You see graphs everywhere, in textbooks, in newspapers, magazines, and on television. The ability to create, read, and analyze graphs are essential parts of a student’s education. Creating graphs by hand takes a lot of time. Certain graphs are almost impossible to make by hand. If you make a mistake or your data changes, you may have to start all over again.

Graphs are called charts in Excel. Before you can create a chart, you must create a spreadsheet. The labels and data in your chart will come from your spreadsheet. Have a misspelled label or have incorrect data in your spreadsheet and the errors will appear in your chart. Fix the errors in your spreadsheet, and the changes will automatically appear in your chart. You have already created four spreadsheets with different data in Excel. Now you will create the charts.

Microsoft Excel 2000 makes creating a graph easy. Excel simplifies the chart-making process with a feature called the Chart Wizard. The Chart Wizard is a series of dialog boxes that leads you through all the steps necessary to create an effective chart. You select from different chart types and styles, and select any options you might want to apply while the Chart Wizard is open. Any options you do not add while the Chart Wizard is open can always be added later. If your data changes, your graph will automatically change. If you make a column graph and decide that you want a circle graph, you can change the graph in a few seconds. The graph can be formatted in many ways. You can make the graph 3-D, add pictures, change colors, and add data labels, legends, or call outs.

Table 1

<table>
<thead>
<tr>
<th>Common Chart Types</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Column Graph (Vertical Bar)</strong></td>
</tr>
<tr>
<td>A column chart illustrates comparisons among items. Labels are organized horizontally, numbers vertically.</td>
</tr>
<tr>
<td><strong>Pie Chart (Circle Graph)</strong></td>
</tr>
<tr>
<td>A pie chart shows the fractional size of items that make up a data series to the sum of the items. Each wedge or slice of the pie represents a piece of data that can be easily compared to the whole pie that represents the sum of the data items.</td>
</tr>
<tr>
<td><strong>Line Charts</strong></td>
</tr>
<tr>
<td>Used to track changes over equal segments of time.</td>
</tr>
<tr>
<td><strong>Bar (Horizontal Bar)</strong></td>
</tr>
<tr>
<td>A bar chart illustrates comparisons among individual items. Labels are organized vertically, numbers horizontally.</td>
</tr>
</tbody>
</table>
Exercise 5
Creating A 3-D Column Chart From A Spreadsheet

In this exercise, you will create a column chart comparing the amount of class birthdays for each month.

1. Click the **Start** button, point to **Programs**, and select **Microsoft Excel**.
2. Click **File** on the **Menu** bar and select **Open**.
3. The Open dialog box appears.
4. Click the drop-down arrow to the right of the **Look in** box.
5. Select your **period folder**.
6. Click the file **My First Excel Workbook** to open it.
7. Click the **Open** button.
8. Click the worksheet tab titled **Class Birthdays** to make it the active sheet.
9. Click the **Maximize** button to enlarge the window.
10. Change the **Zoom** box on the **Standard** toolbar to **100%**.

**Selecting the Labels and Data**

11. Click in cell **A1** and drag diagonally down to cell **B13**.
12. All of the labels and data that you want to graph are now selected.
13. Look at Figure 1 carefully before you go on.

![Figure 1](image.png)
Starting the Wizard

14. Click the Chart Wizard button on the Standard toolbar.

15. Step 1 of the Chart Wizard opens.

16. Under Chart type, select the Column chart type.

17. Under Chart Sub-type, select the Clustered column with 3-D visual effect.

18. Click the Press and hold to view sample button to preview your selection.

19. Click Next.

20. Step 2 opens.

21. Make sure the correct data range is selected.

22. The picture preview is your best hint that the data range is correctly selected.

23. Click Next.


25. Click the Titles tab.

26. In the Chart title text box type Class Birthdays.

27. In the Category (X) axis text box type Months.

28. In the Value (Z) axis text box type Number of Students.

29. Click the Legend tab.

30. Uncheck Show Legend.

31. You do not need a legend since there is only one kind of data to compare.

32. Click Next.
Setting the Chart Location

In Step 4 of the Chart Wizard, you have two options in which to place your new chart. The first option will place the chart on a new worksheet in your workbook. The second option will place the chart on an existing sheet, usually the spreadsheet that contains the data.

33. Under Place chart, select As a new sheet.
34. In the text box type Class Birthdays Chart.
35. You will see this name on the worksheet tab.
36. Click Finish.
37. You will see your new chart.
38. Using the Standard toolbar, click the Save button.

Formatting a Chart

You can add chart objects, such as titles, legends, and chart options such as gridlines to a chart to enhance the appearance of the chart and increase its overall effectiveness. A chart title helps to identify the primary purpose of the chart and a title for each axis further clarifies the data that is plotted. Titles can be more than one line, and formatted just like other worksheet text. A legend helps the reader connect the colors and patterns in a chart with the data they represent.

Gridlines are horizontal and vertical lines you can add to help the reader determine data point values in a chart that without the gridlines would be difficult to read.

Formatting the X-Axis Labels

Labels are hard to read when they are 10 point size and sideways.
39. Double-click the name of any month to select the X-axis labels.
40. The Format Axis dialog box will open.
41. Click the Font tab.
42. Change the Size to 14 points.
43. Click the Alignment tab.
44. In the Orientation box to the right, press and drag the red diamond upwards so that the word Text is angled 45 degrees.
45. You can also type 45 in the Degrees box.
46. Click OK.

Formatting the Z-Axis Scale

The scale is the set of numbers on the Y or Z-axis of the graph. The scale should always start at 0. The greatest number on the scale depends on the largest number in the set of data that you are graphing. The
interval is the number you are counting by on your scale. Generally, you want to have between 5-7 numbers on your scale, so you may have to experiment with your interval.

47. Double-click any number on the scale to select the Z-axis labels (0, 1, 2,3).
48. The Format Axis dialog box will open.
49. Click the Font tab.
50. Change the Size to 14 points.
51. Click the Scale tab.
52. Copy the settings in the picture to the right.
53. The Maximum should be the largest number of birthdays you had in a month
54. Click OK.

**Formatting the X-Axis Title**

Titles are within text boxes that can be moved, resized, and even filled with color or patterns. Sometimes when you make the font larger, the title will wrap into two lines of text. When this happens you can leave it alone, resize the text box, or change the text alignment.

55. Double-click the X-axis title Months.
56. The Format Axis Title dialog box will open.
57. Click the Font tab.
58. Change the Size to 14 points.
59. Change the Font style to Bold.
60. Click OK

**Formatting the Z-Axis Title**

61. Double-click the Z-axis title Number of Students.
62. The Format Axis Title dialog box will open.
63. Click the Font tab.
64. Change the Size to 14 points.
65. Because the font size is larger, the title may wrap into two lines.
66. Change the Font style to Bold.
67. Click the Alignment tab.
68. In the Orientation box to the right, press and drag the red diamond upwards so that the word Text is angled 90 degrees.
69. You can also type 90 in the Degrees box.
70. Click OK.
**Formatting the Chart Title**

71. Double-click the chart title **Class Birthdays**.
72. The Format Chart Title dialog box will open.
73. Click the **Font** tab.
74. Change the **Font** to Goudy Stout.
75. Change the **Size** to 20 points.
76. Because the font size is larger, the title may wrap into two lines.
77. Click the **Patterns** tab.
78. Under **Border**, select **Automatic**.
79. Check the box next to **Shadow**.
80. This will put a thin black border around your title with a shadow.
81. Click **OK**.

**Changing the Page Setup**

82. Click **File** on the **Menu** bar and select **Page Setup**.
83. The Page Setup dialog box opens.
84. Click the **Header/Footer** tab.
85. Click the **Custom Header** button.
86. The Header dialog box opens.
87. In the **Right** section type your name.
88. Press **Enter**.
89. Type your partner’s name.
90. Press **Enter**.
91. Click the **Date** button.
92. Press **Enter**.
93. Type the word **Period**, press the **Spacebar**, and type your period number.
94. Press **Enter**.
95. Type Excel Exercise 5.
96. Click **OK**.
97. Click the **Custom Footer** button.
98. The Footer dialog box opens.
99. In the **Right** section, click the **File Name** button.
100. The file name is what you called the document when you saved it.
101. Click **OK** twice.

**Previewing a Worksheet**

102. Press **F7** to run a spell check.
103. Press **Ctrl+S** to save your work.
104. Click on the **Print Preview** button.
105. Check the **bottom** of the Print Preview window to check that you only have **one page**.
106. You will now see your header and footer.
107. Click the **Close** button on the Print Preview toolbar.

**Printing a Document**

108. Press **Ctrl+P**.
109. The Print dialog box opens.
110. The **Name** of the printer should be **Ireland**.
111. Next to **Number of copies**, type **2** in the text box.
112. Click **OK** or press **Enter**.
113. Press **Alt+F4** to close all open windows and to return to the **Desktop**.

![Class Birthdays](image)
Exercise 6  
Making A Column Chart With An AutoShape

In this exercise, you will make a formatted column chart comparing the ages of each person in the class and the class mean age.

114. Click File on the Menu bar and select Open. The Open dialog box appears.
115. Click the drop-down arrow to the right of the Look in box.
116. Select your period folder.
117. Click the file My First Excel Workbook to open it.
118. Click the Open button.
119. Click the worksheet tab titled Class Ages to make it the active sheet.

Selecting Labels and Data

Select the data range you want to chart. Make sure you include the data you want to chart and the column and row labels in the range. The Chart Wizard expects to find this information and automatically incorporates it in your chart.

120. Click in cell A1 and drag diagonally down to cell B35. (The age of the last student in your class.)
121. Hold the Control key down.
122. Click cell A35 and drag across to cell B35. (The mean age of your class.)
123. Release the Control key.
124. All of the labels and data that you want to graph are now selected.
125. Look at Figure 3 carefully before you go on. Your spreadsheet should look something like this.

Pressing the Control key allows you to skip blank rows when you select. Otherwise, your graph will have blank spaces.
**Starting the Wizard**

126. Click the **Chart Wizard** button on the **Standard** toolbar.

127. **Step 1** opens.

128. Under **Chart type**, select **Column**.

129. Under **Chart sub-type**, select the **Clustered Column**.

130. Click the **Press and hold to view sample** button to preview your selection.

131. Click **Next**.

132. **Step 2** opens.

133. Make sure the correct data range is selected.

134. The picture preview is your best hint that the data range is correctly selected.

135. Click **Next**.

136. **Step 3** opens.

137. Click the **Titles** tab.

138. In the **Chart title** text box type **Class Ages**.

139. In the **Category (X) axis** text box type **Names**.

140. In the **Value (Y) axis** text box type **Years**.

141. Click the **Legend** tab.

142. **Uncheck** Show Legend.

143. You do not need a legend since there is only one kind of data to compare.

144. Click **Next**.

**Setting the Chart Location**

145. Under **Place chart**, select **As a new sheet**.

146. In the text box type **Class Ages Chart**.
147. You will see this name on the worksheet tab.
148. Click **Finish**.
149. You will see your new chart.
150. Using the **Standard** toolbar, click the **Save** button.

**Formatting the X-Axis Labels**
151. Double-click the **name of any student** to select the X-axis labels.
152. The Format Axis dialog box will open.
153. Click the **Font** tab.
154. Change the **Size** to 10 points.
155. Click the **Alignment** tab.
156. In the **Orientation** box to the right, press and **drag the red diamond upwards** so that the word **Text** is angled **45 degrees**.
157. You can also type 45 in the Degrees box.
158. Click **OK**.

**Formatting the X-Axis Title**
159. Double-click the X-axis title **Names**.
160. The Format Axis Title dialog box will open.
161. Click the **Font** tab.
162. Change the **Size** to 14 points.
163. Change the **Font style** to **Bold**.
164. Click **OK**.

**Formatting the Y-Axis Title**
165. Double-click the Y-axis title **Years**.
166. The Format Axis Title dialog box will open.
167. Click the **Font** tab.
168. Change the **Size** to 14 points.
169. Change the **Font style** to **Bold**.
170. Click the **Alignment** tab.
171. Under **Orientation**, select the box on the left that shows the text **vertically**.
172. Look at the picture to the left.
173. Click **OK**.
**Formatting the Y-Axis Scale**

The scale is the set of numbers on the Y or Z-axis of the graph. The scale should always start at 0. The greatest number on the scale depends on the largest number in the set of data that you are graphing. The interval is the number you are counting by on your scale. Generally, you want to have between 5-7 numbers on your scale, so you may have to experiment with your interval.

174. Double-click **any number** on the scale to select the Y-axis labels (0, 1, 2,3).

175. The Format Axis dialog box will open.

176. Click the **Font** tab.

177. Change the **Size** to 10 points.

178. Click the **Scale** tab.

179. Copy the settings in the picture to the right.

180. Click **OK**.

**Formatting the Chart Title**

181. Double-click the chart title **Class Ages**.

182. The Format Chart Title dialog box will open.

183. Click the **Font** tab.

184. Change the **Font** to Arial Black;

185. Change the **Size** to 20 points.

186. Click the **Patterns** tab.

187. Under **Border**, select **Automatic**.

188. Check the box next to **Shadow**. (This will put a thin black border around your title with a shadow.)

189. Click **OK**.

**Formatting the Plot Area**

The **Plot Area**, in a 2-D or 3-D chart, is the area bounded by the axes and including all data series. By default, Excel shades the Plot Area gray. The Plot Area can be filled with any shade of color, a design, texture, or picture. The Plot Area can also be outlined with a border of any thickness.

190. Double-click anywhere in the **Plot Area** (the gray area behind the bars).

191. The Format Plot Area dialog box opens.

192. Under **Border**, select **Automatic** to put a thin line area the Plot Area.
193. Under **Area**, select **None** to get rid of the gray fill.
194. Click **OK**.

**Formatting the Columns**
195. Double-click any **bar**.
196. The Format Data Series dialog box opens.
197. Click the **Patterns** tab.
198. Under **Area**, select the **Red** color.
199. Click **OK**.

**Formatting a Single Data Point to Make It Stand Out**

The bar that shows the mean is a special piece of data that you want people to notice. People above the mean are older than average while those below the mean are younger than average.

200. Click **any** of the bars in the chart.
201. **All** of the data points will be selected.
202. Again, click **the bar that shows the mean**.
203. The **mean** data point bar is the only bar selected.
204. Double-click the **mean data point bar**.
205. The Format Data Point dialog box opens.
206. Click the **Patterns** tab.
207. Click the **Fill Effects** button
208. The Fill Effects dialog box opens.
209. Click the **Patterns** tab.
210. Click the bottom box in the third column (**Wide Upward Diagonal**).
211. Click **OK**.
212. The bar that shows the mean will now stand out.
213. Look at the picture to the right. Does the mean bar stand out?

**Adding an AutoShape to a Chart**

214. If the **Drawing** toolbar is not visible, open it by clicking the **Drawing** toolbar button on the **Standard** toolbar.

215. Click **AutoShapes** on the **Drawing** toolbar, point to **Callouts**, and select a shape in the **top row**.

216. The mouse changes to a crosshair.

217. **Starting** at the mean data point bar, click and drag out a shape above the bar.

218. Click the tip of the callout.

219. The tip changes to a yellow diamond.

220. Click and drag the yellow diamond tip of the callout so that it points to the mean bar.

**Adding Text to an AutoShape**

221. Right-click the **AutoShape** and select **Add Text**.

222. You will see a blinking insertion point.

223. Type **Class mean equals**.

224. Press the **Spacebar**.

225. Type the mean from cell B35 in your spreadsheet.

226. Look at Figure 4.

**Figure 4**
Formatting the AutoShape

227. Right-click the **AutoShape’s border** and select **Form at AutoShape**.

228. The Format AutoShape dialog box will open with **7 tabs**.

229. Click the **Font** tab.

230. Change the **Size** to 14 points.

231. Change the **Font style** to Bold.

232. Change the **Color** to White.

233. Click the **Alignment** tab.

234. Under **Text alignment**, change the **Horizontal** and **Vertical** alignments to **Center**.

235. Click the **Colors and Lines** tab.

236. Under **Fill**, click the drop-down arrow next to **Color**.

237. Select **Fill Effects**.

238. Select **Two colors**.

239. Under **Color 1**, click the drop-down arrow and select the **Red** color.

240. Under **Color 2**, click the drop-down arrow and select the **white** color.

241. Click **OK twice**.

242. Look at the picture to the right.

Resizing the AutoShape

243. Select the AutoShape so that you can see the 8 resizing handles.

244. Resize the AutoShape so that you can see the text.

245. Move the callout so that it is not covering any bars.

246. Look at the picture to the right.

Changing the Page Setup

247. Click **File** on the **Menu** bar and select **Page Setup**.

248. The Page Setup dialog box opens.

249. Click the **Header/Footer** tab.

250. Click the **Custom Header** button.

251. The Header dialog box opens.

252. In the **Left** section type **your name**.
253. Press Enter.
254. Type your partner’s name.
255. Press Enter.

256. Click the Date button.
257. Press Enter.
258. Type the word Period, press the Spacebar, and type your period number.
259. Press Enter.
261. Click OK.

262. Click the Custom Footer button.
263. The Footer dialog box opens.

264. In the Right section, click the File Name button.
265. The file name is what you called the document when you saved it.
266. Click OK twice.

**Previewing a Worksheet**

267. Press F7 to run a spell check.
268. Press Ctrl+S to save your work.

269. Click on the Print Preview button.
270. Check the bottom of the Print Preview window to check that you only have one page.
271. You will now see your header and footer.

272. Click the Close button on the Print Preview toolbar.

**Printing a Document**

273. Press Ctrl+P.
274. The Print dialog box opens.
275. The Name of the printer should be Ireland.
276. Next to Number of copies, type 2 in the text box.
277. Click OK or press Enter.
278. Press Alt+F4 to close all open windows and to return to the Desktop.
Exercise 7
Creating A Bar Chart With An AutoShape

In this exercise, you will create a bar chart comparing the mean height of the class to the mean span of the class. Leonardo di Vinci said that the height of a person should be equal to their span. Was he correct?

279. Start Microsoft Excel.

280. Click the Open button on the Standard toolbar.

281. The Open dialog box opens.

282. Click the drop-down arrow to the right of the Look in box.

283. Select your period folder.

284. Click the file My First Excel Workbook to open it.
285. Click the **Open** button.
286. Click the worksheet tab titled **Body Measurements** to make it the active sheet.

**Selecting Labels and Data**

Select the data range you want to chart. Make sure you include the data you want to chart and the column and row labels in the range. The Chart Wizard expects to find this information and automatically incorporates it in your chart.

287. Click in cell **B1** and drag across to cell **D1**.
288. Hold the **Control key** down.
289. Click in cell **B35** and drag across to cell **D35** (the mean data).
290. All of the labels and data that you want to graph are now selected.
291. Release the **Control key**.

292. Click the **Chart Wizard** button on the **Standard** toolbar.
293. **Step 1** opens.
294. Select the **Bar** chart type.
295. Select the **Clustered Bar** chart sub-type.

296. Click the **Press and hold to view sample** button to preview your selection.

297. Look at Figure 6.

**Figure 6:** This is a 2-D chart.
298. Click Next.

299. **Step 2** opens.

300. Make sure the correct data range is selected.

301. The picture preview is your best hint that the data range is correctly selected.

302. Click Next.

303. **Step 3** opens.

304. Click the **Titles** tab.

305. In the **Chart title** text box type **Class Mean Body Measurements**.

306. In the **Category (X) axis** text box type **Measurements**.

307. In the **Value (Y) axis** text box type **Centimeters**.

308. Click the **Legend** tab.

309. **Uncheck** Show Legend.

310. You do not need a legend since there is only one kind of data to compare.

311. Click the **Data Labels** tab.

312. A data label is a number that appears near the bar, column, or pie slice.

313. **Check** the box next to **Show value**.

314. Click Next.

**Setting the Chart Location**

315. Under **Place chart**, select **As a new sheet**.

316. In the text box type **Body Measurements Chart**.

317. You will see this name on the worksheet tab.

318. Click **Finish**.

319. You will see your new chart.

320. Using the **Standard** toolbar, click the **Save** button.
**Formatting the X-Axis Labels**

321. Double-click the label *Span* or *Height* to select the X-axis labels.
322. The Format Axis dialog box will open.
323. Click the *Font* tab.
324. Change the *Size* to 12 points.
325. Click OK.

**Formatting the Y-Axis Scale**

326. Double-click any number on the scale to select the y-axis labels. (0, 1, 2,3)
327. The Format Axis dialog box will open.
328. Click the *Font* tab.
329. Change the *Size* to 12 points.
330. Click OK.

**Formatting the X-Axis Title**

331. Double-click the X-axis title *Measurements*.
332. The Format Axis Title dialog box will open.
333. Click the *Font* tab.
334. Change the *Size* to 14 points.
335. Change the *Font style* to Bold.
336. Click the *Alignment* tab.
337. In the Orientation box to the right, press and drag the red diamond upwards so that the word Text is angled 90 degrees.
338. You can also type 90 in the Degrees box.
339. Click OK.

**Formatting the Y-Axis Title**

340. Double-click the Y-axis title *Centimeters*.
341. The Format Axis Title dialog box will open.
342. Click the *Font* tab.
343. Change the *Size* to 14 points.
344. Change the *Font style* to Bold.
345. Click OK
**Formatting the Chart Title**

346. Double-click the chart title **Class Mean Body Measurements**.
347. The Format Chart Title dialog box will open.
348. Click the **Font** tab.
349. Change the **Font** to Impact.
350. Change the **Size** to 20 points.
351. Click the **Patterns** tab.
352. Under **Border**, select **Automatic**.
353. Check the box next to **Shadow**. (This will put a thin black border around your title with a shadow.)
354. Click **OK**.

**Formatting the Plot Area**

The Plot Area is the area of the chart behind the bars. In this exercise, you will replace the gray color with a pattern to make it more interesting.

355. Double-click anywhere in the **Plot Area** (the gray area behind the bars).
356. The Format Plot Area dialog box opens.
357. Under **Border**, select **Automatic** to put a thin line area the Plot Area.
358. Under **Area**, select the **White** fill color.
359. Next, click on the **Fill Effects** button

![Fill Effects](image)

360. Click the **Patterns** tab.
361. Click the cell in the second column from the left; fifth row down (80%).
362. Click **OK** twice.
363. Look at the Figure 7.

**Formatting a Data Series**

A **data series** is the numbers or values that you are graphing. Each bar is a separate piece of data in the series. You can format the data series in many different ways. In this exercise, you will change the color of the bars and show the actual numerical value of each bar next to it.

364. Double-click **one of the bars** to select the data points.
365. The **Format Data Series** dialog box will open.
366. Click the **Patterns** tab.
367. Under **Area**, choose a light gray.
368. Click OK.

**Formatting the Data Labels**

369. Double-click one of the data label numbers you created.

370. The *Format Data Labels* dialog box will open.

371. Click the *Font* tab.

372. Change the *Size* to 12 points.

373. Change the *Font style* to *Bold*.

374. Click the *Number* tab.

375. Under *Category*, click *Number*.

376. In the box next to *Decimal places*, type *0*.

377. This will round the data label to the nearest whole.

378. Click OK.

**Adding an AutoShape to a Chart**

379. If the *Drawing* toolbar is not visible, open it by clicking the *Drawing* toolbar button on the *Standard* toolbar.

380. Click *AutoShapes* on the *Drawing* toolbar, point to *Stars and Banners*, and select any *banner* shape.

381. The mouse changes to a crosshair.

382. Starting above the *Span bar*, drag out the shape of your banner.

383. Right-click the *AutoShape* and select *Add Text*.

384. At the blinking insertion point, type *Leonardo da Vinci predicted that a person’s span is about equal to their height*.

385. Resize the banner so that you can see all the text.

**Formatting the AutoShape**

386. Right-click the AutoShape’s *border* and select *Format AutoShape*.

387. The Format AutoShape dialog box will open with 7 tabs.

388. Click the *Font* tab.

389. Change the *Size* to 12 points.

390. Change the *Font style* to *Bold*. 
391. Change the **Color** to White.

392. Click the **Alignment** tab.

393. Under **Text alignment**, change the **Vertical** alignment to **Center**.

394. Click the **Colors and Lines** tab.

395. Under **Fill**, click the drop-down arrow next to **Color**.

396. Select a light gray color.

397. Click **OK**.

**Changing the Page Setup**

398. Click **File** on the **Menu** bar and select **Page Setup**.

399. Click the **Header/Footer** tab.

400. Click the **Custom Header** button.

401. The Header dialog box opens.

402. In the **Right** section type **your name**.

403. Press **Enter**.

404. Type **your partner’s name**.

405. Press **Enter**.

406. Click the **Date** button.

407. Press **Enter**.

408. Type the word **Period**, press the **Spacebar**, and type your **period number**.

409. Press **Enter**.

410. Type **Excel Exercise 7**.

411. Click **OK**.

412. Click the **Custom Footer** button.

413. The Footer dialog box opens.

414. In the **Right** section, click the **File Name** button.

415. The file name is what you called the document when you saved it.

416. Click **OK twice**.

**Previewing a Worksheet**

417. Press **F7** to run a spell check.

418. Press **Ctrl+S** to save your work.

419. Click on the **Print Preview** button.
420. Check the **bottom** of the Print Preview window to check that you only have **one page**. You will now see your header and footer.

421. Click the **Close** button on the Print Preview toolbar.

**Printing a Document**

422. Press **Ctrl+P**.

423. The Print dialog box opens.

424. The **Name** of the printer should be **Ireland**.

425. Next to **Number of copies**, type **2** in the text box.

426. Click **OK** or press **Enter**.

427. Press **Alt+F4** to close all open windows and to return to the **Desktop**.

**Figure 7**
Exercise 8
Creating An Exploded 3-D Pie Chart

In this exercise, you will create a pie chart that will compare the percentages of each color in a bag of M&Ms. This chart will use data labels with leader lines rather than a legend.

428. Start Microsoft Excel.
429. Press Ctrl+O.
430. The Open dialog box opens.
431. Click the drop-down arrow to the right of the Look in box.
432. Select your period folder.
433. Click the file My First Excel Workbook to open it.
434. Click the Open button.
435. Double-click the file My First Workbook to open it.
436. Click the worksheet tab titled M&Ms to make it the active sheet.

Selecting Labels and Data

437. Click in cell A3 and drag down to cell A? (the last M&M color).
438. Hold the Control key down.
439. Click in cell E3 and drag down to cell E? (the last percent for a color)
440. Release the Control key.
441. All of the labels and data that you want to graph are now selected.
442. Look at Figure 8 carefully before you go on. Your spreadsheet should look something like this.

Figure 8: Hold the control key down to select cells that are not adjacent.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M&amp;Ms Math Investigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Color</td>
<td>Amount</td>
<td>Fraction of Whole Bag</td>
<td>Decimal Amount of Whole Bag</td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
<td>9</td>
<td>9/49</td>
<td>0.18</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
<td>8</td>
<td>8/49</td>
<td>0.16</td>
</tr>
<tr>
<td>5</td>
<td>Blue</td>
<td>5</td>
<td>5/49</td>
<td>0.10</td>
</tr>
<tr>
<td>6</td>
<td>Orange</td>
<td>4</td>
<td>4/49</td>
<td>0.08</td>
</tr>
<tr>
<td>7</td>
<td>Brown</td>
<td>6</td>
<td>6/49</td>
<td>0.12</td>
</tr>
<tr>
<td>8</td>
<td>Green</td>
<td>7</td>
<td>1/7</td>
<td>0.14</td>
</tr>
<tr>
<td>9</td>
<td>Purple</td>
<td>10</td>
<td>10/49</td>
<td>0.20</td>
</tr>
<tr>
<td>10</td>
<td>Total in Bag</td>
<td>49</td>
<td>1</td>
<td>1.00</td>
</tr>
</tbody>
</table>
443. Click the **Chart Wizard** button on the **Standard** toolbar.

444. **Step 1** opens.

445. Under **Chart type** select **Pie**.

446. Under **Chart sub-type**, select **Pie with a 3-D visual effect**.

447. Click the **Press and Hold to View Sample** button to preview your selection.

448. Click **Next**.

449. **Step 2** opens.

450. Make sure the correct data range is selected.

451. The picture preview is your best hint that the data range is correctly selected.

452. Click **Next**.

453. **Step 3** opens.

454. Click the **Titles** tab.

455. In the **Chart title** text box type **The Percent of Different Colors in a Bag of M&Ms**.

456. Click the **Legend** tab.

457. **Uncheck** Show Legend.

458. You do not need a legend since there will be **Data Labels**.

459. Click the **Data Labels** tab.

460. Select **Show label and percent**.

461. Each slice of the pie chart will have a color and percent label.

462. Check the box next to **Show leader lines**.

463. Leader lines connect the data label with the pie slice.

464. Click **Next**.
**Setting the Chart Location**

465. Under **Place chart**, select **As a new sheet**.
466. In the text box type **M&Ms Chart**.
467. You will see this name on the worksheet tab.
468. Click **Finish**
469. You will see your new chart.
470. Using the **Standard** toolbar, click the **Save** button.

**Formatting the Chart Title**

471. Double-click the **chart title**.
472. The Format Chart Title dialog box will open.
473. Click the **Font** tab.
474. Change the **Font** to Stencil.
475. Change the **Color** to White.
476. Change the **Size** to 20 points.
477. Because the font size is larger, the title will probably wrap into two lines.
478. Click the **Patterns** tab.
479. Under **Border**, select **Automatic**.
480. Check the box next to **Shadow**. (This will put a thin black border around your title with a shadow.)
481. Under **Area**, select a **chocolate brown** color to fill the chart title.
482. Click **OK**.

**Formatting the Data Label**

483. Double-click one of the **data label numbers** you created.
484. The Format Data Labels dialog box will open.
485. Click the **Number** tab.
486. Under **Category**, select **Percentage**.
487. In the box next to **Decimal places**, type **2**.
488. This will round the data label to the nearest hundredth in case you got a number with many decimal places.
489. Click the **Font** tab.
490. Change the **Size** 14 points.
491. Change the **Font style** to Bold.
492. Click OK.

**Creating Leader Lines**

493. Click a Data Label.
494. All of the data labels are selected.
495. Click a Data Label again.
496. Only one data label is selected.
497. Move the mouse over one edge of the rectangle and drag the data label away from the pie chart.
498. You will notice a leader line will connect the data label to the pie slice.
499. Repeat the last three steps so that all the slices have leader lines connecting them to their data labels.
500. Look at Figure 9.

**Changing the Colors of the Slices to Match the M&M Colors**

Excel automatically chooses colors for your slices. You have the ability to change the shading of the slice to a new color, pattern, texture, or picture.

501. Click on any slice of the pie chart.
502. All of the data points become selected.
503. Click once again on the slice you wish to change.
504. Only that one slice is now selected.
505. Double-click the slice again.
506. The Format Data Point dialog box will appear.
507. Under Area, choose a color that matches the M&M color.
508. Click OK.
509. Repeat the previous steps to change the colors of your other slices.

**Exploding a Pie Chart Slice**

In order to call attention to the largest slice you are going to separate it from the pie chart.

510. Click the pie chart once.
511. The entire pie chart is selected.
512. Click the largest pie slice.
513. The largest pie slice is selected.
514. Drag the pie slice out and away from the pie chart.
515. The slice of pie will move away from the pie chart.
516. Look at the picture to the right. See how the purple slice is exploded from the pie chart.

**Changing the Page Setup**

517. Click **File** on the **Menu** bar and select **Page Setup**.
518. Click the **Header/Footer** tab.
519. Click the **Custom Header** button.
520. The Header dialog box opens.
521. In the **Right** section type your name.
522. Press Enter.
523. Type your partner’s name.
524. Press Enter.
525. Click the **Date** button.
526. Press Enter.
527. Type the word **Period**, press the **Spacebar**, and type your **period number**.
528. Press Enter.
529. Type **Excel Exercise 8**.
530. Click OK.
531. Click the **Custom Footer** button.
532. The Footer dialog box opens.
533. In the **Right** section, click the **File Name** button.
534. The file name is what you called the document when you saved it.
535. Click **OK twice**.

**Previewing a Worksheet**

536. Press **F7** to run a spell check.
537. Press **Ctrl+S** to save your work.
538. Click on the **Print Preview** button.
539. Check the bottom of the Print Preview window to check that you only have **one page**.
540. You will now see your header and footer.
541. Click the **Close** button on the Print Preview toolbar.
Printing a Document

542. Press Ctrl+P.

543. The Print dialog box opens.

544. The Name of the printer should be Wales.

545. Next to Number of copies, type 2 in the text box.

546. Click OK or press Enter.

547. Press Alt+F4 to close all open windows and to return to the Desktop.

Figure 9: An exploded pie chart shows the largest part of the whole.