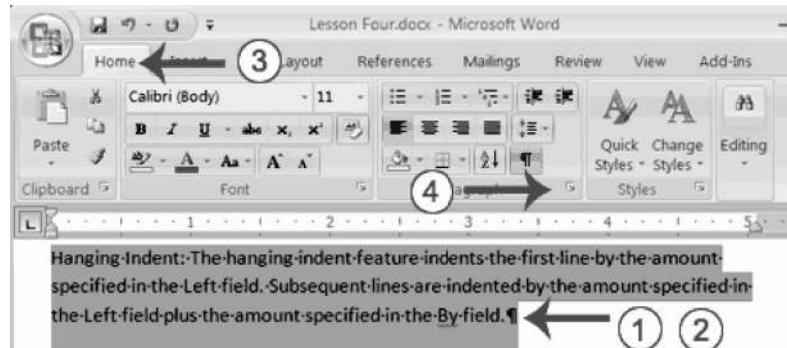
1. Type the following :
   Hanging Indent: The hanging indent feature indents the first line by the amount specified in the Left field. Subsequent lines are indented by the amount specified in the Left field plus the amount specified in the By field.

2. Select the paragraph just typed.

3. Choose the Home tab.

4. Click the launcher in the paragraph group. The Paragraph dialog box appears.

5. Choose the Indents and spacing tab.

6. In the special field, click to open the pull-down menu.

7. Click Hanging.

8. In the By box, type **2"**.

9. Click OK.

10. Place the cursor after the colon following "Hanging Indent."

11. Press the Tab key. Notice that the indentation changes.
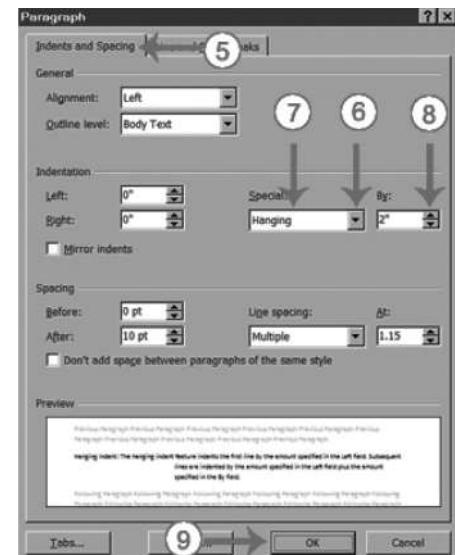
Choose a style set

1. Choose the Home tab.

2. Click change styles in the styles group. A menu appears.

3. Click style set. A menu appears. One can choose from any of the styles listed on the menu.

4. Click Simple. Word 2007 reformats all of the paragraphs into the simple style by applying the normal format to each paragraph.
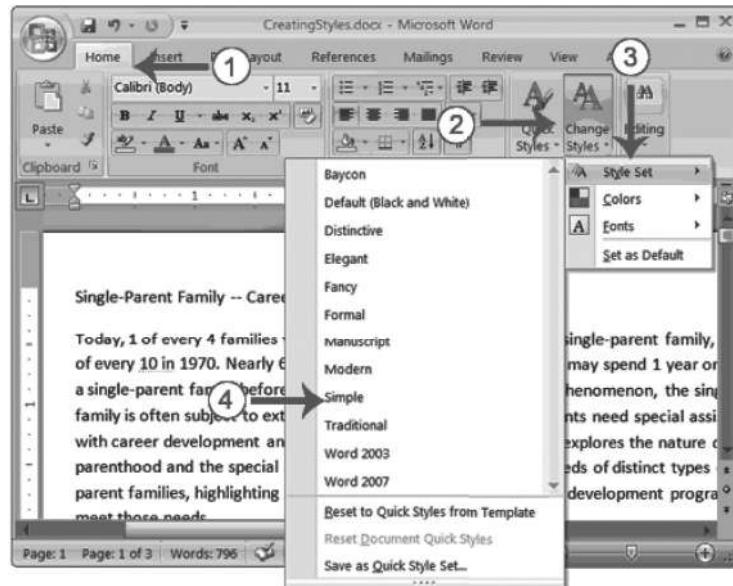
Apply a style
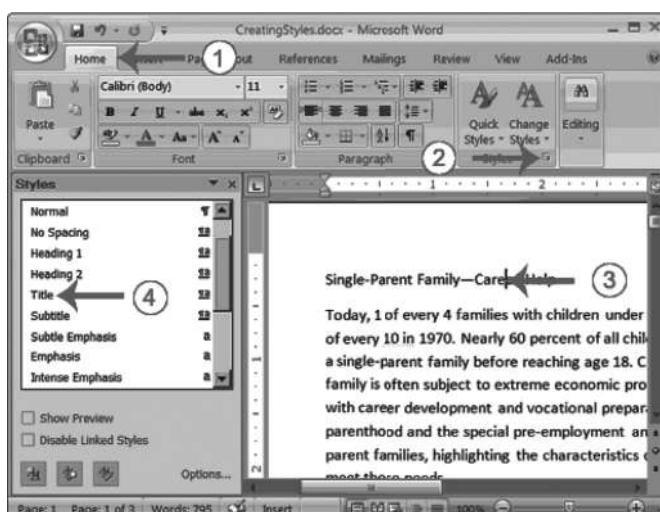
1. Choose the Home tab.

2. Click the launcher in the styles group. The styles pane appears. One can drag it to the side of the Word window to dock it. To close the styles pane, click the Close button ☒ in the upper right corner of the pane .

3. Click anywhere in the paragraph.

4. Click Title in the styles pane. Word 2007 applies the Title style to the paragraph.

Headings and subheadings mark major topics within document. With Word 2007, One can easily format the headings and subheadings in document.

Apply headings

1. Click anywhere in the paragraph.

2. In the Style box, click Heading 1. Word reformats the paragraph.

Apply subheadings

1. Click anywhere in the paragraph.

2. In the Style box, click Heading 2. Word reformats the paragraph.

Alternate method -- Apply styles with the ribbon

1. Select the paragraphs.

2. Click the More button in the styles group.

3. Locate and click the List Paragraph style. Word applies the List Paragraph style to the paragraphs selected.

Adding bullets and numbers, undoing and redoing, setting page layouts and printing documents

Bullets
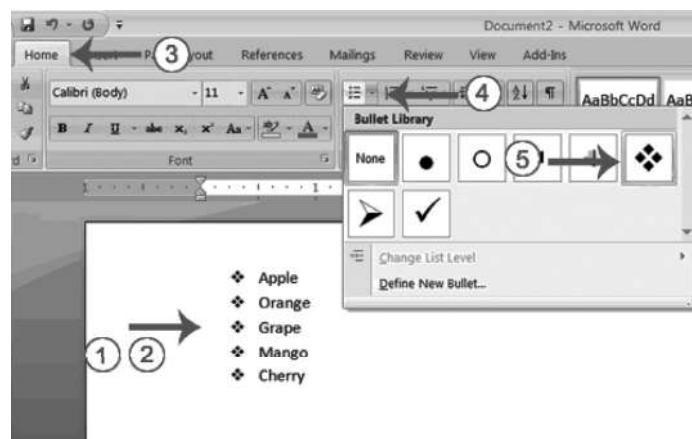
1. Type the following list as shown :

   Apple

   Orange

   Grape

   Mango

   Cherry

2. Select the words just typed.

3. Choose the Home tab.

4. In the paragraph group, click the down arrow next to the Bullets button. The Bullet Library appears.

5. Click to select the type of bullet one wants to use. Word adds bullets to list.

   Note : As one move cursor over the various bullet styles, Word displays the bullet style onscreen.

To remove the bulleting :

1. Select the list again.

2. Choose the Home tab.

3. In the paragraph group, click the down arrow next to the Bullets icon. The Bullet dialog box appears.

4. Click None. Word removes the bullets from list.

Numbers
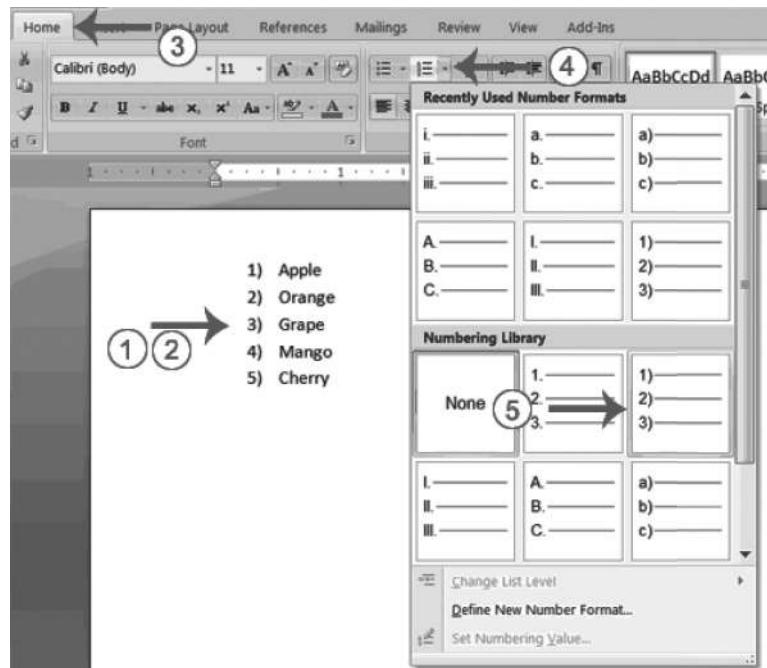
1. Type the following list as shown:

    Apple

    Orange

    Grape

    Mango

    Cherry

2. Select the words you just typed.

3. Choose the Home tab.

4. In the paragraph group, click the down arrow next to the Numbering button. The Numbering library appears.

5. Click to select the type of numbering you want to use. Word numbers list.

    Note: As one moves cursor over the various number styles, Word displays the number style onscreen.

To remove the numbering :

1. Select the list again.

2. Choose the Home tab.

3. In the Paragraph group, click the down arrow next yo the Numbering icon. The Number dialog box appears.

4. Click None. Word removes the numbering from list.

Undo and Redo

Undo and Redo
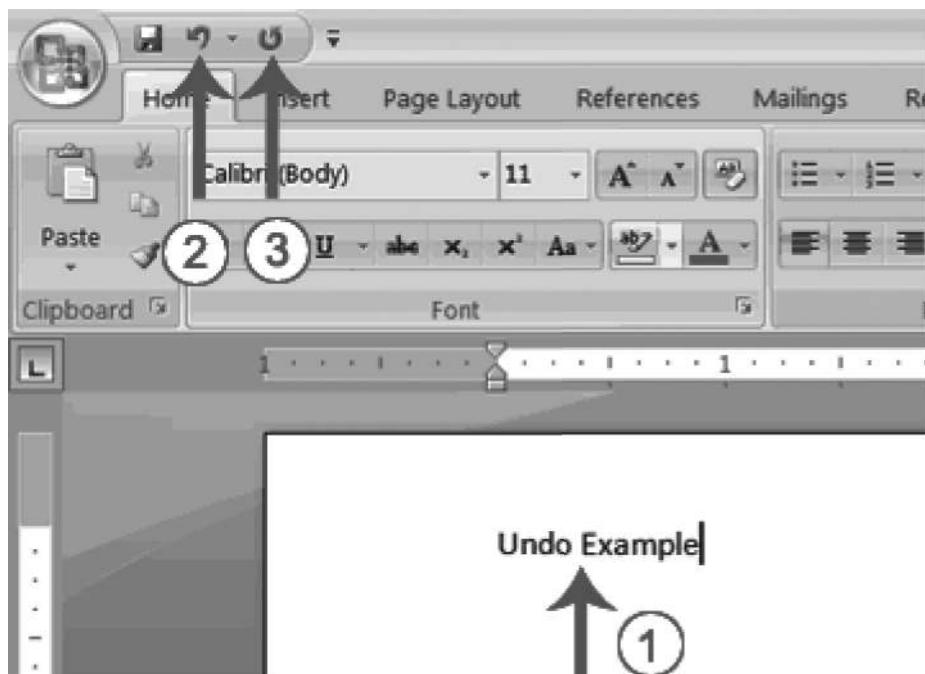
1. Type **Undo example**.

2. Click the Undo button on the Quick Access menu. The typing disappears.

3. Click the Redo button on the Quick Access menu. The typing reappears.

4. Select "Undo example."

5. Press Ctrl+b to bold. Word bolds the text.

6. Press Ctrl+i. Word italicizes the text.

7. Press Ctrl+u Word underlines the text.

8. Click the down arrow next to the Undo icon. To undo the underline, click Underline; to undo the underline and italic, click Underline Italic; to undo the underline, italic, and bold click Bold etc.

9. To redo, click the Redo icon several times.

Alternate Method -- Undo & Redo by using keys

1. Type **Undo example**.

2. Press Ctrl+z. The typing disappears.

3. Press Ctrl+y. The typing reappears.

4. Select "Undo example."

5. Press Ctrl+u to underline.

6. Press Ctrl+z. The underline is removed.

7. Press Ctrl+y. The underline reappears.

Set the orientation
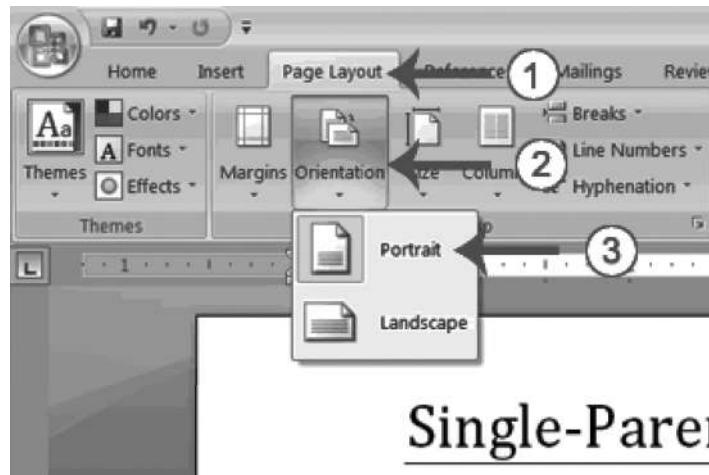
1. Choose the page layout tab.

2. Click Orientation in the page setup group. A menu appears.

3. Click Portrait. Word sets your page orientation to Portrait.
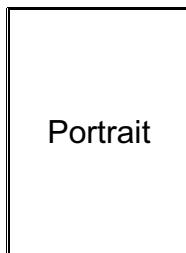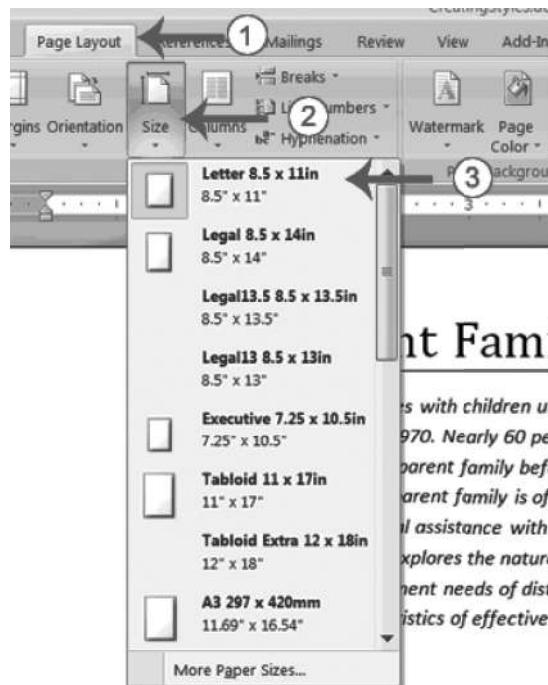
Portrait

Landscape

Set the page size

1. Choose the Page Layout tab.

2. Click Size in the Page Setup group. A menu appears.

3. Click Letter 8.5 x 11in. Word sets your page size.

Set the margins
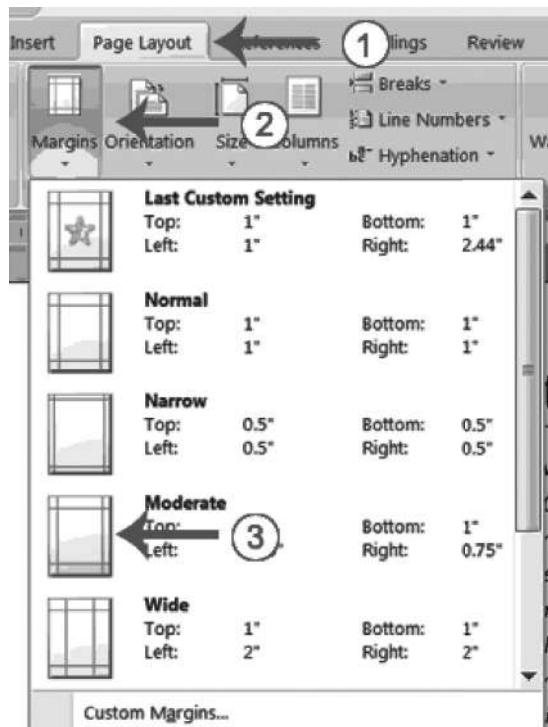
1. Choose the page layout tab.

2. Click Margins in the Page Setup group. A menu appears.

3. Click Moderate. Word sets margins to the moderate settings.

Add page numbers
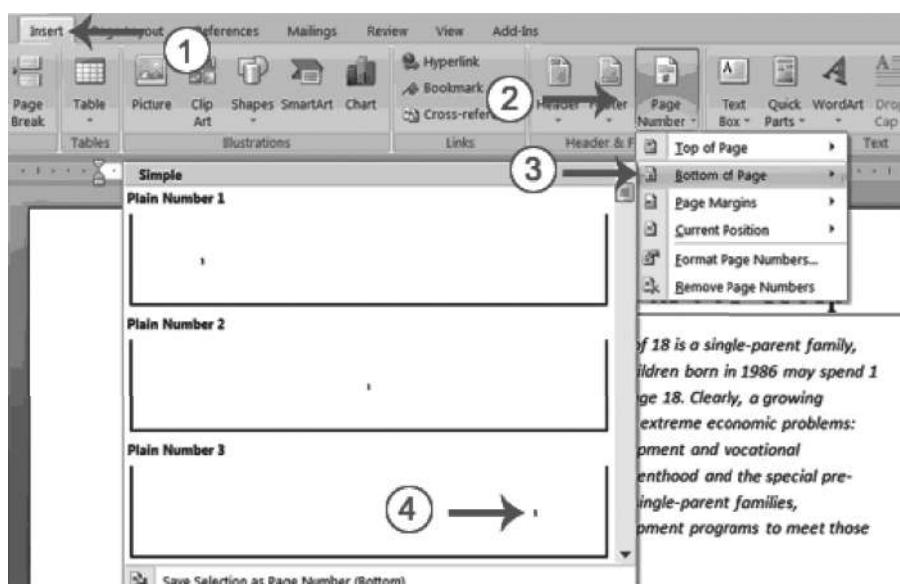
1. Choose the Insert tab.

2. Click the Page Number button in the Header & Footer group. A menu appears.

3. Click Bottom of Page.

4. Click the right-side option.

    Note: One can select styles.

Insert page breaks
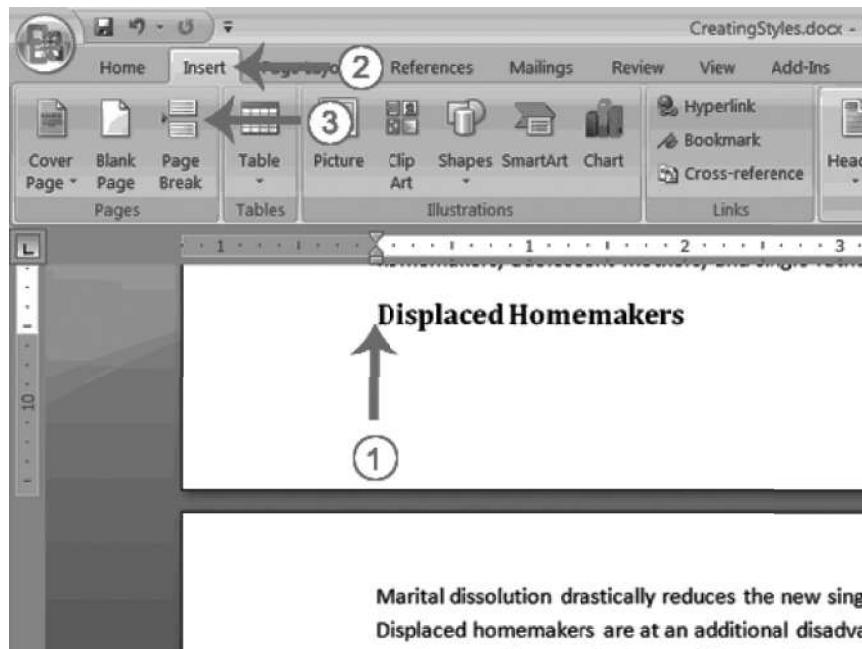
1. Place your cursor before the D in "Displaced Homemakers"

2. Choose the Insert tab.

3. Click Page Break. Word places a page break in your document.

Preview and Print Documents

### Print Preview

1. Click the Microsoft Office button. A menu appears.

2. Highlight the Print option. The Preview and Print the Document menu appears.

3. Click Print Preview. The Preview window appears, with your document in the window.

4. Click One Page to view one page at a time. Click Two Pages to view two pages at a time.

5. To view your document in normal size, click 100%.

6. Click the Zoom Button. The Zoom dialog box appears.

7. Select an option and then click OK. Perform this task for each option and note the results.
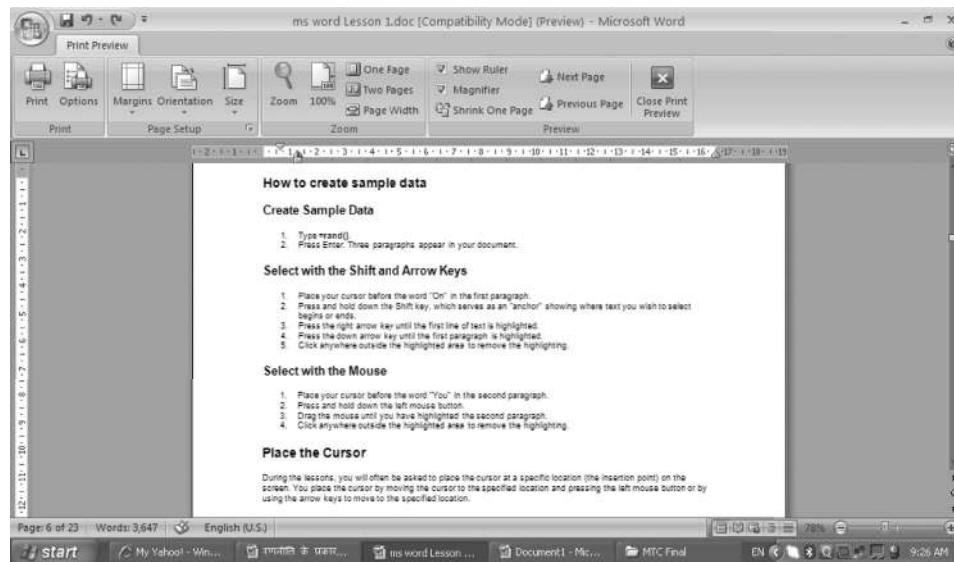
Print

1. Click the Print button. The Print dialog box appears.

2. Click the down arrow next to the Name field and select the printer to which you want to print.

3. Choose All as the page range.

4. Click OK. Word prints your document.
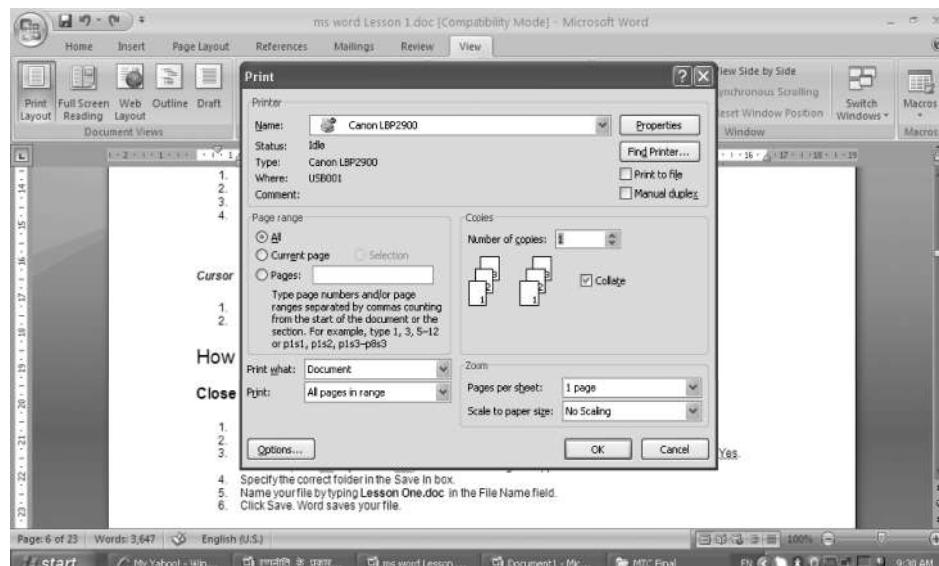
Lesson-03

Exercise on MS-Excel with special reference to MS-Office Excel 2007

Microsoft Excel Window

Microsoft Excel is an electronic spreadsheet. It can be used to organize data into rows and columns and perform mathematical calculations quickly.
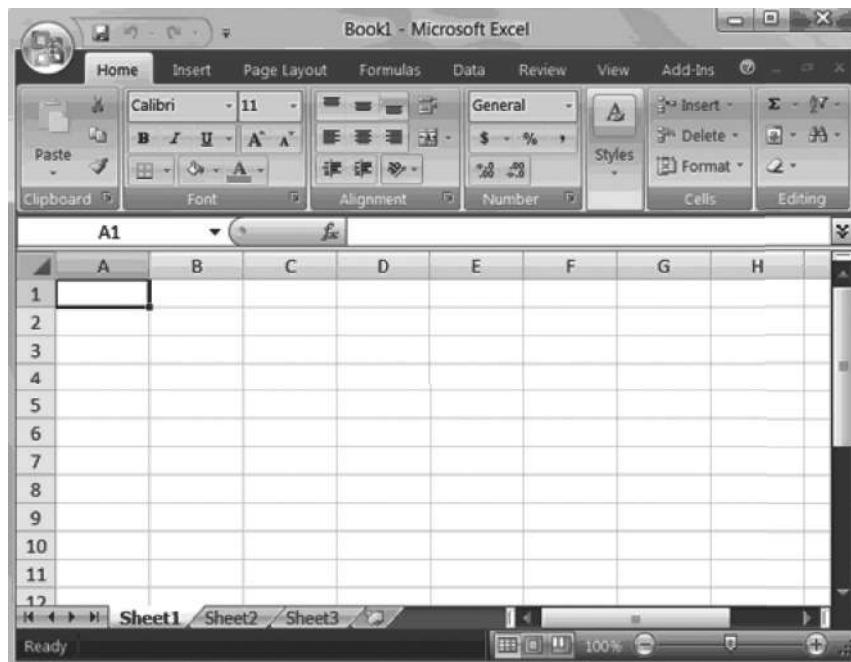
Microsoft Office button

In the upper-left corner of the MS-Excel 2007 window is the Microsoft Office button. When one clicks the button, a menu appears. one can use the menu to create a new file, open an existing file, save a file, and perform many other tasks.

Quick access toolbar

Next to the Microsoft Office button is the Quick Access toolbar. The quick access toolbar gives access to commands one frequently use. By default, Save, Undo, and Redo appear on the quick access toolbar. One can use Save to save file, Undo to roll back an action and Redo to reapply an action you have rolled back.

Title bar

Next to the Quick Access toolbar is the Title bar. On the Title bar, Microsoft Excel displays the name of the workbook you are currently using.

Ribbon
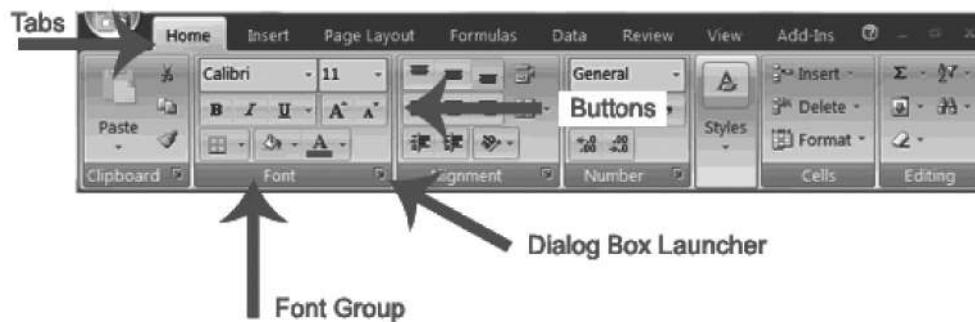
Worksheets
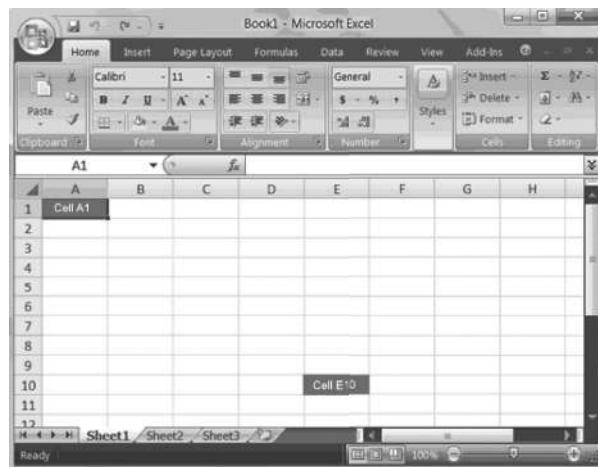
The Formula bar

Formula Bar

1.   Choose the View tab.

2.   Click formula bar in the Show/Hide group, the formula bar appears.

Status bar
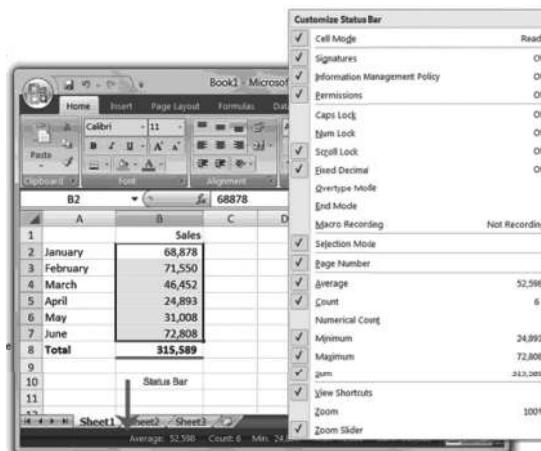
Move around the worksheet

Down arrow key

• Press the down arrow key several times. Note that the cursor moves downward one cell at a time.

Up arrow key

• Press the up arrow key several times. Note that the cursor moves upward one cell at a time.

Tab key

1. Move to cell A1.

2. Press the Tab key several times. Note that the cursor moves to the right one cell at a time.

Shift+Tab keys

• Hold down the Shift key and then press Tab. Note that the cursor moves to the left one cell at a time.

Right and left arrow keys

1. Press the right arrow key several times. Note that the cursor moves to the right.

2. Press the left arrow key several times. Note that the cursor moves to the left.

Page up and page down

1. Press the page down key. Note that the cursor moves down one page.

2. Press the page up key. Note that the cursor moves up one page.

The Ctrl-Home key

1. Move the cursor to column J.

2. Stay in column A and move the cursor to row 20.

3. Hold down the Ctrl key while you press the Home key. Excel moves to cell A1.

Go to -- F5

1. Press F5. The Go to dialog box opens.

2. Type **J3** in the Reference field.

3. Press Enter. Excel moves to cell J3.

Go to -- Ctrl+G

One can also use Ctrl+G to go to a specific cell.

1. Hold down the Ctrl key while you press "g" (Ctrl+g). The Go To dialog box opens.

2. Type **C4** in the Reference field.

3. Press Enter. Excel moves to cell C4.

The Name Box
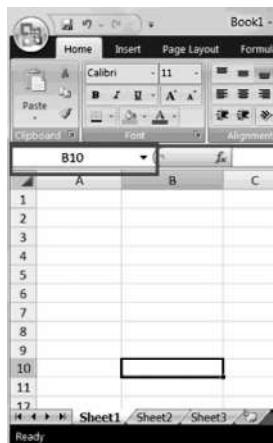
1. Type **B10** in the Name box.

2. Press Enter. Excel moves to cell B10.

Select Cells

To select cells A1 to E1:

1. Go to cell A1.

2. Press the F8 key. This anchors the cursor.

3. Note that "Extend Selection" appears on the status bar in the lower-left corner of the window. You are in the Extend mode.

4. Click in cell E7. Excel highlights cells A1 to E7.

5. Press Esc and click anywhere on the worksheet to clear the highlighting.
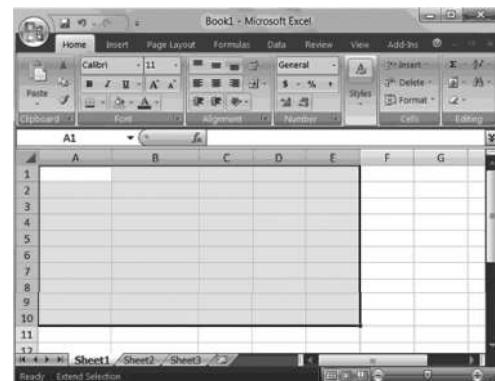
Alternative method: Select cells by dragging
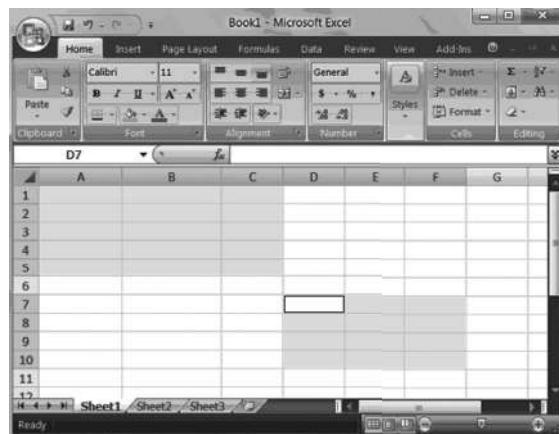
1. Go to cell A1.

2. Hold down the Ctrl key. You won't release it until step 9. Holding down the Ctrl key enables you to select noncontiguous areas of the worksheet.

3. Press the left mouse button.

4. While holding down the left mouse button, use the mouse to move from cell A1 to C5.

5. Continue to hold down the Ctrl key, but release the left mouse button.

6. Using the mouse, place the cursor in cell D7.

7. Press the left mouse button.

8. While holding down the left mouse button, move to cell F10. Release the left mouse button.

9. Release the Ctrl key. Cells A1 to C5 and cells D7 to F10 are selected.

10. Press Esc and click anywhere on the worksheet to remove the highlighting.

Enter data
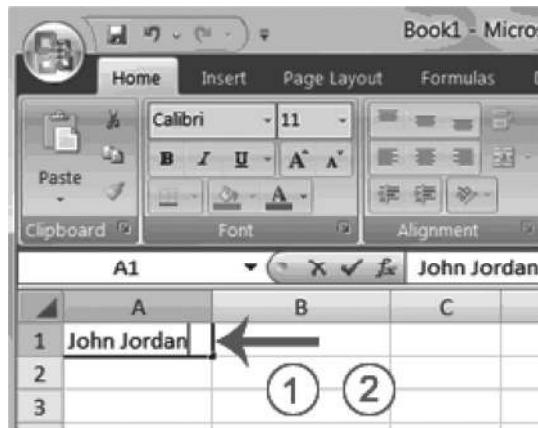
1. Place the cursor in cell A1.

2. Type **John Jordan**. Do not press Enter at this time.
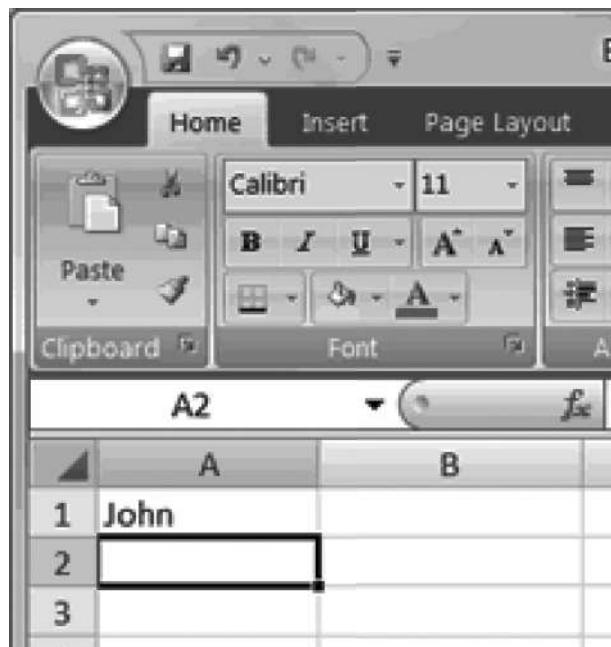
Delete data

The Backspace key erases one character at a time.

1. Press the Backspace key until Jordan is erased.

2. Press Enter. The name "John" appears in cell A1.

Edit a cell

After you enter data into a cell, you can edit the data by pressing F2 while you are in the cell you wish to edit.
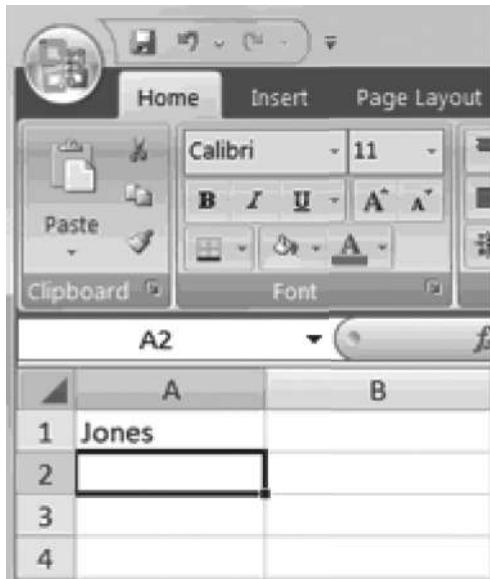
1. Move to cell A1.
2. Press F2.
3. Use the Backspace key to delete the "n" and the "h."
4. Type **nes**.
5. Press Enter.

Alternate method: Editing a cell by using the formula bar

You can also edit the cell by using the formula bar. You change "Jones" to "Joker" in the following exercise.
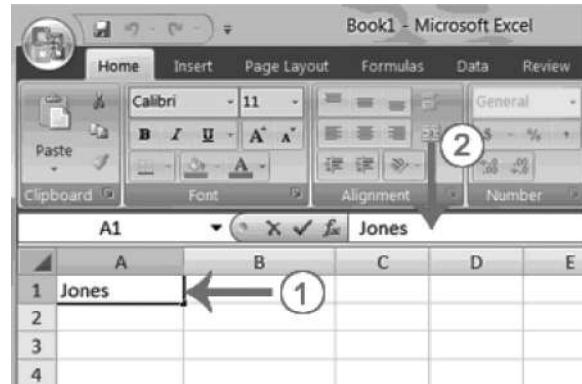
1. Move the cursor to cell A1.
2. Click in the formula area of the Formula bar.
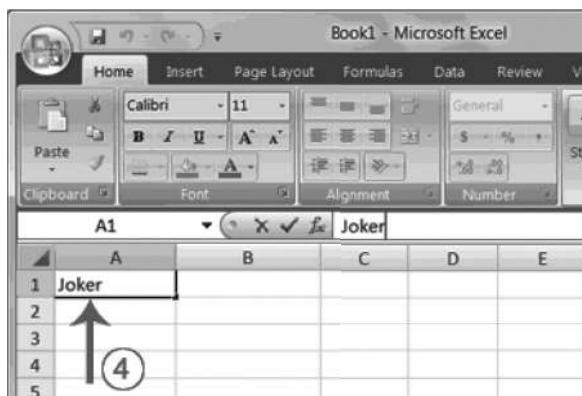
1. Use the backspace key to erase the "s," "e," and "n."
2. Type **ker**.
3. Press Enter.

Alternate method: Edit a cell by double-clicking in the cell

1. Move to cell A1.

2. Double-click in cell A1.

3. Press the End key. Your cursor is now at the end of your text.
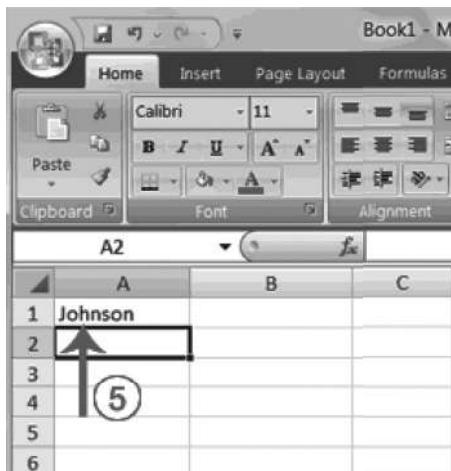
1. Use the backspace key to erase "r," "e," and "k."

2. Type **hnson**.

3. Press Enter.

Change a cell entry

Typing in a cell replaces the old cell entry with the new information you type.
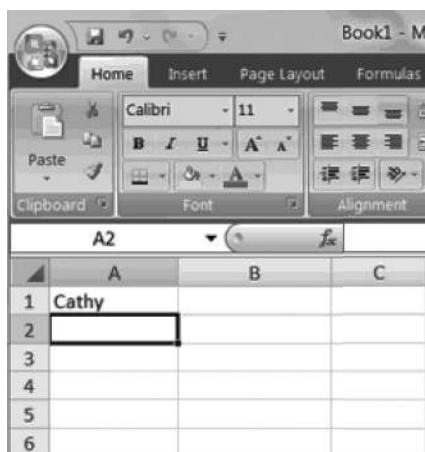
1. Move the cursor to cell A1.

2. Type **Cathy**.

3. Press Enter. The name "Cathy" replaces "Johnson."

Wrap text

1. Move to cell A2.

2. Type Text too long to fit.

3. Press Enter.

4. Return to cell A2.

5. Choose the Home tab.

6. Click the Wrap Text button 📋 . Excel wraps the text in the cell.

Delete a cell entry

1. Select cells A1 to A2.

2. Press the Delete key.

Save a file

1. Click the Office button. A menu appears.

2. Click Save. The Save As dialog box appears.

3. Go to the directory in which you want to save your file.

4. Type file name field.

5. Click Save. Excel saves file.

Close Excel

Close Microsoft Excel.

1. Click the Office button. A menu appears.

2. Click Close. Excel closes.

Entering Excel formula and formatting data

Set the enter key direction

1. Click the Microsoft Office button. A menu appears.
2. Click Excel options in the lower-right corner. The Excel options pane appears.
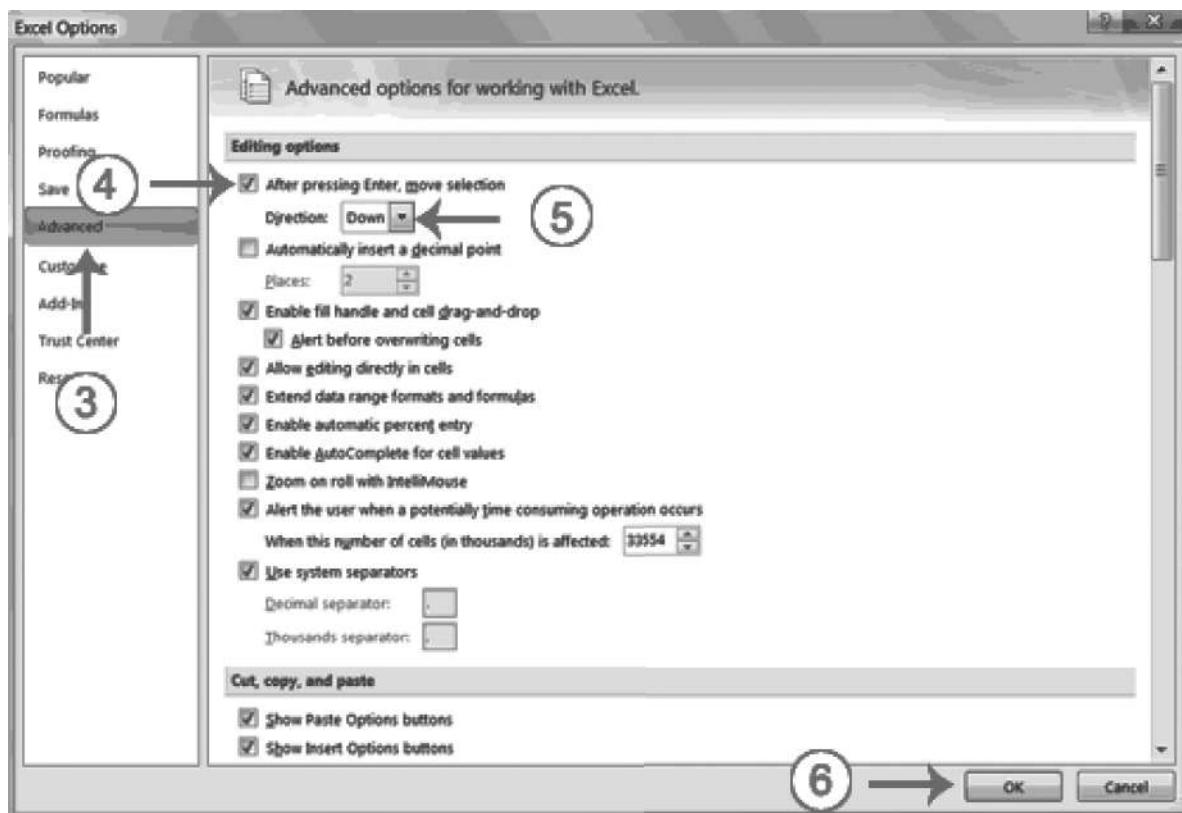
3. Click advanced.

4. If the check box next to After Pressing Enter Move Selection is not checked, click the box to check it.

5. If Down does not appear in the Direction box, click the down arrow next to the Direction box and then click Down.

6. Click OK. Excel sets the Enter direction to down.

Perform mathematical calculations

Addition
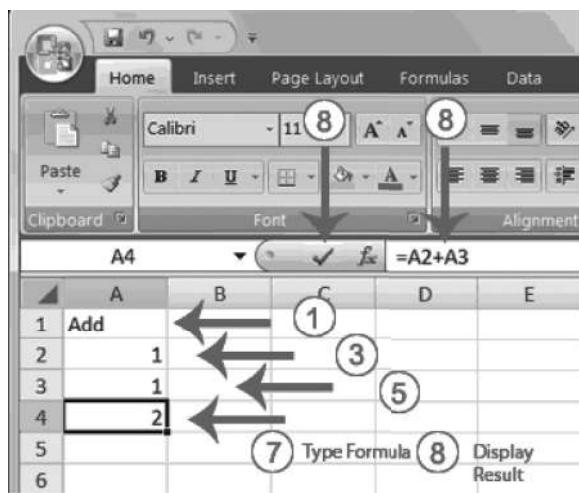
1. Type **Add** in cell A1.
2. Press Enter. Excel moves down one cell.
3. Type **1** in cell A2.
4. Press Enter. Excel moves down one cell.
5. Type **1** in cell A3.
6. Press Enter. Excel moves down one cell.
7. Type **=A2+A3** in cell A4.
8. Click the check mark on the Formula bar. Excel adds cell A1 to cell A2 and displays the result in cell A4. The formula displays on the Formula bar.

Note: Clicking the check mark on the Formula bar is similar to pressing Enter. Excel records your entry but does not move to the next cell.

Subtraction
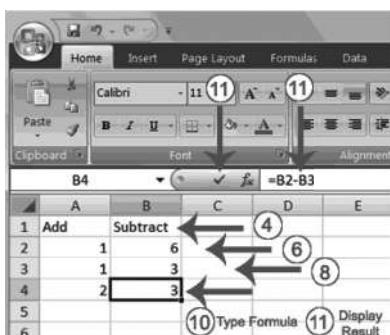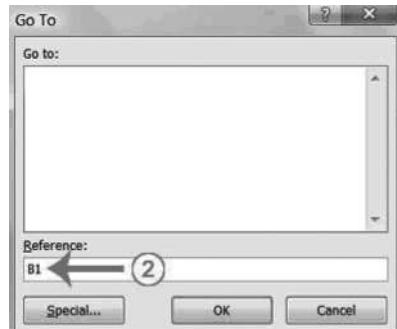
1. Press F5. The Go To dialog box appears.
2. Type **B1** in the Reference field.
3. Press Enter. Excel moves to cell B1.
4. Type **Subtract**.
5. Press Enter. Excel moves down one cell.
6. Type **6** in cell B2.
7. Press Enter. Excel moves down one cell.
8. Type **3** in cell B3.
9. Press Enter. Excel moves down one cell.
10. Type **=B2-B3** in cell B4.
11. Click the check mark on the formula bar. Excel subtracts cell B3 from cell B2 and the result displays in cell B4. The formula displays on the formula bar.

Multiplication

1. Hold down the Ctrl key while you press "g" (Ctrl+g). The Go To dialog box appears.
2. Type **C1** in the Reference field.
3. Press Enter. Excel moves to cell C1

4.   Type **Multiply**.

5.   Press Enter. Excel moves down one cell.

6.   Type **2** in cell C2.

7.   Press Enter. Excel moves down one cell.

8.   Type **3** in cell C3.

9.   Press Enter. Excel moves down one cell.

10. Type **=C2*C3** in cell C4.

11. Click the check mark on the formula bar. Excel multiplies C1 by cell C2 and displays the result in cell C3. The formula displays on the Formula bar.

Division

1.   Press F5.

2.   Type **D1** in the Reference field.

3.   Press Enter. Excel moves to cell D1.

4.   Type **Divide**.

5.   Press Enter. Excel moves down one cell.

6.   Type **6** in cell D2.

7.   Press Enter. Excel moves down one cell.

8.   Type **3** in cell D3.

9.   Press Enter. Excel moves down one cell.

10. Type **=D2/D3** in cell D4.

11. Click the check mark on the Formula bar. Excel divides cell D2 by cell D3 and displays the result in cell D4. The formula displays on the Formula bar.

When creating formula, one can reference cells and include numbers. All of the following formula are valid:

=A2/B2

=A1+12-B3

=A2*B2+12

=24+53

AutoSum

You can use the AutoSum button Σ on the Home tab to automatically add a column or row of numbers. When you press the AutoSum button Σ, Excel selects the numbers it thinks you want to add. If you then click the check mark on the formula bar or press the Enter key, Excel adds the numbers. If Excel's guess as to which numbers you want to add is wrong, you can select the cells you want.

The following illustrates AutoSum:
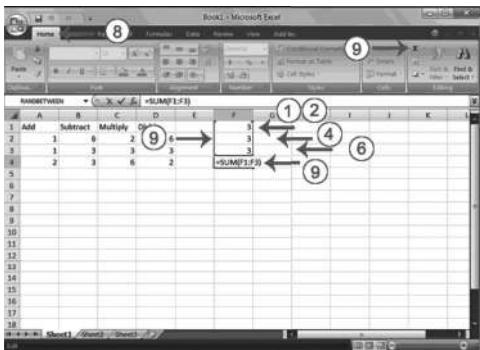
1. Go to cell F1.
2. Type **3.**
3. Press Enter. Excel moves down one cell.
4. Type **3**.
5. Press Enter. Excel moves down one cell.
6. Type **3**.
7. Press Enter. Excel moves down one cell to cell F4.
8. Choose the Home tab.
9. Click the AutoSum button **Σ** in the Editing group. Excel selects cells F1 through F3 and enters a formula in cell F4.
10. Press Enter. Excel adds cells F1 through F3 and displays the result in cell F4.

E	F	G
	3	
	3	
	3	
	9	

Automatic calculations
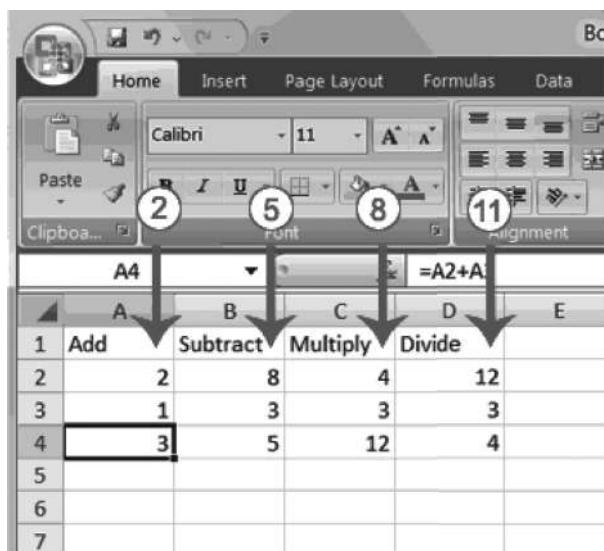
1. Move to cell A2.
2. Type **2**.
3. Press the right arrow key. Excel changes the result in cell A4. Excel adds cell A2 to cell A3 and the new result appears in cell A4.
4. Move to cell B2.
5. Type **8**.
6. Press the right arrow key. Excel subtracts cell B3 from cell B3 and the new result appears in cell B4.
7. Move to cell C2.
8. Type **4**.
9. Press the right arrow key. Excel multiplies cell C2 by cell C3 and the new result appears in cell C4.
10. Move to cell D2.
11. Type **12**.
12. Press the Enter key. Excel divides cell D2 by cell D3 and the new result appears in cell D4.

Align cell entries

When you type text into a cell, by default your entry aligns with the left side of the cell. When you type numbers into a cell, by default your entry aligns with the right side of the cell. You can change the cell alignment. You can center, left-align, or right-align any cell entry. Look at cells A1 to D1. Note that they are aligned with the left side of the cell.

◢	A	B	C	D
1	Add	Subtract	Multiply	Divide
2	2	8	4	12

Center

To center cells A1 to D1:
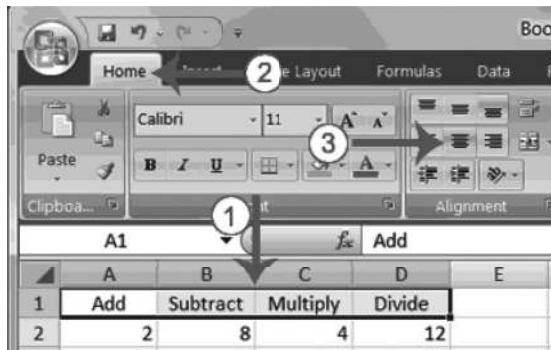
1. Select cells A1 to D1.
2. Choose the Home tab.
3. Click the Center button ▤ in the Alignment group. Excel centers each cell's content.

Left-align

To left-align cells A1 to D1:
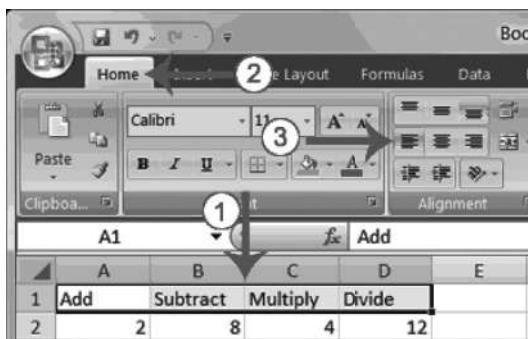
1. Select cells A1 to D1.
2. Choose the Home tab.
3. Click the Align Text Left ▤ button in the Alignment group. Excel left-aligns each cell's content.

Right-align

To right-align cells A1 to D1:
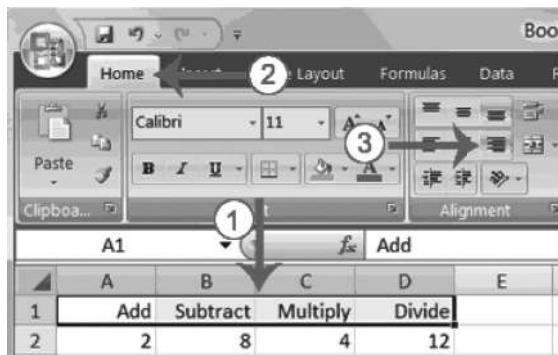
1. Select cells A1 to D1. Click in cell A1.
2. Choose the Home tab.
3. Click the Align Text Right ▤ button. Excel right-aligns the cell's content.
4. Click anywhere on your worksheet to clear the highlighting.

Note: You can also change the alignment of cells with numbers in them by using the alignment buttons.

Advanced mathematical calculations

When you perform mathematical calculations in Excel, be careful of precedence. Calculations are performed from left to right, with multiplication and division performed before addition and subtraction.

1. Move to cell A7.

2. Type **=3+3+12/2*4**.

3. Press Enter.

Note: Microsoft Excel divides 12 by 2, multiplies the answer by 4, adds 3, and then adds another 3. The answer, 30, displays in cell A7.

To change the order of calculation, use parentheses. Microsoft Excel calculates the information in parentheses first.

1. Double-click in cell A7.

2. Edit the cell to read **=(3+3+12)/2*4**.

3. Press Enter.

Note: Microsoft Excel adds 3 plus 3 plus 12, divides the answer by 2, and then multiplies the result by 4. The answer, 36, displays in cell A7.

Copy, cut, paste, and cell addressing

1. Move to cell A9.

2. Type **1**. Press Enter. Excel moves down one cell.

3. Type **1**. Press Enter. Excel moves down one cell.

4. Type **1**. Press Enter. Excel moves down one cell.

5. Move to cell B9.

6. Type **2**. Press Enter. Excel moves down one cell.

7. Type **2**. Press Enter. Excel moves down one cell.

8. Type **2**. Press Enter. Excel moves down one cell.

In addition to typing a formula, one can also enter formulas by using Point mode. When you are in Point mode, you can enter a formula either by clicking on a cell or by using the arrow keys.

1. Move to cell A12.

2. Type **=**.

3. Use the up arrow key to move to cell A9.

4. Type **+**.

5. Use the up arrow key to move to cell A10.

6. Type **+**.

7. Use the up arrow key to move to cell A11.

8. Click the check mark on the formula bar. Look at the Formula bar. Note that the formula you entered is displayed there.

Insert and delete columns and rows

To delete columns F and G:
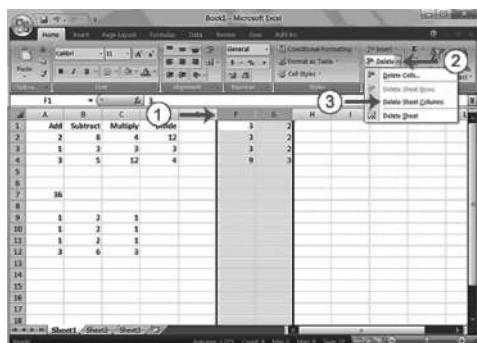
1. Click the column F indicator and drag to column G.

2. Click the down arrow next to Delete in the cells group. A menu appears.

3. Click Delete Sheet Columns. Excel deletes the columns you selected.

4. Click anywhere on the worksheet to remove your selection.

To delete rows 7 through 12:
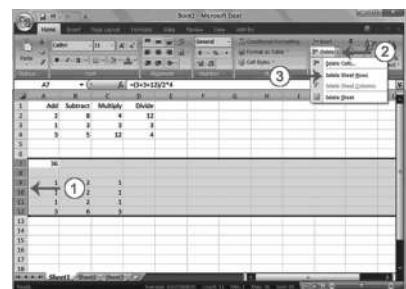
1. Click the row 7 indicator and drag to row 12.

2. Click the down arrow next to Delete in the Cells group. A menu appears.

3. Click Delete Sheet Rows. Excel deletes the rows you selected.

4. Click anywhere on the worksheet to remove your selection.

To insert a column :

1. Click on A to select column A.

2. Click the down arrow next to Insert in the Cells group. A menu appears.

3. Click Insert Sheet Columns. Excel inserts a new column.

4. Click anywhere on the worksheet to remove your selection.

To insert rows:

1. Click on 1 and then drag down to 2 to select rows 1 and 2.

2. Click the down arrow next to Insert in the cells group. A menu appears.

3. Click Insert Sheet Rows. Excel inserts two new rows.

4. Click anywhere on the worksheet to remove your selection.

Worksheet should look like the one shown here.

Create borders

1. Select cells B6 to E6.

2. Choose the Home tab.

3. Click the down arrow next to the borders button [icon]. A menu appears.

4. Click top and double bottom border. Excel adds the border you chose to the selected cells.
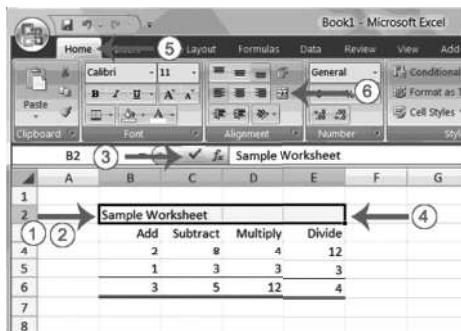
Merge and Center

1. Go to cell B2.
2. Type **Sample Worksheet**.
3. Click the check mark on the formula bar.
4. Select cells B2 to E2.
5. Choose the Home tab.
6. Click the Merge and Center button ⊞ ▾ in the Alignment group. Excel merges cells B2, C2, D2, and E2 and then centers the content.

Note: To unmerge cells:

1. Select the cell you want to unmerge.
2. Choose the Home tab.
3. Click the down arrow next to the Merge and Center button. ⊞ ▾ A menu appears.
4. Click Unmerge Cells. Excel unmerges the cells.

Add Background Color
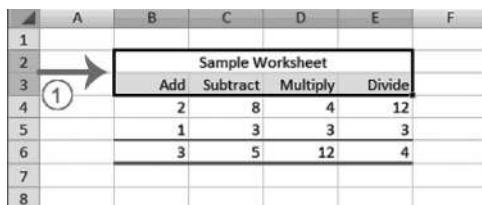
1. Select cells B2 to E3.
2. Choose the Home tab.
3. Click the down arrow next to the Fill Color button ⊠ ▾.
4. Click the color dark blue. Excel places a dark blue background in the cells you selected.
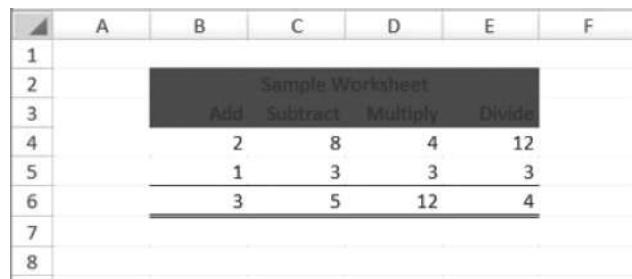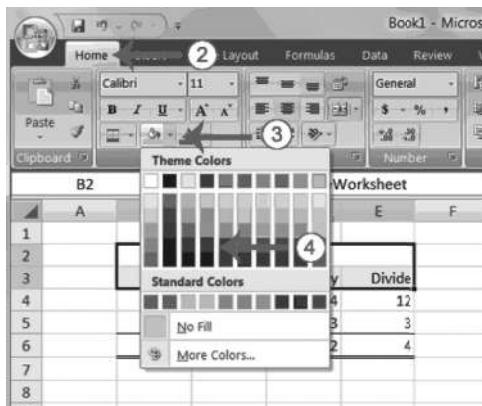
Change the font, font size, and font color

Change the font

1. Select cells B2 to E3.

2. Choose the Home tab.

3. Click the down arrow next to the font box. A list of fonts appears. As you scroll down the list of fonts, Excel provides a preview of the font in the cell you selected.

4. Find and click Times New Roman in the font box.

   Note: If Times New Roman is your default font, click another font. Excel changes the font in the selected cells.

Change the font size
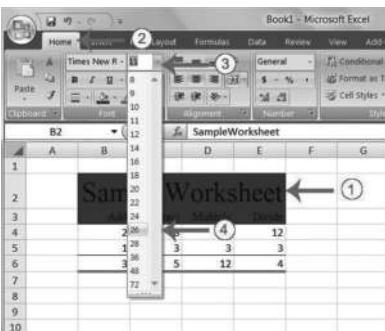
1. Select cell B2.

2. Choose the Home tab.

3. Click the down arrow next to the Font Size box. A list of font sizes appears. As you scroll up or down the list of font sizes, Excel provides a preview of the font size in the cell you selected.

4. Click 26. Excel changes the font size in cell B2 to 26.

Change the font color
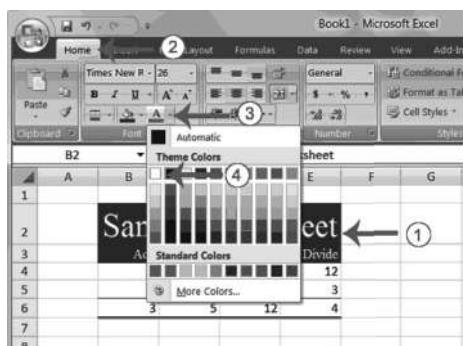
1. Select cells B2 to E3.

2. Choose the Home tab.

3. Click the down arrow next to the Font Color button.

4. Click on the color white. Your font color changes to white.

Your worksheet should look like the one shown here.

Move to a new worksheet

- Click Sheet2 in the lower-left corner of the screen. Excel moves to Sheet2.
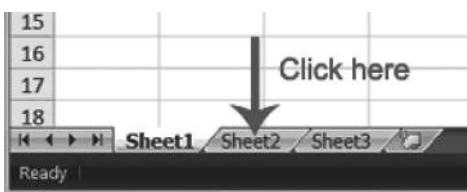
Bold, italicize, and underline

Bold with the ribbon
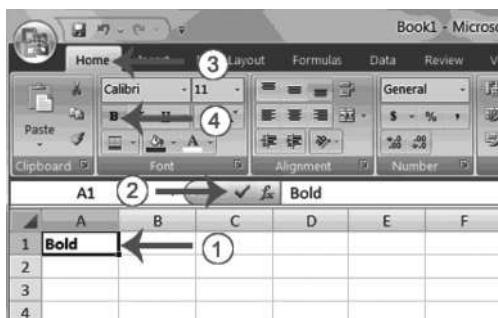
1. Type **Bold** in cell A1.
2. Click the check mark located on the formula bar.
3. Choose the Home tab.
4. Click the Bold button **B**. Excel bolds the contents of the cell.
5. Click the Bold button **B** again if you wish to remove the bold.

Italicize with the ribbon

1. Type **Italic** in cell B1.
2. Click the check mark located on the formula bar.
3. Choose the Home tab.
4. Click the Italic button *I*. Excel italicizes the contents of the cell.
5. Click the Italic button *I* again if you wish to remove the italic.
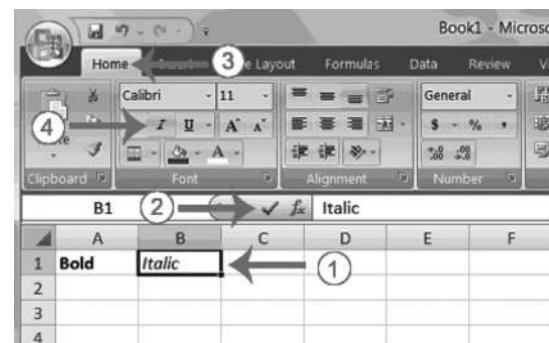
Underline with the ribbon

Microsoft Excel provides two types of underlines. The exercises that follow illustrate them.

Single Underline :
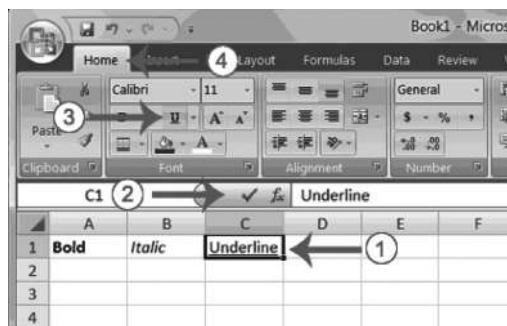
1. Type **Underline** in cell C1.
2. Click the check mark located on the formula bar.
3. Choose the Home tab.
4. Click the Underline button **U**. Excel underlines the contents of the cell.
5. Click the Underline button **U** again if you wish to remove the underline.

Double underline
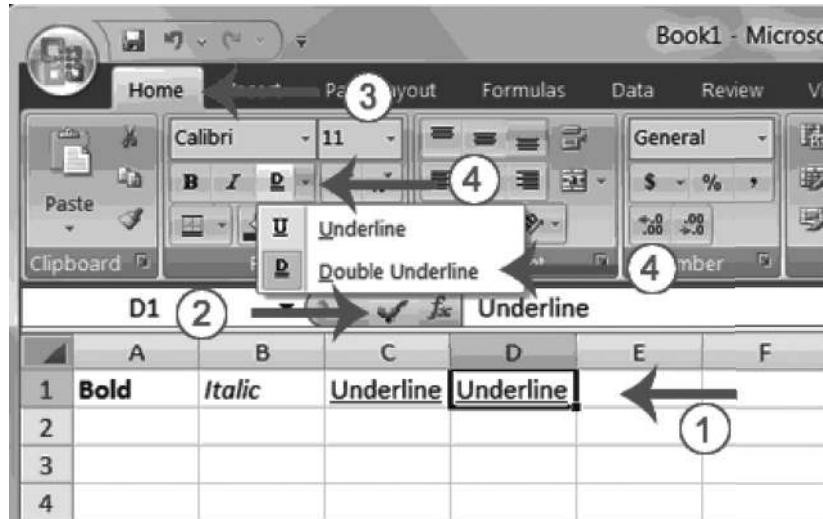
1.	Type **Underline** in cell D1.

2.	Click the check mark located on the formula bar.

3.	Choose the Home tab.

4.	Click the down arrow next to the Underline button and then click Double Underline. Excel double-underlines the contents of the cell. Note that the Underline button changes to the button shown here , a D with a double underline under it. Then next time you click the Underline button, you will get a double underline. If you want a single underline, click the down arrow next to the Double Underline button and then choose Underline.

5.	Click the double underline button again if you wish to remove the double underline.

Bold, underline, and italicize

1.	Type **All three** in cell E1.

2.	Click the check mark located on the formula bar.

3.	Choose the Home tab.

4.	Click the Bold button . Excel bolds the cell contents.

5.	Click the Italic button . Excel italicizes the cell contents.

6.	Click the Underline button . Excel underlines the cell contents.

Work with long text

1.	Move to cell A6.

2.	Type **village level workers are backbone of extension**.

3.	Press Enter. Everything that does not fit into cell A6 spills over into the adjacent cell.

4. Move to cell B6.

5. Type **Test**.

6. Press Enter. Excel cuts off the entry in cell A6.

7. Move to cell A6.

8. Look at the formula bar. The text is still in the cell.

Change a column's width
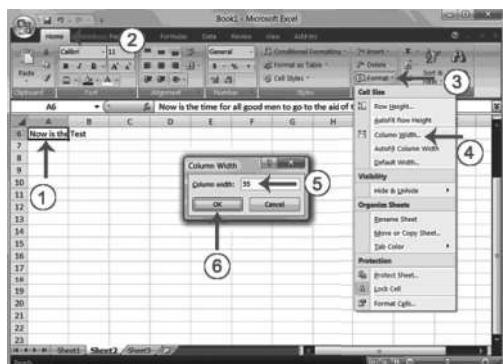
1. Make sure you are in any cell under column A.

2. Choose the Home tab.

3. Click the down arrow next to format in the cells group.

4. Click column width. The column width dialog box appears.

5. Type **55** in the column width field.

6. Click OK. Column A is set to a width of 55. You should now be able to see all of the text.

Change a column width by dragging

Column width can also be changed with the cursor.

1. Place the mouse pointer on the line between the B and C column headings. The mouse pointer should look like the one displayed here ![pointer], with two arrows.

2. Move mouse to the right while holding down the left mouse button. The width indicator ![Width: 20.00 (247 pixels)] appears on the screen.

3. Release the left mouse button when the width indicator shows approximately 20. Excel increases the column width to 20.

Format numbers

1. Move to cell B8.

2. Type **1234567**.

3. Click the check mark on the formula bar.
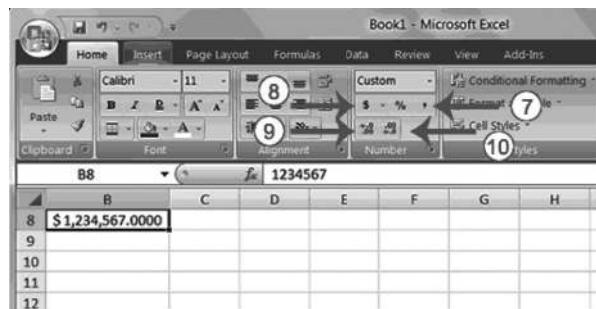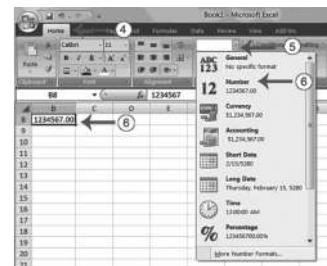
4. Choose the Home tab.

5. Click the down arrow next to the Number Format box. A menu appears.

6. Click Number. Excel adds two decimal places to the number you typed.

7. Click the Comma Style button ⟨ , ⟩. Excel separates thousands with a comma.

8. Click the Accounting Number Format button ⟨ $ ⟩. Excel adds a dollar sign to your number.

9. Click twice on the Increase Decimal button to change the number format to four decimal places.

10. Click the Decrease Decimal button if you wish to decrease the number of decimal places.

Change a decimal to a percent.
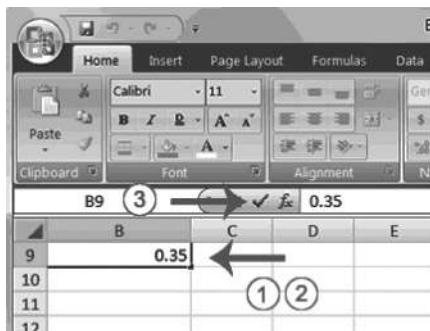
1. Move to cell B9.

2. Type **.35** (note the decimal point).

3. Click the check mark on the formula bar.

4. Choose the Home tab.

5. Click the Percent Style button ⟨ % ⟩. Excel turns the decimal to a percent.
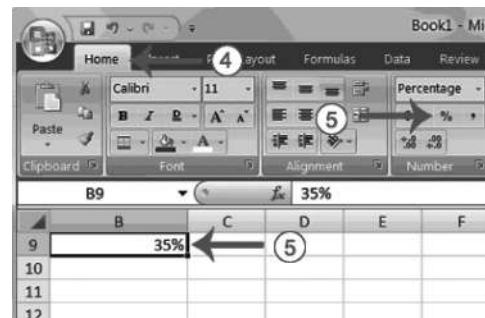
Creating Excel functions, filling cells, and printing

By using functions, you can quickly and easily make many useful calculations, such as finding an average, the highest number, the lowest number, and a count of the number of items in a list. Microsoft Excel has many functions that can be used.

Using reference operators

To use functions, you need to understand reference operators. Reference operators refer to a cell or a group of cells. There are two types of reference operators: *range* and *union*.

A range reference refers to all the cells between and including the reference. A range reference consists of two cell addresses separated by a colon. The reference A1:A3 includes cells A1, A2, and A3. The reference A1:C3 includes cells A1, A2, A3, B1, B2, B3, C1, C2 and C3.

A union reference includes two or more references. A union reference consists of two or more numbers, range references, or cell addresses separated by a comma. The reference A7,B8:B10,C9,10 refers to cells A7, B8 to B10, C9 and the number 10.

Understanding functions

Functions are prewritten formulae. Functions differ from regular formulae in that you supply the value but not the operators, such as +, -, *, or /. For example, you can use the SUM function to add. When using a function, remember the following:

Use an equal sign to begin a formula.

Specify the function name.

Enclose arguments within parentheses. Arguments are values on which you want to perform the calculation. For example, arguments specify the numbers or cells you want to add.

Use a comma to separate arguments.

Here is an example of a function:

=SUM(2,13,A1,B2:C7)

In this function:

The equal sign begins the function.

SUM is the name of the function.

2, 13, A1, and B2:C7 are the arguments.

Parentheses enclose the arguments.

Commas separate the arguments.

After you type the first letter of a function name, the AutoComplete list appears. You can double-click on an item in the AutoComplete list to complete your entry quickly. Excel will complete the function name and enter the first parenthesis.

Functions

The SUM function adds argument values.

1. Open Microsoft Excel.

2. Type **12** in cell B1.

3. Press Enter.

4. Type **27** in cell B2.

5. Press Enter.

6. Type **24** in cell B3.

7. Press Enter.

8. Type **=SUM(B1:B3)** in cell A4.

9. Press Enter. The sum of cells B1 to B3, which is 63, appears.

Alternate method: Enter a function with the ribbon
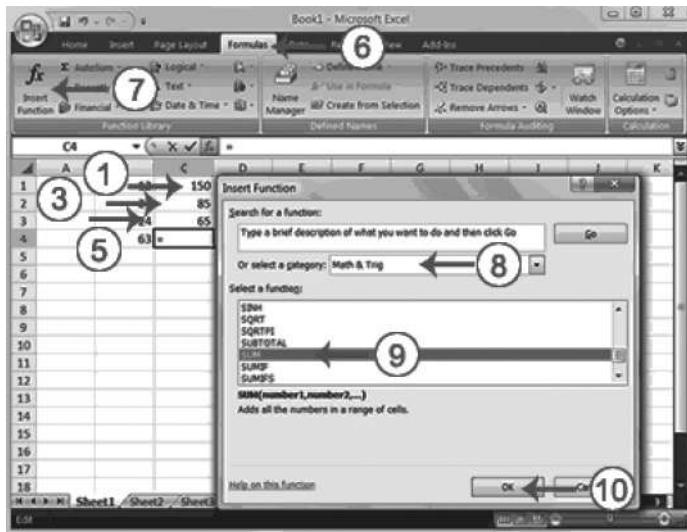
1. Type **150** in cell C1.

2. Press Enter.

3. Type **85** in cell C2.

4. Press Enter.

5. Type **65** in cell C3.

6. Choose the formulae tab.

7. Click the Insert Function button. The Insert Function dialog box appears.

8. Choose Math & Trig or select a category box.

9. Click Sum in the Select A Function box.

10. Click OK. The Function Arguments dialog box appears.

11. Type **C1:C3** in the Number1 field, if it does not automatically appear.

12. Click OK. The sum of cells C1 to C3, which is 300, appears.

Format worksheet

	A	B	C	D
1		12	150	
2		27	85	
3		24	65	
4	Sum	63	300	
5				
6				

1. Move to cell A4.

2. Type the word **Sum**.

3. Select cells B4 to C4.

4. Choose the Home tab.

5. Click the down arrow next to the Borders button.

6. Click Top and Double Bottom Border.

Calculate an average

You can use the AVERAGE function to calculate the average of a series of numbers.

1. Move to cell A6.

2. Type **Average**. Press the right arrow key to move to cell B6.

3. Type **=AVERAGE(B1:B3)**.

4. Press Enter. The average of cells B1 to B3, which is 21, appears.

Calculate an average with the AutoSum button

In Microsoft Excel, you can use the AutoSum button Σ to calculate an average.

1. Move to cell C6.

2. Choose the Home tab.

3. Click the down arrow next to the AutoSum button Σ .

4. Click Average.

5. Select cells C1 to C3.

6. Press Enter. The average of cells C1 to C3, which is 100, appears.

Find the lowest number

You can use the MIN function to find the lowest number in a series of numbers.

1. Move to cell A7.

2. Type **Min**.

3. Press the right arrow key to move to cell B7.

4. Type **= MIN(B1:B3)**.

5. Press Enter. The lowest number in the series, which is 12, appears.

Note: You can also use the drop-down button next to the AutoSum button Σ ▾ to calculate minimums, maximums, and counts.

Find the highest number

You can use the MAX function to find the highest number in a series of numbers.

1. Move to cell A8.

2. Type **Max**.

3. Press the right arrow key to move to cell B8.

4. Type **= MAX(B1:B3)**.

5. Press Enter. The highest number in the series, which is 27, appears.

.

Count the numbers in a series of numbers

One can use the count function to count the number in a series.

1. Move to cell A9.

2. Type **Count**.

3. Press the right arrow key to move to cell B9.

4. Choose the Home tab.

5. Click the down arrow next to the AutoSum button Σ ▾.

6. Click Count Numbers. Excel places the count function in cell C9 and takes a guess at which cells you want to count. The guess is incorrect, so you must select the proper cells.

7. Select B1 to B3.

8. Press Enter. The number of items in the series, which is 3, appears.

Fill cells automatically

You can use Microsoft Excel to fill cells automatically with a series. For example, you can have Excel automatically fill your worksheet with days of the week, months of the year, years, or other types of series.
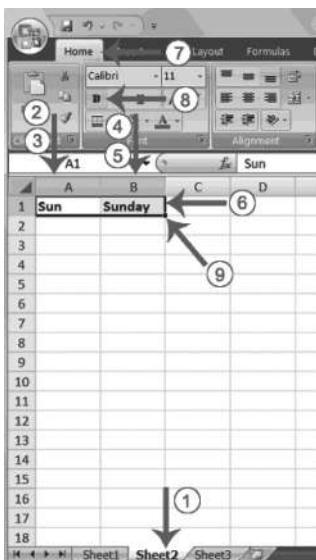
1. Click the Sheet2 tab. Excel moves to Sheet2.

2. Move to cell A1.

3. Type **Sun**.

4. Move to cell B1.

5. Type **Sunday**.

6. Select cells A1 to B1.

7. Choose the Home tab.

8. Click the Bold button **B** . Excel bolds cells A1 to B1.

9. Find the small black square in the lower-right corner of the selected area. The small black square is called the fill handle.

10. Grab the fill handle and drag with your mouse to fill cells A1 to B14. Note how the days of the week fill the cells in a series. Also, note that the Auto Fill Options button appears.

Copy Cells

1. Click the Auto Fill Options button. The Auto Fill Options menu appears.

2. Choose the Copy Cells radio button. The entry in cells A1 and B1 are copied to all the highlighted cells.

3. Click the Auto Fill Options button again.

4. Choose the Fill Series radio button. The cells fill as a series from Sunday to Saturday again.

5. Click the Auto Fill Options button again.

6. Choose the Fill without formatting radio button. The cells fill as a series from Sunday to Saturday, but the entries are not bolded.

7. Click the Auto Fill Options button again.

8. Choose the Fill Weekdays radio button. The cells fill as a series from Monday to Friday.

Adjust column width

Some of the entries in column B are too long to fit in the column. You can quickly adjust the column width to fit the longest entry.

    1.   Move your mouse pointer over the line that separates column B and C. The Width Indicator appears.

    2.   Double-click. The Column adjusts to fit the longest entry.

After you complete the remainder of the exercise, your worksheet will look like the one shown here.

	A	B	C	D	E	F
1	Sun	Sunday	1:00:00 AM	1	Lesson 1	
2	Mon	Monday	2:00:00 AM	2	Lesson 2	
3	Tue	Tuesday	3:00:00 AM	3	Lesson 3	
4	Wed	Wednesday	4:00:00 AM	4	Lesson 4	
5	Thu	Thursday	5:00:00 AM	5	Lesson 5	
6	Fri	Friday	6:00:00 AM	6	Lesson 6	
7	Mon	Monday	7:00:00 AM	7	Lesson 7	
8	Tue	Tuesday	8:00:00 AM	8	Lesson 8	
9	Wed	Wednesday	9:00:00 AM	9	Lesson 9	
10	Thu	Thursday	10:00:00 AM	10	Lesson 10	
11	Fri	Friday	11:00:00 AM	11	Lesson 11	
12	Mon	Monday	12:00:00 PM	12	Lesson 12	
13	Tue	Tuesday	1:00:00 PM	13	Lesson 13	
14	Wed	Wednesday	2:00:00 PM	14	Lesson 14	
15						

Fill times

The following demonstrates filling time:

    1.   Type **1:00** into cell C1.

    2.   Grab the fill handle and drag with your mouse to highlight cells C1 to C14. Note that each cell fills, using military time.

    3.   Press Esc and then click anywhere on the worksheet to remove the highlighting.

To change the format of the time:

    1.   Select cells C1 to C14.

    2.   Choose the Home tab.

    3.   Click the down arrow next to the number format box General . A menu appears.

    4.   Click Time. Excel changes the format of the time.

Fill numbers

You can also fill numbers.

Type **1** in cell D1.

    1.   Grab the fill handle and drag with your mouse to highlight cells D1 to D14. The number 1 fills each cell.

    2.   Click the Auto Fill Options button.

3. Choose the Fill Series radio button. The cells fill as a series, starting with 1, 2, 3.

Here is another interesting fill feature.

1. Go to cell E1.

2. Type **VLW 1**.

3. Grab the fill handle and drag with your mouse to highlight cells E1 to E14. The cells fill in as a series: VLW 1, VLW 2, VLW 3, and so on.

Create headers and footers

You can use the Header & Footer button on the Insert tab to create headers and footers. A header is text that appears at the top of every page of your printed worksheet. A footer is text that appears at the bottom of every page of printed worksheet. When you click the Header & Footer button, the Design context tab appears and Excel changes to Page Layout view. A context tab is a tab that only appears when you need it. Page Layout view structures your worksheet so that you can easily change the format of your document. You usually work in Normal view.

One can type in header or footer or can use predefined headers and footers. To find predefined headers and footers, click the Header or Footer button or use the Header & Footer Elements group's buttons. When you choose a header or footer by clicking the Header or Footer button, Excel centers your choice. The table shown here describes each of the Header & Footer Elements group button options.

Header & Footer Elements	
Button	**Purpose**
Page Number	Inserts the page number.
Number of Pages	Inserts the number of pages in the document.
Current Time	Inserts the current time.
File Path	Inserts the path to the document.
File Name	Inserts the file name.
Sheet Name	Inserts the name of the worksheet.
Picture	Enables you to insert a picture.

Both the header and footer areas are divided into three sections: left, right, and center. When you choose a header or footer from the Header & Footer Elements group, where you place information determines whether it appears on the left, right, or center of the printed page. You use the Go To Header and Go To Footer buttons on the Design tab to move between the header and footer areas of your worksheet.

Insert headers and footers

1. Choose the Insert tab.

2. Click the Header & Footer button in the Text group. Your worksheet changes to Page Layout view and the Design context tab appears. Note that your cursor is located in the center section of the header area.
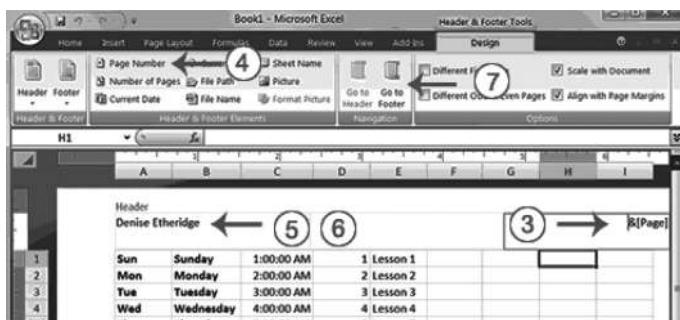
3. Click the right side of the header area.

4. Click Page Number in the Header & Footer Elements group. When you print your document, Excel will place the page number in the upper-right corner.

5. Click the left side of the Header area.

6. Type your name. When you print your document, Excel will place your name in the upper-left corner.

7. Click the Go To Footer button. Excel moves to the footer area.
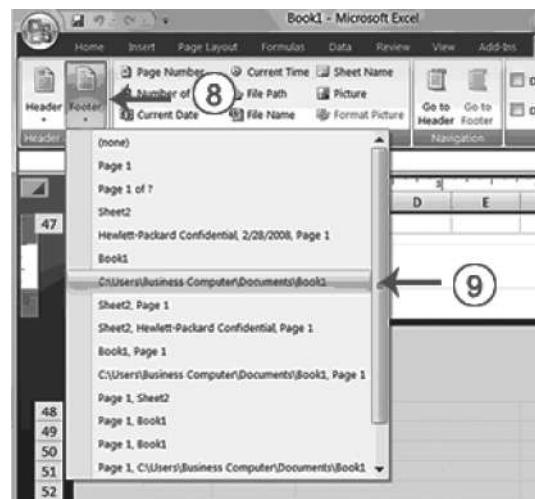
8. Click the Footer button. A menu appears.

9. Click the path to your document. Excel will place the path to your document at the bottom of every printed page.

Return to normal view

To return to normal view:

1. Choose the View tab.

2. Click the Normal button in the Workbook Views group.

Set print options

There are many print options. You set print options on the Page Layout tab. Among other things, you can set your margins, set your page orientation, and select your paper size.

Margins define the amount of white space that appears on the top, bottom, left, and right edges of document. The Margin option on the Page Layout tab provides several standard margin sizes from which you can choose.

There are two page orientations: portrait and landscape. Paper, such as paper sized 8 1/2 by 11, is longer on one edge than it is on the other. If you print in Portrait, the shortest edge of the paper becomes the top of the page. Portrait is the default option. If you print in Landscape, the longest edge of the paper becomes the top of the page.
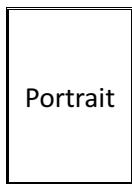
Portrait

Landscape

Paper comes in a variety of sizes. Most business correspondence uses 8 1/2 by 11 paper, which is the default page size in Excel. If you are not using 8 1/2 by 11 paper, you can use the Size option on the Page Layout tab to change the Size setting.

Set the page layout
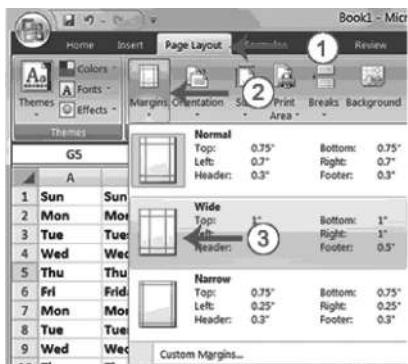
1. Choose the Page Layout tab.

2. Click Margins in the Page Setup group. A menu appears.

3. Click Wide. Word sets your margins to the Wide settings.

Set the page orientation

1. Choose the Page Layout tab.

2. Click Orientation in the Page Setup group. A menu appears.

3. Click Landscape. Excel sets your page orientation to landscape.
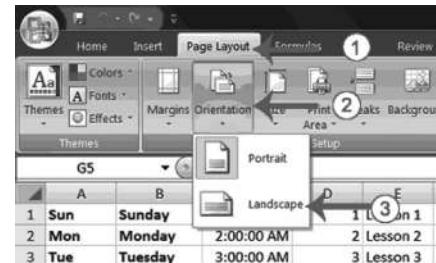
Set the paper size

1. Choose the Page Layout tab.

2. Click Size in the Page Setup group. A menu appears.

3. Click the paper size you are using. Excel sets your page size.

Print

The simplest way to print is to click the Office button, highlight Print on the menu that appears, and then click Quick Print in the Preview and Print the Document pane. Dotted lines appear on your screen, and your document prints. The dotted lines indicate the right, left, top, and bottom edges of your printed pages.

You can also use the Print Preview option to print. When using Print Preview, you can see onscreen how your printed document will look when you print it. If you click the Page Setup button while in Print Preview mode, you can set page settings such as centering your data on the page.

If your document is several pages long, you can use the Next Page and Previous Page buttons to move forward and backward through your document. If you check the Show Margins check box, you will see margin lines on your document. You can click and drag the margin markers to increase or decrease the size of your margins. To return to Excel, click the Close Print Preview button.

You click the Print button when you are ready to print. The Print dialog box appears. You can choose to print the entire worksheet or specific pages. If you want to print specific pages, enter the page numbers in the From and To fields. You can enter the number of copies you want to print in the Number of Copies field.

Open print preview
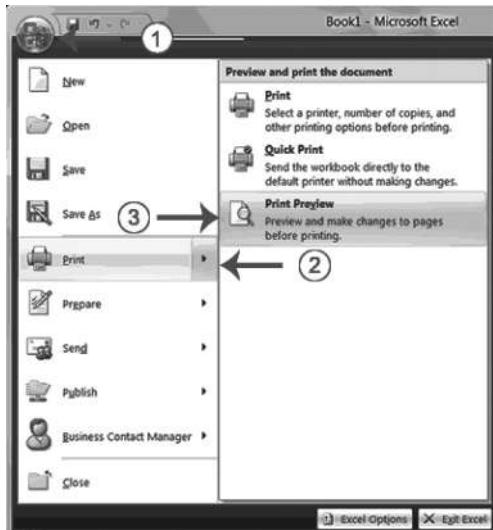
1. Click the Office button. A menu appears.

2. Highlight Print. The Preview and Print The Document pane appears.

3. Click Print Preview. The Print Preview window appears, with your document in the center.

Center Your Document

1. Click the Page Setup button in the Print group. The Page Setup dialog box appears.

2. Choose the Margins tab.

3. Click the Horizontally check box. Excel centers your data horizontally.

4. Click the Vertically check box. Excel centers your data vertically.

5. Click OK. The Page Setup dialog box closes.
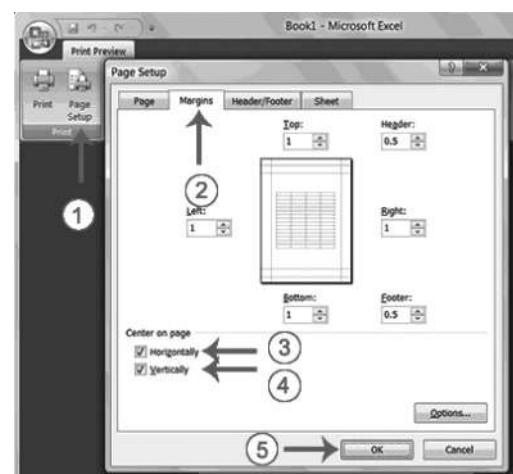
Print
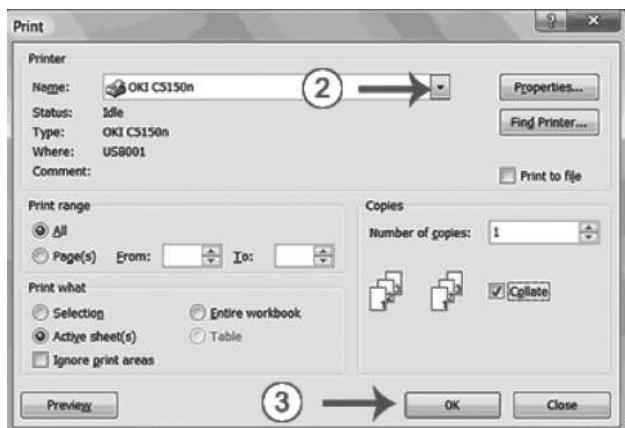
1. Click the Print button. The Print dialog box appears.

2. Click the down arrow next to the name field and select the printer to which you want to print.

3. Click OK. Excel sends your worksheet to the printer.

Creating Charts

In Microsoft Excel, you can represent numbers in a chart. On the Insert tab, you can choose from a variety of chart types, including column, line, pie, bar, area, and scatter. The basic procedure for creating a chart is the same no matter what type of chart you choose. As you change your data, your chart will automatically update.

One can select a chart type by choosing an option from the Insert tab's Chart group. After you choose a chart type, such as column, line, or bar, you choose a chart sub-type. For example, after you choose Column Chart, one can choose to have chart represented as a two-dimensional chart, a three-dimensional chart, a cylinder chart, a cone chart, or a pyramid chart. There are further sub-types within each of these categories. As you roll your mouse pointer over each option, Excel supplies a brief description of each chart sub-type.

Create a Chart
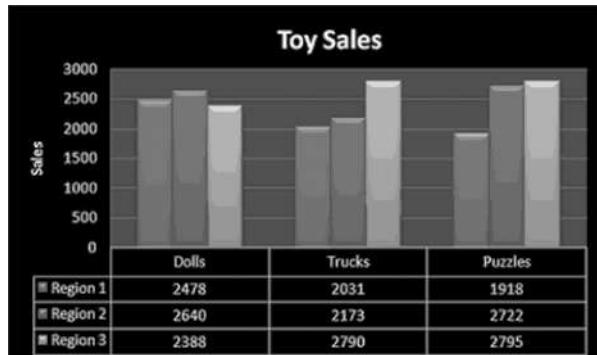
To create the column chart shown above, start by creating the worksheet below exactly as shown.

	A	B	C	D	E
1			Toy Sales		
2					
3	Products	Region 1	Region 2	Region 3	
4	Dolls	2478	2640	2388	
5	Trucks	2031	2173	2790	
6	Puzzles	1918	2722	2795	
7	Total	6427	7535	7973	
8					

After you have created the worksheet, you are ready to create your chart.
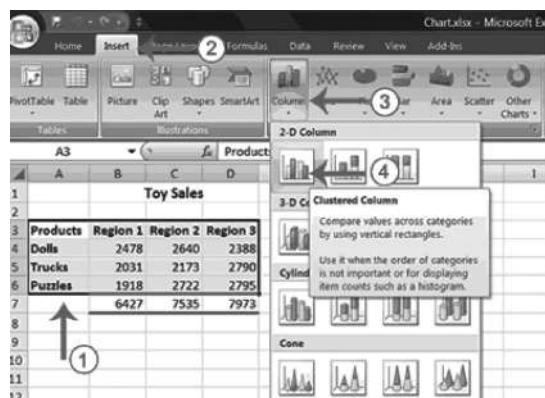
1. Select cells A3 to D6. You must select all the cells containing the data you want in your chart. You should also include the data labels.

2. Choose the Insert tab.

3. Click the column button in the Charts group. A list of column chart sub-types appear.

4. Click the clustered column chart sub-type. Excel creates a clustered column chart and the chart tools context tabs appear.

Apply a chart layout

Context tabs are tabs that only appear when one needs them. There are three chart context tabs: Design, Layout, and Format. The tabs become available when you create a new chart or when you click on a chart. You can use these tabs to customize your chart.

You can determine what your chart displays by choosing a layout. For example, the layout you choose determines whether your chart displays a title, where the title displays, whether your chart has a legend, where the legend displays, whether the chart has axis labels and so on. Excel provides several layouts from which you can choose.
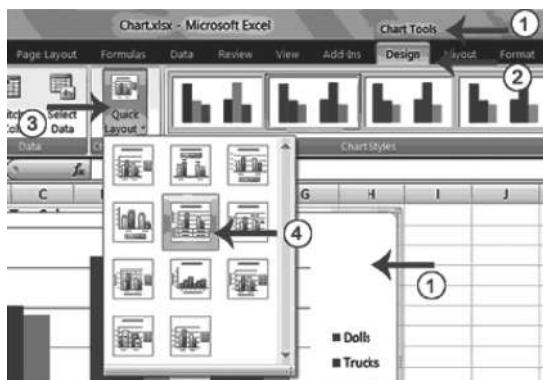
1. Click your chart. The Chart Tools become available.

2. Choose the Design tab.

3. Click the Quick Layout button in the Chart Layout group. A list of chart layouts appears.

4. Click Layout 5. Excel applies the layout to your chart.

Add labels

When you apply a layout, Excel may create areas where you can insert labels. You use labels to give your chart a title or to label your axes. When you applied layout 5, Excel created label areas for a title and for the vertical axis.

Chart Title			
	Region 1	Region 2	Region 3
Dolls	2478	2640	2388
Trucks	2031	2173	2790
Puzzles	1918	2722	2795

Before

Toy Sales			
	Region 1	Region 2	Region 3
Dolls	2478	2640	2388
Trucks	2031	2173	2790
Puzzles	1918	2722	2795

After
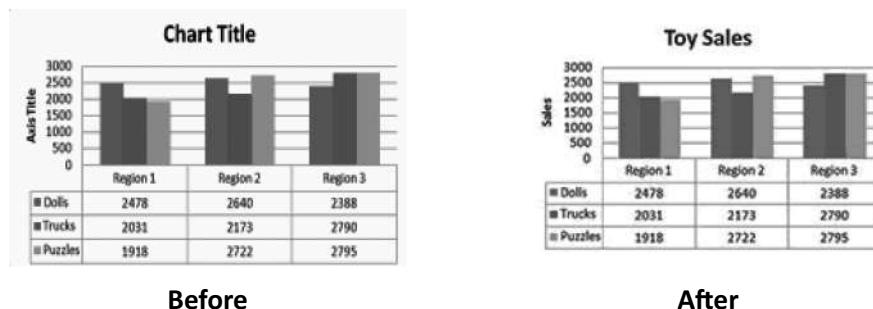
1. Select Chart Title. Click on Chart Title and then place your cursor before the C in Chart and hold down the Shift key while you use the right arrow key to highlight the words Chart Title.

2. Type **Toy Sales**. Excel adds your title.

3. Select Axis Title. Click on Axis Title. Place your cursor before the A in Axis. Hold down the Shift key while you use the right arrow key to highlight the words Axis Title.

4. Type **Sales.** Excel labels the axis.

5. Click anywhere on the chart to end your entry.

Switch data

Before   **After**
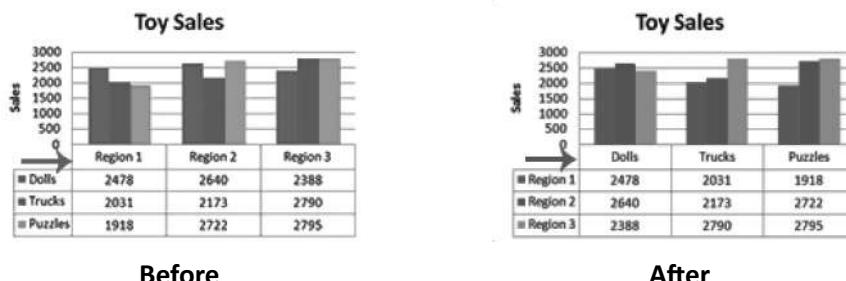
1. Click your chart. The Chart Tools become available.

2. Choose the Design tab.

3. Click the Switch Row/Column button in the Data group. Excel changes the data in your chart.

Change the Style of a Chart

A style is a set of formatting options. You can use a style to change the color and format of chart. Excel 2007 has several predefined styles that can be used. They are numbered from left to right, starting with 1, which is located in the upper-left corner.
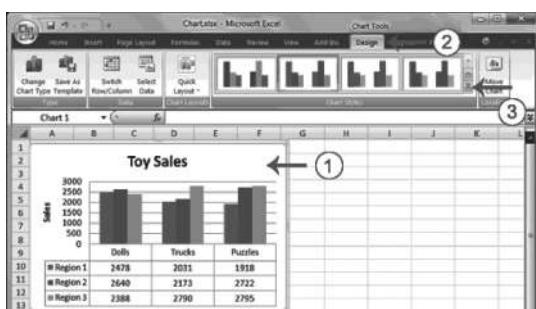
1. Click your chart. The Chart Tools become available.

2. Choose the Design tab.

3. Click the More button ⌄ in the Chart Styles group. The chart styles appear.
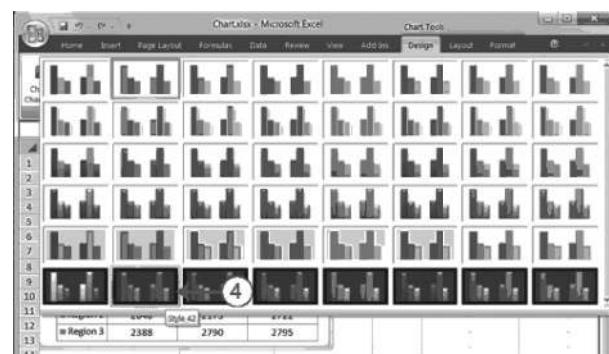
4. Click Style 42. Excel applies the style to your chart.

Change the size and position of a chart
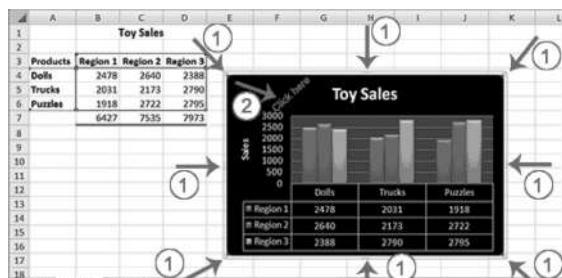
1. Use the handles to adjust the size of your chart.

2. Click an unused portion of the chart and drag to position the chart beside the data.

Move a chart to a chart sheet

By default, when you create a chart, Excel embeds the chart in the active worksheet. However, you can move a chart to another worksheet or to a chart sheet. A chart sheet is a sheet dedicated to a particular chart. By default Excel names each chart sheet sequentially, starting with Chart1. You can change the name.
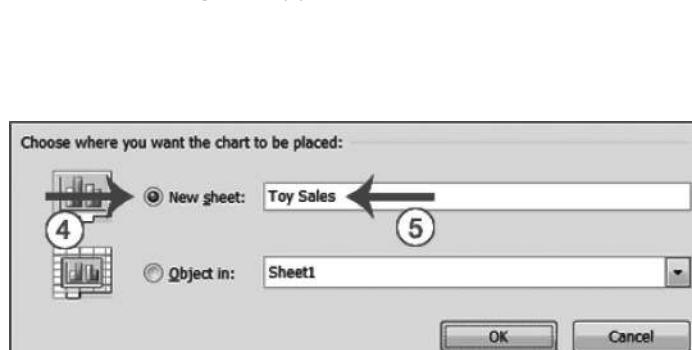
1. Click your chart. The Chart Tools become available.

2. Choose the Design tab.

3. Click the Move Chart button in the Location group. The Move Chart dialog box appears.

4. Click the New Sheet radio button.

5. Type Toy Sales to name the chart sheet. Excel creates a chart sheet named Toy Sales and places your chart on it.
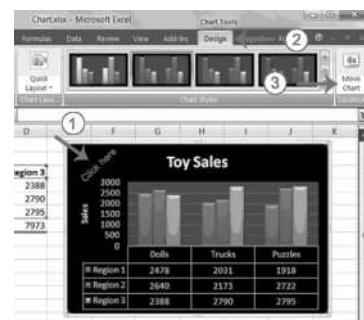
Change the chart type

Any change you can make to a chart that is embedded in a worksheet, you can also make to a chart sheet. For example, you can change the chart type from a column chart to a bar chart.
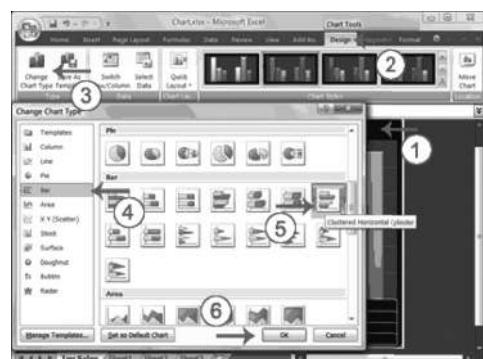
1. Click your chart. The Chart Tools become available.

2. Choose the Design tab.

3. Click Change Chart Type in the Type group. The Chart Type dialog box appears.

4. Click Bar.

5. Click Clustered Horizontal Cylinder.

6. Click OK. Excel changes your chart type.

Lesson-04

Exercise on MS-PowerPoint with special reference to MS Office PowerPoint 2007

PowerPoint is a presentation software package.
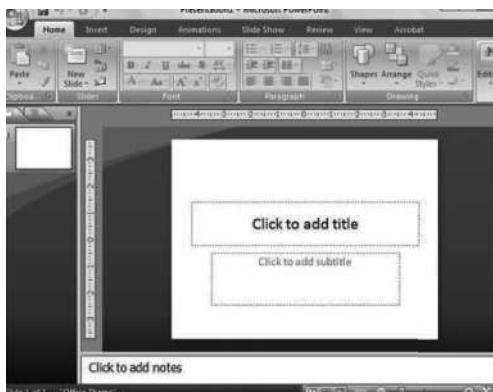
Microsoft Office button

In the upper-left corner is the Microsoft Office button. When you click the button, a menu appears. You can use the menu to create a new file, open an existing file, save a file, and perform many other tasks.	

Quick Access toolbar

Next to the Microsoft Office button is the Quick Access toolbar. The Quick Access toolbar provides you with access to commands you frequently use. By default, Save, Undo, and Redo appear on the Quick Access toolbar. You use Save to save your file, Undo to rollback an action you have taken, and Redo to reapply an action you have rolled back.	

Title bar

The Title bar is located at the top in the center of the PowerPoint window. The Title bar displays the name of the presentation on which you are currently working. By default, PowerPoint names presentations sequentially, starting with Presentation1. When you save your file, you can change the name of your presentation.	

Ribbon

1	Tabs
2	Command Group
3	Command Buttons
4	Launcher

Rulers

Rulers are vertical and horizontal guides. You use them to determine where you want to place an object. If the rulers do not display in your PowerPoint window:

1. Click the View tab.

2. Click Ruler in the Show/Hide group. The rulers appear.

Slides, placeholders, and notes

1	Slide
2	Placeholders
3	Notes
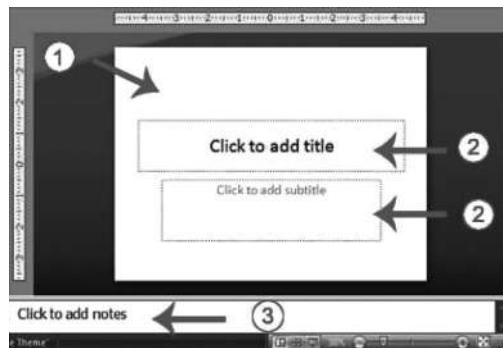
Slides appear in the center of the window. You create your presentation on slides.

Placeholders hold the objects in your slide. You can use placeholders to hold text, clip art, charts, and more.

You can use the notes area to creates notes to yourself. You can refer to these notes as you give your presentation.

Status bar, tabs, view buttons, and more
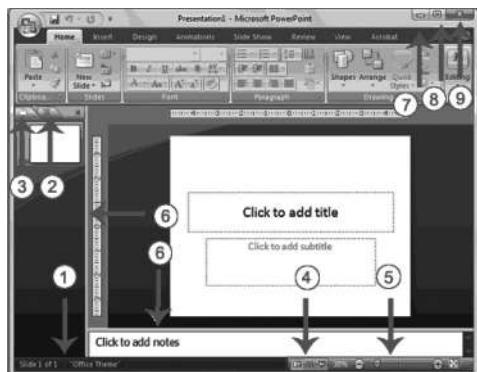
1	Status Bar	6	Vertical & Horizontal Splitter Bars
2	Outline Tab	7	Minimize Button
3	Slides Tab	8	**Maximize/Restore Button**
4	View Buttons	9	**Close Button**
5	Zoom		

The Status bar generally appears at the bottom of the window. The Status bar displays the number of the slide that is currently displayed, the total number of slides, and the name of the design template in use or the name of the background.

The Outline tab displays the text contained in your presentation. The Slides tab displays a thumbnail of all your slides. You click the thumbnail to view the slide in the Slide pane.

The View buttons appear near the bottom of the screen. You use the View buttons to change between Normal view, Slider Sorter view, and the Slide Show view.

Normal view

Normal view splits your screen into three major sections: the Outline and Slides tabs, the Slide pane, and the Notes area. The Outline and Slides tabs are on the left side of your window. They enable you to shift between two different ways of viewing your slides. The Slides tab shows thumbnails of your slides. The Outline tab shows the text on your slides. The Slide pane is located in the center of your window. The Slide pane shows a large view of the slide on which you are currently working. The Notes area appears below the Slide pane. You can type notes to yourself on the Notes area.

Slide sorter view

Slide Sorter view shows thumbnails of all your slides. In Slide Sorter view, you can easily add, delete, or change their order of your slides.

Slide Show

Use the Slide Show view when you want to view your slides, as they will look in your final presentation. When in Slide Show view:

Esc	Returns you to the view you were using previously.
Left-clicking	Moves you to the next slide or animation effect. When you reach the last slide, you automatically return to your previous view.
Right - clicking	Opens a pop-up menu. You can use this menu to navigate the slides, add speaker notes, select a pointer, and mark your presentation.

Zoom [slider] allows you to zoom in and zoom out on the window. Zooming in makes the window larger so you focus in on an object. Zooming out makes the window smaller so you can see the entire window.

You can click and drag the vertical and horizontal splitter bars to change the size of your panes.

You use the Minimize button [icon] to remove a window from view. While a window is minimized, its title appears on the taskbar. You click the Maximize button [icon] to cause a window to fill the screen. After you maximize a window, clicking the Restore button [icon] returns the window to its former smaller size. You click the Close button [icon] to exit the window and close the program.

Creating first powerpoint presentation

Create a title slide

When you start PowerPoint, PowerPoint displays the title slide in the Slide pane. You can type the title of your presentation and a subtitle on this slide. To enter text:

- Click and type the title of your presentation in the "Click to add title" area.
- Click and type a subtitle in the "Click to add subtitle" area.

If you do not wish to use the title slide, click the Delete Slide button [icon] in the Slides group on the Home tab.

1. Open PowerPoint. You are presented with a title slide.
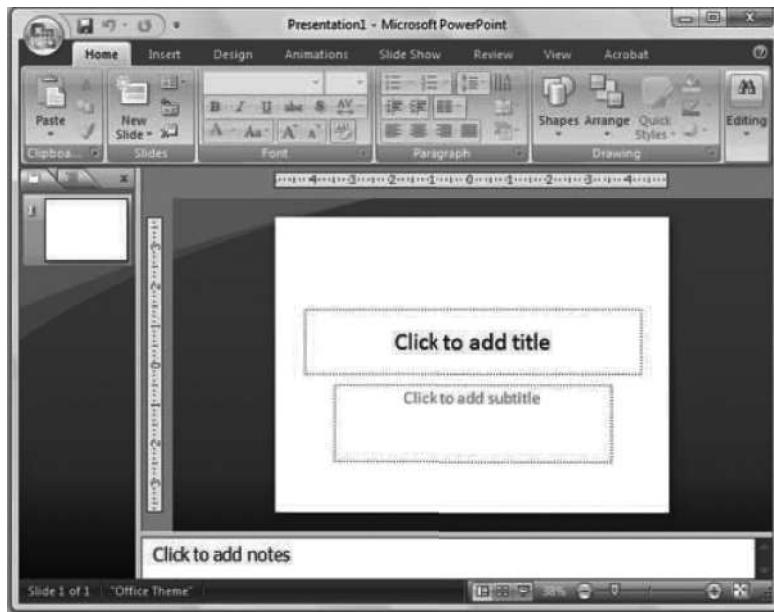
2. Enter the information shown here.

Create new slides

After completing your title slide, you can create additional slides. To create a new slide:

1. Choose the Home tab.

2. Click the New Slide button [New Slide ▾] in the Slides group. The Office Theme dialog box appears and displays several layout templates.

3. Click the layout you want. The layout appears in the Slide pane of the PowerPoint window.
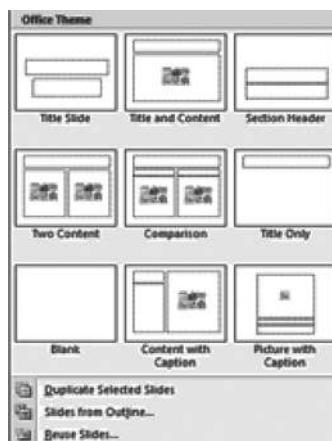
4. To add text, click inside the placeholder and type.

5. To add an additional slide to your presentation, do one of the following:

6. Right-click the slide layout. A menu appears. Click Layout and then click the layout you want.

7. Choose the Home tab, click the New Slide button [New Slide ▾], and then choose the slide layout you want.

Create new slides

1. Choose the Home tab.

2. Click the New Slide button ![New Slide] in the Slides group. The Office Theme dialog box appears.

3. Click the Title and Content Layout. The slide appears on the Slides tab.
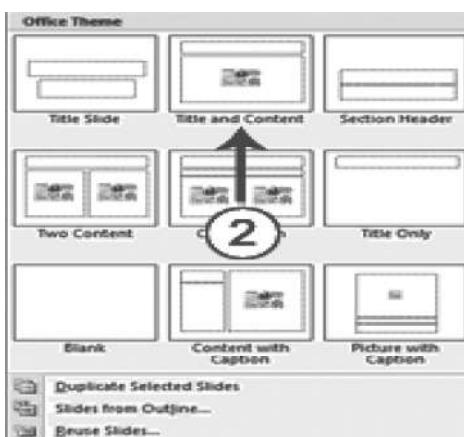
4. Enter the information shown here. Type **Here is what to do:** (including the colon) in the Click to Add Title text box. Type the bulleted text in the Content text box.

Create an outline

If you need to present the information in your slide in outline form, you can easily create an outline by using the Increase List Level button ![Increase List Level] to create a hierarchy.

1. Choose the Home tab.

2. Click the New Slide button ![New Slide] in the Slides group. The Office Theme dialog box appears.

3. Click the Title and Content layout.

4. Enter the information shown here. Click the Increase List Level button ![Increase List Level] in the Paragraph group to indent the bullets for Stafford Loans and PLUS Loans. If you ever need to decrease an indent, use the Decrease List Level button ![Decrease List Level] in the Paragraph group.

Use two-column text

You can also place text in two separate columns.

1. Choose the Home tab.

2. Click the New Slide button ![New Slide] in the Slides group. The Office Theme dialog box appears.

3. Click the Two Content layout.

4. Enter the information shown here.
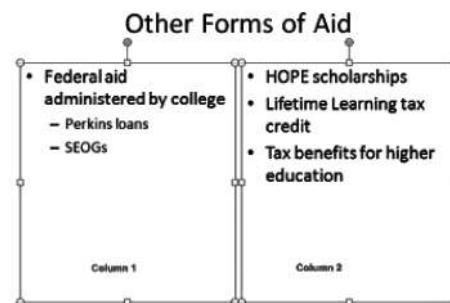
Make changes to slides

After creating a slide, if you want to add text:

1.   Place the mouse pointer at the point at which you would like to add text.

2.   Type the information you want to add.

If you would like to change text:

1.   Select the text you want to change.

2.   Type the new text.

You can use the Backspace key to delete text. You can also delete text by highlighting the text and pressing the Delete key.

Apply a theme

A theme is a set of colors, fonts, and special effects. Themes provide attractive backgrounds for your PowerPoint slides.

To apply a theme to all of the slides in your presentation:

1.   Choose the Design tab.

2.   Click the More button ▾ in the Themes group.

3.   Click the design you want.

To apply a theme to selected slides:

1.   Click the Slides tab, located on the left side of the window.

2.   Hold down the Ctrl key and then click to select the slides to which you want to apply a theme.

3.   Choose the Design tab.

4.   Click the More button ▾ in the Themes group.

5.   Right-click the theme you want to apply. A menu appears.

6.   Click Apply to Selected Slides. Excel applies the theme to the slides you selected.

One can add a dramatic effect to theme by applying a background.

1.   Choose the Design tab.

2.   Click the Background Styles button Background Styles ▾ .

3.   Click the background you want.

Add a background

1. Choose the Design tab.

2. Click the Background Styles button ![Background Styles button].

3. Click the background you want. PowerPoint applies the background to your slides.

Run powerpoint slide show

After you create slides, you can run slide show:

1. Do any one of the following:

   • Press F5.

   • Choose the Slide Show tab. Click the From Beginning button ![button] in the Start Slide Show group.

   • Click the Slide Show icon in the bottom-right corner of your screen.

Animations, transitions, spell check, outline tab, slides tab, sorter view, and printing

Add an animation to a slide

1. Click Slide 2 on the Slides tab.

2. Select "Start saving early."

3. Choose the Animations tab.

4. Click the Custom Animation button ![Custom Animation]. The Custom Animation pane appears.
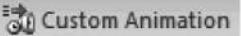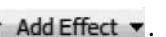
5. Click the Add Effect button ![Add Effect]. A menu appears.

6. Choose Entrance. A submenu appears.

7. Click Fly In. PowerPoint applies the effect. If the Auto preview box is checked, PowerPoint automatically provides you with a preview of the animation.

Modify the effect

1. Click the down arrow next to the Start field and then select After Previous.

2.

3. Click the down arrow next to the Direction field and then select From Bottom.

   Click the down arrow next to the Speed field and then select Medium.
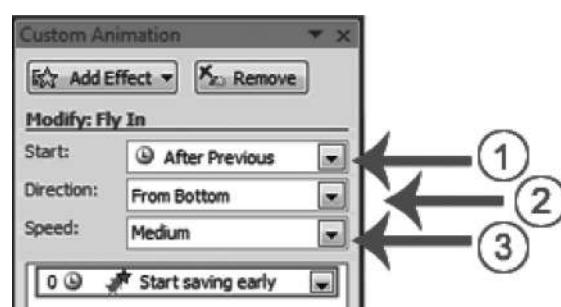
Add another animation
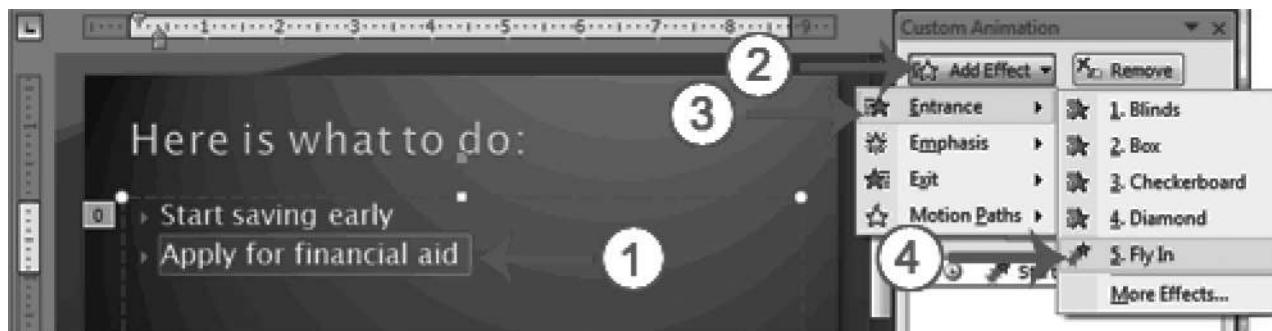
1. Select "Apply for financial aid."

2. Click the Add Effect button [Add Effect ▾]. A menu appears.

3. Choose Entrance. A submenu appears.

4. Click Fly In. PowerPoint applies the effect. If the Auto preview box is checked, PowerPoint automatically provides you with a preview of the animation.

Modify the animation
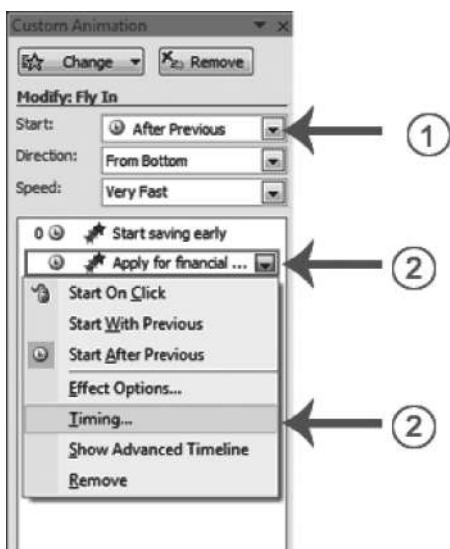
1. Click the down arrow next to the Start field and then select After Previous. The Apply for Financial Aid field appears in the center of the Custom Animation pane.

2. Click the down arrow next to the Apply for Financial Aid field and then click Timing. The Fly In dialog box appears.

3. Type **0.05** in the Delay text box.

4. Click OK.
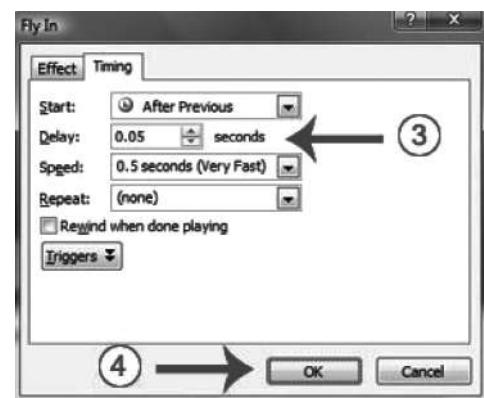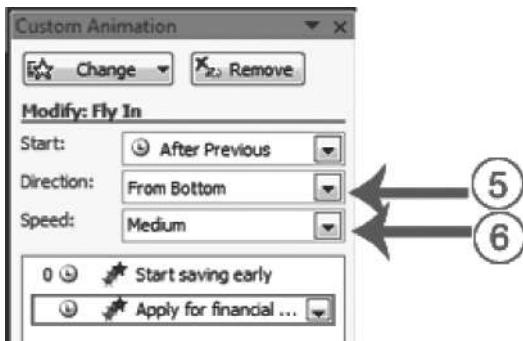
5. Click the down arrow next to the Direction field and then select From Bottom.

6. Click the down arrow next to the Speed field and then select Medium. If the Auto preview box is checked, PowerPoint automatically provides you with a preview of the animation. You can click the Play button ▶ Play on the Custom Animation pane at anytime to preview an animation.

Add transitions

Add transitions
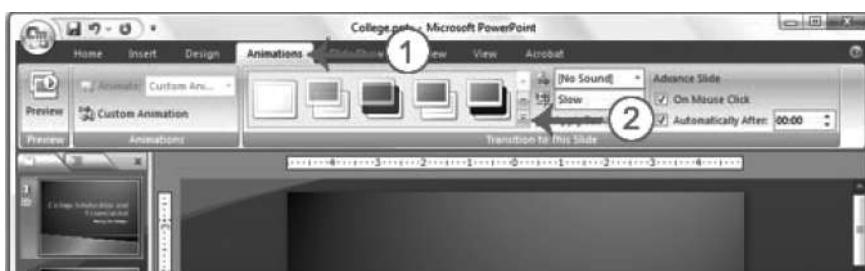
1. Choose the Animations tab.

2. Click the More button ⩒ in the Transition to this Slide group. A menu of transitions appears.

3. Click the Push Up transition. As you roll your pointer over each transition, PowerPoint provides you with a live preview of the transition.
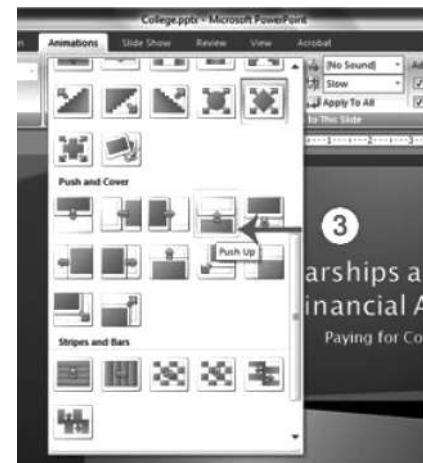
Add sound and set the Speed

1. Click the down arrow next to the Transition Sound field and then click Click.

2. Click the down arrow next to the Transition Speed field and then click Slow.

Advance slide

1. Check the On Mouse Click check box.

2. Click the Automatically After check box.

3. Type **00:07** in the Automatically After text box.

4. Click the Apply to All button . PowerPoint applies all of your changes to all of the slides.

5. Click Slide 1 on the Slides tab.

6. Type **00:03** in the Automatically After text box. PowerPoint changes the timing for Slide 1.

Spell check

• Press F7.

• Choose the Review tab and then click the Spelling button .

If the spell check finds a possible spelling error, the Spelling dialog box opens with the spelling error highlighted. You can respond in several ways.
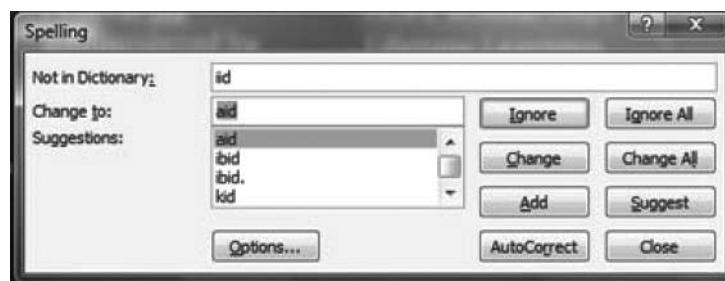
Use the outline and slides tabs

1. Choose the Slides tab to view thumbnails of your slides.
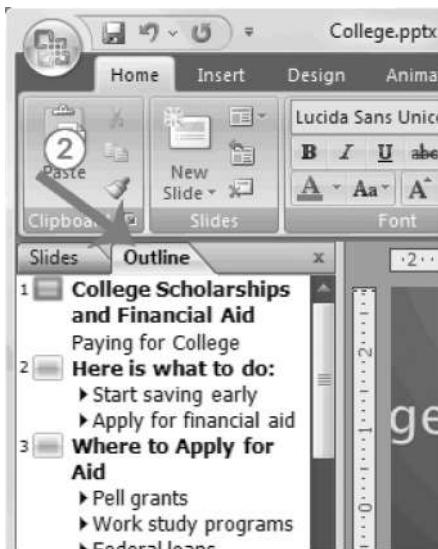
2. Choose the Outline tab to view the text of your presentation as an outline.

Use slide sorter view

After you have created your PowerPoint slides, you can move, cut, copy, paste, duplicate, navigate, and view them in Sorter view. To view the slides in Sorter view, do one of the following:

- Choose the View tab and then click the Slide Sorter button in the Presentation Views group.
- Click the Slide Sorter button in the bottom-right corner of the PowerPoint window.

Slide sorter view	
Task	**Procedure**
Move to first slide.	Use Ctrl+Home.
Move to last slide.	Uste Ctrl+End.
Move to next slide.	Use the right arrow.
Move to previous slide.	Use the left arrow.
Select a slide.	Single-click the slide.
Open a slide in Normal view.	Double-click the slide.
Select slides.	**Select a single slide:** 1. Click the slide you want to select.
	Select multiple slides: 1. Hold down the Ctrl key. 2. Click the slides you want to select.
Delete a slide.	1. Select the slide or slides you want to delete. 2. Press the Delete key.
	1. Select the slide or slides you want to delete. 2. Choose the Home tab and then click the Delete button .

Slide sorter view	
Task	**Procedure**
Copy a slide.	1. Select the slide. 2. Choose the Home tab. 3. Click the Copy button ⬚ in the Clipboard group.
	1. Select the slide. 2. Press Ctrl+C.
Paste a slide.	Select the slide after which you want the new slide or slides to appear. Choose the Home tab. Click the Paste button ⬚ in the Clipboard group.
	Select the slide after which you want the new slide or slides to appear. Press Ctrl+V.
Cut a slide.	Select the slide or slides you want to cut. Choose the Home tab. Click the Cut button ✂ in the Clipboard group.
	Select the slide or slides you want to cut. Press Ctrl+X.
Move a slide.	Select the slide (or slides) you want to move. Drag it to the new location.
Duplicate a slide.	Select the slide (or slides) you want to duplicate. Press Ctrl+D.

Print an outline
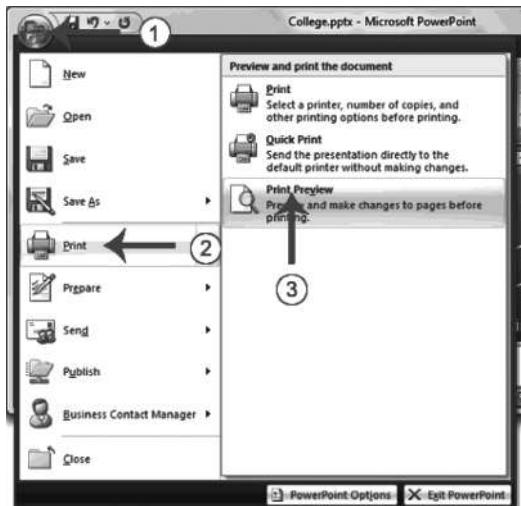
1. Click the Microsoft Office button. A menu appears.
2. Choose print.
3. Click Print Preview. The Print Preview tab appears.

4. Click the down arrow next to the Print What field in the Page Setup group and then select Outline View.
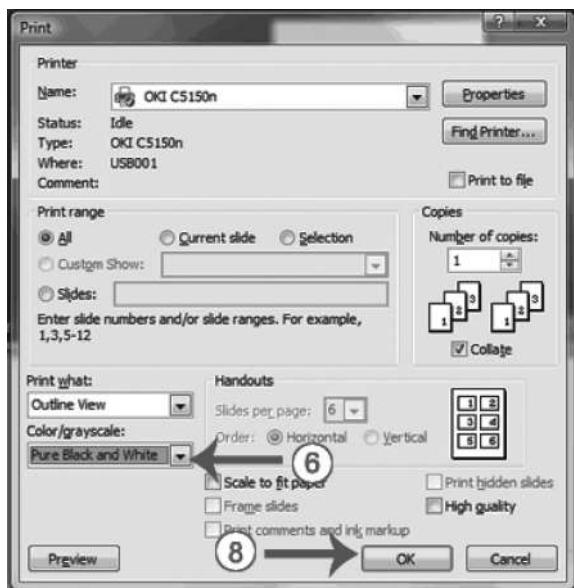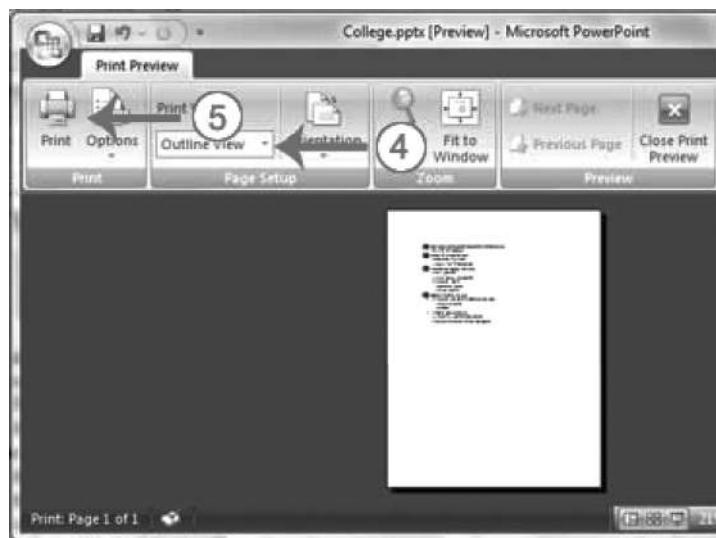
5. Click the Print button 🖶. The Print dialog box appears.

6. Click the down arrow next to the Color/Grayscale field to select whether you want your slides to print in color, grayscale, or black and white. If you are using a black and white printer, choose black and white. You will use less ink or toner.

7. Set the other print settings.

8. Click OK. Your outline prints.

Print Slides

1. Click the Microsoft Office button. A menu appears.

2. Choose Print.

3. Click Print Preview. The Print Preview tab appears.

4. Click the down arrow next to the Print What field in the Page Setup group and then select Slides.

5. Click the Print button 🖶. The Print dialog box appears.

6. Click the down arrow next to the Color/Grayscale field to select whether you want your slides to print in color, grayscale, or black and white. If you are using a black and white printer, choose black and white. You will use less ink or toner.

7. Set the other print settings.

8. Click OK. Your slides print.

Print slides as a handout

1. Click the Microsoft Office button. A menu appears.

2. Choose Print.

3. Click Print Preview. The Print Preview tab appears.

4. Click the down arrow next to the Print What field in the Page Setup group and then select Handouts (4 slides per page).

5. Click the Print button . The Print dialog box appears.

6. Click the down arrow next to the Color/Grayscale field to select whether you want your slides to print in color, grayscale, or black and white. If you are using a black and white printer, choose black and white. You will use less ink or toner.

7. Set the other print settings.

8. Click OK. Your handouts print.

Lesson-05

Internet and its importance in information exchange

Introduction:

Most of you must have heard about Internet by now. So what is Internet? Why it has become so important, that every body is talking about it. Will it in any way be useful for Agriculture I general and Agricultural Extension in particular? Let's find out answer of all these questions.

The Internet is a vast network of thousand of computer networks. The networks making up the Internet consist of Millions of computer systems. These computers and networks communicate by exchanging data according to the same rule (Protocol) even though the networks and compute systems individually use different technologies. Its communication capacity across the countries in a very short time and that also at virtually no cost has made it extremely powerful communication tool. You can communicate text, audio, video and animation on Internet. You can have multiple people connected to the same "discussion" at any point of time. The Internet has a vast collection of Information that can be searched, retrieved and downloaded electronically. This collection includes, data, text, government information, company profiles, images, art, medical information, sports, newspapers, journals, study materials, software, advice on all sorts of topics etc. In Just period of 4-5 years, the INTERNET has gone from a small network in United States into a vast communication and trading center where over 180 million people swap information or do deals around the world. It took RADIO more than 30 years to reach 60 million people and around 15 years for television. Never has a Technology caught fire so fast.

History of Internet:

In the year 1960 the US Department of Defense, through its Advanced Research Project Agency (ARPA) established a decentralized computer network. This network was named ARPANET. It linked researchers at universities, research laboratories and some military labs. In 1970s the ARPANET further developed and the establishment of connection in other countries developed. In 1980s other networks in the US and other countries were established.

In the late 1980s the National Science Foundation (US) funded the development of a network named NSFNET (Using the Internet Protocol), to connect super computer centers in the US, Soon many colleges and Universities were encouraged to connect to that network. The number of sites in the network increased rapidly. From this the concept of Internet grew. It was actually from 1985 onwards that Internet is being used for commercial purposes.

How does the Internet Work?

The Internet is a network connecting thousands of other computer networks. Each network on the Internet has a unique address called Internet Protocol (IP) address. The IP addressees are Unique; a sequence of four numbers each between 0-255 separated by periods.

E.g. 61.0.160.33

The Internet is designed so that the computer network within one network can exchange information with computers on other networks. The set of rules that govern this form of communication are called protocols. Using the same protocol, different types of networks and computer systems communicate with each other. Two protocols used for working with the Internet are Internet Protocol (IP) and Transmission control Protocol (TCP).

The Internet is a packet-switched network. The data or Information is transmitted from one computer system to another as data packets. Packets of characters (bytes), carry information on the Internet. Each packet has the address of the sender and the address of the destination. These addresses are called IP address. The data is divided into small packets for transmission across a shared communication channel. Packet switching facilitates information from different users to share the same communication channels. Packet switching technology gives the Internet flexibility, speed and reliability. Packets from different sources use the same lines. Packets are easily rerouted based on network traffic. When transmission errors occur, re-sending a single packet corrects the problems.

Many at the Internet services operate according to a scheme called client/server. A user on one computer system starts a programme the user is running on his system and the server is the programme running on the remote system. The user gives commands to the client, which passes the information to the server. The server interprets those commands and returns information to the client as requested.

The networks on the Internet use a hardware device called router to communicate with other networks. The router accepts packets addressed to it and passes on packets addressed to other networks.

Domain names and addresses:

Networks and computer systems on the Internet execute data and communicate with each other. All computers on the Internet have an IP address that is unique. Because IP addresses are not easy to remember, most computers also have domain names. A Domain name server translates a domain name into an IP address. Now days, people who use the Internet, are identified, by their user Ids associated with a computer. These addresses are made up of a sequence of four three digit (decimal) numbers separated by periods. E.g. 164.100.140.2. Each number is in the range of 0-255. Starting from the left, the numbers in the address identity a network and the numbers in the right identify a specific host/ computer system. For example the network portion of the address 164.100.140.2 is 164.100.140 and the host computer is 2. In this case the network can have 256 computer systems (0-255) connected. This type of address is called IP address.

This numeric scheme of IP address works well for computer systems, but it is difficult for people to remember and type correctly for every Internet site they need to contact. Therefore, Internet sites also have names associated with them. For example ori.nic.in. The name is called a domain name. Like the IP address, domain names are a sequence of works separated by periods. There are at least two words and can have three or four or more. The name of the computer system is on the left and the network on the right. This is just opposite of the numeric address system.

The collection of networks making up the Internet is divided into groups called domains. The domains represent either a type of organization or a geographical location for example a site in the domain edu would be an educational Institution and a site in the domain tx.us would be in texas state in US. Each IP address (numeric Address) is associated with one or more domain names. An address specified as a domain name is automatically converted to the IP address.

e.g.   ori   nic.in

            Computer Name   Network Name
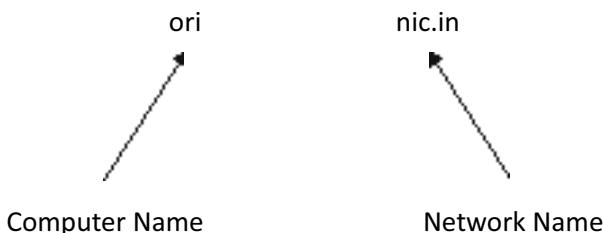
List of Domains by type of Organization: A list of Domain name types used internationally is given here under.

Domain	Types of Organization
com	Commercial Organization.
edu	Educational Institution
gov	Government
org	Non-profit Organization
net	Networks

In India, National Center for Software Technology is one of the Internet Domain Name Registers. They currently allot the following domains.

co.in	--	for registered commercial organization
ac.in	--	for academic community
res.in	--	for research institutes
gov.in	--	for government organizations
net.in	--	for network service providers.
Mil.in	--	for military establishments
Org.in	--	for miscellaneous organizations

You can rightly infer that the indicator .in at the end of all the domain names above indicates that you are registered in India. For other countries there are different (Unique) identifiers. A list of some well-known countries domain name indicators is given here under;

List of Geographical Domains.

Domain	Country Name
In	India
Au	Austalia
Ca	Canada
Jp	Japan
Uk	United Kingdom

The two-letter country code for all the countries is available at anonymous ftp site rtfm.mit.edu in the directory /pub/usenet/news.answer.html/ and on www. at www. ee.ic.ac.uk/misc/country-code.html On the Internet, it is assumed that if there is no geographical code used, then the domain is located within US.

Internet Connection.

There are two types of connections available for accessing the services and resources on the Internet.

    1.   IP connection

    2.   Dial-up connection.

1. IP Connection:

If the computer we are using has the WV arid S/V to network on the Internet i.e. if it can send and receive packets according to the TCP/IP protocol, then we have a direct or IP connection to the Internet. With the IP connection, we get access to all services and resources on the Internet.

2. Dial Up connection;

With this type of connection, we use a modem to call and log into another compute system, which has the direct connection to the Internet. In this case, we don't have a direct connection to the Internet, but the system we have logged on have the Internet connection. This is called dial-up accesses through shell account. Through this we can access most of the services on the Internet, but not the graphical interfaces. If the connection is through SLIP (Serial Line Internet Protocol), we can get the graphical interfaces as well. With slip connection, we use a modem to call another computer, which gives us IP address.

The IP or SLIP connections are more expensive than dial up connection but give more complete and sometimes faster access. With an IP connection, we can include/attach a file in a message we are composing. But, with dial up connection, first we have to upload the file before attaching it to a message. Similarly, while downloading a file from the Internet, in the case of IP connection we can save the file in our local computer. But with dial up connection, we have to first save it in the host computer and then have to transfer it to our local computer.

Tools / Internet Services:

There are many tools /Internet services used. Some of the tools are:

1. WWW
2. E-Mail
3. Telnet
4. FTP

WWW and E-Mail are however the most commonly used Internet services, in the commercial and other sectors.

World Wide Web:

The World Wide Web, more commonly known by its abbreviation www, is an exciting medium bringing information images to your desktop monitor on the Internet. When you use WWW, you work in a hypertext environment. Hypertext is a way of viewing or working with a document in text format that allows cross-reference.

One can access www by using a programme called web browser. Web browser is a programme (Software) used to access the Internet services and resources available through www. There are several browsers available. Among those the most commonly used are Netscape Navigator and Internet Explorer. Netscape Navigator and Internet Explorer are www browsers with a graphical user Interface (GUI) designed specifically to be used in window environment. You use a mouse to access Windows based commands by clicking on Icons, wings or underlined text. The first page you access on www called home page. Each of the link used on www represent a URL (Uniform Resource Locator). Here we will discuss about Internet Explorer web browsers, as we will use this in our training.

Internet Explorer:

Internet Explorer, developed by Microsoft Corporation, is one of the leading Web clients in use today. Internet Explorer offers an easy to use, customizable browsers, the latest in communication tools, access to all the popular multimedia formats, and support for ActiveX and Java. To use Internet Explorer, you must have domain access to the Internet. Once you have established your connection to the Internet, launch Internet Explorer by double clicking the icon. On launching the Internet Explorer, the system will display the Internet Explorer main menu.

Lesson-06

Email-opening account, important feature and application

E-Mail, the electronic mail is the most widely used application on the Internet. For most of the Internet users, it has practically replaced other traditional methods such as telephone, faxes etc. Technically E-Mail is a system of delivery of messages on the computer connected via communication networks. E-Mail is electronic version of the paper mail or letters we use to deliver personal and official messages. E-Mail is used to communicate all types of messages, text, graphics, audio and also visual clips as long as these can be digitized. Hence for all out communication needs e-mail offers a quicker, cheaper and convenient option.

E-Mail has become de-facto communication system in the up coming multinational and national corporate sector. E-Mail is being used in public sector and government offices. In government offices most of the communication with the international organizations, the world bank, food and agriculture organization, United Nation Development Programme, is in form of e-mail. The largest users of e-mail, however, are the students of graduate and postgraduate programme in the universities.

E-Mail has also become a must for the government officials. With increasing pressure of being up to date, the need for the information to reach as fast as possible is ever increasing. E-Mail provides the fastest and economic mode of messaging. In Indian scenario, where the distances across the country are large and the surface mail takes a few days to reach from one place to another, E-Mail is a better option to ensure that the message reaches the destination quickly. Although the fax is a close second to E-Mail in speed, the e-mail is more economic, also email will not face problems of telephone out of order, fax not working, transmission not clear etc. E-Mail systems store your messages for later retrieval; the level of security involved in E-Mail is also reasonably high, with encryption and other features.

The main reasons for the popularity of E-Mail are:

1. **It is economical** :

   Economy counts most! A ten-page fax to USA will cost you at least Rs. 500, where as a ten page e-mail will cost you less than 5 rupees. E-Mail messages are very inexpensive when compared with Registered Post, Speed Post, Fax or Telephone calls.

2. **It is fast** :

   The receiver gets the e-mail message almost instantaneously. You can send an e-mail message from your office to MANAGE Hyderabad in a few seconds.

3. **It is convenient :**

   E-Mail messages can be prepared and stored in a simple and logical manner for easy retrieval. It is very convenient to see Mailbox. With the facility of subject line you can choose which e-mail message is most important to read.

4. **It is versatile :**

   With more sophisticated e-mail software, it is possible to send and receive e-mail with photographs as well as with voice and video. This facility can be used by the agriculture scientists and extension functionaries to share scanned photographs of plant diseases and pests.

5. **It is reliable :**

   E-Mail is reliable. There are rarely any errors in email transmission. If email address is correct, the message will be delivered in a very short period.

How does the E Mail look like? A typical email has four parts.

1. The Header
2. The Action Bar
3. The message
4. The Footer
5. The Attachment.(If Any)
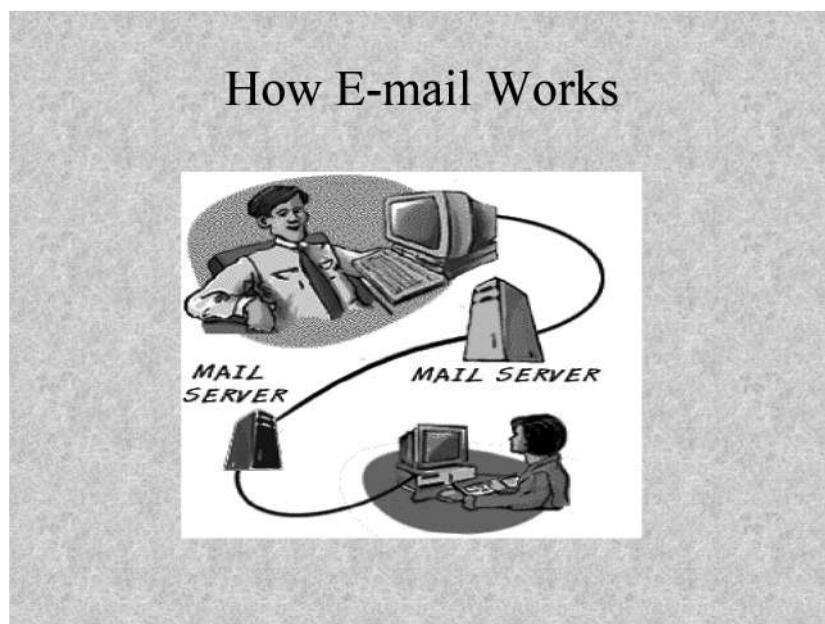
Opening an e-mail account :

E-mail account can be opened in one or more web sites.

• First the website where one wishes to open an account is opened.

• Click the 'Mail' option that appears on the web page.

• The window is opened. The **'Signup' or 'New' option or 'Create An Account'** is clicked and the window wherein important information is to be filled up appears.

• The person is required to fill up the wanted information.

• The difficulty is faced by the user while putting user's name. The username may have

• to be changed several times until it is accepted. Besides other information, the password is important, which the user has to keep in memory.

• After filling up the form successfully, it is submitted by clicking submit button. The general format of e-mail ID is : username @ domainname.com.

There are various companies, which provide free e-mail addresses. Important of them are yahoo. Rediff, Lycos, Netscape, Gmail and Hotmail.
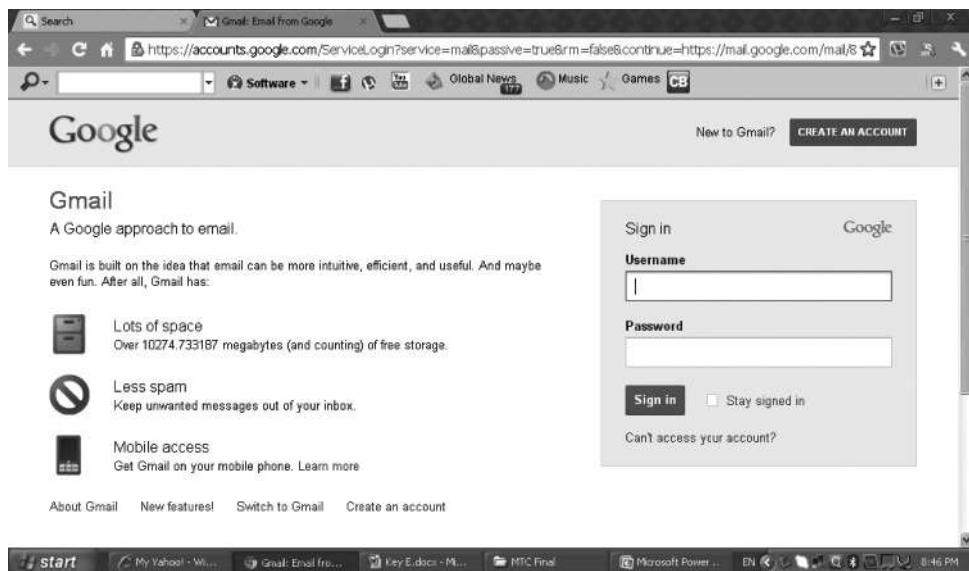
Using an e-mail : Once the e-mail account is opened, it can be used to send and receive messages.

a) **Sending message :** When the e-mail window is opened by putting username and password, it depicts **compose** button which is clicked.

b) **An empty e-mail form appears which has the following items :**

- To : The e-mail address of the recipient is typed.

- CC : The e-mail address of the person whom the copy is to be sent.

- Bcc : The e-mail address of the person whom the blind copy of the message is to be sent.

- Subject : Brief subject of the letter is given.

- Body : Actual letter is typed.
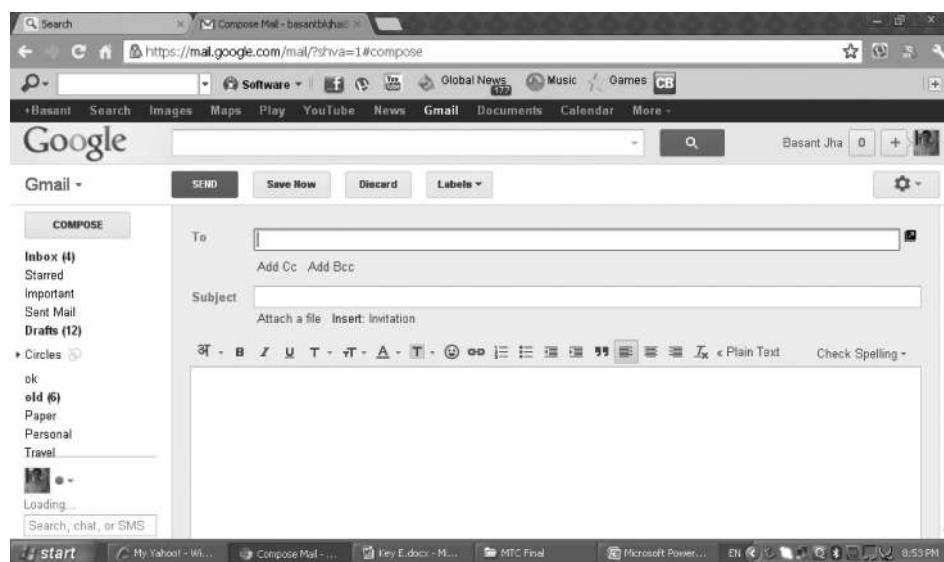
The most important advantage of e-mail is that Non-ASCII files up to 10/20 MB can be attached.

These files are known as MIME attachments. MIME is the acronym for Multimedia Internet Mail Extension, which was developed to handle a variety of file.

File attachment steps

Attach — Browse— Select — Open — Continue to Message

The file attachment process takes some time. When the file is attached, **continue to message** button is clicked. The window that is opened contains typed letter and attachment. When it is ensured that the letter is complete in all respects, **send** button is clicked. After a few seconds **message sent** appears on the screen.

Receiving a message :

- To view a message **check mail** button is clicked. The letters present in 'inbox' appears on the screen with summary detail i.e. sender, subject and date.

- When the subject of the letter is clicked, the matter and attachment, if any appears on the screen.

- The attachment can only be viewed after it is opened through download attachment. The letter and attachment can be saved at other places in the computer. The hard copy of the same can also be printed, if so desired.
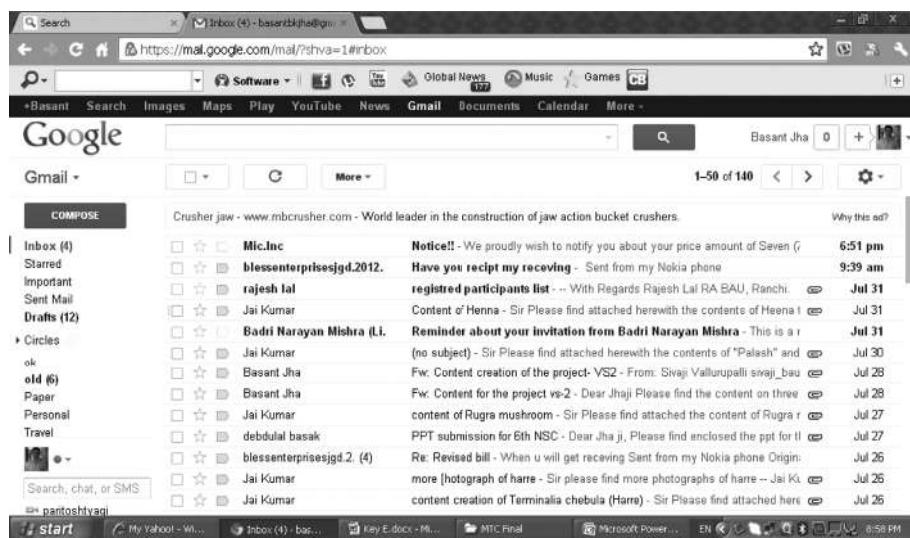
Replying and forwarding e-mail message:

- The reply of the received mail can be sent by clicking to the **Reply** button. The advantage that an user gets is that he does not need to type the address and subject. The programme itself prefix the subject with 'Re:' so that the recipient understand that it is a reply. However, the main letter needs to be typed.

- The received message can also be forwarded by clicking **forward** button. The difference between

- replying and forwarding is that the user has to type the address of the person to whom the message is forwarded.
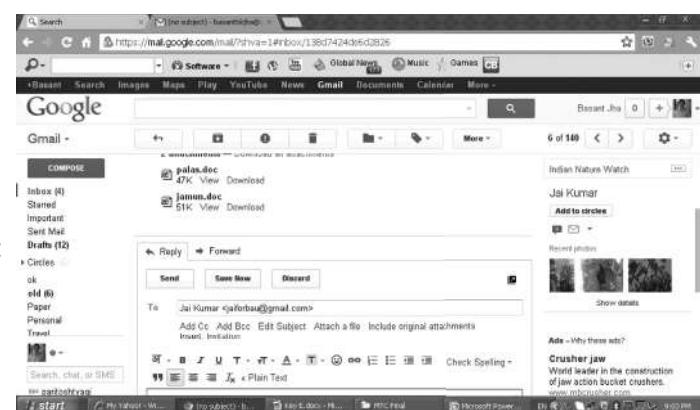
Sending to multiple recipients:

Sometimes it may be necessary to send same message to different persons. The e-mail system allows a person to send message to multiple recipients. This can be done through adding e-mail addresses by command as below :

To : kpctaneja @ hotmail.com, akdubeykvk @ yahoo. com, sminz @ mit.gov.in

Closing e-mail account : After use, the e-mail account must be closed.
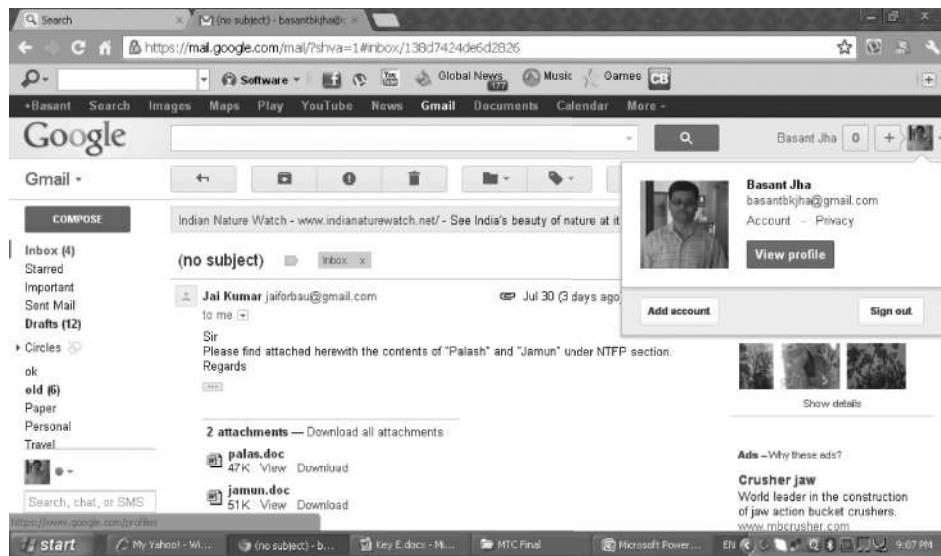
Lesson-07

Important agricultural websites

The technological development in the field of computer, communication and space technology has given an opportunity for technological convergence. The same information can be accessed through LAN, WLAN, Internet and Mobile phones. With quantitative and qualitative improvement in informatics infrastructure, the information flow has become faster and seamless. It is possible to ensure two-way flow of texts, graphics, audio, video and multimedia message. The ICT penetration into rural area has been a good sign which is evident from the fact that teledensity has increased upto 24.29 per cent with the quantum jump of 9.36 per cent (TRAI Annual Report, 2009-10).

Jharkhand is an important state of eastern India and its importance further increases as the next green revolution is to come from eastern India. It is a state with tremendous variability with respect to agro-climatic and socio-economic conditions. On one hand state has great potential in the field of cultivation of high value crops which requires immediate availability of expert's solution for various kinds of problem faced by the farming community in day to day practice. On the other, the dissemination of technological information from research system to the farmers and their feedback to the research system has been a critical factor in the field of agricultural extension in the state. The field workers of the Department of Agriculture perform this role manually through training, demonstrations, and distribution of farm literature. The diversified knowledge required by the farmers is beyond the competence of the grass root extension functionaries. Above all, most of the positions of extension functionaries are lying vacant. In the context of broad-based extension, farming system research and extension, demand-driven, market-led and farmer-led extension as well as bringing reduction in cost on public extension system and sustainable agricultural development, the use of IT in agricultural extension seems imperative.

Jharkhand is a culturally rich state where more than 18 languages and dialects are spoken. Under the project one international language i.e. English, one national language i.e. Hindi, one regional language *viz.* Nagpuri and 4 tribal languages *viz* Santhali, Kurukh, Mundari and Ho have been included. The portal will have information on agriculture, animal husbandry and forestry. The crop information has already been digitized and placed on URL www.bau-eagriculture.com.

The agricultural expert system has 14 modules *viz.* crop including varieties. soil health and land preparation, manures and fertilizers, water management, crop protection, agricultural implements, post-harvest and storage, finance, insurance, scheme, market, weather, FAQ and ask a question. The space in this page has been given for advertisement.

Agriculture:

- www.kisan.com
- www.manage.gov.in
- www.farmerbazar.com
- www.aquachoupal.com
- www.thegardenhelper.com
- www.gardendigest.com
- www.agrinews.com
- www.krishiworld.com
- www.kisanindia.com
- www.agmarknet.com
- www.kisantech.com
- www.mahindrakisanmitra.com
- www.kisancallcenter.net
- www.nabard.org
- www.cmap.res.in(medicinal plants)
- www.jeevanherbs.com
- www.agricoop.nic.in
- www.techno-preneur.net
- www.grse.nic.in
- www.rainwaterharvesting.org
- www.poultrysolutions.com
- www.cftri.com
- www.Indiadairy.com
- www.sameti.org

Education & Research:

- www.ignou.ac.in
- www.cbsc.nic.in
- www.niit.com
- www.aptech-education.com
- www.herbalgardens.com
- www.educationinindia.com
- www.icar.org
- www.iari.res.in
- www.baujharkhand.org

Jobs:

- www.noukri.com
- www.ruralnoukri.com
- www.jobsahead.com
- www.timesjobs.com
- www.careerindia.com
- www.bangaloreit.com

News & General Knowledge

- www.ddindia.com
- www.ddnews.com
- www.cnn.com
- www.msnbc.com
- www.samachar.com
- www.timesofindia.com
- www.zeenews.com
- www.aajtak.com

Entertainment:

- www.setindia.com
- www.startv.com
- www.bollywood.com

Gift

- www.indiagifthouse.com
- www.indiaforum.com
- www.shopping.indiatimes.com
- www.bazee.com

E Mail

- www.rediffmail.com
- www.yahoo.com
- www.sify.com
- www.123india.com
- www.email.com
- www.indiatimes.com
- www.hotmail.com
- www.chequemail.com

Lesson-08

Information dissemination through SMS and Voicemail

Important media/methods

Individual			Group			Mass		
1.	Personal visit		1.	Demonstrations		1.	Films & Slides	
	i)	Farm		i)	Method	2.	Flash cards	
	ii)	Home		ii)	Result	3.	Farm publications	
2.	Personal letter		2.	Training		4.	Model & exhibits	
3.	Personal telephone call		3.	Discussion		5.	Charts, diagrams	
				i)	Group	6.	Circular letters	
				ii)	Panel	7.	Newspaper	
				iii)	Symposium	8.	Campaigns	
				iv)	Forum	9.	Radio	
				v)	Group interview	10.	Audio cassettes	
				vi)	Dialogue or public conversation	11. 12.	Video cassettes Television	
				vii)	Workshop	13.	Internet	
				4.	Field days			
				5.	Tours			

Extension methods and criteria for their selection

- Type of audience
- Nature of message
- Objectives of communiccation
- Stage of adoption
- General local conditions
- Length of programme
- Stage of development
- Number of extension staff
- Expertise of extn. staff
- Access to media

- Preference of media
- Cost consideration
- Time period
- Others

Status of Telephone and Mobiles

- **Telephone Subscribers (Wireless and Landline):** 914.59 million (October 2011)
- **Land Lines:** 33.19 million (October 2011)
- **Cell phones:** 881.40 million (October 2011)
- **Monthly Cell phone Addition:** 7.79 million (October 2011)
- **Teledensity:** 76.03 % (October 2011)
- **Projected Teledensity:** 1 billion, 84% of population by 2012.

Internet Access	
Percent household access (total), 2011	8.5% of households (121 million)
Percent broadband household access	1.0% of households (13 million)
Internet Service Providers (2010)	180
Country code top-level domain	*.in*
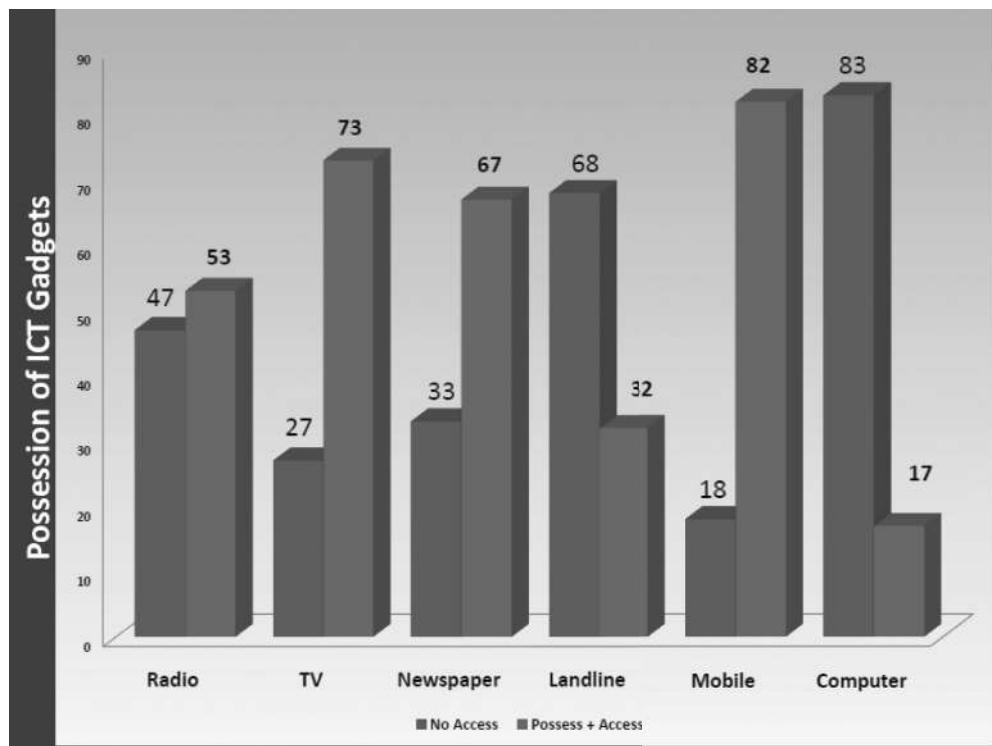
Status of mobiles in Jharkhand

Sl. No.	Company	No. of user (in lakh)
1.	BSNL	15.31
2.	Airtel	52.27
3.	IDEA	11.44
4.	Aircel	6.56
5.	Reliance GSM	24.73
6.	Reliance CDMA	11.76
7.	TATA GSM	24.73
8.	TATA CDMA	23.21
9.	MTS	3.33
10.	Uninor	12.92
11.	Vodaphone	14.04
	Total	215.56

Mobile

- A **mobile phone** (also known as a **cellular phone**, **cell phone** and a **hand phone**) is a device that can make and receive telephone calls over a radio link whilst moving around a wide geographic area.

- It does so by connecting to a cellular network provided by a mobile phone operator, allowing access to the public telephone network.

- The first hand-held mobile phone was demonstrated by Dr Martin Cooper of Motorola in 1973, using a handset weighing around 1 kg

Generation of Mobile

Generation	Year	Launched by	Feature
1 G	1981	NTT in Japan in 1979	Voice
2G	1991	Radiolinja in Finland on GSM standard	Voice, Text, GPRS
3 G	2001	NTT DoCoMo on WCDMA standard	Voice, Text, Multimedia, Internet
3.5, 3+, Turbo 3 G		based on the *high-speed packet access* (HSPA) family	High end feature

Mobile Standard

Standard	Feature
AMPS (Analog Mobile Phone Service**)**	high-reliability voice applications
TDMA: Time Division Multiple Access	digital standard, *support the creation of text messaging*
GSM (Global System for Mobile)	*support the creation of text and picture messages*
CDMA (Code Division Multiple Access)	CDMA is the newest and allows for the highest capacity

SIM & IMEI

SIM	IMEI
SIM (Subscriber Identification Module) securely stores and transmits International Mobile Subscriber Identities(IMSI)	**International Mobile Equipment Identity. The IMEI is only used for identifying the device .**
SIM is internationally identified by its integrated circuit card identifier (ICCID).	Usually found printed inside the battery compartment of the phone
IMSI can be displayed on other's mobiles.	can also be displayed on the screen of the phone by entering ***#06#** into the keypad on most phones
Provided by the service provider	Provided by the handset company

Function of Mobile Phone

- Telephony
- Text message
- Audio Message
- Multimedia Message
- Still Image Capture
- Video Capture
- Web browsing
- E mail
- Others

Short Message Service (SMS)

- **Short Message Service** (**SMS**) is a text messaging service component of phone, web, or mobile communication systems, using standardized communications protocols that allow the exchange of short text messages between fixed line or mobile phone devices.

- The first SMS message was sent over the Vodafone GSM network in the United Kingdom on 3 December 1992, from Neil Papworth ofSema Group (now Mavenir Systems) using a personal computer to Richard Jarvis of Vodafone using an Orbitel 901 handset. The text of the message was "Merry Christmas.

- Alternative implementations of the concept include J-Phone's *SkyMail* and NTT Docomo's*Short Mail*, both in Japan. Email messaging from phones, as popularized by NTT Docomo's i-mode and the RIM BlackBerry, also typically uses standard mail protocols such as SMTP over TCP/IP.

- In 2010, 6.1 trillion SMS text messages were sent.

Free SMS Sites

- way2**sms**.com

- www.160by2.com

- fullon**sms**.com

- www.send-**sms**-now.com

- www.**freesms**8.com

- **smsfree**4all.com

- www.send**freesms**.co.in

- www.fonearena.com

National Don't Call Registry

- For customers who would like to register/de-register their request for NDNC registry may

- dial 1909 or

- SMS to 1909 with keywords

- 'START DND' for registration and

- 'STOP DND' for de-registration

BAU Initiatives

Mobile based dissemination

Mobile has been expanding very fast in rural India. The people are using mobile for verbal communication and SMS. Average revenue per mobile user from GSM and CDMA mobile is Rs.131/- and Rs.76/- per month. The period of usage is 410 and 307 minutes respectively. An average Indian sends 29 SMS per month. The use of mobile in Jharkand with regard to agriculture is twofold. Farmers are accessing Kisan Call Centre (Number:

Data flow diagram for SMS based service

Under present project, SMS service will be provided to the farmers in both pull and push mode. Mobile has been widely accepted media of communication. In Jharkhand around 16 million mobile connections are prevalent. The important messages will be disseminated to the farmers in push mode. As far as pull mode SMS is concerned, the mobile (with MIDP 2.0 and CLDC 1.0) users can navigate to their requirement through the application to be installed on their mobile. A farmer can send queries in a guided mode and the system will generate a docket number. The queries will be redirected to the mobile of domain experts. The replies given by the domain experts will be sent to the concerned farmer in reference to the docket number. If

the volume of information is more, the replies will be stored in the server and SMS alert will be sent to the concerned farmer. The question-answers will be stored in the server which in long run will form FAQs. The innovation in the system is SMS based application in vernacular language and guided SMS.

The data flow diagram for mobile based service is presented in Figure 5. P2.1 is an accept and validate process which accepts and validates user's queries. P2.2 is a SMS process which search information from database and receives suitable answer. P2.3 is a SMS dispatch process which sends SMS to user. P2.4 is a generate docket number process which generates docket number and sends this to user to check their queries on internet and P2.5 is forward for response process which forward user's queries to respective faculties for response.
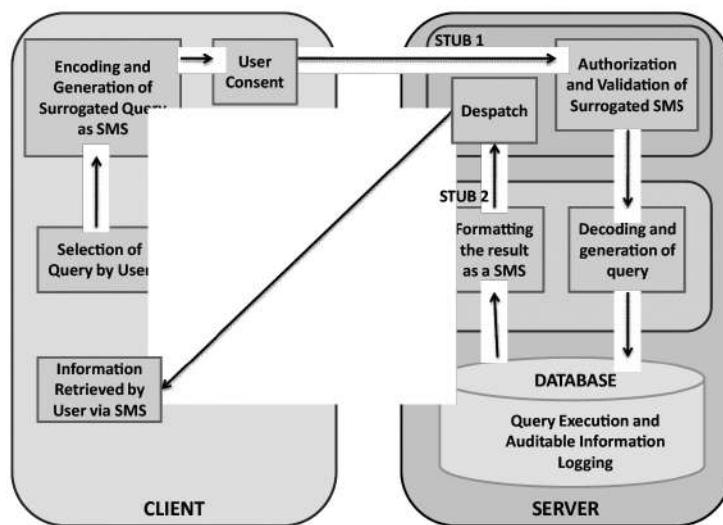
Lesson-09

Extension methodologies for ICT application

Extension methodologies for ICT application Agricultural development is the result of joint efforts and outcomes of research, extension, farmer and supporting organizations. Extension mechanism is necessary for promotion of information technology.

Agricultural Extension

- Carries technologies from research systems to the farmers

- Enhances knowledge and skill of the farmers

- Changes attitude of the farmers

- Facilitates adoption of the technologies

- Communicates feedback to the research system

Information Technology

In light of the foregone assumptions, the information technology (IT) mediated agricultural extension seem inevitable for :

- Rapid transfer of agricultural technologies

- Instant feedback

- Demand – driven suggestions

- Up-to-date information

- Effective decision making

SWOT Analysis of IT

S	W	O	T
State Policy, Interest of Pvt. Sector, Rising literacy including computer literacy, Infrastructure development, Versatile, use User friendly.	Costly affairs, Hostile and inaccessible area, Needs basic infrastructure like connectivity and electricity. Poor economic base and literacy of the people	Public-private partnership in development, Information demand of the people, Multifaceted use.	Fear of digital divide, Loss of traditional k n o w l e d g e and wisdom.

Emphasis on IT

- National Commission on Farmers indicated the need for ICT as ……. "ICT should be effectively harnessed to empower rural men and women through the Every Village a Knowledge Centre Movement with farming system and season specific information as well as market and price information".

- It has also stressed the importance of IT as follows. ……. "Village Knowledge Centres or Kiosks should be established at appropriate and accessible-to-all sites, such as at Gramsabha's or Panchayat's premises or at agriclinics following publicprivate-partnership approach.

Organizational structure of IT intervention in Jharkhand

State Department of Information Technology

State Designated Agency (SDA) Jharkhand Agency for Promotion of Information Technology (JAPIT)

Service Centre Agency (SCA) Namely, United Telecom Ltd. and Alternative for India Development

Common Service Centres (CSCs)
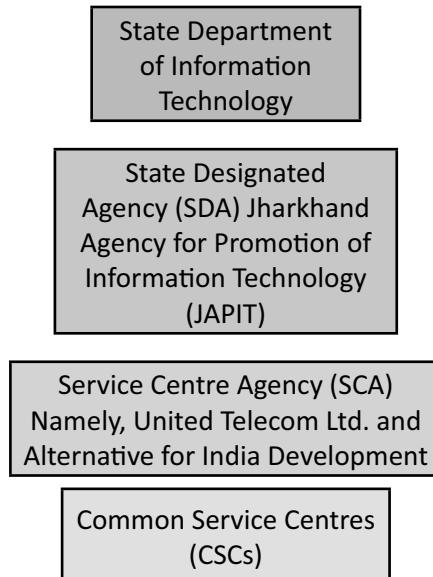
Services to be delivered

- On-line counseling
- Video conferencing
- Web-based application
- e-mail
- Voice-mail
- SMS

Status of Common Service Center (CSC) in Jharkhand

Sl. No.	Service Centre Agency	Allotted CSCs	Formed CSCs	Region
1.	UTL-Orion	2943	1100	North and as well as South chhotanagpur and Kolhan Division
2.	Zoom Connect Services	1019	1012	Santhal Pargana Division
3.	Alternative for Development	600	150	Palamu Division
	Total	**4562**	**2262**	**Roughly 50% achievement**

BAU Initiatives to provide agricultural supply and services to the farmers through CSCs

- There are altogether three Service Centre Agencies viz. United Telecom Ltd. (UTL)-Orion, Zoom Connect Services Pvt. Ltd. and Alternative for India Development in Jharkhand which are promoting 4,562 Common Service Centres at Panchayat level.
- The university took initiative to sign MOU with all the three Service Centre Agencies for taking up supply and services of BAU to the farmers through Common Service Centres. With this approach the university has made reach to entire Jharkhand State.

Lesson-10

Kisan Call Centre

The Department of Agriculture & Cooperation (DAC), Ministry of Agriculture, Govt. of India launched Kisan Call Centers on January 21, 2004 across the country to deliver extension services to the farming community. The purpose of these call centers is to respond to queries related to agriculture and allied sectors raised by farmers, instantly, in the local language. There are call centers for every state which are expected to handle traffic from any part of the country.

Operational Mechanism

A Kisan Call Center consists of a complex of telecommunication infrastructure, computer support and human resources organized to manage effectively and efficiently the queries raised by farmers instantly in the local language. Mainly, Subject Matter Specialists (SMSs) using telephone and computer, interact with farmers to understand the problem and answer the queries at a Call Centre.

This is a new dimension in Agriculture Extension Management, which takes account of, and makes full use of on-going information and communication revolution, by optimally utilizing the communication bandwidth to serve the farming community in remotest areas of the country by connecting them to best of the agricultural scientific community. This is an important value multiplier for the existing extension mechanisms, which find it otherwise difficult (in terms of infrastructure and finances) to reach their desired clientele. This will enable establishment of close linkages and seamless communication mechanism among the key stakeholders in the extension system namely – Agricultural Scientists, Extension Functionaries, Farmers and Marketing Agencies.

Schematic Representation

Farmer Dials Help Line No: 1800-180-1551

```
                          Call Routes on to
                            8 BSNL lines
                                 |
                                 v
          Level –I  Functionaries (Agri. Graduates) will pick up calls
                                 |
                                 v
          Functionary greets the farmer with the opening phrase
                                 |
                                 v
```

Technical query on:
- Crop Production
- Crop Protection
- Horticulture
- Animal Husbandry
- Agriculture
- Marketing

Data Capture

- Name
- Address
- Contact No.
- Query

Admin Related Call, Dealing with Government Schemes & Subsidy, Seeds Position, Gypsum, and Fertilizers, Pesticides, Insurance & Credit.

Transfer the Call & Screen to Appropriate Officers at Level-II

If the query is not resolved

Answer the Query

If the query is Resolved

If the Query is NOT Resolved

If the Query is Resolved

Close the Call with Closing Phrase

Inform the caller that we shall get back to him with details.

Level-III: Out going Call with Full data

Three-tier information management

The Kisan Call Center infrastructure is placed at three locations namely

- A professionally managed Call Center (Level-I)

- A Response Center in each organization, where services of SubjectMatter Specialists are made available (Level-II)

- The Nodal Cell (Level-III)

Level-I :

The technical infrastructure at Level-I is the most critical and complex. The farmers' call lands on a switch in BSNL and the same is transferred to one of the 8 hunting lines (on first come first serve basis) at the Call Center premises. Here there will be two Agriculture Graduates picking up these calls and capturing data.

To facilitate this, the hunting lines will have interface with Local Area Network (LAN) at the premises of a Call Center. Two nodes of LAN (with two computers, two telephones with head phones and tele-conferencing facility, support of the server and Internet connectivity) will be dedicated to Kisan Call Center. The entire backup support system consisting of Uninterrupted Power Supply (for both server and the nodes), Air-conditioning System and other logistics is made available by the Call Center. The responsibility of the Nodal Officer is to see that two Agriculture Graduates are placed to serve as Level-I functionaries as Agri-communicators at the identified Call Center. The whole technical infrastructure at Level-I (including dedicated line with a toll free number identified by Ministry of Agriculture, Govt. of India) is owned and maintained by Call Center Management. Level - I Staff has to answer the queries immediately. The queries which cannot be answered are referred to level II and III.

Level-II :

It is proposed to have a Response Center in the working territory of each Institution or Agency, who will provide services of Level-II functionaries. The basic infrastructure at Level-II includes a dedicated high bandwidth telephone line (preferably 128 kbps ISDN line), a Desktop Computer System with Internet connectivity, one printer and a 2 KVA UPS system and appropriate logistic support in terms of an exclusive room with air-conditioning. This is organized by the Nodal Agency at the identified resource institutions.

Level-III :

The Level-III operations will be managed at the identified Nodal institutions. The basic infrastructure at Level-III will include a dedicated high bandwidth telephone line (preferably 128 kbps ISDN line), a Desktop Computer System with Internet connectivity, one printer and a 2 KVA UPS system and appropriate logistic support. The Level-III is supposed to be manned by a Senior Officer from the Nodal Institution. The infrastructure will also include appropriate software for analysis of call data and reporting mechanism (with provision for daily, weekly and monthly reporting systems with support on crop / enterprise wise, region wise and issue wise reports). This system demands a support of an ICT Facilitator of the Nodal Institution to continually support proper logging, analysis, documentation and reporting at Level-III. This is organized by the Nodal Institution at their own premises. For Jharkhand BAU is the nodal agency.

Monitoring & Review

For successful functioning of Kisan Call Centers, there is a need to monitor and review the various activities of the KCC by the Nodal Institution on regular basis. The Nodal Institution is responsible for documenting the daily activities of the Kisan Call Center at various levels on farmers' queries and their resolution, availability of Subject Matter Specialists, call dropouts and their transfer to Level-III and response to the farmers within 72 hours. The Nodal Institution will also organize fortnightly meetings with the Heads of Departments of Response Centers for first 6 months to ensure the proper identification and placement and changes if necessary of Level-II functionaries and resolution of the queries shared with Subject Matter Specialists and their documentation. Subsequently, these meetings will be held every month in Response Centers on rotation.

S No.	Name of Districts	E-Mail Address of ATMA	Web Site of ATMA	E Mail Address of KVK
1	Dumka	atma_dumka@rediffmail.com	www.atmadumka.org	pckvkdumka@yahoo.com, srikant.1075@rediffmail.com
2	Jamtara	atmajmt@gmail.com	www.atmajamtara.org	Kvk_jamtara@rediffmail.com sanjeevbau@rediffmail.com
3	West Singhbhum	atmachaibasa@yahoo.com	www.atmachaibasa.org	malakkvk@gmail.com
4	Palamau	atmapalamau@rediffmail.com	www.atmapalamu.org	kvkpalamu@rediff.com
5	Chatra	atmactr@rediffmail.com	www.atmachatra.org	ranjaykumarsingh_06@rediffmail.com
6	Garhwa	atmagarhwa@gmail.com	www.atmagarhwa.org	kvk_garhwa@yahoo.com kvkgarhwa@gmail.com
7	Hazaribagh	atma_hazaribag@rediffmail.com	www.atmahazaribagh.org	holycrosskvk@gmail.com
8	Seraikella	atmaseraikella@yahoo.co.in	www.atmaseraikella.org	kvkseraikella@gmail.com
9	Bokaro	atmabokaro@gmail.com	www.atmabokaro.org	Kvk_bokaro@yahoo.co.in
10	Dhanbad	atmadhanbad@gmail.com	www.atmadhanbad.org	kvkdhanbad@rediffmail.com
11	Koderma	atmakoderma2009@rediffmail.com	www.atmakoderma.org	rksingh@scientist.com
12	Giridih	atma20giridih@rediffmail.com	www.atmagiridih.org	Jayant1611@gmail.com
13	Godda	atmagodda@gmail.com	www.atmagodda.org	kvkgodda@yahoo.co.in
14	Pakur	atma_pkr@rediffmail.com	www.atmapakur.org	kvkpakur@gmail.com
15	Latehar	atmalatehar@gmail.com	www.atmalatehar.org	kvk_latehar@rediffmail.com
16	Lohardaga	atma.lohardaga@rediffmail.com	www.atmalohardaga.org	lohardagakvk@yahoo.com kiran28ent@gmail.com
17	Gumla	atmagumla@rediffmail.com	www.atmagumla.org	drsanjay_pandey@yahoo.co.in
18	Deoghar	b.bikramjit@rediffmail.com	atmadeoghar@rediffmail.com	kvkdeoghar@yahoo.co.in
19	Simdega	nfsmsimdega@gmail.com atma_simdega@yahoo.in	www.atmasimdega.org	Kendra.krishi@rediffmail.com
20	East Singhbhum	atmajsr321@gmail.com	www.atmaeastsinghbhum.org	kvkeastsinghbhum@rediffmail.com gondra.mardi@gmail.com
21	Khunti	atmakhunti@yahoo.in	www.atmakhunti.org	---
22	Ramgarh	atma_ramgarh@rediffmail.com	atmaramgarh@gmail.com	---
23	Sahebganj	atmasahibganj@rediffmail.com	www.atmasahebganj.org	kandirkm@rediffmail.com dilipkr_mahto@rediffmail.com
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