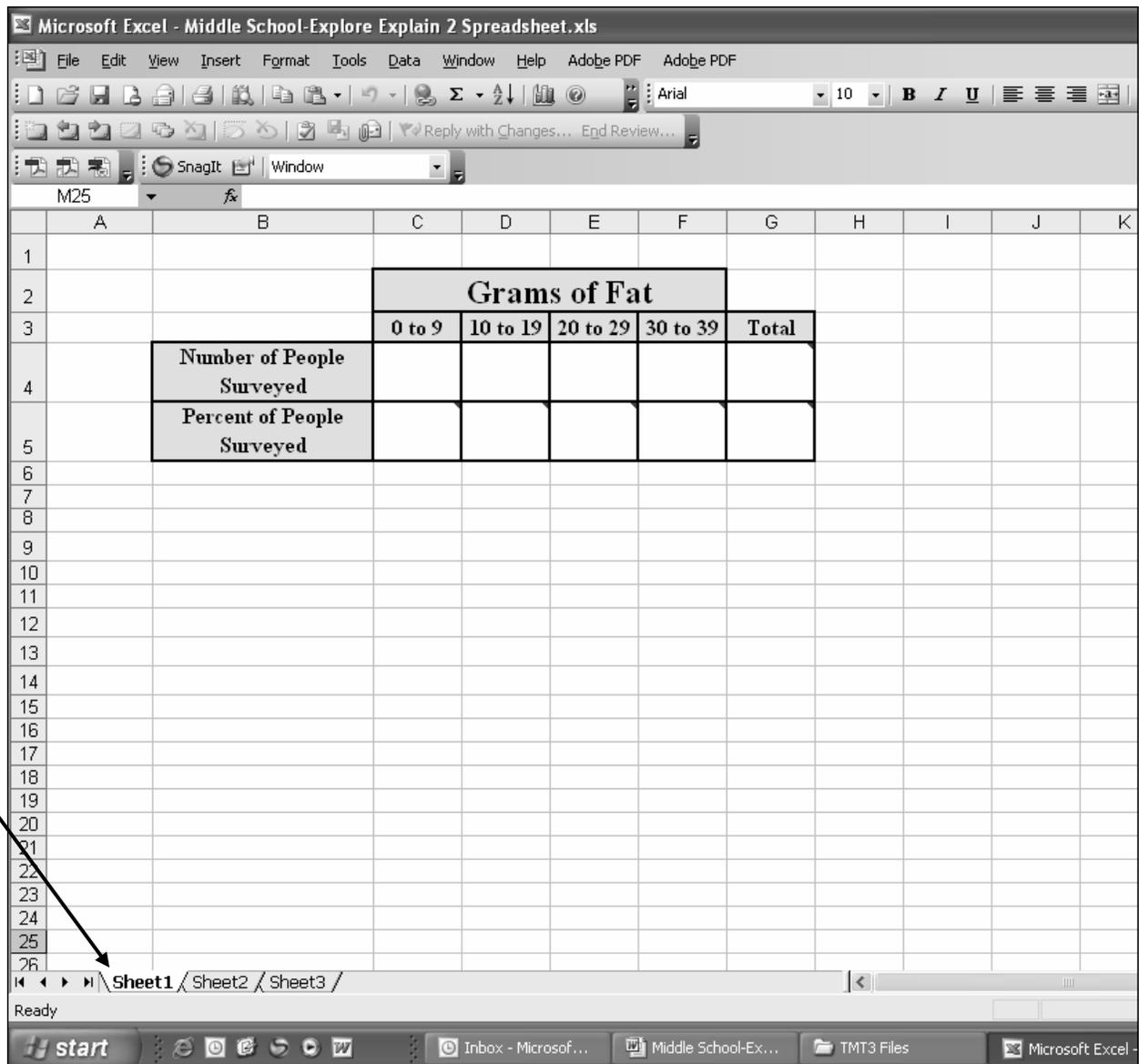


## Technology Tutorial: Grams of Fat Activity 1

### Formatting Chart Cells

1. Open the Excel  document **Middle School-Explore Explain 2 Spreadsheet.xls**.
2. Select **Sheet 1** containing the template: **Grams of Fat**.

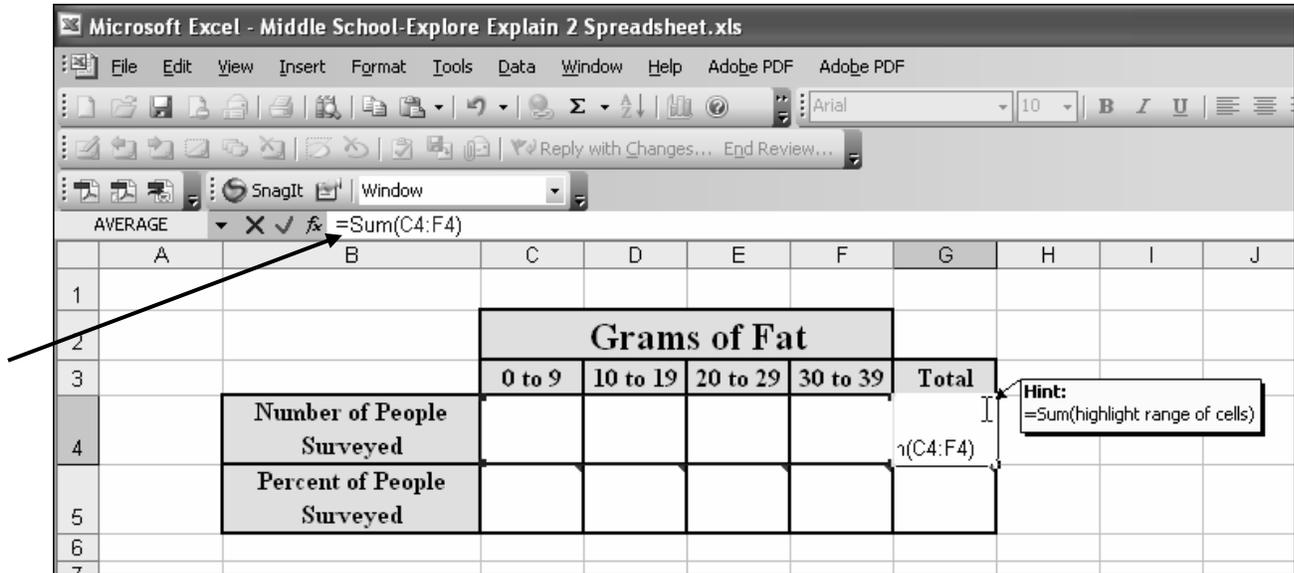


The screenshot shows the Microsoft Excel interface with the following data table:

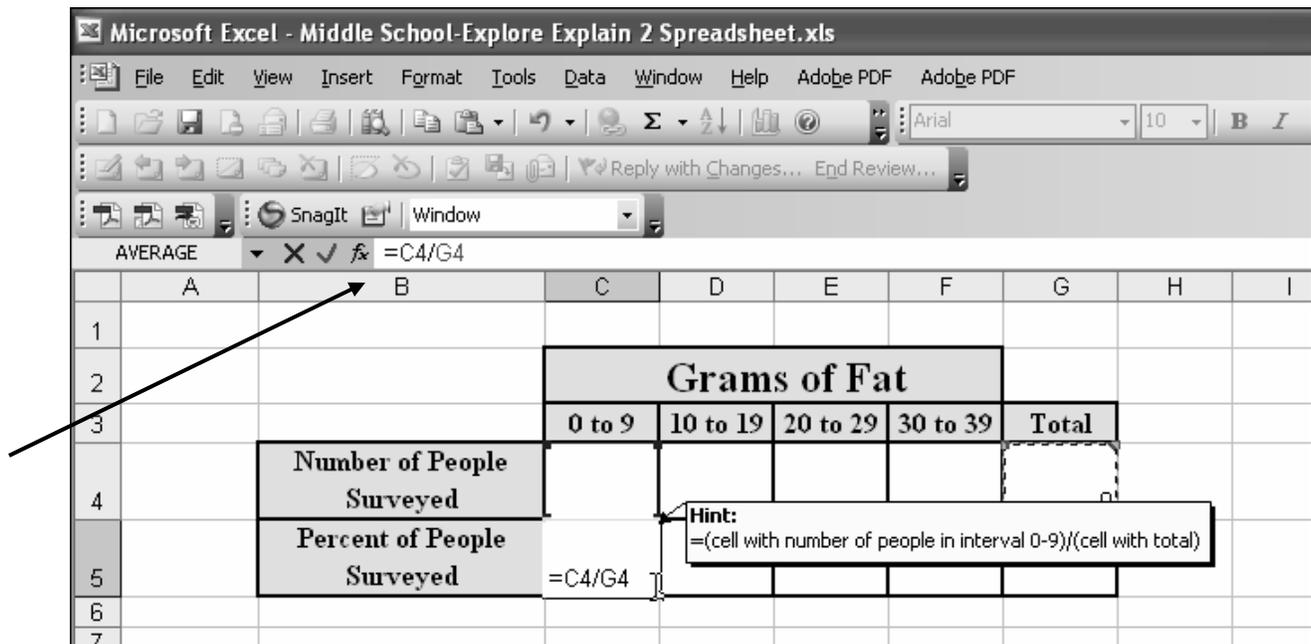
Grams of Fat						
	0 to 9	10 to 19	20 to 29	30 to 39	Total	
Number of People Surveyed						
Percent of People Surveyed						

The spreadsheet is titled "Microsoft Excel - Middle School-Explore Explain 2 Spreadsheet.xls". The worksheet tab at the bottom is labeled "Sheet1". A black arrow points from the left side of the page to the "Sheet1" tab.

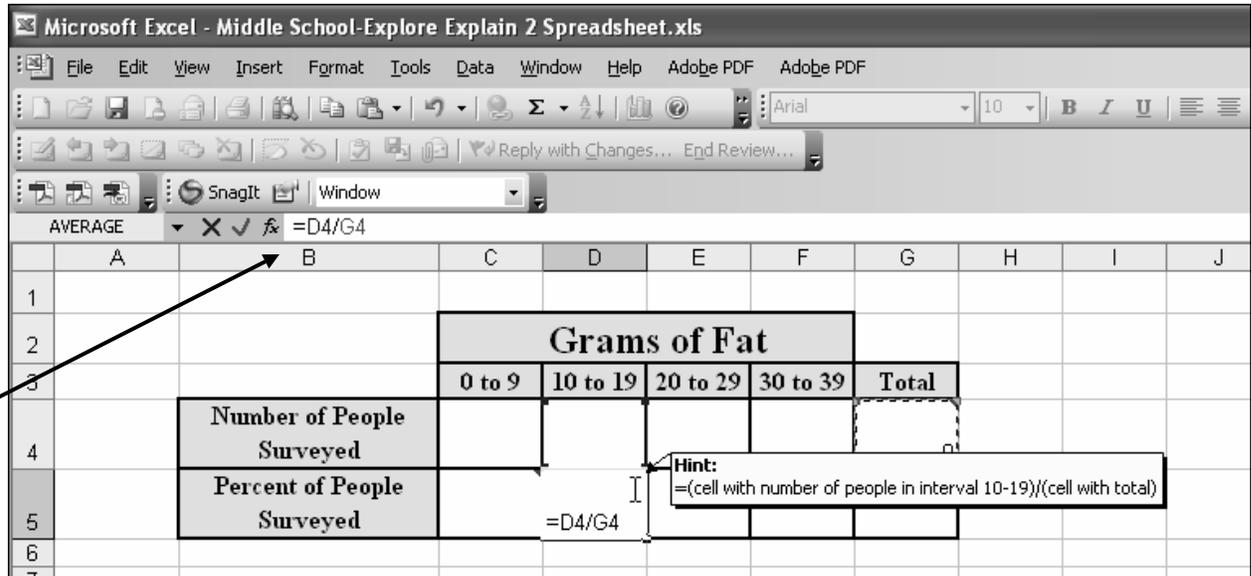
3. Scroll over the flag in cell **G4**. The HINT implies that the formula needed for this cell is **=Sum(highlight range of cells)**, which means to enter **=SUM(** and then highlight the cells necessary by clicking and dragging the mouse from cell **C4** to cell **F4**. Followed by a close parenthesis and **Enter**.



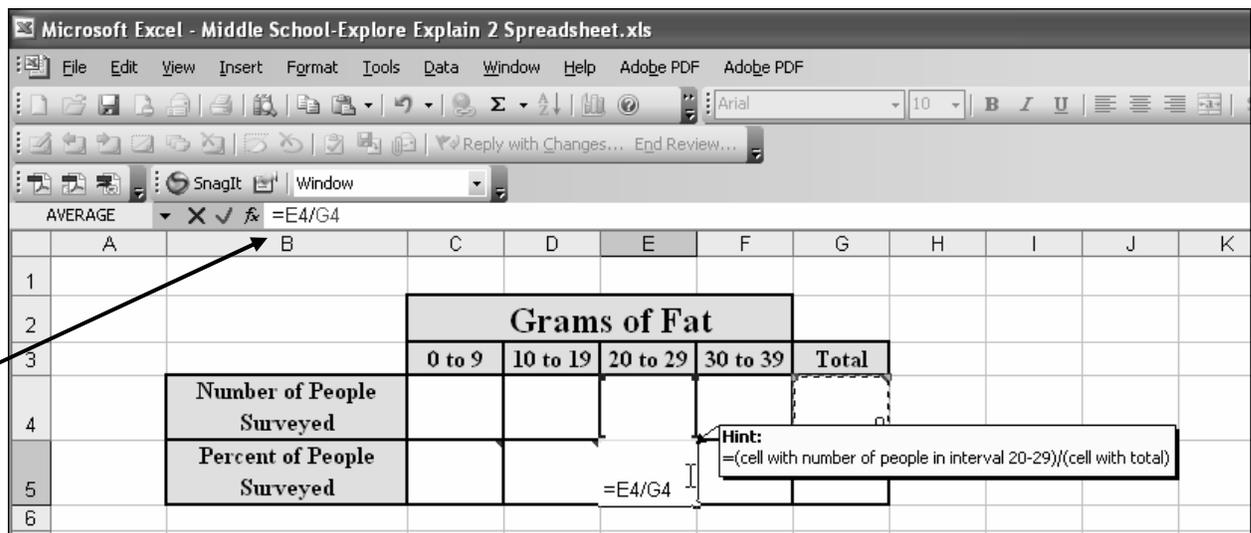
4. Scroll over the flag in cell **C5**. The HINT implies that the formula needed for this cell is **=(cell with number of people in interval 0 to 9)/(cell with total)**, which means to input **=**. Then click on cell **C4**, followed by the backslash, followed by cell **G4**, and **Enter**.



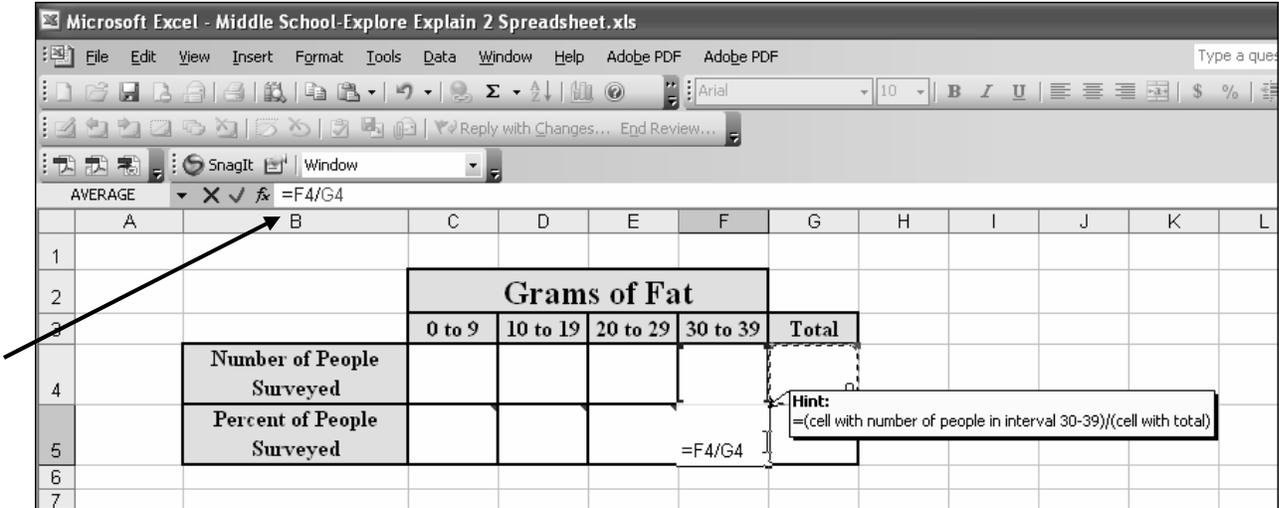
5. Scroll over the flag in cell **D5**. The HINT implies that the formula needed for this cell is  $=(\text{cell with number of people in interval 10 to 19})/(\text{cell with total})$ , which means to enter  $=$ . Then click on cell **D4**, followed by the backslash, followed by cell **G4**, and **Enter**.



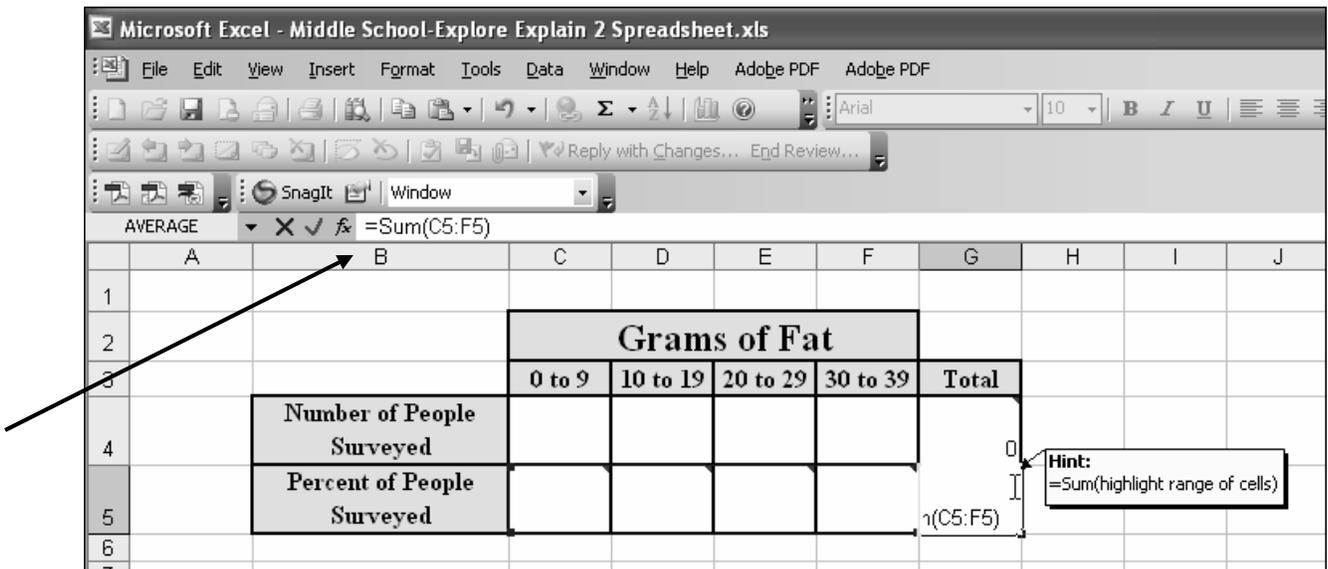
6. Scroll over the flag in cell **E5**. The HINT implies that the formula needed for this cell is  $=(\text{cell with number of people in interval 20 to 29})/(\text{cell with total})$ , which means to input  $=$ . Then click on cell **E4**, followed by the backslash, followed by cell **G4**, and **Enter**.



7. Scroll over the flag in cell **F5**. The HINT implies that the formula needed for this cell is  $\text{=(cell with number of people in interval 30 to 39)/(cell with total)}$ , which means to enter  $\text{=}$ . Then click on cell **F4**, followed by the backslash, followed by cell **G4**, and **Enter**.



8. Scroll over the flag in cell **G5**. The HINT implies that the formula needed for this cell is  $\text{=Sum(highlight range of cells)}$ , which means to enter  $\text{=SUM(}$  and then highlight the cells necessary by clicking and dragging the mouse from cell **C5** to cell **F5**. Followed by a close parenthesis and **Enter**.



9. Note: Until data is entered, cells will show an error message due to division by zero.

The screenshot shows a Microsoft Excel spreadsheet titled "Middle School-Explore Explain 2 Spreadsheet.xls". The spreadsheet is set up for data entry. Row 2 is the title "Grams of Fat". Row 3 contains the categories for fat grams: "0 to 9", "10 to 19", "20 to 29", "30 to 39", and "Total". Row 4 is labeled "Number of People Surveyed" and has a value of 0 in the "Total" column. Row 5 is labeled "Percent of People Surveyed" and shows error messages "#DIV/0!" in all columns from C to G. The error messages occur because the "Number of People Surveyed" is 0, and the spreadsheet is attempting to calculate percentages.

	A	B	C	D	E	F	G
1							
2			<b>Grams of Fat</b>				
3			<b>0 to 9</b>	<b>10 to 19</b>	<b>20 to 29</b>	<b>30 to 39</b>	<b>Total</b>
4		<b>Number of People Surveyed</b>					0
5		<b>Percent of People Surveyed</b>	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6							
7							



3. Scroll over the flag in cell **H5**. The HINT implies that the formula needed for this cell is **=Average(highlight range of cells)**, which means to enter **=Average(** and then highlight the cells necessary by clicking and dragging the mouse from cell **B4** to cell **E27**. Followed by a close parenthesis and **Enter**.

The screenshot shows a spreadsheet with the following structure:

AVERAGE		=average(B4:E27)							
	A	B	AVERAGE(number1, [number2], ...)			F	G	H	I
1									
2		<b>Data Pieces</b>							
3		<b>0 to 9</b>	<b>10 to 19</b>	<b>20 to 29</b>	<b>30 to 39</b>				
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									

Measures of Central Tendency	
Mean	=average(B4:E27)
Median	
Mode	

4. Scroll over the flag in cell **H6**. The HINT implies that the formula needed for this cell is **=Median(highlight range of cells)**, which means to enter **=Median(** and then highlight the cells necessary by clicking and dragging the mouse from cell **B4** to cell **E27**. Followed by a close parenthesis and **Enter**.

The screenshot shows a spreadsheet with the following elements:

- Formula Bar:** Contains the formula `=median(B4:E27)`.
- Worksheet Grid:**
  - Row 1: Column headers A, B, F, G, H, I.
  - Row 2: Cell B2 contains the text "Data Pieces".
  - Row 3: Cells B3, C3, D3, E3 contain "0 to 9", "10 to 19", "20 to 29", and "30 to 39" respectively.
  - Cells B4 through E27 are highlighted with a dashed border, indicating the range for the median calculation.
- Measures of Central Tendency Table:**

Measures of Central Tendency	
Mean	
Median	=median(B4:E27)
Mode	

5. Scroll over the flag in cell **G5**. The HINT implies that the formula needed for this cell is **=Mode(highlight range of cells)**, which means to enter **=Mode(** and then highlight the cells necessary by clicking and dragging the mouse from cell **B4** to cell **E27**. Followed by a close parenthesis and **Enter**.

\* Note: If the data set contains more than one mode, only the one with the lowest value will be recorded.

AVERAGE		X ✓ ✖ =mode(B4:E27)		MODE(number1, [number2], ...)		F	G	H	I
1									
2		<b>Data Pieces</b>							
3		0 to 9	10 to 19	20 to 29	30 to 39				
4							<b>Measures of Central Tendency</b>		
5							Mean		
6							Median		
7							Mode	=mode(B4:E27)	
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									



## Technology Tutorial: Fat Grams Graph Activity 2

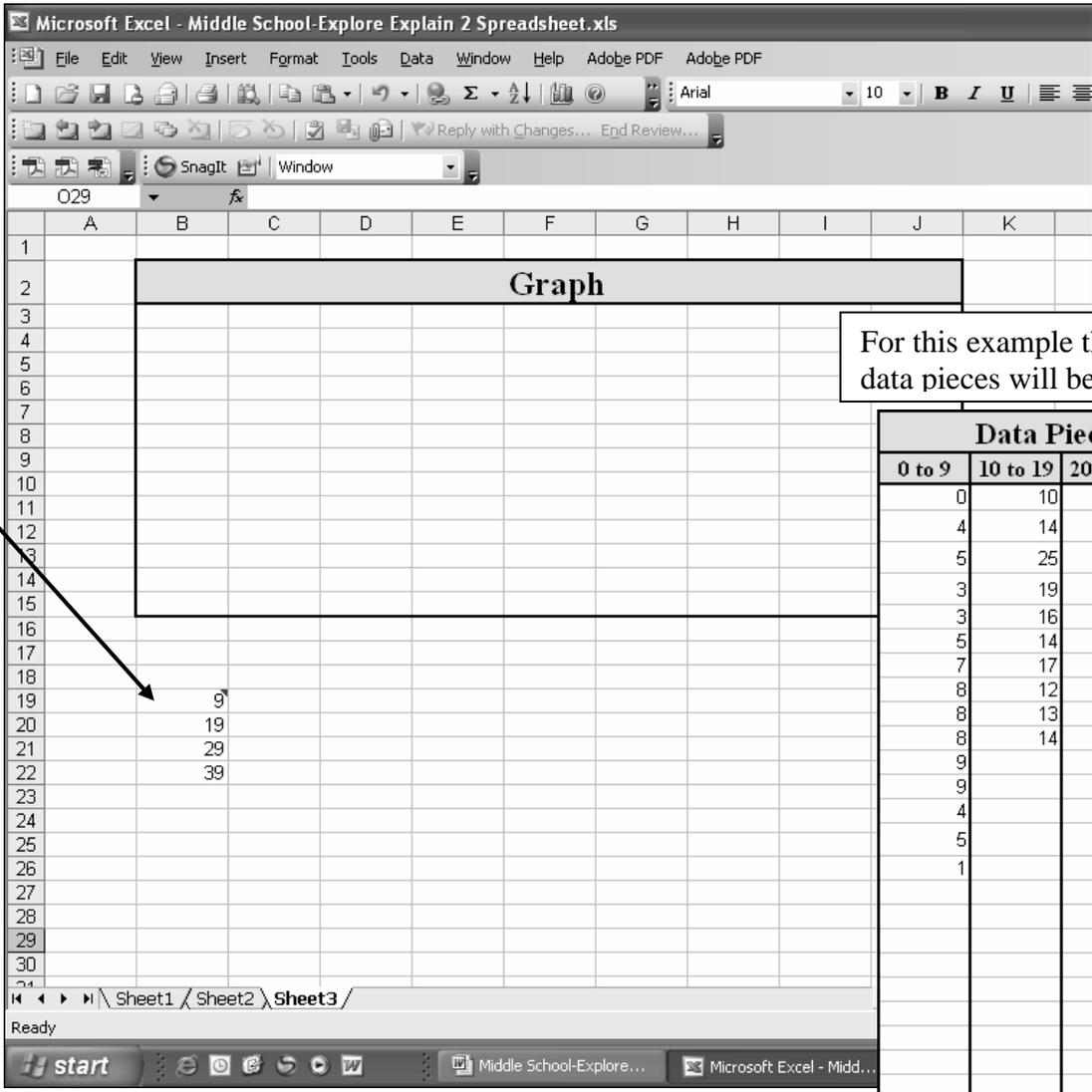
### Creating the *Grams of Fat* Graph:

Participants are allowed to select the type of graphical representation of their choice; therefore two possible types of graphs are shown: **Histogram** and **Pie Graph**.

#### I. Histogram

1. Open the Excel  document **Middle School-Explore Explain 2 Spreadsheet.xls**.
2. In order to use the Data Analysis Toolpak to create a histogram, you will need to create Bin Values. The Bin Value represents the highest value of each interval in the data set.

For example, if the intervals sort the data from 0 to 9, 10 to 19, 20 to 29, and 30 to 39, there would be four Bin Values: 9, 19, 29, and 39 as seen on the lower left hand side of **Sheet 3**.



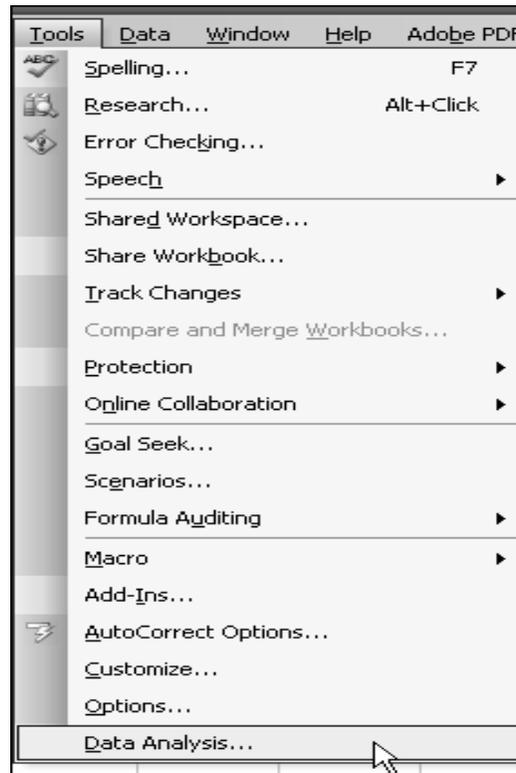
The screenshot shows Microsoft Excel with a spreadsheet titled "Middle School-Explore Explain 2 Spreadsheet.xls". A large rectangular area in the center of the spreadsheet is labeled "Graph". To the right of the spreadsheet, there is a table titled "Data Pieces" with the following data:

Data Pieces			
0 to 9	10 to 19	20 to 29	30 to 39
0	10	28	30
4	14	24	30
5	25	24	37
3	19	26	36
3	16	21	34
5	14	28	32
7	17	29	32
8	12	29	32
8	13	26	32
8	14	25	36
9			34
9			35
4			34
5			37
1			38

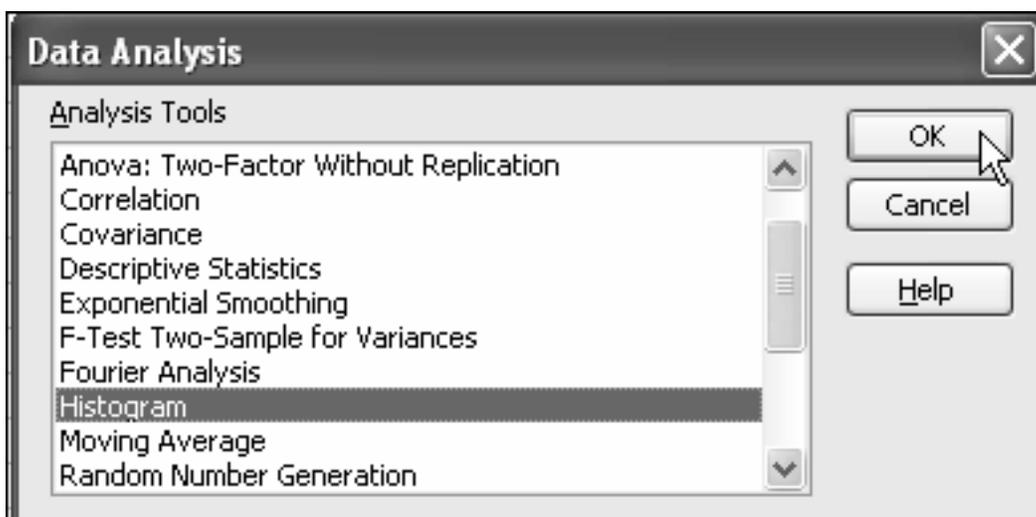
In the spreadsheet, the bin values 9, 19, 29, and 39 are listed in column B, rows 19 through 22. An arrow points from the "Data Pieces" table to these bin values.

For this example the following data pieces will be use.

3. In the toolbar under the **Tools** menu select **Data Analysis**.



4. Select **Histogram** and click **OK**.



5. Click the **Input Range** icon . Highlight the cells that contain your data, by clicking on cells **B4** and dragging down to **E18**. The numbers will be highlighted by “marching ant” tracks. Then click on the **Import** icon .

**Histogram** ✕

Input

Input Range:  

Bin Range:  

Labels

Output options

Output Range:  

New Worksheet Ply:

New Workbook

Pareto (sorted histogram)

Cumulative Percentage

Chart Output

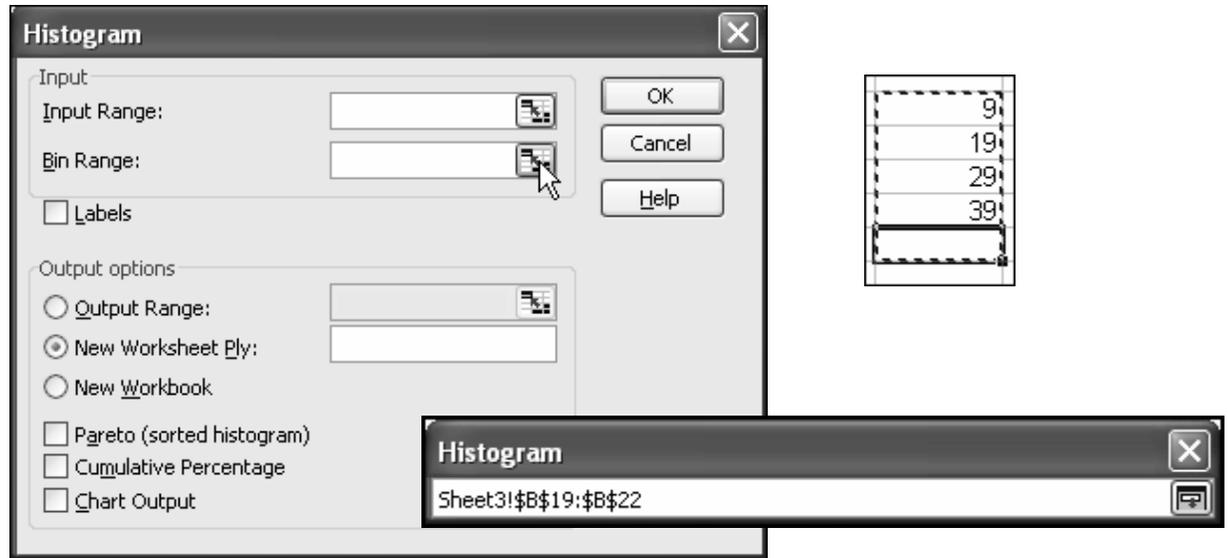
OK  
Cancel  
Help

Data Pieces				
0 to 9	10 to 19	20 to 29	30 to 39	
0	10	28	30	
4	14	24	30	
5	25	24	37	
3	19	26	36	
3	16	21	34	
5	14	28	32	
7	17	29	32	
8	12	29	32	
8	13	26	32	
8	14	25	36	
9			34	
9			35	
4			34	
5			37	
1			38	

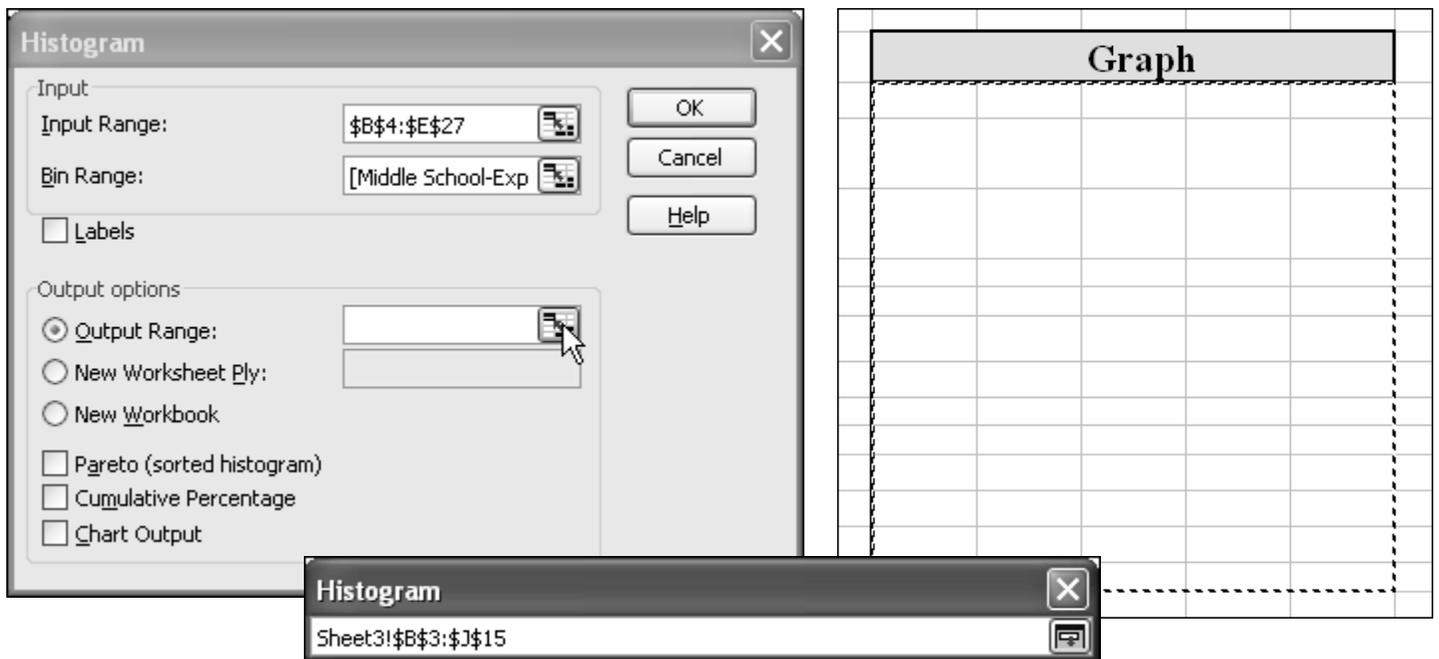
**Histogram** ✕

\$B\$4:\$E\$27 

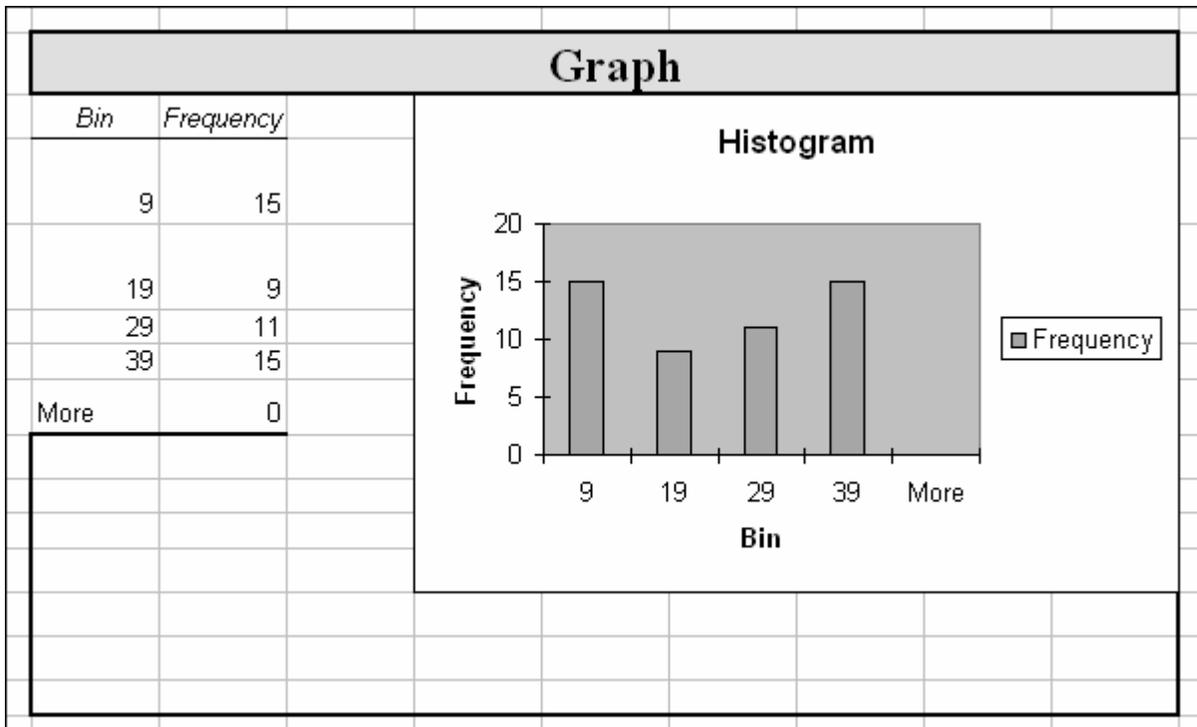
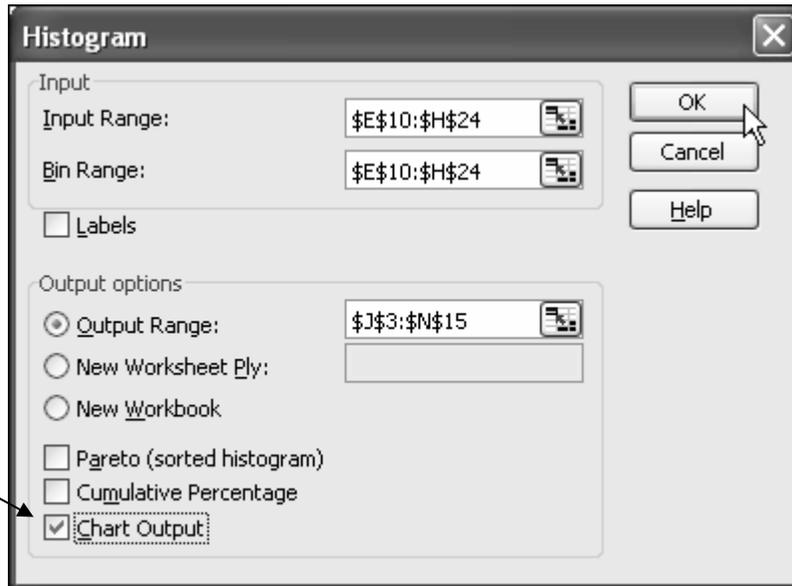
6. Click the **Bin Range** icon . You may need to select **Sheet 3** before, highlighting the cells that contain your Bin values and then click on the **Import** icon .



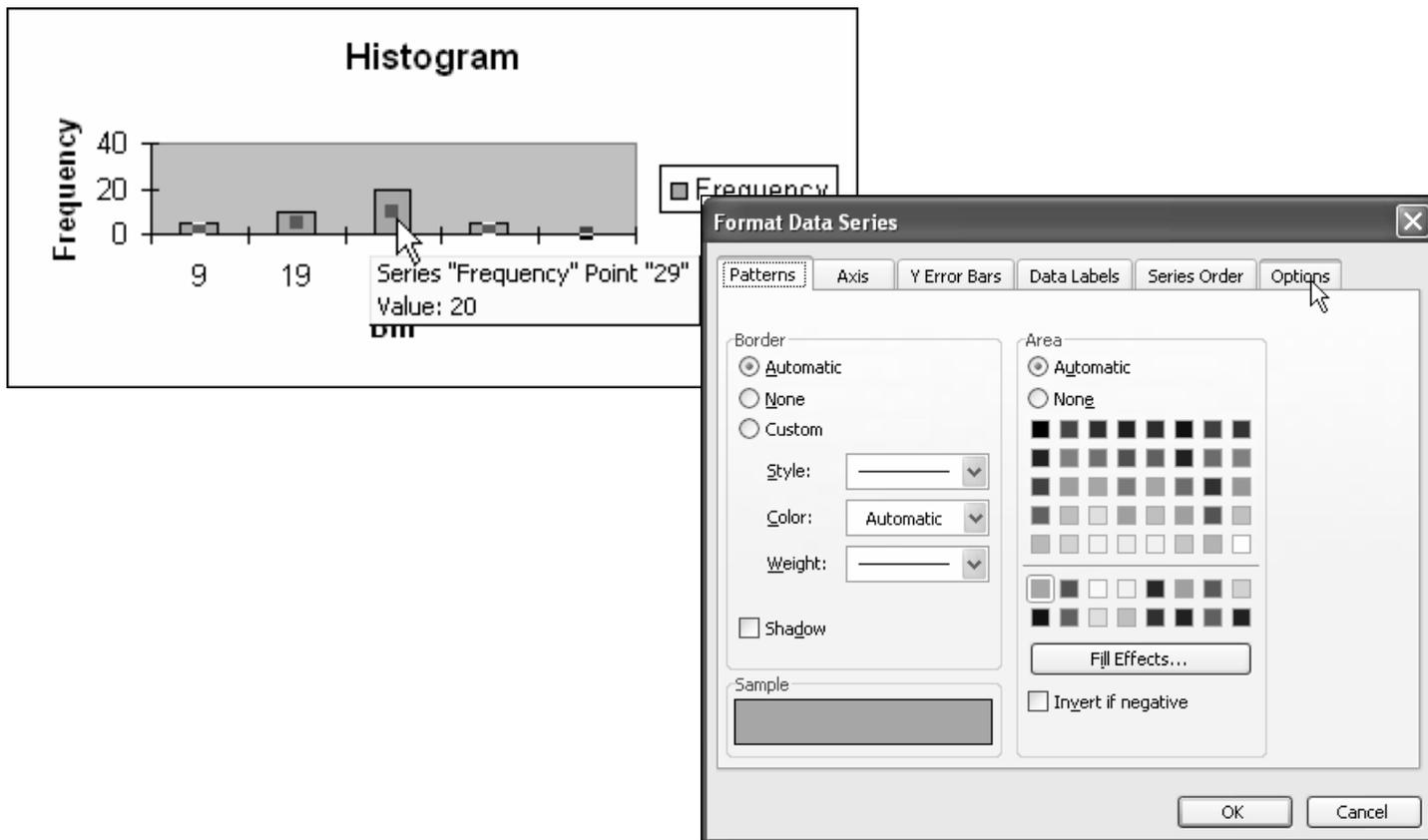
7. Under **Output Options** select **Output Range**, and click the **Output Range** icon . The Output Range allows you to choose where the histogram will appear on the spreadsheet. You may need to select **Sheet 3** before selecting the empty cells below the Graph section of the spreadsheet, and then click on the **Import** icon .



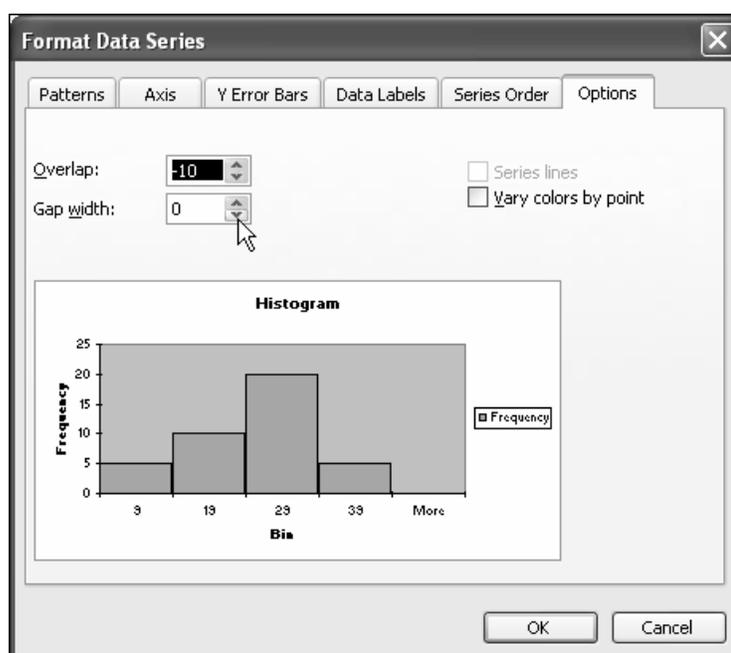
8. Then select **Chart Output** and click **OK**.



9. **Double Click** on the middle of a bar in the graph. Select **Options**



10. Choose **Option** and change **Gap Width** to 0. Click **OK**.



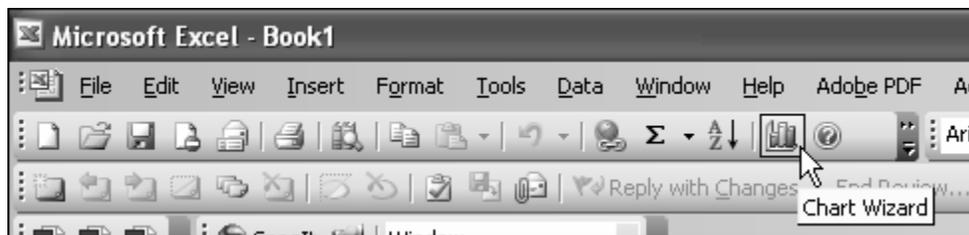
- To adjust the size of the graph, click in the area between the graph and the border.  
Click and drag a corner handle until the graph is the correct size.

## II. Pie Graph

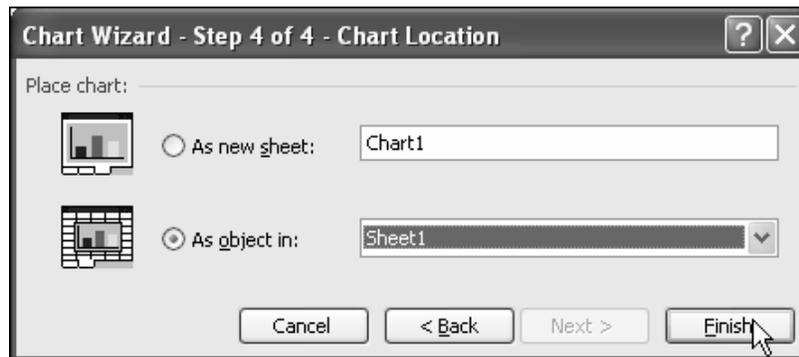
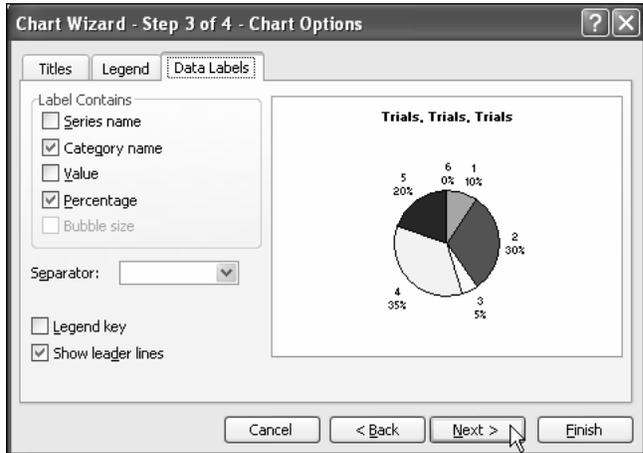
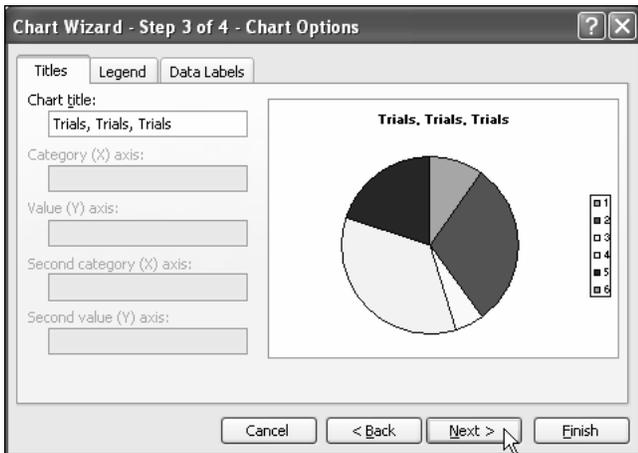
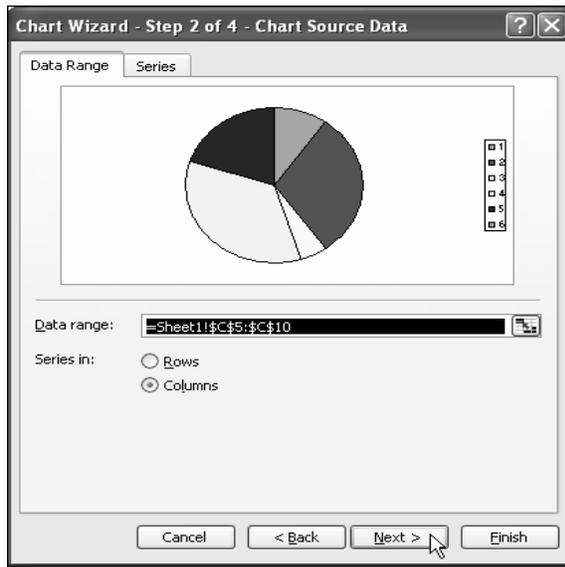
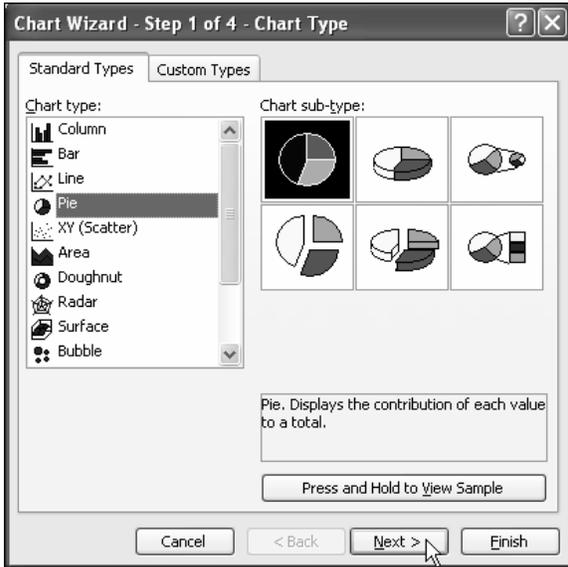
- Open the Excel  document **Middle School-Explore Explain 2 Spreadsheet.xls**.
- Select **Sheet 2**, and highlight data pieces by clicking on cell **B4** and dragging down to cell **E18**. The numbers will be highlighted by “marching ant” tracks.

Data Pieces			
0 to 9	10 to 19	20 to 29	30 to 39
0	10	28	30
4	14	24	30
5	25	24	37
3	19	26	36
3	16	21	34
5	14	28	32
7	17	29	32
8	12	29	32
8	13	26	32
8	14	25	36
9			34
9			35
4			34
5			37
1			38

- Select the Chart Wizard  in the toolbar



4. **Step 1:** Select the **Pie** chart type, and then click **Next**.
- Step 2:** Since the data was highlighted first click **Next**.
- Step 3:** Enter a **Chart title** (Trials, Trials, Trials), then select the **Data Labels** tab and check **Category name**, **Percentage** and click **Next**.
- Step 4:** Select **As object in**, and then **Finish**.



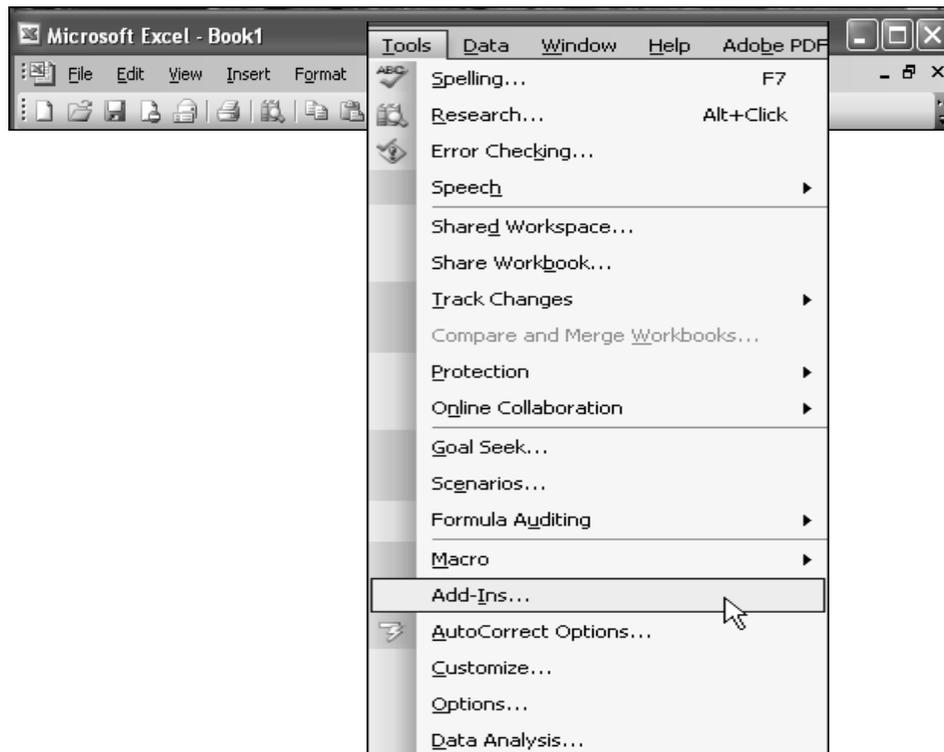
5. A graph will appear on the spreadsheet.
6. To adjust the size of the graph, click in the area between the graph and the border.  
Click and drag a corner handle until the graph is the correct size.

## Technology Tutorial: Loading Data Analysis Toolpak

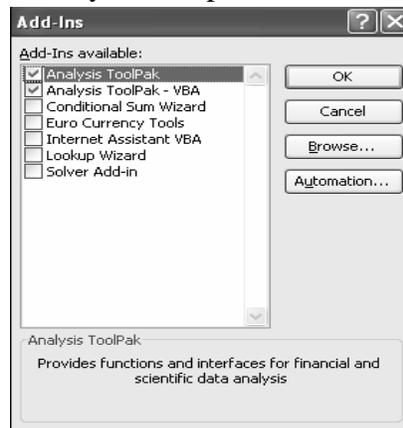
### Advance Preparation: Loading the Toolpak

You must load the Data Analysis Toolpak before you can generate a histogram using Excel. If the Data Analysis Toolpak is not under the Tools menu, complete the following steps to load the Toolpak.

1. Click **Start, Programs, Microsoft Office, Microsoft Office Excel**.
2. Open an **Excel**  document.
3. In the toolbar under the **Tools** menu, click **Add-Ins**.



4. In the Add-Ins box, check Analysis Toolpak. Click **OK**



5. The **Data Analysis** Toolpak can now be found in the **Tools** menu.