The Function and Application of Spreadsheets

Objectives:

➢ The student will understand what a spreadsheet is.

➢ The student will learn how spreadsheets are used in agriculture.

➢ The student will learn to use a spreadsheet.

What is a spreadsheet?

- Spreadsheet = computer software program
  - User enter numbers and text into a table
  - Table has rows and columns
  - Can maintain and manipulate those numbers

- Some credit Dan Bricklin, a Harvard Business School student as the "father" of the electronic spreadsheet in 1978

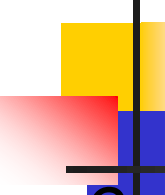a. Spreadsheets = computerized grid consisting of rows and columns = cells

b. Cells can be:

- changed to any size in order to display text or numeric data

- formatted much like a Word document

c. Cells can be given a variety of borders and colors

d. Data in each cell can be formatted in a variety of ways including currency, dates, percent, or text.

e. Cells can also be given a very wide variety of mathematical formulas = addition, subtraction, multiplication, and division

f. Data in cells can also be converted to graphs

g. More complex formulas can also be used to make financial, statistical, logical, and other calculations.

How are spreadsheets used in Agriculture?

AGRIBUSINESS USES

- **Inventories**
  - calculate the total inventory value
  - Calculate change in value from the beginning to the closing inventory

- **Balance Sheet**
  - add values for assets and liabilities
  - calculate net worth and financial ratios

Budgets

- complete personal, partial, enterprise, or complete business budgets
- can be saved from year to year and changes are quick and easy

Cash Flow

- advanced cell formulas
- can indicate how much and when operating loans will be needed

Financial Planning

- keep track of finances like checking and savings accounts as well as investment
- Interest, amortized payments, and future value can all be calculated

Graphs

- data and statistics can be displayed
- bar graphs, line graphs, pie charts or other displays.

Invoices

- can be used to create invoices so an agribusiness can bill customers

ENTERPRISE SPECIFIC USES

- **Animal Science** – breeding records, feeding & ration balancing, veterinary records, yield grading, efficiencies, other.

- **Ag Mechanics** – maintenance records, bill of materials, fuel usage, depreciation.

- **Agronomy** – chemical application (purchasing, mixing), harvest yields, soil types, fertilizer applications.

Basic functions to use Excel

- Like Word, Excel utilizes similar menu bars and icons for various operating functions.

- A grid of numerical rows and alphabetical columns create individual cells that can contain different types of data (numbers/text).

- Using the mouse you can move from cell to cell, click on menus and toolbars, scroll, resize rows and columns etc.

Basic information to use Excel

- using the keyboard you can enter data/information, tab, move with arrow keys

- a spreadsheet file or document is called a workbook – workbooks can have multiple pages called sheets.

- to save an Excel spreadsheet, just click on file and save as. Chose a file name and location.

This is what a blank Excel Spreadsheet looks like

The tool bar icons and menus are very similar to what you use in Word.
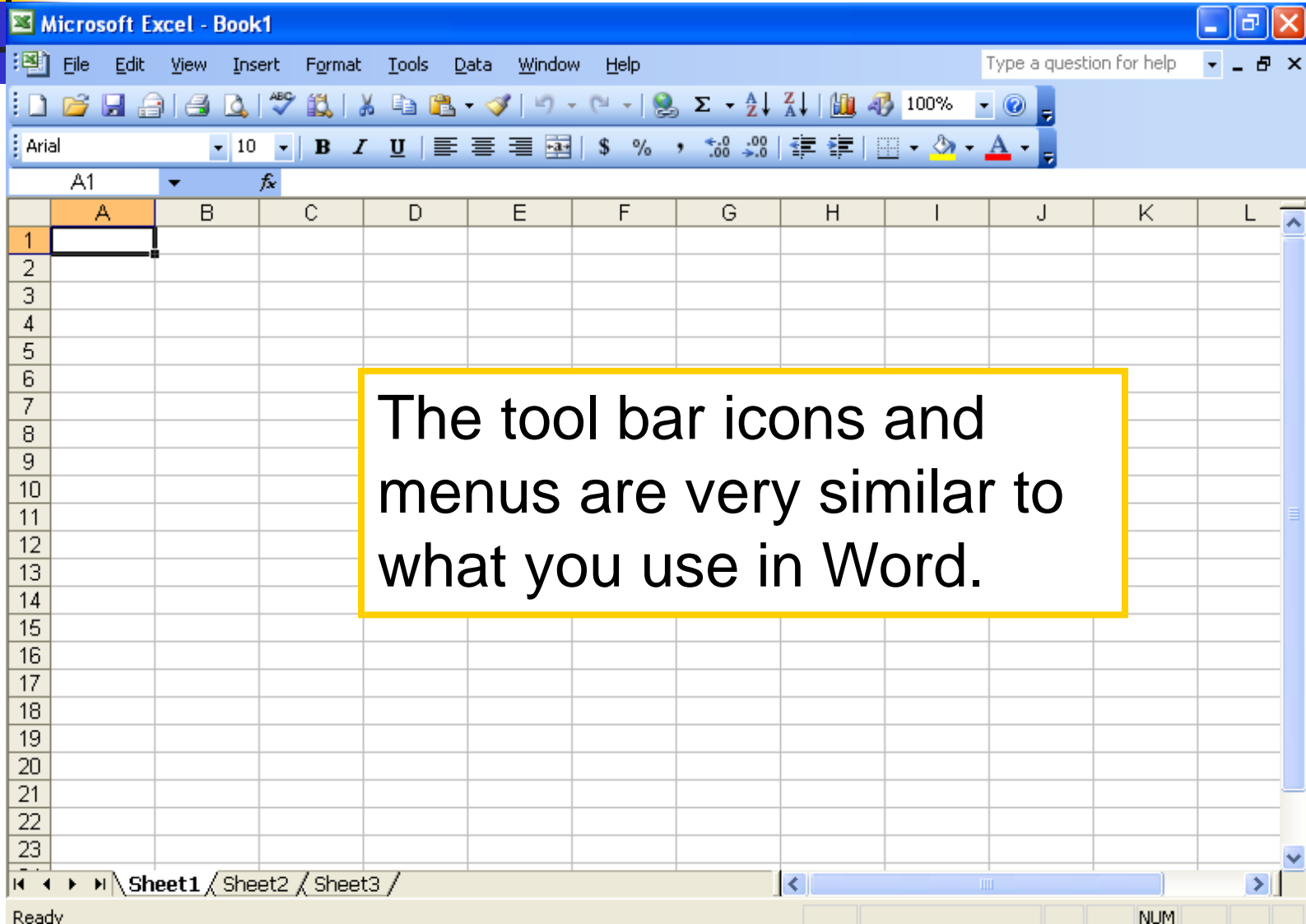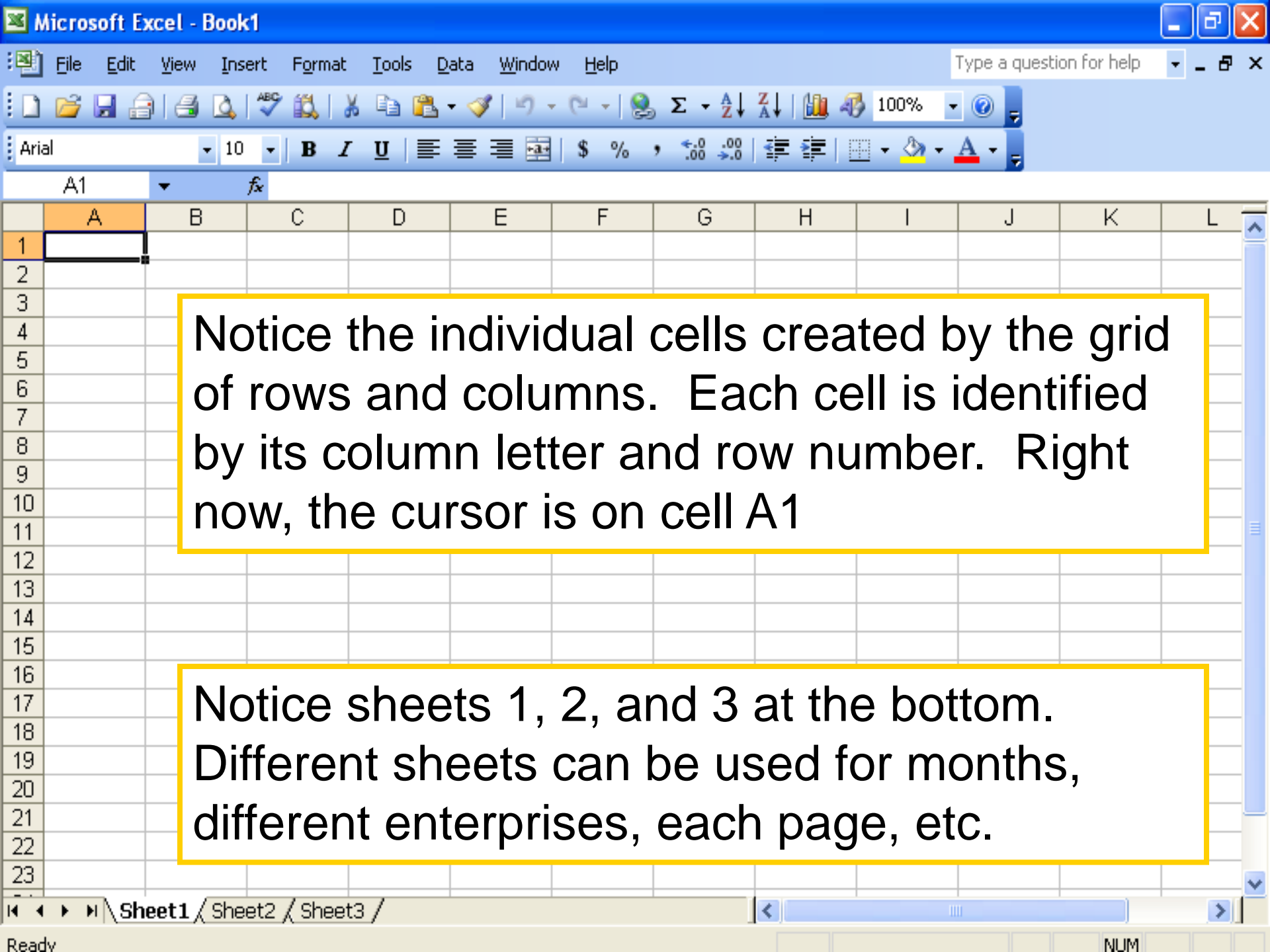
Notice the individual cells created by the grid of rows and columns. Each cell is identified by its column letter and row number. Right now, the cursor is on cell A1

Notice sheets 1, 2, and 3 at the bottom. Different sheets can be used for months, different enterprises, each page, etc.
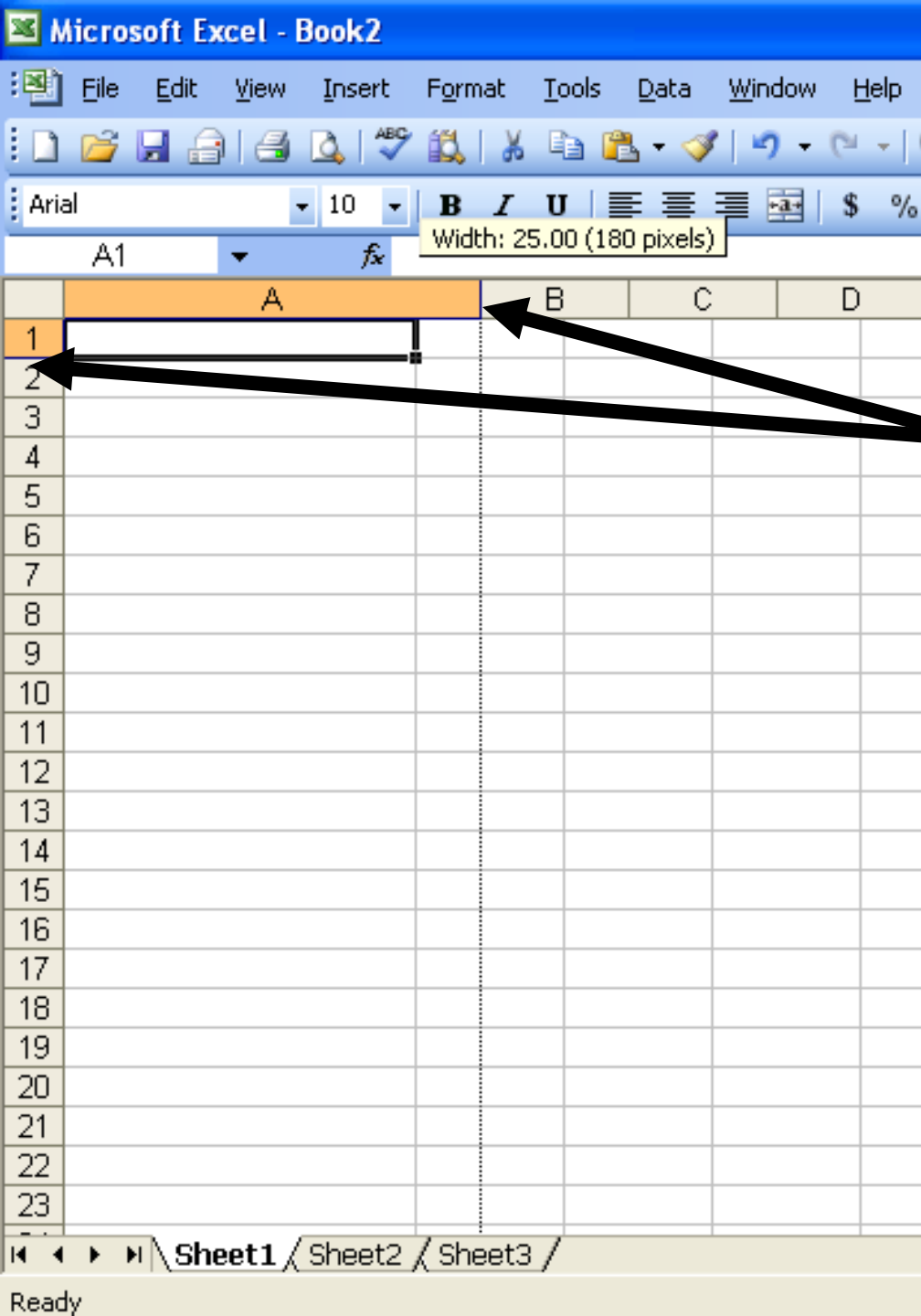
Rows and columns can easily be resized by clicking, holding, and dragging on the line between rows or columns
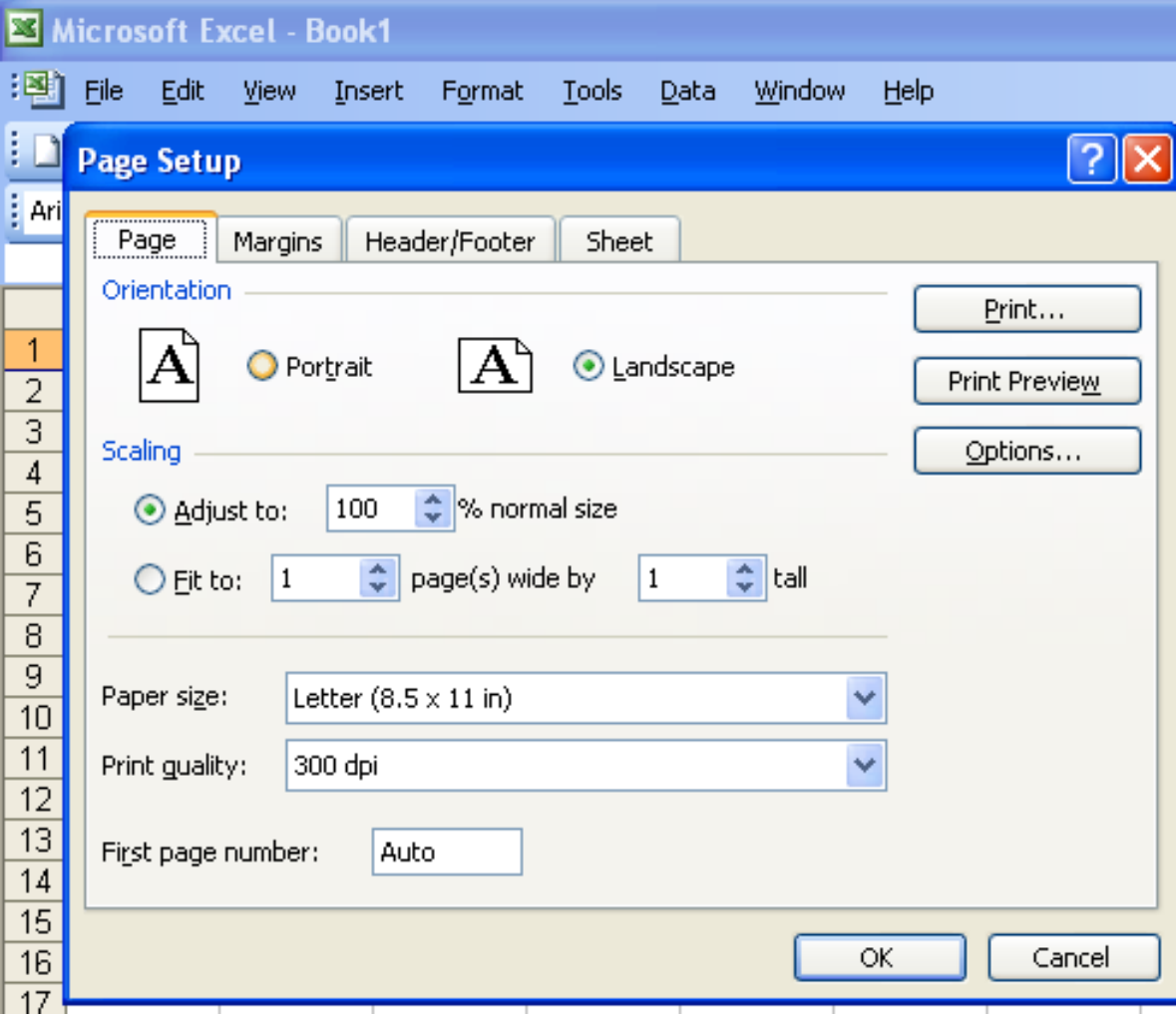
By clicking on **file**, then **page setup**, this menu will appear.

You can customize your page including margins, header/footer, and other sheet options like printer row and column headings or gridlines.

Using the Format Menu is very important
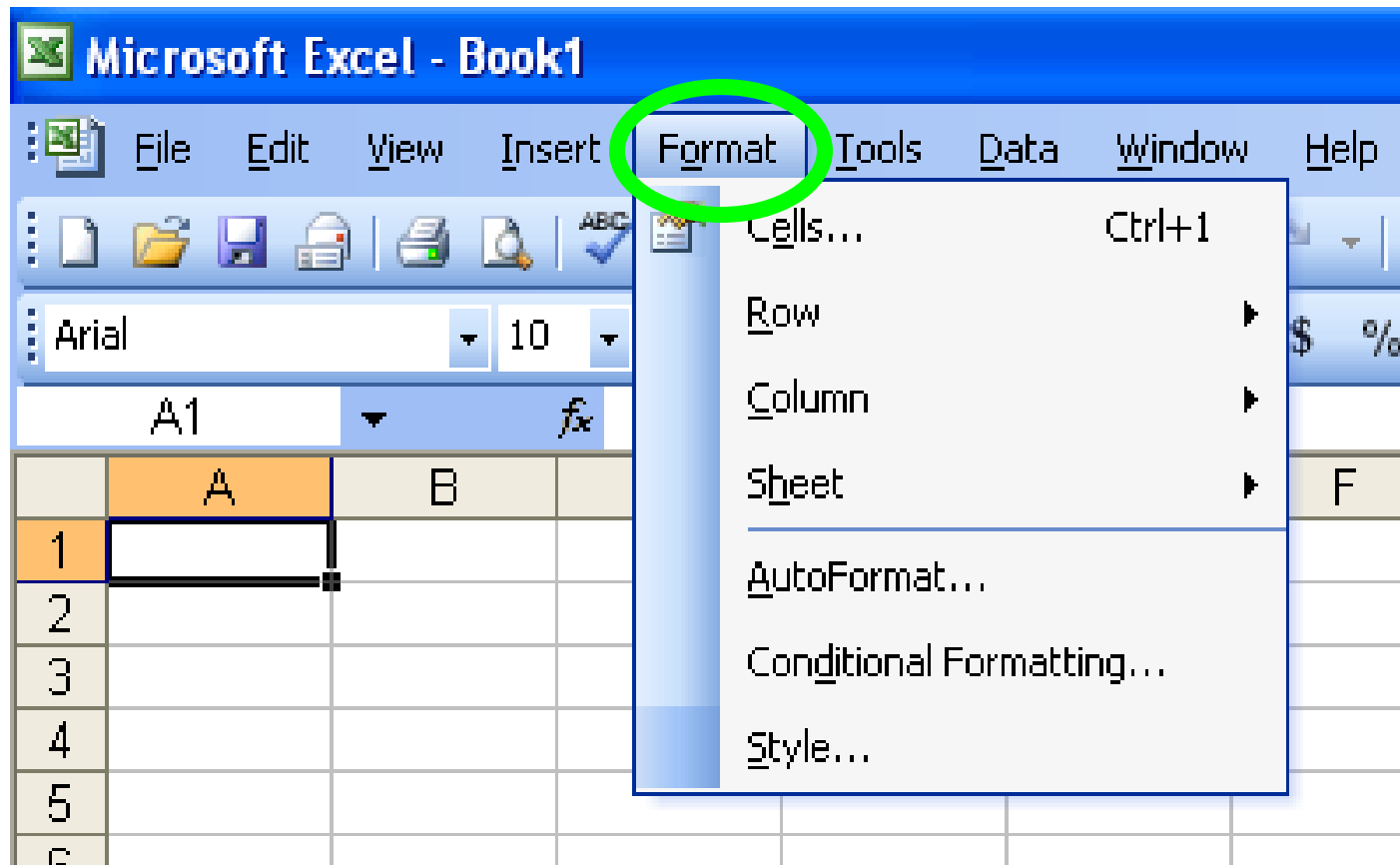
Click format, then click cells
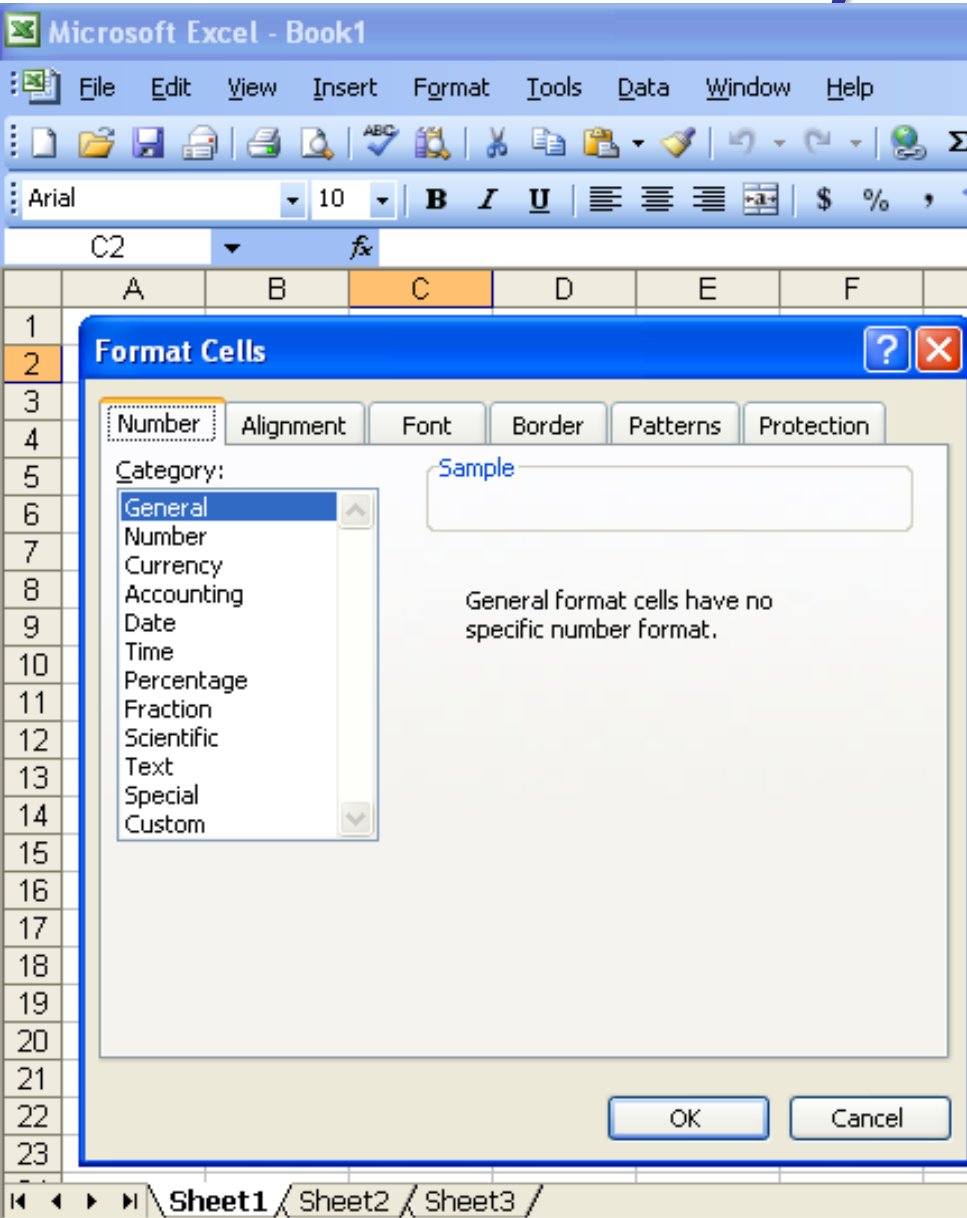
From this menu you can:

✓ Format **numbers** into currency, percent, dates, and other formats

✓ Format **alignment** of cell contents

✓ Format **font** like in Word

✓ Format **borders** of cells

Creating Formulas

☺ The awesome power of Excel lies in the ability to create mathematical and logical formulas in cells that automatically complete many different kinds of calculations.

☺ With this lesson you will learn how to use the basic math functions of add, subtract, multiply, and divide.

File   Edit   View   Insert   Format   Tools   Data   Window   Help

Type a question for help

Arial   12   **B** *I* U

B1   *fx*   (enter name of project)

	A	B	C	D		F	G	H
1	Bill of Materials for:	(enter name of project)						
2	Date of Purchase:	(enter date)						
3								
4	**Item**	**qty**	**price**	**amount**				
5	foam sill plate sealer	1	$ 5.35	$ 5.35	=B4*C4			
6	2 × 6 × 14'	6	$ 8.29	$ 49.74				
7	2 × 4 × 16'	4	$ 6.65	$ 26.60				
8	2 × 6 × stud (92-5/8")	32	$ 3.98	$ 127.36				
9	2 × 4 × stud (92-5/8")	38	$ 2.79	$ 106.02				
10	16D nails	2	$ 5.69	$ 11.38				
11	10D nails	1	$ 7.14	$ 7.14				
12	3" drywall/deck screws	1	$ 19.22	$ 19.22				
13	#6 × 1-5/8" drywall/deck screws	1	$ 4.11	$ 4.11				
14	concrete screws (3/16" × 2-3/4")	1	$ 18.75	$ 18.75				
15	2 × 12 × 20'	4	$ 25.96	$ 103.84				
16	1 × 8 × 12'	4	$ 10.97	$ 43.88				
17	liquid nails	4	$ 1.96	$ 7.84				
18	subtotal			$ 531.23	=SUM(D4:D18)			
19	tax	7.5%		$ 39.84	=D19*B20			
20			grand total	$ 571.07	=SUM(D19:D20)			

This is the autosum button used for some formulas

I◀ ◀ ▶ ▶I \ **Bill of Materials** / Personal Budget / Sheet 3 /

Ready   NUM

Creating Formulas

1. position the cursor in the cell where you want the formula
2. you can click the autosum button from the tool bar or type an equals sign (=)
3. The autosum button is good if you want to add a series of numbers in a column
4. Using the equals sign is good for any of the four basic math functions
5. After clicking the = sign, click on the first cell you want to use in the calculation.

Creating Formulas

6. Next type a +, -, *, or / to add, subtract, multiply, or divide.

7. Next click on the next cell you want to use in the calculation

8. Last, hit enter.

9. The following slides are two examples of spreadsheets that use simple formulas

10. During the extended classroom activity time of the lesson, you will create one of these two spreadsheets.

File Edit View Insert Format Tools Data Window Help

Type a question for help

Arial 12

B1   fx (enter name of project)

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18	subtotal			$ 531.23	=SUM(D4:D18)
19	tax	7.5%		$ 39.84	=D19*B20
20		grand total		$ 571.07	=SUM(D19:D20)

Notice the formulas used to calculate the bill of materials

Bill of Materials / Personal Budget / Sheet 3 /

Ready

NUM

File   Edit   View   Insert   Format   Tools   Data   Window   Help

Type a question for help

Arial   12   **B** *I* <u>U</u> $ %   ,   .00 .00   ▤ ▾ ◇ ▾ **A** ▾

B1   *fx*   (enter name)

	A	B	C	D	E	F	G	H
1	Personal Monthly Budget for:	(enter name)						
2								
3	**Income**	**Monthly Amount**						
4	Allowance	$ 25.00						
5	Part time job / SAEP	$ 200.00						
6	Other?							
7								
8	**Total Monthly Income**	$ 225.00	=SUM(B4:B7)					
9								
10								
11	**Expenses**	**Monthly Amount**						
12	Cell phone bill	$ 45.00						
13	Food	$ 40.00						
14	Recreation/Entertainment	$ 35.00						
15	Clothes	$ 30.00						
16	Fuel	$ 25.00						
17	College Savings	$ 20.00						
18	Vehicle Maintenance	$ 15.00						
19	Supplies	$ 10.00						
20	**Total Monthly Expenses**	$ 220.00	=SUM(B13:B19)					
21								
22								
23	**Income minus Expenses**	$ 5.00	=B9-B20					
24								

Notice the formulas used to calculate the bill of materials

◄ ◄ ► ► Bill of Materials **Personal Budget** Sheet 3

Ready   NUM

File   Edit   View   Insert   Format   Tools   Data   Window   Help

Type a question for help

Arial   10   **B** *I* U $ %   ,

Borders

A1

	A	B	C	D	E	F	G	H	J	K	L
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
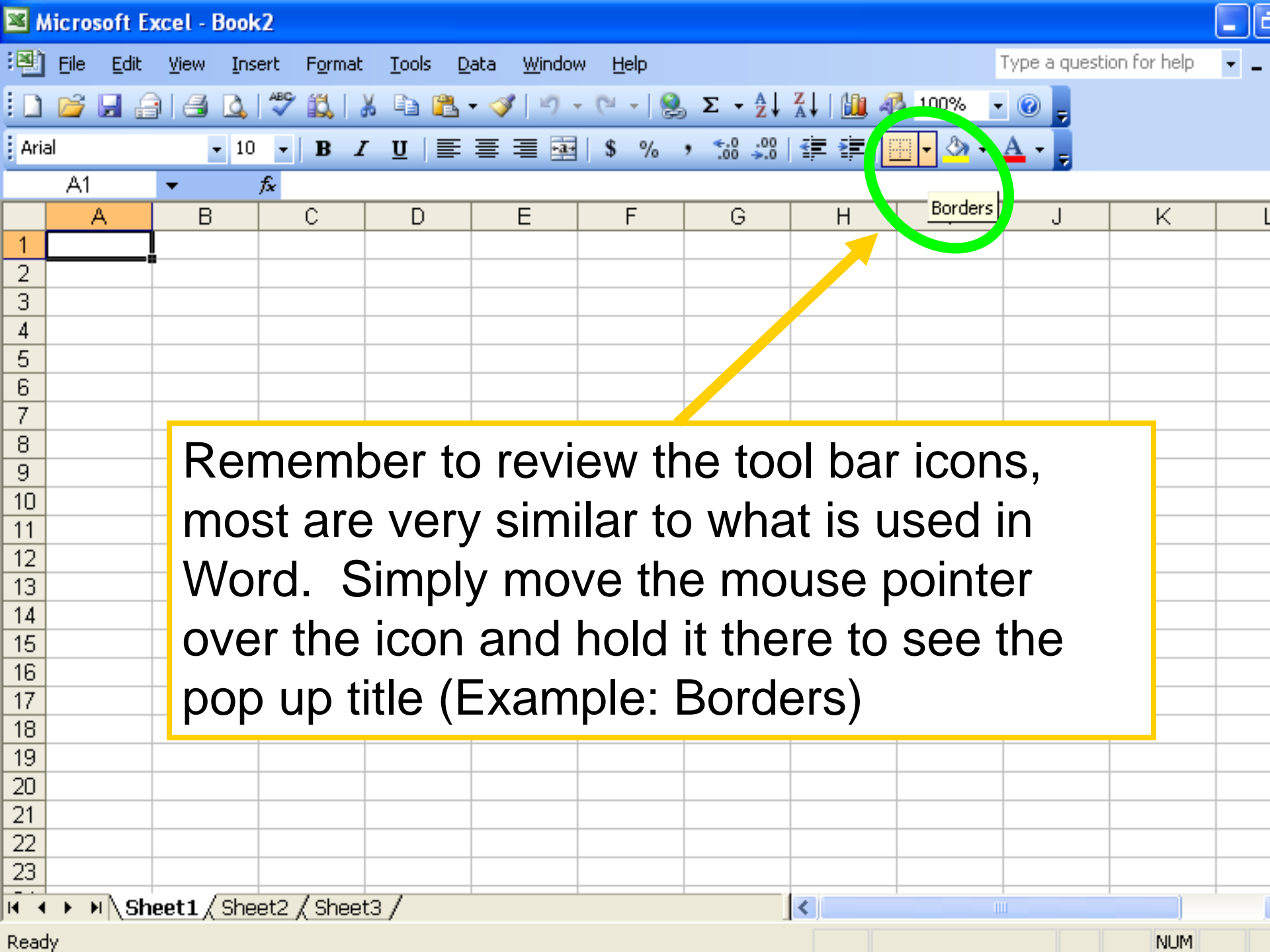
Remember to review the tool bar icons, most are very similar to what is used in Word. Simply move the mouse pointer over the icon and hold it there to see the pop up title (Example: Borders)

Sheet1   Sheet2   Sheet3

Ready

NUM

Have fun using Excel Spreadsheets!