

Excel Tutorial 5

Working with Excel Tables, PivotTables, and PivotCharts



**College of
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Objectives

- Explore a structured range of data
- Freeze rows and columns
- Plan and create an Excel table
- Rename and format an Excel table
- Add, edit, and delete records in an Excel table
- Sort data
- Filter data
- Insert a Total row to summarize an Excel table

Objectives

- Insert subtotals into a range of data
- Use the Outline buttons to show or hide details
- Create and modify a PivotTable
- Apply PivotTable styles and formatting
- Filter and sort a PivotTable
- Group PivotTable items
- Create a PivotChart

Planning a Structured Range of Data

- One of the more common uses of a worksheet is to manage data
- Using Excel, you can store and update data, sort data, search for and retrieve subsets of data, summarize data, and create reports. In Excel, a collection of similar data can be structured in a range of rows and columns
- Each column in the range represents a **field**
- Each row in the range represents a **record**

Freezing Rows and Columns

- **Freezing** a row or column lets you keep headings visible as you work with the data in a large worksheet
- To freeze a row or column, you select the cell immediately below the row(s) and to the right of the column(s) you want to freeze
- Click the **View** tab on the Ribbon
- In the Window group, click the **Freeze Panes** button

Freezing Rows and Columns

Freezing the top row of the worksheet **Figure 5-3**

The screenshot shows the Microsoft Excel interface with the 'View' tab selected. The 'Freeze Panes' option is highlighted in the 'Window' group. A red box with an arrow points to the 'Freeze Panes' option, containing the text: 'header row remains visible as you scroll the worksheet'.

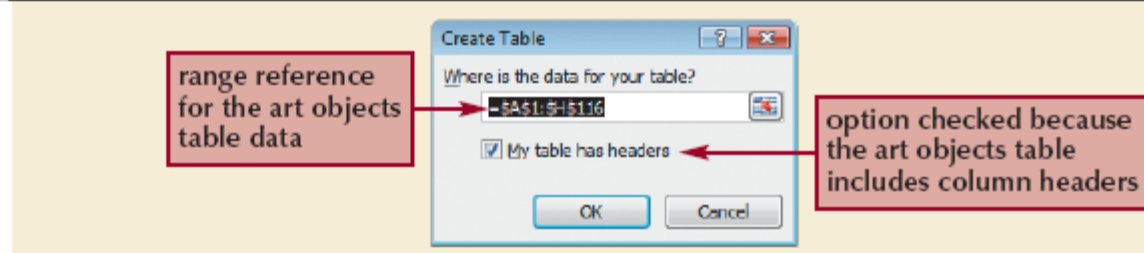
	A	B	C	D	E	F	G	H	I
1	ArtID	Artist	Title	Date Acquired	Category	Condition	Location	Appraised Value	
112	111	Rissman	Three Sisters	9/3/2005	Painting	Excellent	East Pavilion	\$ 6,500	
113	112	Tidwell	Untitled (man and crucifix)	10/13/2007	Textile	Excellent	East Pavilion	\$ 3,200	
114	113	Gonzales	Dark Canyon	8/16/2004	Painting	Excellent	East Pavilion	\$ 7,500	
115	114	Mogan	Shadow House	5/5/2005	Painting	Good	East Pavilion	\$ 5,500	
116	115	Mogan	Storytelling at the Campfire	3/19/2005	Painting	Excellent	East Pavilion	\$ 18,000	
117									



Creating an Excel Table

- Click the **Insert** tab on the ribbon, and then click the **Table** button

Figure 5-4 Create Table dialog box



Creating an Excel Table

Excel table created for the art objects data

Figure 5-5

contextual tab appears on the Ribbon

table style applied

filter arrows appear in the header row

	A	B	C	D	E	F	G	H
1	ArtID	Artist	Title	Date Acquired	Category	Condition	Location	Appraised Value
2	1	Mogan	Red Rock Mountain	3/19/2005	Painting	Excellent	East Pavilion	\$ 18,000
3	2	Novarre	Offerings	5/16/2005	Painting	Excellent	East Pavilion	\$ 10,000
4	3	Chico	Spring Flowers	3/20/2004	Sculpture	Excellent	East Pavilion	\$ 2,400
5	4	Roman	Seeking Shelter	10/8/2005	Sculpture	Excellent	Courtyard	\$ 52,000
6	5	DiGrigoro	The Hang	7/16/2004	Painting	Excellent	East Pavilion	\$ 8,000
7	6	Ibe	House Remembered	8/16/2004	Sculpture	Good	East Pavilion	\$ 700
8	7	Zischke	Homage to the Ancestors	7/17/2004	Textile	Excellent	East Pavilion	\$ 1,200
9	8	Gilhooley	End of the Path	8/16/2004	Sculpture	Excellent	East Pavilion	\$ 1,900
10	9	Guys	Amen	12/13/2003	Sculpture	Excellent	East Pavilion	\$ 3,000
11	10	Swartz	Untitled (two figures)	9/8/2007	Sculpture	Excellent	East Pavilion	\$ 800
12	11	Dill	Eve	7/16/2004	Sculpture	Excellent	East Pavilion	\$ 975
13	12	Udinotti	Man on horseback	11/10/2007	Painting	Good	East Pavilion	\$ 8,000
14	13	Aserty	Superstitions	1/10/2009	Painting	Excellent	Courtyard	\$ 78,000
15	14	McGraw	Plenty	2/19/2005	Sculpture	Excellent	West Pavilion	\$ 500
16	15	McIver	Punch	3/19/2005	Painting	Excellent	East Pavilion	\$ 10,000
17	16	Schenck	Untitled	1/7/2006	Painting	Excellent	East Pavilion	\$ 6,000
18	17	Bindner	Brittlecone	1/10/2004	Sculpture	Excellent	East Pavilion	\$ 1,300
19	18	Blum	Mountain Scene	1/10/2004	Sculpture	Excellent	East Pavilion	\$ 2,500



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Renaming an Excel Table

Figure 5-7 Table Name box

enter a descriptive
table name



Adding a Record to an Excel Table

- Click in the row below the last row of the Excel table
- Type the values for the new record, pressing the Tab key to move from field to field
- Press the Tab key to create another new record, or press the Enter key if this is the last record

New row added to the ArtObjects table **Figure 5-8**

111	110	Fratt	Friends	7/18/2004	Painting	Excellent	East Pavilion	\$	16,000	
112	111	Rissman	Three Sisters	9/3/2005	Painting	Excellent	East Pavilion	\$	6,500	
113	112	Tidwell	Untitled (man and crucifix)	10/13/2007	Textile	Excellent	East Pavilion	\$	3,200	
114	113	Gonzales	Dark Canyon	8/16/2004	Painting	Excellent	East Pavilion	\$	7,500	
115	114	Mogan	Shadow House	5/5/2005	Painting	Good	East Pavilion	\$	5,500	
116	115	Mogan	Storytelling at the Campfire	3/19/2005	Painting	Excellent	East Pavilion	\$	18,000	
117	116									

AutoCorrect Options button

sizing handle



Finding and Editing Records

- In the Editing group on the Home tab, click the **Find & Select** button, and then click **Find**
- Type your search criteria in the Find what box, and then click the **Find & Select** button

Sorting Data

- You can rearrange, or **sort**, the records in a table or range based on the data in one or more fields
- The fields you use to order the data are called **sort fields**
- You can sort data in ascending or descending order

Sorting Data

Figure 5-10 ArtObjects table sorted by Artist

	A	B	C	D	E	F	G	H	I
	ArtID	Artist	Title	Date Acquired	Category	Condition	Location	Appraised Value	
2	38	Acconci	Spring Flowers	5/10/2003	Sculpture	Good	East Pavilion	\$ 800	
3	50	Acconci	Cattle Ranch	4/19/2004	Textile	Good	East Pavilion	\$ 10,000	
4	104	Acconci	Trail End	5/10/2003	Painting	Excellent	East Pavilion	\$ 8,000	
5	42	Ames	Coffee on the Trail	8/9/2003	Painting	Good	East Pavilion	\$ 7,544	
6	13	Aserty	Superstitions	1/10/2009	Painting	Excellent	Courtyard	\$ 78,000	
7	21	Aserty	Bead Wall	1/10/2004	Installation	Excellent	Courtyard	\$ 14,000	
8	34	Aserty	Beaver Pole Jumble	1/10/2007	Installation	Excellent	South Pavilion	\$ 28,000	



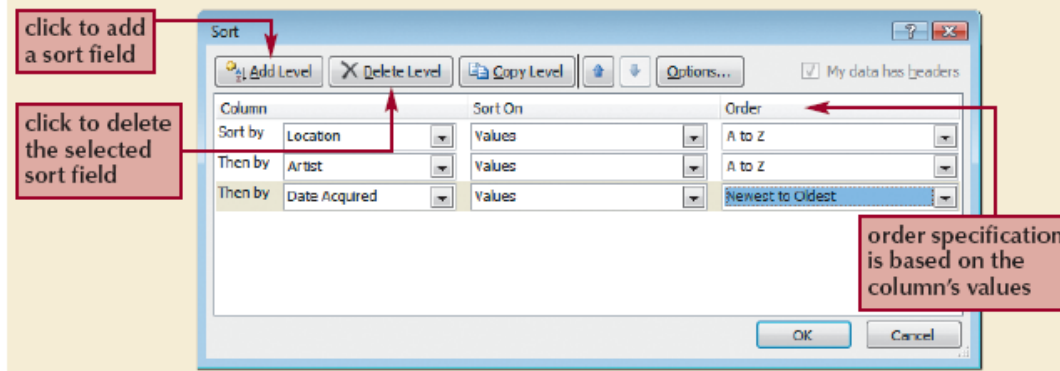
Sorting Multiple Columns using the Sort Dialog Box

- Click any cell in a table or range
- In the Sort & Filter group on the Data tab, click the Sort button to open the Sort dialog box
- If the Sort by row exists, modify the primary sort by selections; otherwise, click the Add Level button to insert the Sort by row
- Click the Sort by arrow, select the column heading that you want to specify as the primary sort field, click the Sort On arrow to select the type of data, then click the Order arrow to select the sort order

Sorting Multiple Columns using the Sort Dialog Box

- To sort by a second column, click the Add Level button to add the first Then by row. Click the Sort by arrow, select the column heading that you want to specify as the secondary sort field, click the Sort On arrow to select the type of data, then click the Order arrow to select the sort order
- To sort by additional columns, click the Add Level button and select appropriate Then by, Sort On, and Order values
- Click the OK button

Figure 5-11 Sort dialog box with complete sort specifications

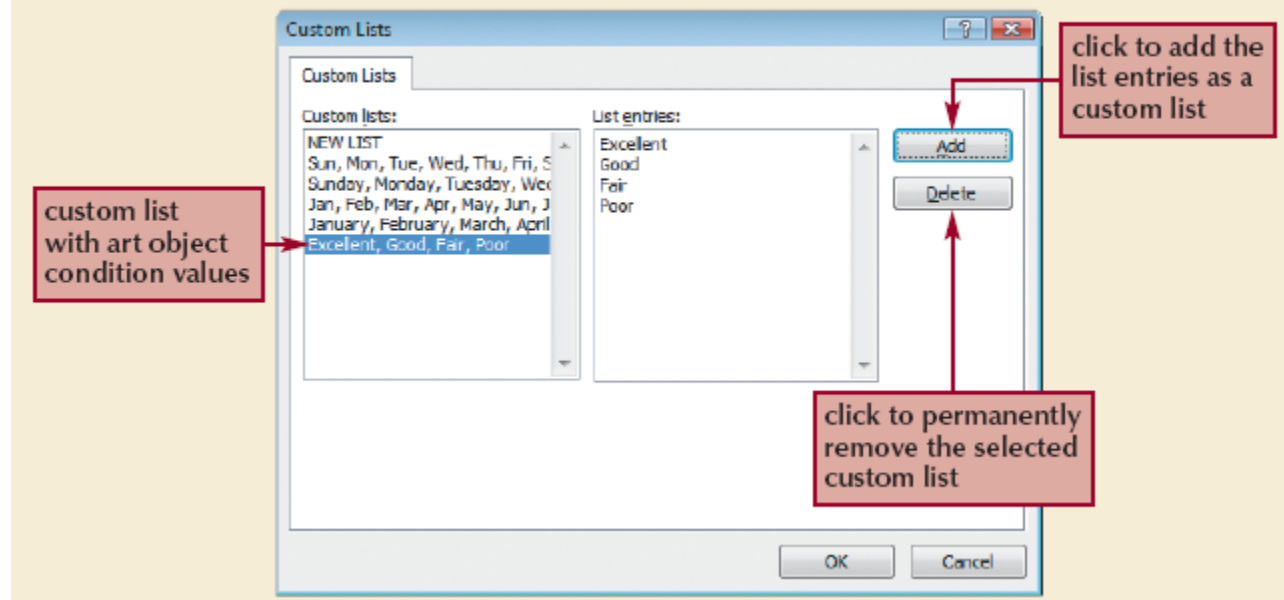


Sorting Using a Custom List

- A **custom list** indicates the sequence in which you want data ordered
- In the Sort & Filter group on the Data tab, click the Sort button
- Click the Order arrow, and then click Custom List
- In the List entries box, type each entry for the custom list, pressing the Enter key after each entry
- Click the Add button
- Click the OK button

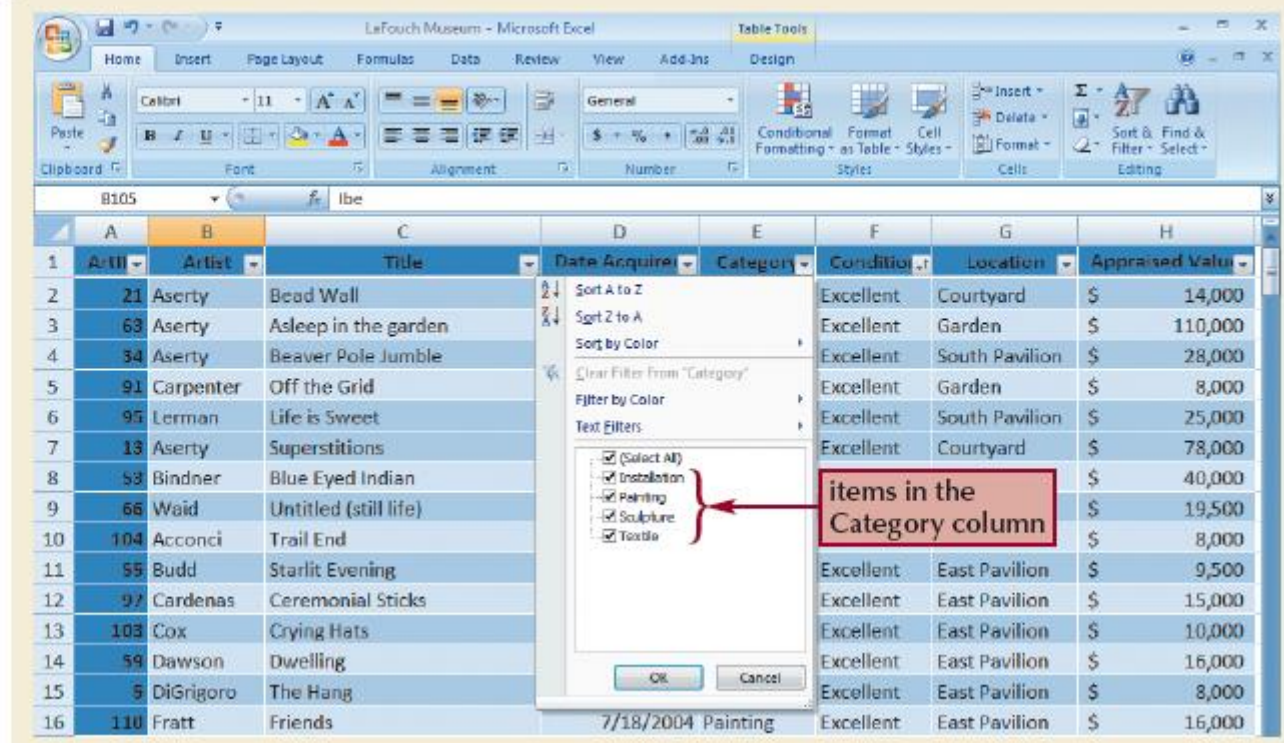
Sorting Using a Custom List

Figure 5-13 Custom Lists dialog box with custom list defined

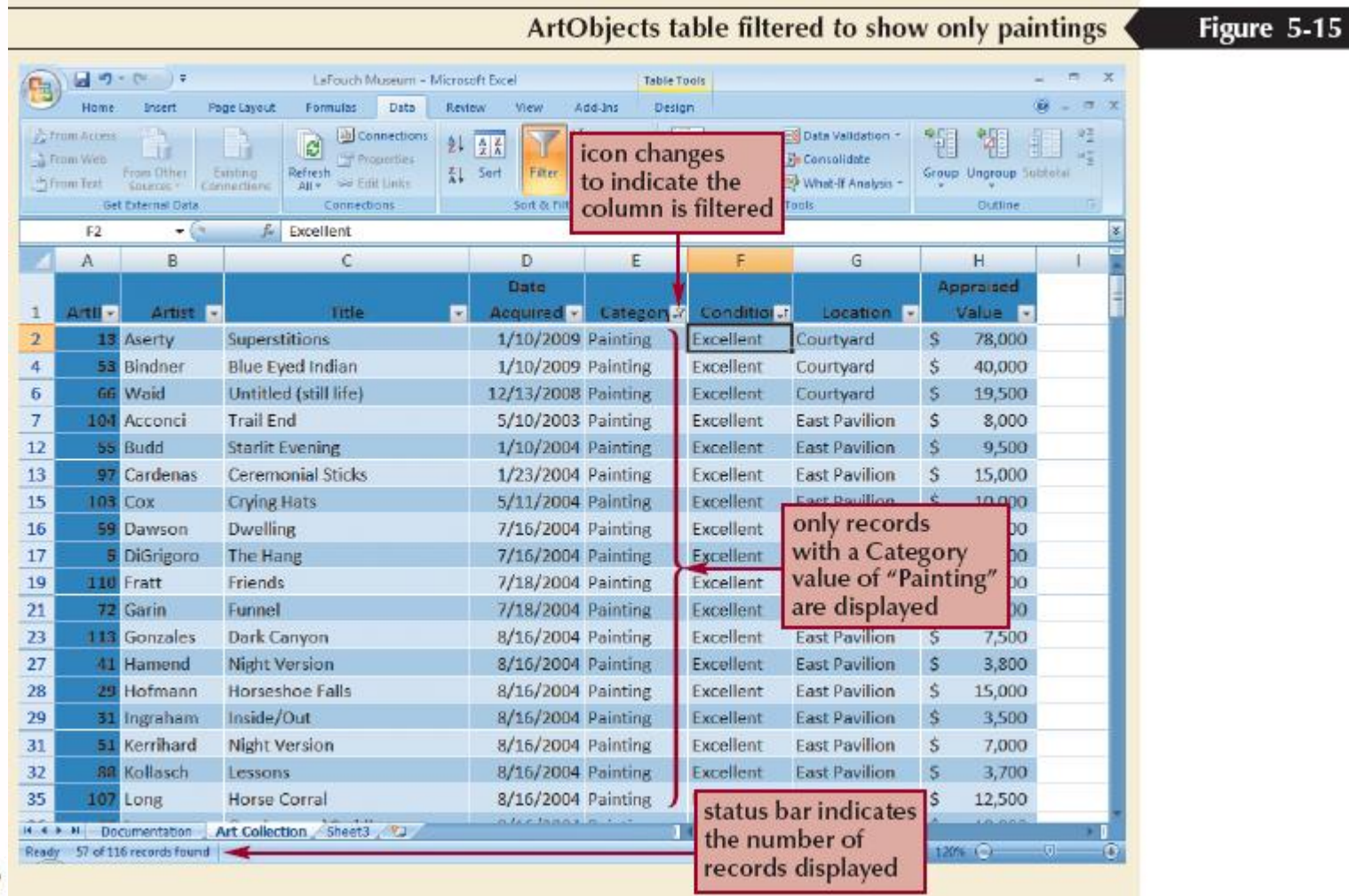


Filtering Using One Column

Figure 5-14 Filter menu for the Category column

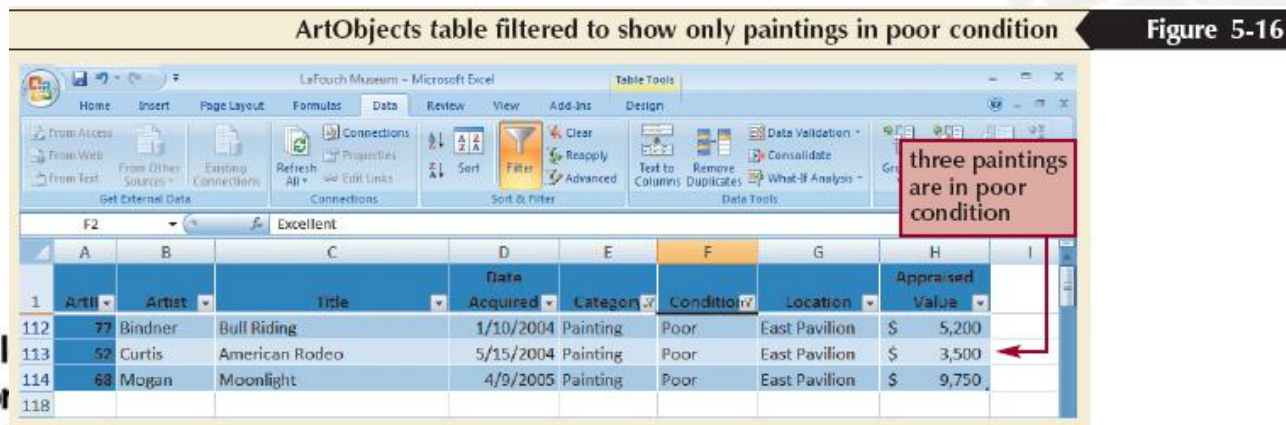


Filtering Using One Column



Filtering Using Multiple Columns

- If you need to further restrict the records that appear in a filtered table, you can filter by one or more of the other columns
- Each additional filter is applied to the currently filtered data and further reduces the records that are displayed



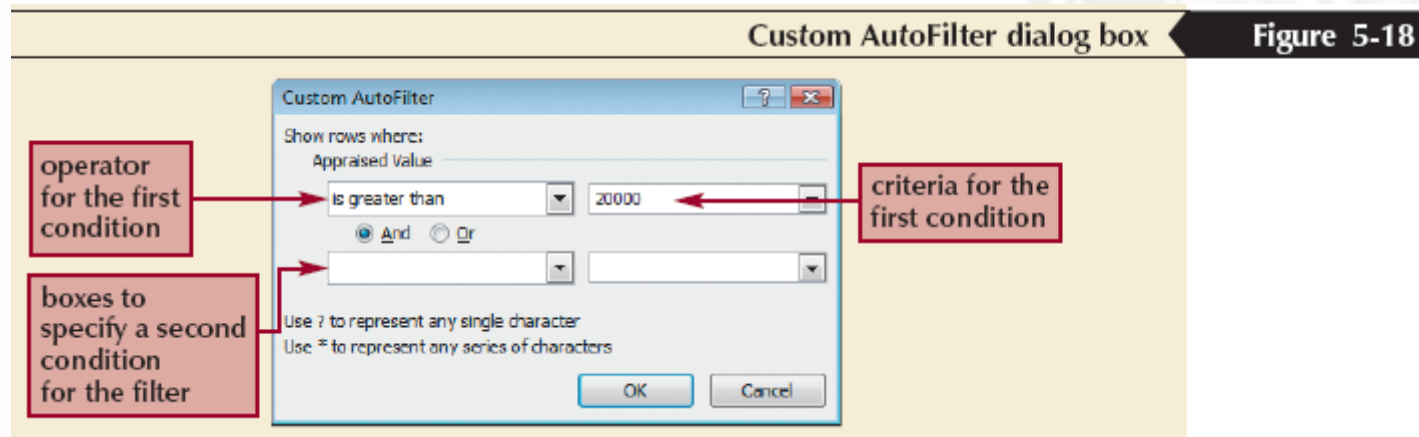
Creating Criteria Filters to Specify More Complex Criteria

- **Criteria filters** enable you to specify various conditions in addition to those that are based on an “equals” criterion

Figure 5-17 Options for text, number, and date criteria filters

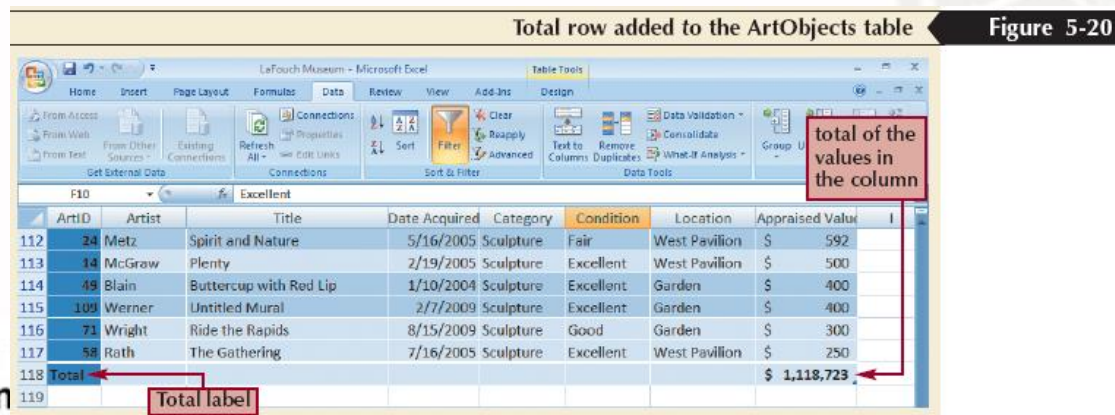
Filter	Criteria	Records displayed
Text	Equals	Exactly match the specified text string
	Does Not Equal	Do not exactly match the specified text string
	Begins With	Begin with the specified text string
	Ends With	End with the specified text string
	Contains	Have the specified text string anywhere
	Does Not Contain	Do not have the specified text string anywhere
Number	Equals	Exactly match the specified number
	Greater Than or Equal to	Are greater than or equal to the specified number
	Less Than	Are less than the specified number
	Between	Are greater than or equal to <i>and</i> less than or equal to the specified numbers
	Top 10	Are the top or bottom 10 (or the specified number)
	Above Average	Are greater than the average
Date	Today	Have the current date
	Last Week	Are in the prior week
	Next Month	Are in the month following the current month
	Last Quarter	Are in the previous quarter of the year (quarters defined Jan, Feb, Mar; Apr, May, June; and so on)
	Year to Date	Are since January 1 of the current year to the current date
	Last Year	Are in the previous year (based on the current date)

Creating Criteria Filters to Specify More Complex Criteria



Using the Total Row to Calculate Summary Statistics

- A **Total row**, which you can display at the end of the table, is used to calculate summary statistics for the columns in an Excel table
- Click the **Table Tools Design** tab on the Ribbon, and then, in the **Table Style Options** group, click the **Total Row** check box to insert a check mark



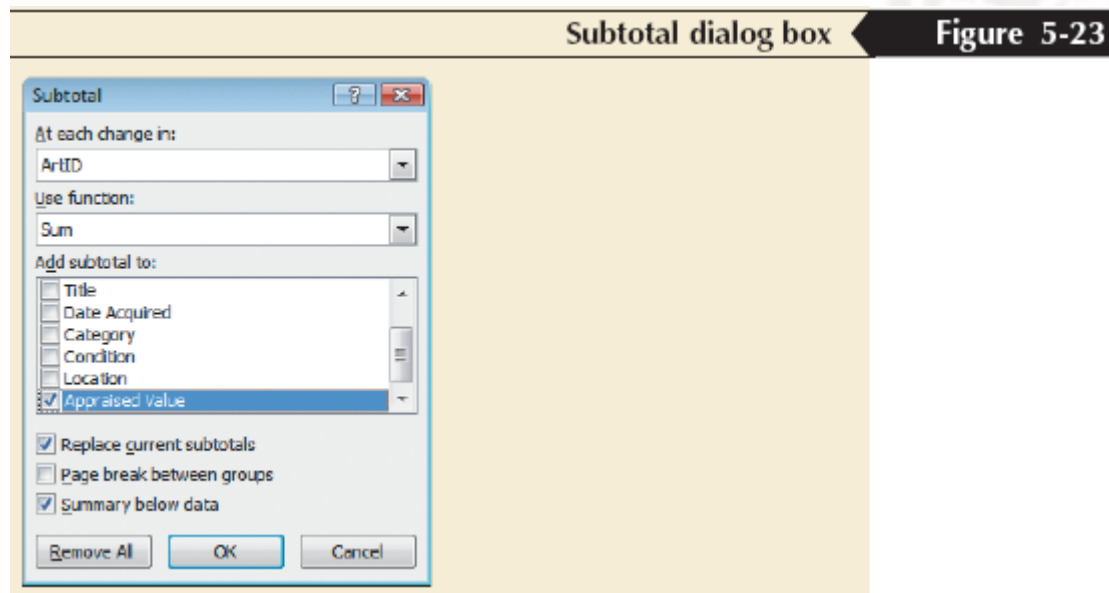
Calculating Subtotals for a Range of Data

- Sort the data by the column for which you want a subtotal
- If the data is in an Excel table, in the Tools group on the Table Tools Design tab, click the Convert to Range button, and then click the Yes button to convert the Excel table to a range
- In the Outline group on the Data tab, click the Subtotal button
- Click the At each change in arrow, and then click the column that contains the group you want to subtotal

Calculating Subtotals for a Range of Data

- Click the Use function arrow, and then click the function you want to use to summarize the data
- In the Add subtotal to box, click the check box for each column that contains the values you want to summarize
- To calculate another category of subtotals, click the Replace current subtotals check box to remove the check mark, and then repeat the previous three steps
- Click the OK button

Calculating Subtotals for a Range of Data



Calculating Subtotals and Grand Total for a Range of Data

Figure 5-24 Subtotals and grand total added to the art objects data

Outline buttons

new row with the subtotal added below each category

new row with the grand total added at the end of the table

	A	B	C	D	E	F	G	H
103	6	Ibe	House Remembered	8/16/2004	Sculpture	Good	East Pavilion	\$ 700
104	45	Indiana	Immediate Gratification	8/16/2004	Sculpture	Good	East Pavilion	\$ 1,500
105	71	Wright	Ride the Rapids	8/15/2009	Sculpture	Good	Garden	\$ 300
106	73	Cridler	Dancing in the Light	5/15/2004	Sculpture	Fair	East Pavilion	\$ 1,000
107	37	Fleming	Floating World	7/18/2004	Sculpture	Fair	East Pavilion	\$ 2,350
108	24	Metz	Spirit and Nature	5/16/2005	Sculpture	Fair	West Pavilion	\$ 592
109	105	Statom	Untitled	7/14/2007	Sculpture	Poor	East Pavilion	\$ 1,800
110	75	Wright	Ride the Bronc	8/15/2009	Sculpture	Poor	East Pavilion	\$ 1,500
111	81	Colvin	Coming Under Fire	4/17/2004	Sculpture	Poor	West Pavilion	\$ 650
					Sculpture Total			\$ 218,484
113	112	Tidwell	Untitled (man and crucifix)	10/13/2007	Textile	Excellent	East Pavilion	\$ 3,200
114	20	Turrell	Untitled (Man holding coat)	10/13/2007	Textile	Excellent	East Pavilion	\$ 3,000
115	7	Zischke	Homage to the Ancestors	7/17/2004	Textile	Excellent	East Pavilion	\$ 1,200
116	50	Acconci	Cattle Ranch	4/19/2004	Textile	Good	East Pavilion	\$ 10,000
117	100	Edwards	Watch that Rattler	7/17/2004	Textile	Good	East Pavilion	\$ 900
118	47	Maglich	Medicine Man	8/16/2004	Textile	Good	East Pavilion	\$ 2,500
119	27	Meglech	Mountain Climber	8/16/2004	Textile	Good	East Pavilion	\$ 4,700
120	70	Baron	Beginnings	1/10/2010	Textile	Fair	East Pavilion	\$ 27,500
					Textile Total			\$ 53,000
					Grand Total			\$ 1,141,123

Using the Subtotal Outline View

- The three Outline buttons at the top of the outline area allow you to show or hide different levels of detail in the worksheet

Table displaying only subtotals and grand total

Figure 5-25

	A	B	C	D	E	F	G	H
	ArtID	Artist	Title	Date Acquired	Category	Condition	Location	Appraised Value
8					Installation Total			\$ 187,500
66					Painting Total			\$ 682,139
112					Sculpture Total			\$ 218,484
121					Textile Total			\$ 53,000
122					Grand Total			\$ 1,141,123
123								

Analyzing Data with PivotTables

- A **PivotTable** is an interactive table that enables you to group and summarize either a range of data or an Excel table into a concise, tabular format for easier reporting and analysis

Sample PivotTable **Figure 5-26**

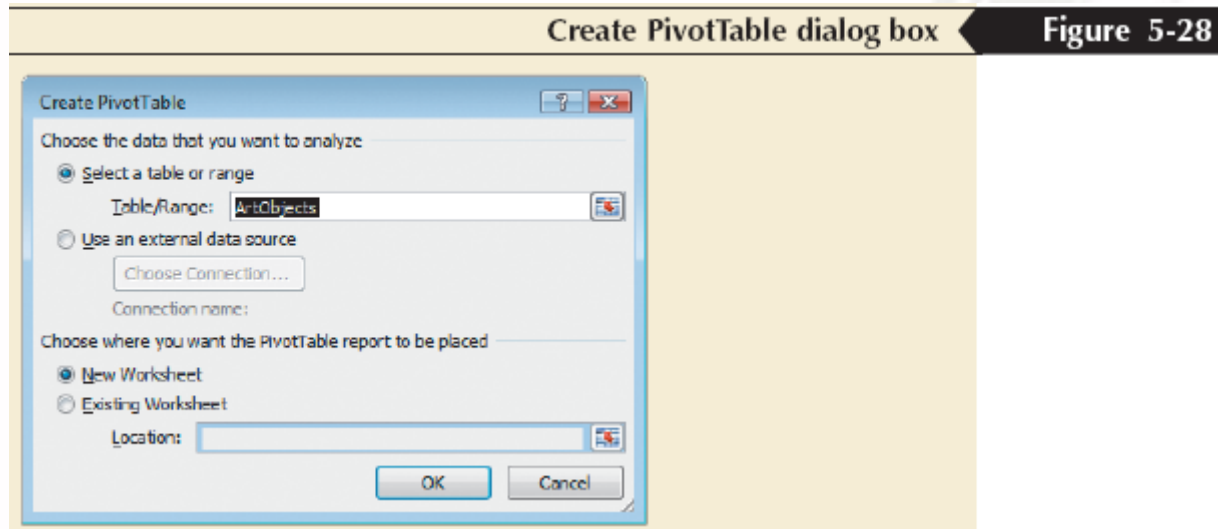
	A	B	C	D	E	F
1	Location	(All)				
2						
3	Sum of Appraised Value	Column Labels				
4	Row Labels	Excellent	Good	Fair	Poor	Grand Total
5	Installation	\$185,000	\$2,500			\$187,500
6	Painting	\$611,520	\$41,669	\$10,500	\$18,450	\$682,139
7	Sculpture	\$194,292	\$16,300	\$3,942	\$3,950	\$218,484
8	Textile	\$7,400	\$18,100	\$27,500		\$53,000
9	Grand Total	\$998,212	\$78,569	\$41,942	\$22,400	\$1,141,123

Creating a PivotTable

- Click in the Excel table or select the range of data for the PivotTable
- In the Tables group on the Insert tab, click the PivotTable button
- Click the Select a table or range option button and verify the reference in the Table/Range box
- Click the New Worksheet option button or click the Existing worksheet option button and specify a cell
- Click the OK button
- Click the check boxes for the fields you want to add to the PivotTable (or drag fields to the appropriate box in the layout section)
- If needed, drag fields to different boxes in the layout section

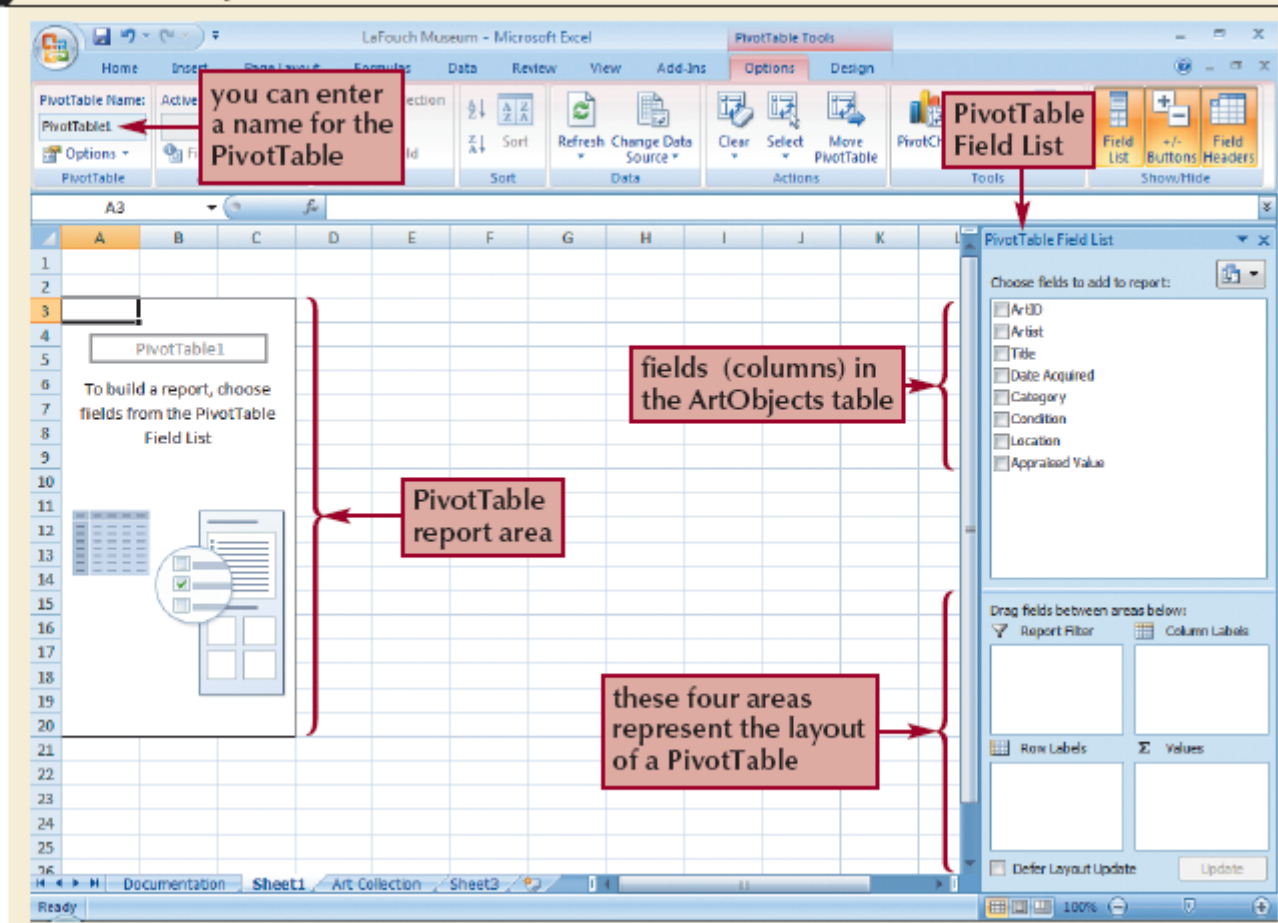


Creating a PivotTable



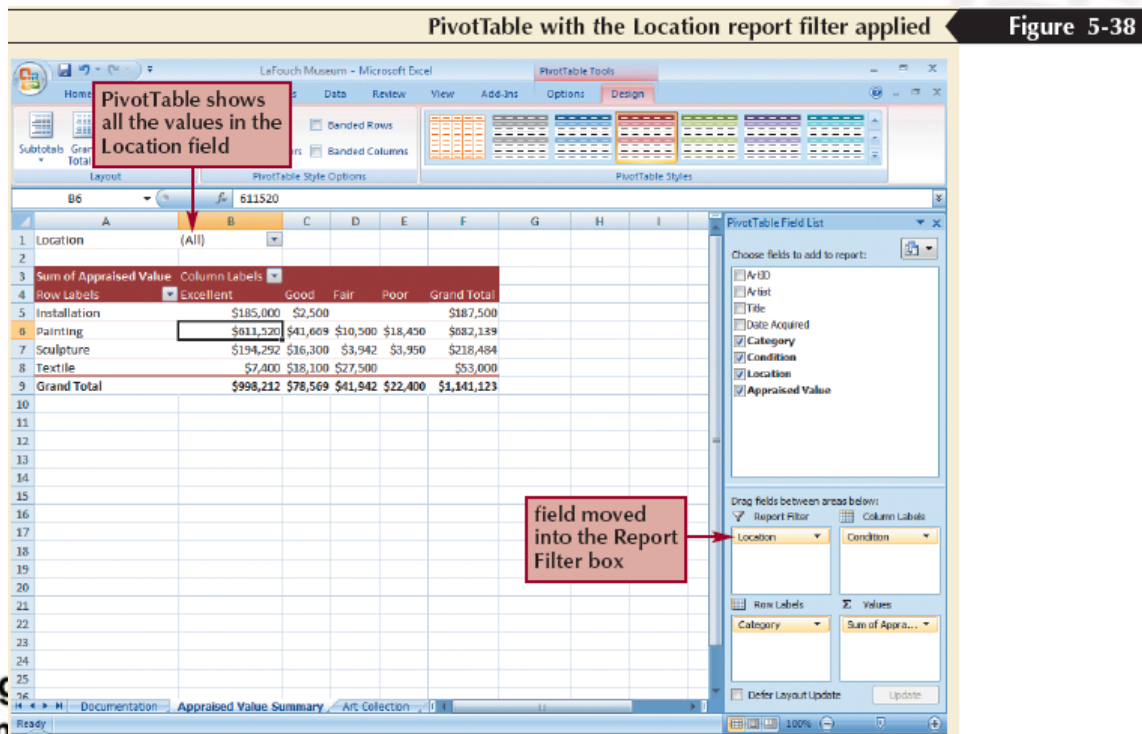
Creating a PivotTable

Figure 5-29 PivotTable report area and PivotTable Field List



Adding a Report Filter

- A **report filter** allows you to filter the PivotTable to display summarized data for one or more field items or all field items in the Report Filter area



Filtering PivotTable Fields

- Filtering a field lets you focus on a subset of items in that field
- You can filter field items in the PivotTable by clicking the field arrow button in the PivotTable that represents the data you want to hide and then uncheck the check box for each item you want to hide

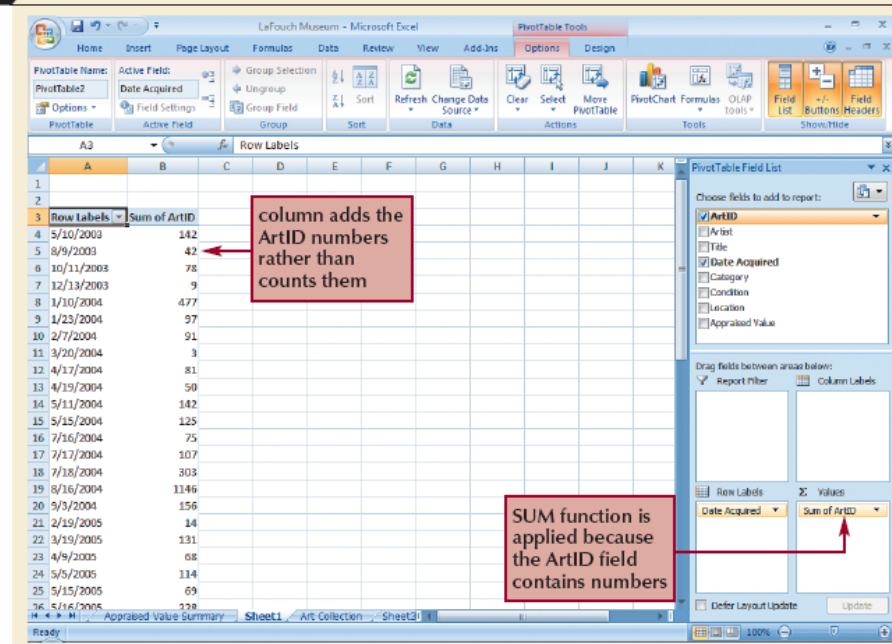
Refreshing a PivotTable

- You cannot change the data directly in the PivotTable. Instead, you must edit the Excel table, and then **refresh**, or update, the PivotTable to reflect the current state of the art objects list
- Click the **PivotTable Tools Options** tab on the Ribbon, and then, in the **Data** group, click the **Refresh** button

Grouping PivotTable Items

- When a field contains numbers, dates, or times, you can combine items in the rows of a PivotTable and combine them into groups automatically

Figure 5-46 PivotTable with Sum of ArtID for each date



Creating a PivotChart

- A **PivotChart** is a graphical representation of the data in a PivotTable
- A PivotChart allows you to interactively add, remove, filter, and refresh data fields in the PivotChart similar to working with a PivotTable
- Click any cell in the PivotTable, then, in the Tools group on the PivotTable Tools Options tab, click the **PivotChart** button

Creating a PivotChart

