

Enter Data by Range

- **Time-saving technique for entering numbers**
 - Select the range of cells where numbers are to be entered
 - Press Enter after each entry and the active cell will move within the selected range
 - This technique works for multiple columns

Construct Formulas for Mathematical Operations

- **Excel formulas begin with an equal sign and include cell references and arithmetic operators**

Symbols Used in Excel for Arithmetic Operators	
Operator Symbol	Operation
$+$	Addition
$-$	Subtraction (also negation)
$*$	Multiplication
$/$	Division
$\%$	Percent
\wedge	Exponentiation

Construct Formulas for Mathematical Operations

- **Copying formulas in Excel**
 - A formula copied in Excel changes cell references relative to the cell with the formula
 - Example: Copying `=C4+D4` from cell E4 to cell E5 will result in `=C5+D5`
 - To force Excel to keep a cell reference use absolute addressing to fix the formula reference by inserting a dollar sign (\$) before the row and/or column

Construct Formulas for Mathematical Operations

Formula containing absolute cell reference for the first cell in selected range

Percentage of total (E10) calculated for each product

	Quantity	Average Cost	Retail Price	Total Retail Value	Percent of Total Retail Value	
4	Antenna Signal Booster	1,126	\$ 9.75	\$ 19.99	\$ 22,508.74	0.077962
5	Car Power Port Adapter	4,226	9.25	19.49	82,364.74	0.285282
6	Repeater Antenna	1,035	16.90	39.99	41,389.65	0.143359
7	SIM Card Reader and Writer	2,875	9.55	16.90	48,587.50	0.16829
8	Sticky Dash Pad	3,254	4.20	12.99	42,269.46	0.146406
9	Window Mount GPS Holder	2,458	10.45	20.99	51,593.42	0.178701
10	Total Retail Value for All Products			\$ 288,713.51		

Edit Values in a Worksheet

- **Changing cell contents**
 - Making changes to numbers will result in recalculating any formulas that reference the cell that was changed
 - This is a powerful and useful feature of Excel
- **Formatting cells**
 - Formatting cells will result in a different appearance but will not impact the calculations

Format a Worksheet

- **Formatting**

- Specifying appearance of cells and overall layout of the worksheet
- Inserting and deleting rows and columns
 - Existing data is moved and formulas automatically adjusted
- Adjusting column widths and wrapping text
 - Wrap text displays the contents of a cell on multiple lines, thus increasing the cell height

Format a Worksheet

Width of columns B:F set to 90 pixels

Column headings wrapped and formatted

Warehouse locations centered

Accent applied to cell A11

Texas Spectrum Wireless						
Car Products Inventory Valuation						
As of December 31						
	Warehouse Location	Quantity In Stock	Retail Price	Total Retail Value	Percent of Total Retail Value	
5	Antenna Signal Booster	Dallas	1,126	\$ 19.99	\$ 22,508.74	8.27%
6	Car Power Point Adapter	Dallas	3,546	19.49	69,111.54	25.39%
7	Repeater Antenna	Houston	1,035	39.99	41,389.65	15.21%
8	SIM Card Reader and Writer	Houston	2,875	16.90	48,587.50	17.85%
9	Sticky Dash Pad	Houston	3,254	11.99	39,015.46	14.33%
10	Window Mount GPS Holder	Dallas	2,458	20.99	51,593.42	18.95%
11	Total Retail Value for All Products				\$ 272,206.31	

Use the **SUM, AVERAGE, MEDIAN, MIN, and MAX** Functions

- **Function**

- A predefined formula that Excel has already built for you
 - Example: SUM
- Statistical functions are useful to analyze a group of measurements
 - Examples: AVERAGE, MEDIAN, MIN, and MAX

Use the SUM, AVERAGE, MEDIAN, MIN, and MAX Functions

More Functions button

Statistical functions

ScreenTip describes function

Oakland Facility

1		
2		
3		
4	Total Items in Stock	11015
5	Average Price	
6	Median Price	
7		
8		

Function Library

- Statistical
- Engineering
- Cube
- Information
- Compatibility

Function List:

- AVEDEV
- AVERAGE
- AVERAGEA
- AVERAGEIF
- AVERAGEIFS
- BETA.DIST
- BETA.INV
- BINOM.DIST
- BINOM.INV
- CHISQ.DIST

ScreenTip for AVERAGE:

AVERAGE(number1,number2)
Returns the average (arithmetic mean) of its arguments, which can be numbers or names, arrays, or references that contain numbers.
Press F1 for more help.

Use the SUM, AVERAGE, MEDIAN, MIN, and MAX Functions

Formula Bar displays function name and arguments

Function Arguments dialog box for AVERAGE function

Range of cells to average

Oakland Facility: Inventory Status of Flavor Products		
As of June 30		
Total Items in Stock	11015	
Average Price	d11:d65	
Median Price		
Quantity in Stock	Item #	Prod

Use the SUM, AVERAGE, MEDIAN, MIN, and MAX Functions

Function	Description
SUM	Adds all of the numbers in a selected range of cells
AVERAGE	Adds a group of values, then divides the result by the number of values in the group
MEDIAN	Finds the middle value of a group that has as many values above it in the group as are below
MIN	Determines the smallest value in a selected range
MAX	Determines the largest value in a selected range

Move Data, Resolve Error Messages, and Rotate Text

- **Moving data**

- Data can be moved by *drag and drop*
- The formula references will be adjusted (*relative* or *absolute*)
- If the destination cell is not large enough, Excel will display # # # # #
- Column width can be increased or data can be rotated to fit in the cell

Move Data, Resolve Error Messages, and Rotate Text

The image shows a screenshot of Microsoft Excel with the 'Format Cells' dialog box open. The dialog box has several tabs: 'Number', 'Alignment', 'Font', 'Border', 'Fill', and 'Protection'. The 'Alignment' tab is selected. In this tab, the 'Text alignment' section has 'Horizontal' set to 'General' and 'Vertical' set to 'Bottom'. The 'Orientation' section shows a preview of text rotated 30 degrees, with a 'Degrees' input field set to 30. The 'Text control' section has 'Merge cells' checked. Annotations with lines pointing to the dialog box and the spreadsheet include:

- Range of cells moved and formatted (rows 3-8)
- Format Cells dialog box
- Orientation set to 30 degrees
- Merge cells selected

The spreadsheet in the background shows a table with columns for 'Quantity in Stock', 'Total Items in Stock', 'Average Price', and 'Category'. The 'Category' column lists items like 'Seasoning', 'Herb', and 'Spice'.

Use COUNTIF and IF Functions and Apply Conditional Formatting

- **Logical functions**
 - Use conditional tests, called *criteria*, to determine a true or false condition
 - IF function: Performs one of two actions depending on the specified criteria
 - COUNTIF function: Counts the number of cells within a range that meet the specified criteria

Use COUNTIF and IF Functions and Apply Conditional Formatting

Logical test will determine if value in A14 is less than 125

Value if true (less than 125) will indicate *Order*

Value if false (125 or more) will indicate *OK*

Function Arguments

IF

Logical_test	A14<125	= FALSE
Value_if_true	"Order"	= "Order"
Value_if_false	OK	=

Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

Value_if_false is the value that is returned if Logical_test is FALSE. If omitted, FALSE is returned.

Use COUNTIF and IF Functions and Apply Conditional Formatting

Apply Conditional Formatting

Custom Format indicated

Text That Contains dialog box

Only cells with the text Order will be formatted

	A	B	C	D	E	F	G	H	
13	Quantity in Stock	Item #	Product Name	Retail Price	Size	Packaging	Category	Stock Level	
14		228	13189	Pepper, Florida	8.75	8 oz.	Jar	Seasoning	OK
15		110	13558	Text That Contains			Seasoning	Order	
16		135	15688				Seasoning	OK	
17		95	16555				Seasoning	Order	
18		125	21683				lb	OK	
19		135	22189				Seasoning	OK	
20		143	23677				erb	OK	
21		146	23688				rice	OK	
22		234	24896	Butcher's Pepper	5.29	4 oz.	Paper Envelope	Rub	OK
23					9.99	8 oz.	Jar	Spice	OK
							Paper Envelope	Herb	OK

Use Date & Time Functions and Freeze Panes

- **NOW function**
 - Places the system date and time in the selected cell
 - Is updated each time the spreadsheet is opened, or by pressing the F9 key
- **Freeze Panes**
 - Freeze Panes button can be used to lock row and/or column labels in place so they will be displayed as the worksheet is scrolled

Create, Sort, and Filter an Excel Table

- **Excel table**
 - Series of rows and columns that contain related data that is managed independently from data in other rows and columns
 - Created by clicking the Insert tab, then in the Tables group, clicking Table button

Create, Sort, and Filter an Excel Table

- **Sorting and filtering**
 - Sort data in ascending or descending order
 - Filter data to display the portion that meets the criteria specified
 - Data can be sorted or filtered by selecting the sorting and filtering arrow

Create, Sort, and Filter an Excel Table

Sorting and Filtering Tables

Funnel indicates filter applied

Blue row numbers indicate some rows hidden

Only products in *Extract* category display

ScreenTip indicates Equals "Extract"

Quantity in Stock	Item #	Product Name	Retail Price	Size	Packaging	Category	Stock Level
	211	43633 Peppermint	5.65	4 oz.	Bottle	Extract	
	368	93157 Almond	7.33	4 oz.	Bottle	Extract	
	225	92258 Vanilla	15.95	4 oz.	Bottle	Extract	OK
	165	53634 Vanilla, Double Strength	16.75	8 oz.	Bottle	Extract	OK
	188	37845 Coffee	17.29	8 oz.	Bottle	Extract	OK
	325	98225 Orange	24.19	6 oz.	Bottle	Extract	OK
	285	93553 Lemon	24.90	6 oz.	Bottle	Extract	OK
	423	96854 Vanilla	31.95	6 oz.	Bottle	Extract	OK

Format and Print a Large Worksheet

- **Print Titles command**
 - Specify rows and columns to repeat on each printed page
- **Scale to Fit command**
 - Stretch or shrink the width, height, or both, of printed output to fit a maximum number of pages

Format and Print a Large Worksheet

The screenshot shows the Microsoft Excel interface with the Print menu open. The menu is divided into several sections:

- Settings group:** Includes 'Print' (with a printer icon), 'Copies: 1', 'Printer: HP Color Laserjet CP1215', and 'Print Active Sheets'.
- Fit All Columns on One Page command:** A yellow highlight is placed over the 'Fit All Columns on One Page' option, which is described as 'Shrink the printout so that it is one page wide'.
- Scaling button:** A yellow highlight is placed over the 'No Scaling' option, which is described as 'Print sheets at their actual size'.

The background shows a worksheet titled 'Oakland Facility: Inventory Status of Flavor Products As of June 30'. The worksheet includes a summary table and a main data table.

Total Items in Stock	Average Price	Median Price	Lowest Price	Highest Price
11,015	\$ 8.72	\$ 1.05	\$ 2.55	\$ 31.95

Quantity in Stock	Item #	Product Name	Retail Price	Size	Packaging
228	13188	Pepper, Florida	8.15	8 oz.	Jar
110	13550	French Four Spices	6.16	2 oz.	Foil Packet
105	15658	Pepper, London	6.25	4 oz.	Jar
95	16555	Turcon Seeds	4.15	2 oz.	Foil Packet
125	21603	Gulera Street Pick	3.35	4 oz.	Jar
135	22153	Northwoods Pine	9.85	16 oz.	Jar
145	23677	Mojonah	7.05	8 oz.	Foil Packet
146	23690	Curry Powder, Hot	9.35	8 oz.	Jar
204	24396	Duckett's Pepper	5.20	4 oz.	Foil Packet
135	25176	Curry Powder, Sweet	9.35	8 oz.	Jar
254	25944	Herbes De Provence	10.25	4 oz.	Foil Packet
105	26107	Grainy Dip Seasoning	9.15	8 oz.	Foil Packet
156	32544	Mint, Sicilian	10.29	8 oz.	Foil Packet
156	34266	Basil, French	10.19	8 oz.	Foil Packet
189	34730	Onion Salt	3.55	2 oz.	Jar
266	34810	Garlic, Chopped	7.05	8 oz.	Foil Packet
112	34350	Arks, Chickpea and Pick	5.45	4 oz.	Foil Packet
245	35477	Arks, Pork	9.85	8 oz.	Foil Packet
245	35690	Arks, American	7.39	8 oz.	Jar
145	35368	Basil, California	11.35	8 oz.	Foil Packet
167	36620	Mint, Peppermint	10.39	8 oz.	Foil Packet

Navigate a Workbook and Rename Worksheets

- **Navigate to another sheet by clicking the sheet tab**
- **Two ways to rename sheet tabs**
 - Double-click to select the name, and then type a new name
 - Right-click on the sheet tab, then on the shortcut menu, click Rename, and type a new name
- **Change color by right-clicking tab and then selecting Tab Color**

Navigate a Workbook and Rename Worksheets

Sales data for In-Store sales

Flavoring:	Condimer	Confections
435.96	624.65	536.97
632.12	495.33	567.19
213.87	652.33	329.15
135.36	526.77	539.47
501.33	469.38	678.26
426.35	429.66	599.31
548.33	726.39	468.98

Second sheet tab displays *In-Store Sales*

First sheet tab displays *Online Sales*

Enter Dates, Clear Contents, and Clear Formats

How Excel Interprets Dates	
Date Typed As:	Completed by Excel As:
7/4/12	7/4/2012
7-4-98	7/4/1998
7/4	4-Jul (current year assumed)
7-4	4-Jul (current year assumed)
July 4	4-Jul (current year assumed)
Jul 4	4-Jul (current year assumed)
Jul/4	4-Jul (current year assumed)
Jul-4	4-Jul (current year assumed)
July 4, 1998	4-Jul-98
July 2012	Jul-12 (first day of month assumed)
July 1998	Jul-98 (first day of month assumed)

Copy and Paste by Using the Paste Options Gallery

- Copy data to Clipboard by right-clicking selected data, and clicking Copy
- The Paste Options gallery is displayed by right-clicking target destination

Paste Options (6 option buttons)

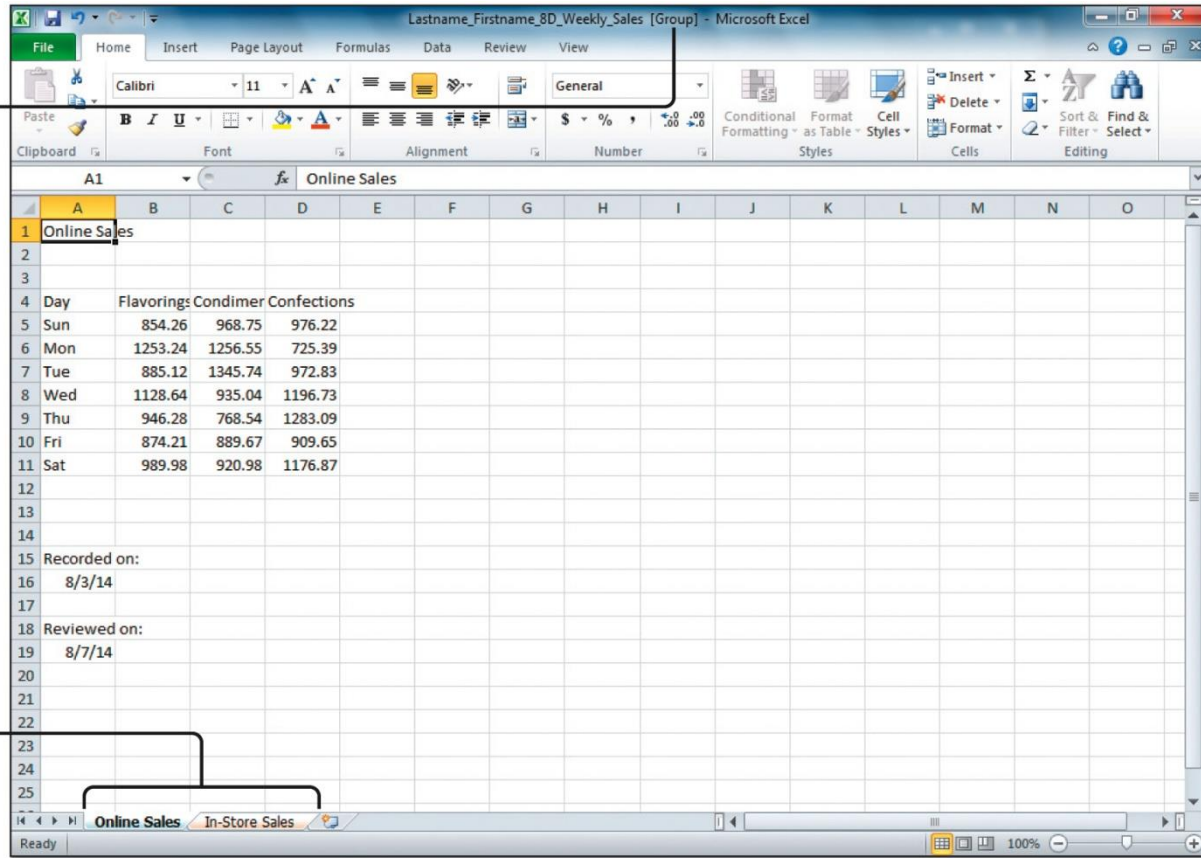
4	Day	Flavorings	Condimer	Confections
5	Sun	435.96	624.65	536.97
6	Mon	522.17	405.22	567.19
7	Tue			15
8	Wed			47
9	Thu	501.33	469.38	678.26
10	Fri	35	429.66	599.31
11	Sat	548.33	726.39	468.98
12				

Edit and Format Multiple Worksheets at the Same Time

- **Grouping multiple worksheets**
 - Press the Ctrl key to select more than one tab, or right-click tab and Select All Sheets
 - *[Group]* displays in the title bar
 - Data entered or edited on the active sheet is reflected in all selected sheets
 - Formulas and formatting entered on the active sheet also are reflected in all selected sheets

Edit and Format Multiple Worksheets at the Same Time

[Group] displays in title bar



Selected sheets display their sheet tab color as an underline

Create a Summary Sheet with Column Sparklines

- **Summary sheet**
 - Worksheet where totals from other worksheets are displayed
- **Detail sheets**
 - Worksheets with details that affect the totals on the summary sheet
- **Sparklines**
 - Tiny charts that show a data trend

Create a Summary Sheet with Column Sparklines

Formula Bar indicates formula referring to cell in another worksheet

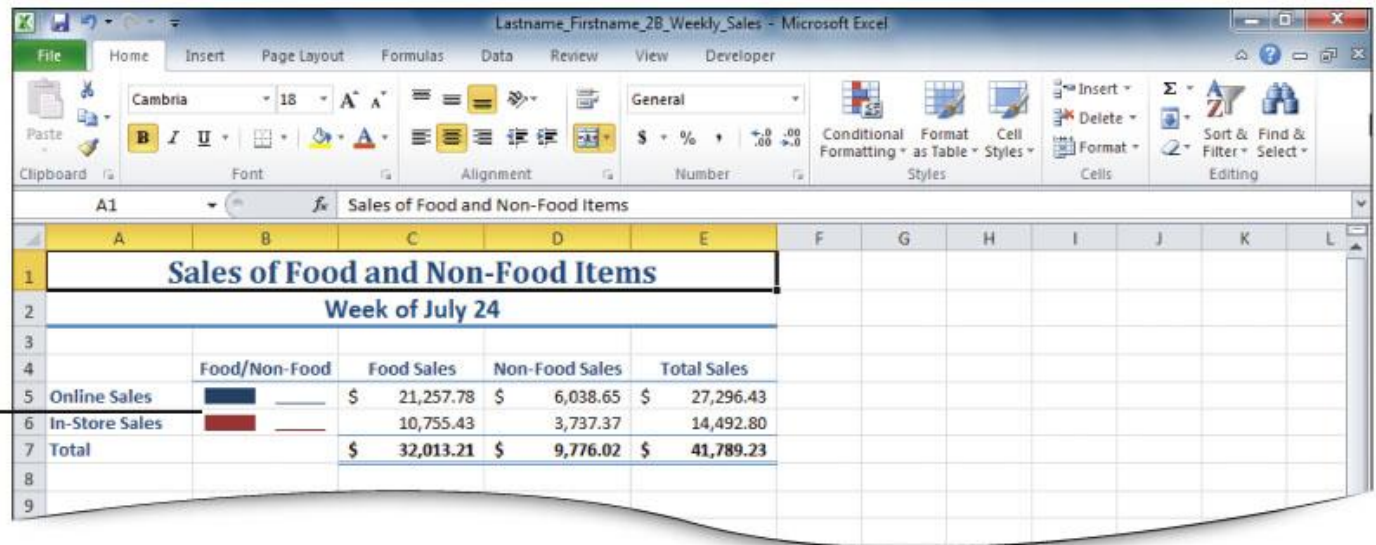
The screenshot shows the Microsoft Excel interface. The title bar reads "Lastname_Firstname_2B_Weekly_Sales - Microsoft Excel". The ribbon includes File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Developer. The formula bar shows the formula `=Online Sales!E12`. The worksheet contains the following data:

Sales of Food and Non-Food Items				
Week of July 24				
	Food/Non-Food	Food Sales	Non-Food Sales	Total Sales
5	Online Sales	\$ 21,257.78		
6	In-Store Sales			
7				
8				
9				
10				

Total Food Sales from Online Sales worksheet

Create a Summary Sheet with Column Sparklines

Column sparklines compare sales of Food to Non-Food in both Online and In-Store



Format and Print Multiple Worksheets in a Workbook

- **Headers & Footers**
 - Each worksheet can have different formatting and different headers and footers
 - Use grouping to make all worksheets have the same headers and footers
- **Printing**
 - Be sure *[Group]* displays on the title bar
 - Use the Backstage view to set Print options

Covered Objectives

- **Create, Save, and Navigate an Excel Workbook**
- **Enter Data in a Worksheet**
- **Construct and Copy Formulas and Use the SUM Function**

Covered Objectives

- **Format Cells with Merge & Center and Cell Styles**
- **Chart Data to Create a Column Chart and Insert Sparklines**
- **Print, Display Formulas, and Close Excel**

Covered Objectives

- **Check Spelling in a Worksheet**
- **Enter Data by Range**
- **Construct Formulas for Mathematical Operations**
- **Edit Values in a Worksheet**
- **Format a Worksheet**

Covered Objectives

- **Use the SUM, AVERAGE, MEDIAN, MIN, and MAX Functions**
- **Move Data, Resolve Error Messages, and Rotate Text**
- **Use COUNTIF and IF Functions and Apply Conditional Formatting**

Covered Objectives

- **Use Date & Time Functions and Freeze Panes**
- **Create, Sort, and Filter an Excel Table**
- **Format and Print a Large Worksheet**

Covered Objectives

- **Navigate a Workbook and Rename Worksheets**
- **Enter Dates, Clear Contents, and Clear Formats**
- **Copy and Paste by Using the Paste Options Gallery**

Covered Objectives

- **Edit and Format Multiple Worksheets at the Same Time**
- **Create a Summary Sheet with Column Sparklines**
- **Format and Print Multiple Worksheets in a Workbook**



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Publishing as Prentice Hall