

Spreadsheets

Slides from lecture preceding

Spreadsheets Exercise

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Seismology in the Early 1900s

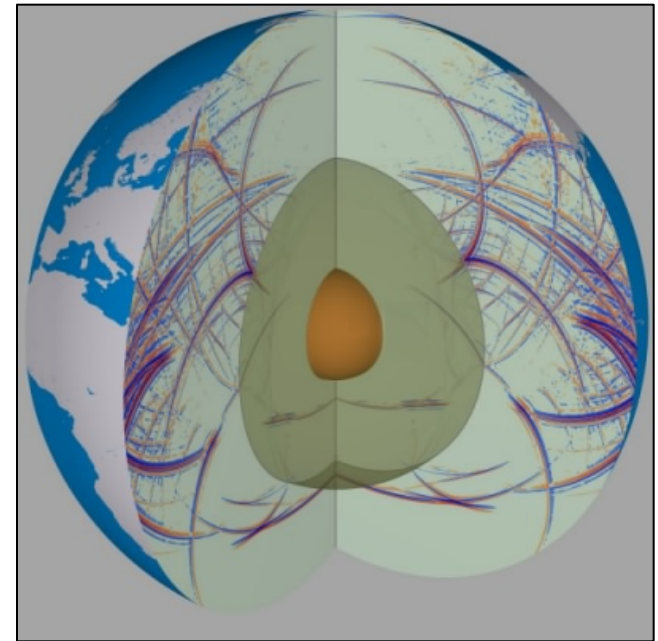
Nephew: I remember Inge (Lehmann) one Sunday in her beloved garden...with a big table filled with cardboard oatmeal boxes. In the boxes were cardboard cards with information on earthquakes...all over the world. This was before computer processing was available, but the system was the same. With her cards and her boxes, Inge registered the velocity of propagation of the earthquakes to all parts of the globe. By means of this information, she deduced new theories of the inner parts of the Earth.

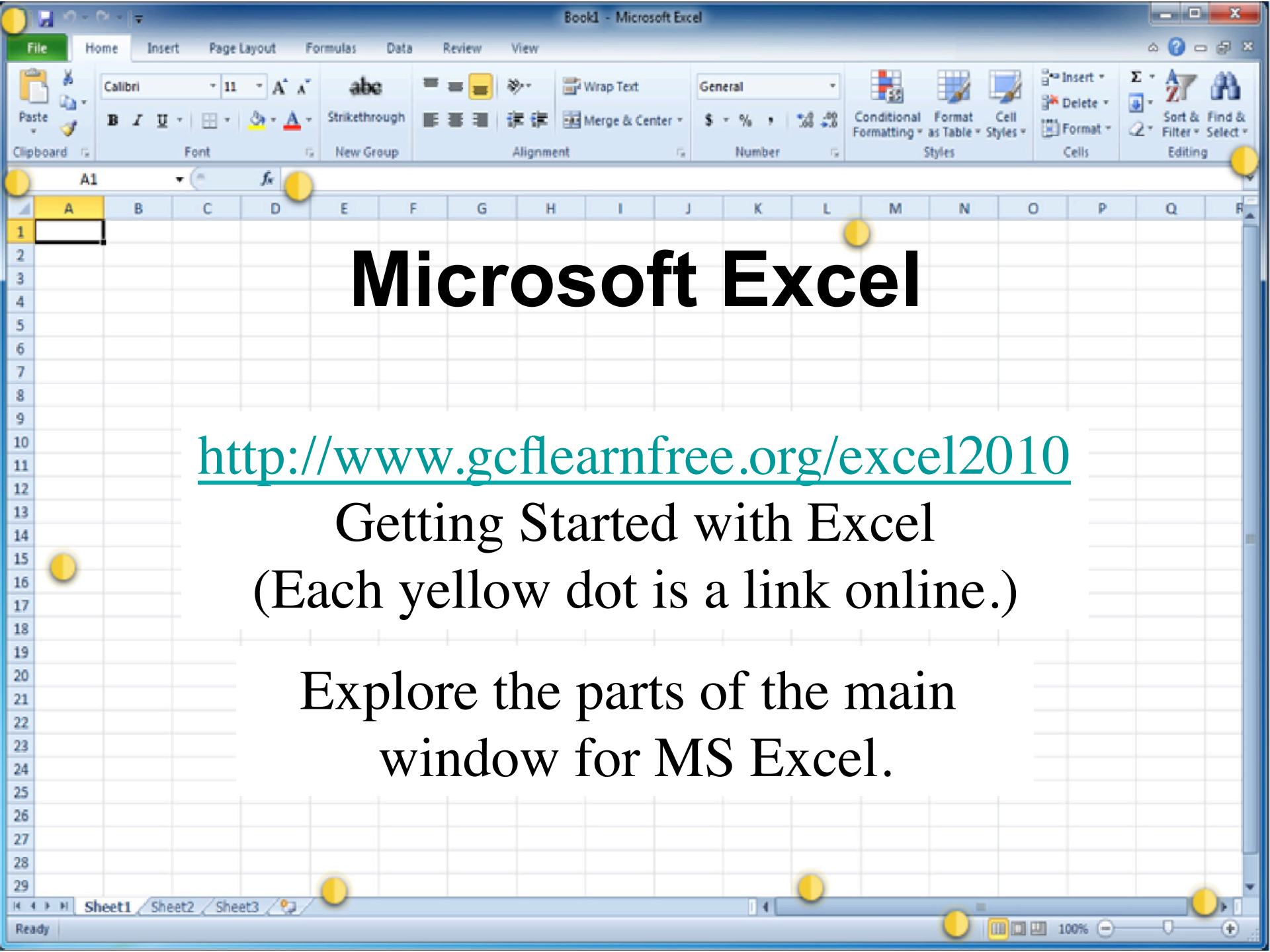


Earthquake Data

- **Any EQ generates a great amount of data**
 - **P, S, and surface waves**
 - **Other waves that reflect from interior boundaries**
 - **Foreshocks, aftershocks...**
 - **Computers made organizing and analyzing data much easier**

Earth “rings like a bell” after an EQ.





Microsoft Excel

<http://www.gcflearnfree.org/excel2010>

Getting Started with Excel
(Each yellow dot is a link online.)

Explore the parts of the main
window for MS Excel.

1

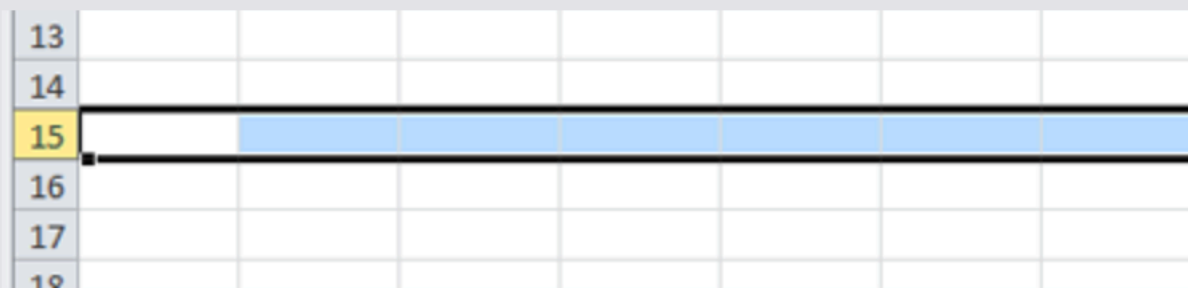
Quick Access Toolbar

The **Quick Access Toolbar** lets you access common commands no matter which tab you are on. By default, it shows the Save, Undo and Repeat commands. You can add other commands to make it more convenient for you.



Row

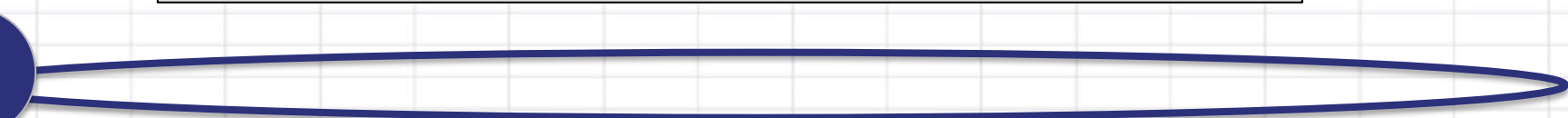
A row is a group of cells that runs from the left of the page to the right. In Excel, rows are identified by numbers. Row 15 is selected here.

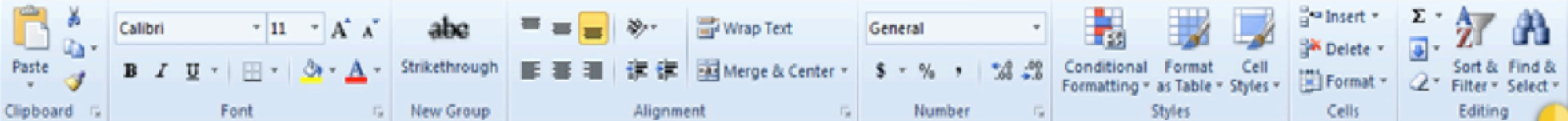


The image shows a close-up of an Excel spreadsheet. Row 15 is highlighted in light blue. The row numbers 13 through 18 are visible on the left side of the grid.

13					
14					
15					
16					
17					
18					

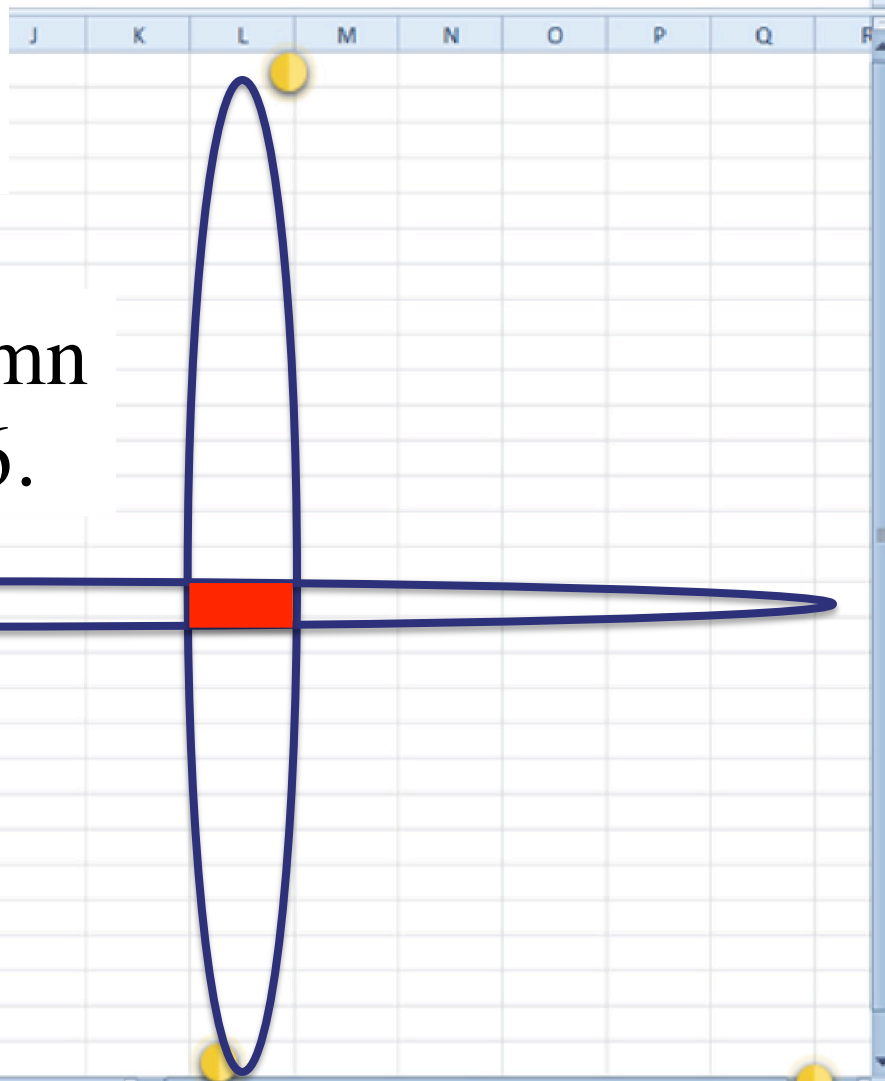
2

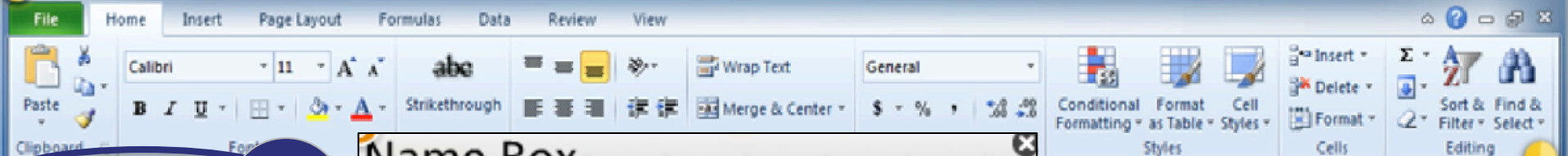




A row and a column intersect to form a **cell**.

A cell is named by its column letter and row number: L16.

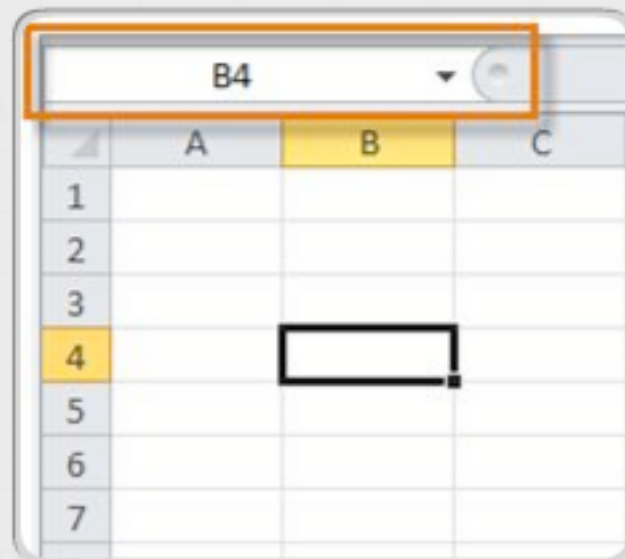




4

Name Box

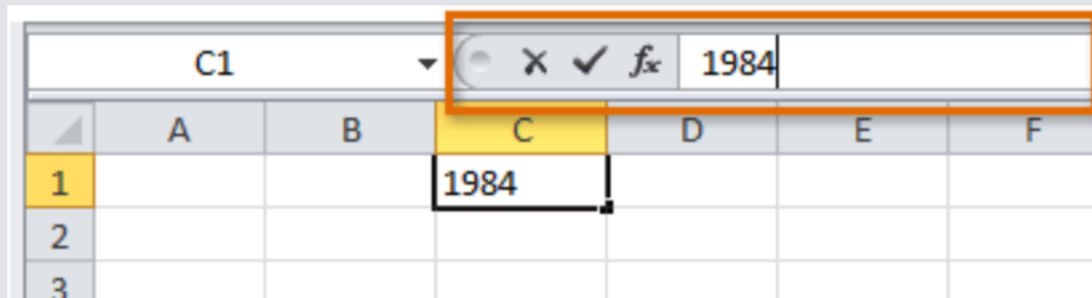
The **Name box** tells you the location or the "name" of a selected cell. In the image below, cell B4 is in the Name box. Note how cell B4 is where column B and row 4 intersect.

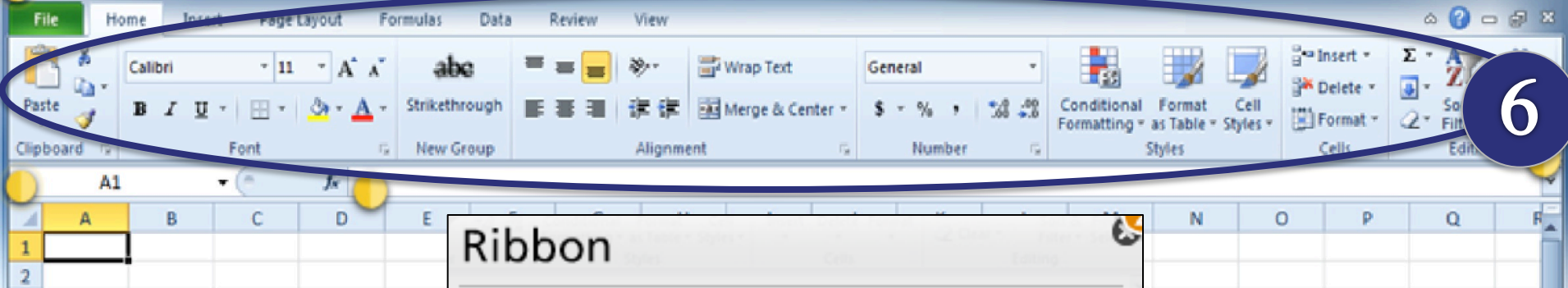


The screenshot shows the Microsoft Excel interface. The ribbon is set to the 'Home' tab, with the 'Font' group selected. The formula bar is visible at the top, and a blue circle with the number '5' is overlaid on it. The spreadsheet grid shows cell C1 selected, and the number '1984' is entered into the formula bar and cell C1.

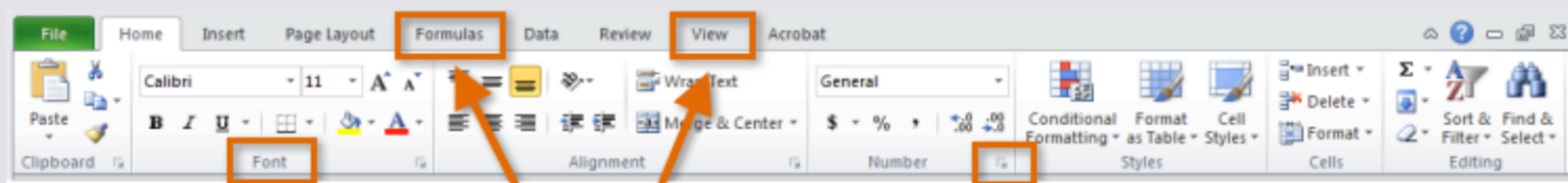
Formula Bar

In the formula bar, you can enter or edit data, a formula, or a function that will appear in a specific cell. In this image, cell C1 is selected and 1984 is entered into the formula bar. Note how the data appears in both the formula bar and in cell C1.





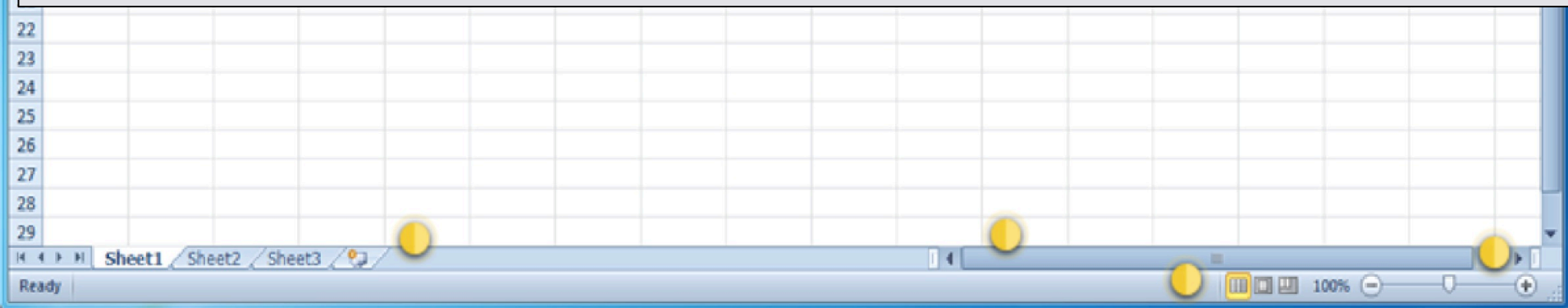
Ribbon



Each tab will have one or more groups.

Click on a tab to see more commands.

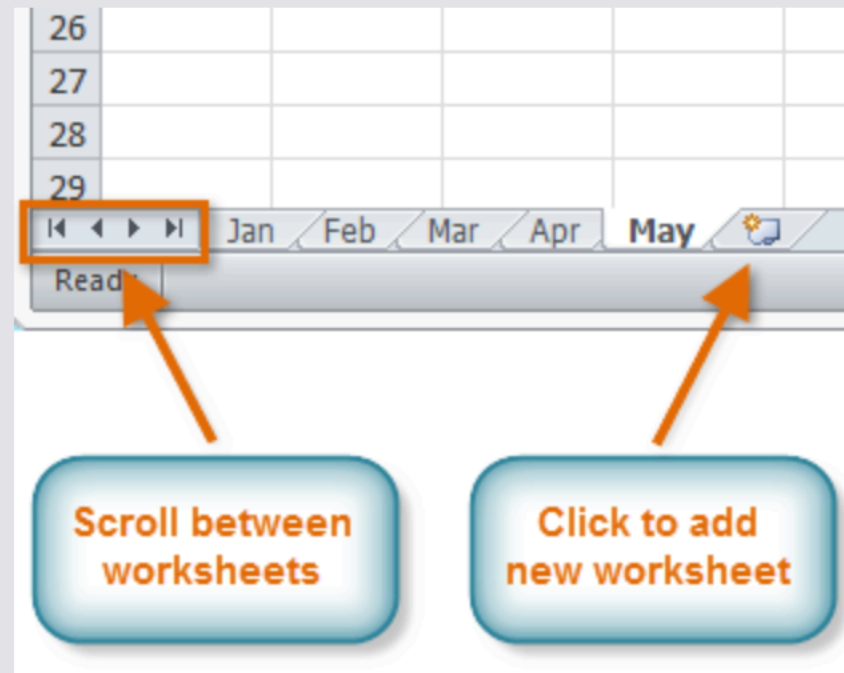
Some groups will have an arrow that you can click for more options.



Worksheets

Excel files are called **workbooks**. Each workbook holds one or more **worksheets** (also known as **spreadsheets**).

Three worksheets appear by default when you open an Excel workbook. You can rename, add, and delete worksheets.



Teaching Notes and Tips

This exercise is divided into three complementary sections. The exercise may be completed in one extended laboratory period, or individual sections may be assigned as separate, shorter activities or as homework.

Please note that computers must be available for use in this activity.

The earthquake dataset was downloaded from <https://earthquake.usgs.gov/earthquakes/search/> using the following search parameters: custom magnitude ≥ 4 , custom date range of 2011-10-01 00:00:00 to 2011-10-31 23:59:59, and output format of CSV. The data were then cleaned up and reformatted in Excel to provide a very large dataset for the activity. Other search parameters could be entered, or the specific questions about the data could be changed from term to term.

Triangle diagrams are introduced in this activity because they are used for exercises on minerals and rocks later in the term.

Because computer software changes so rapidly, the instructions for accomplishing certain tasks with Excel might differ from those given in the student instructions. Thus, the instructor should be aware of possible difficulties using Excel.