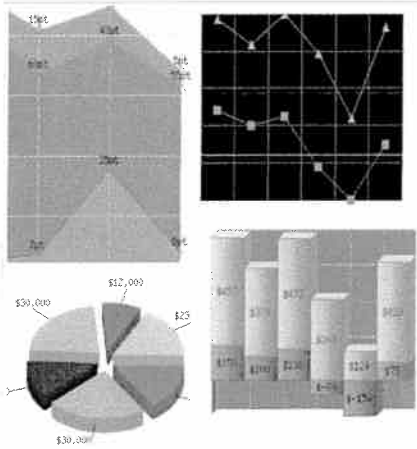


## Assignment 5

This week “work through” Excel Unit J. To “work through” means reading and performing all hands-on exercises. The exercises give detailed step-by-step instructions with corresponding screen shot figures of the Excel interface tabs, menus, toolbars, dialog boxes, and correct output. You should perform all of these to learn how to complete each skill.



### Objectives

Students will have mastered the material in Excel Unit B when they can:

- Customize a data series
- Change a data source and add data labels
- Format the axes of a chart
- Add a data table to a chart
- Rotate a chart
- Enhance a chart with WordArt
- Add a picture to a chart
- Identify data trends

### Unit Study Tips

*Quick Tip:* You can also format a data series by clicking the data series on the chart, clicking the Chart Tools Layout tab, then clicking the Format Selection button.

#### Adding width and depth to data series:

You can change the gap depth and the gap width in 3-D bar or column charts by right-clicking one of the data series of the chart then clicking Format Data Series from the shortcut menu. With Series Option selected in the left pane of the Format Data Series dialog box you can move the Gap Depth and Gap Width sliders from No Gap or 0% to Large Gap or 500%. Increasing the gap width adds space between each set of data on the chart by increasing the width of chart's data series. Increasing the gap depth adds depth to all categories of data.

*Quick Tip:* You can also add data to a chart by selecting the chart and dragging the corner of the data border to the right to include the new worksheet data.

*Quick Tip:* You can also add or delete data labels using the Data Labels button in the Labels group on the Chart Tools Layout tab.

### Representing proportional relationships:

Pie charts are often used to show the relative sizes of items in a data series by displaying the proportional relationships of entities in a data series to the sum. Pie charts represent the contribution of each value to a total in either a 2-D or 3-D format. For example if you want to show the part of a budget a department uses in an organization, you can create a pie chart and display the data labels as percentages. The percentages represent the parts of the whole pie for each of the departments.

To annotate a pie chart so it displays the percentage share of each item in a data series, select the chart, click the Chart Tools Layout tab, click the Data Labels button in the Labels group, select the position for the data labels, click the Data Labels button again, click More Data Label Options, click the Percentage check box to select it, deselect the Value check box, then click Close. Some of the layouts in the Chart Layouts group of the Chart Tools Design tab also feature percentage labels.

### Moving, removing, and formatting legends:

To change the position of a legend or to remove it, click the Chart Tools Layout tab, click the Legend button in the Labels group, then select the desired legend position or select None to remove the legend. To format a legend's position, fill, border color and style, or shadows, click More Legend Options at the bottom of the Legend menu. You can add textured fills or pictures and customize the border and shadow characteristics. If you position the Format Legend dialog box next to the legend, you can use the Excel Live Preview feature to try out different effects, such as those shown in Figure J-5. To change a legend's font size, right-click the legend text, click Font on the shortcut menu, then adjust the font size in the Font dialog box. You can also drag a legend to the location of your choice.

*Quick Tip:* You can change the scale of the axis: Click the Chart Tools Layout tab, click the Axes button in the Axes group, point to Primary Vertical Axis, click More Primary Vertical Axes Options, click the Fixed option button in the Major unit group, then type the new scale interval value in the Fixed text box.

*Quick Tip:* You can also add a data table by selecting a chart with a data table from the Chart Layouts gallery.

*Quick Tip:* To hide a data table, click the Data Table button in the Labels group, then click None.

### Using the Modeless Format dialog box:

Many of the buttons on the Chart Tools Layout tab have a "More ... Options" command at the bottom of the menu that appears when you click them. For example, clicking the Data Table button allows you to click More Data Table Options. The Format dialog box that opens when you click it allows you to

format the selected data table. But while the dialog box is open, you can also click and format other elements. The Format dialog boxes are *modeless*, which means when they are open, you can click on other chart elements and then change their formatting in the same dialog box, whose options adjust to reflect the selected element. You are not restricted to changing only one object—i.e., you are not in a *single mode*, or limited set of possible choices. For example if the Format Data Table dialog box is open and you click a data label, the dialog box changes to Format Data Labels. If you click the legend, the dialog box becomes the Format Legend dialog box, allowing you to modify the legend characteristics.

*Quick Tip:* You can also click the Up and Down buttons in the Rotation area of the dialog box to rotate the chart up and down.

#### Making 3-D charts easier to read:

In addition to rotating a chart there are other ways to view smaller data points that may be obscured by larger data markers in the front of a 3-D chart. To reverse the order that the data series are charted you can click the Axes button in the Axes group of the Chart Tools Layout tab, point to Depth Axis, click More Depth Axis Options, click the Series in reverse order check box in the Format Axis dialog box to select it, then click Close. Another way to see smaller data series in the back of a 3-D chart is to add transparency to the large data markers in the front of the chart. To do this you can right-click the data series that you want to make transparent, click Format Data Series in the shortcut menu, click Fill in the Format Data Series dialog box, click either the Solid fill or Gradient fill option buttons, move the slider on the Transparency bar to a percentage that allows you to see the other data series on the chart, then click Close. If you have a picture on the chart's back wall, adding transparency to the series in front of it makes more of the picture visible.

#### Charting data accurately:

The purpose of a chart is to help viewers interpret the worksheet data. When creating charts, you need to make sure that your chart accurately portrays your data. Charts can sometimes misrepresent data and thus mislead people. For example, you can change the y-axis units or its starting value to make charted sales values appear larger than they are. Even though you may have correctly labeled the sales values on the chart, the height of the data points will lead people viewing the chart to think the sales are higher than the labeled values. So use caution when you modify charts to make sure you accurately represent your data.

*Quick Tip:* To delete a chart title, right-click it, then select Delete from the shortcut menu. You can also select the chart title and press [Delete].

#### Adding WordArt to a worksheet:

You can use WordArt to add interest to the text on a worksheet. To insert WordArt, click the Insert tab, click the WordArt button in the Text group, choose a WordArt Style from the gallery, then replace the WordArt text "Your Text Here" with your text. After selecting the text, you can use the Text Fill list arrow in the WordArt Styles group to add a solid, picture, gradient, or texture fill to your text. The Text Outline list arrow in the WordArt Styles group allows you to add color, weight, and dashes to the text outline. You can use the Text Effects button in the WordArt Styles group to add shadows, reflections, glows, bevels, 3-D rotations, and transformations to the WordArt text.

#### Rotating chart labels:

You can rotate the category labels on a chart so that longer labels won't appear crowded. Select the Category Axis on the chart, click the Chart Tools Format tab, click the Format Selection button in the Current Selection group, click Alignment in the left pane of the Format dialog box, click the Text direction list arrow, then select the rotation option for the labels. In a two-dimensional chart, you can also select a custom angle for the axis labels.

#### Creating a chart template:

After you create a custom chart with specific formatting, you can save it as a chart template. Chart templates can be opened and reused later, and the applied formatting will be available. Chart templates have the file extension ctm. If you use a custom chart frequently, you can save the template as the default chart type. To save a chart as a chart template, click the Chart Tools Design tab, click Save As Template in the Type group, enter a filename in the Save Chart Template dialog box, then click Save. Your chart template will be saved in the Templates\Charts folder. When you want to format a chart like a chart template, you need to apply the template. Select your chart, click the Insert tab, click a chart type in the Charts group, click All Chart Types, click the Templates folder in the Change Chart Type dialog box, select a template in the My Templates area, then click OK.

#### Choosing the right trendline for your chart:

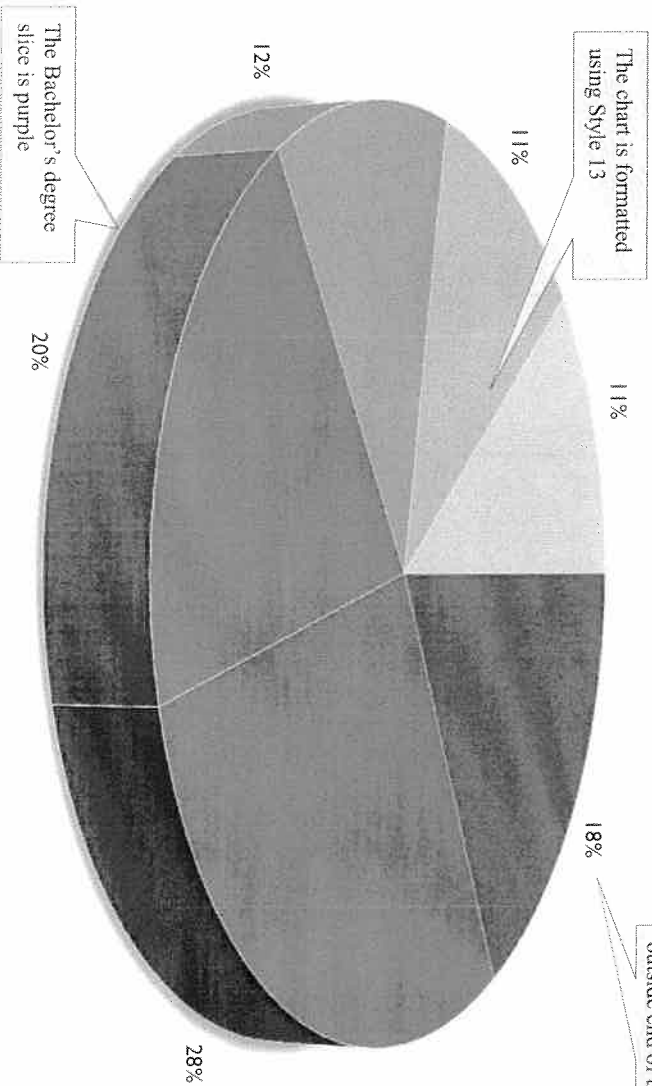
Trendlines can help you forecast where your data is headed and understand its past values. This type of data analysis is called regression analysis in mathematics. You can choose from four types of trendlines: Linear, Exponential, Linear Forecast, and Two Period Moving Average. A linear trendline is used for data series with data points that have the pattern of a line. An exponential trendline is a curved line that is used when data values increase or decrease quickly. You cannot use an exponential trendline if your data contains negative values. A linear forecast trendline is a linear trendline with a two-period forecast. A two-period moving average smoothes out fluctuations in data by averaging the data points.

A 3-D pie chart has been created using the data in A2:B7

## Education Data

The pie chart is titled Education Data using Word Art Gradient Fill – Accent 6, Inner Shadow

Data labels are added to the outside end of the data points



The chart is formatted using Style 13

The Bachelor's degree slice is purple

- **High School**
- **Associate's degree**
- **Bachelor's degree**
- **Master's degree**
- **Doctoral degree**
- **Professional degree**

The legend text is formatted in 14-point bold text

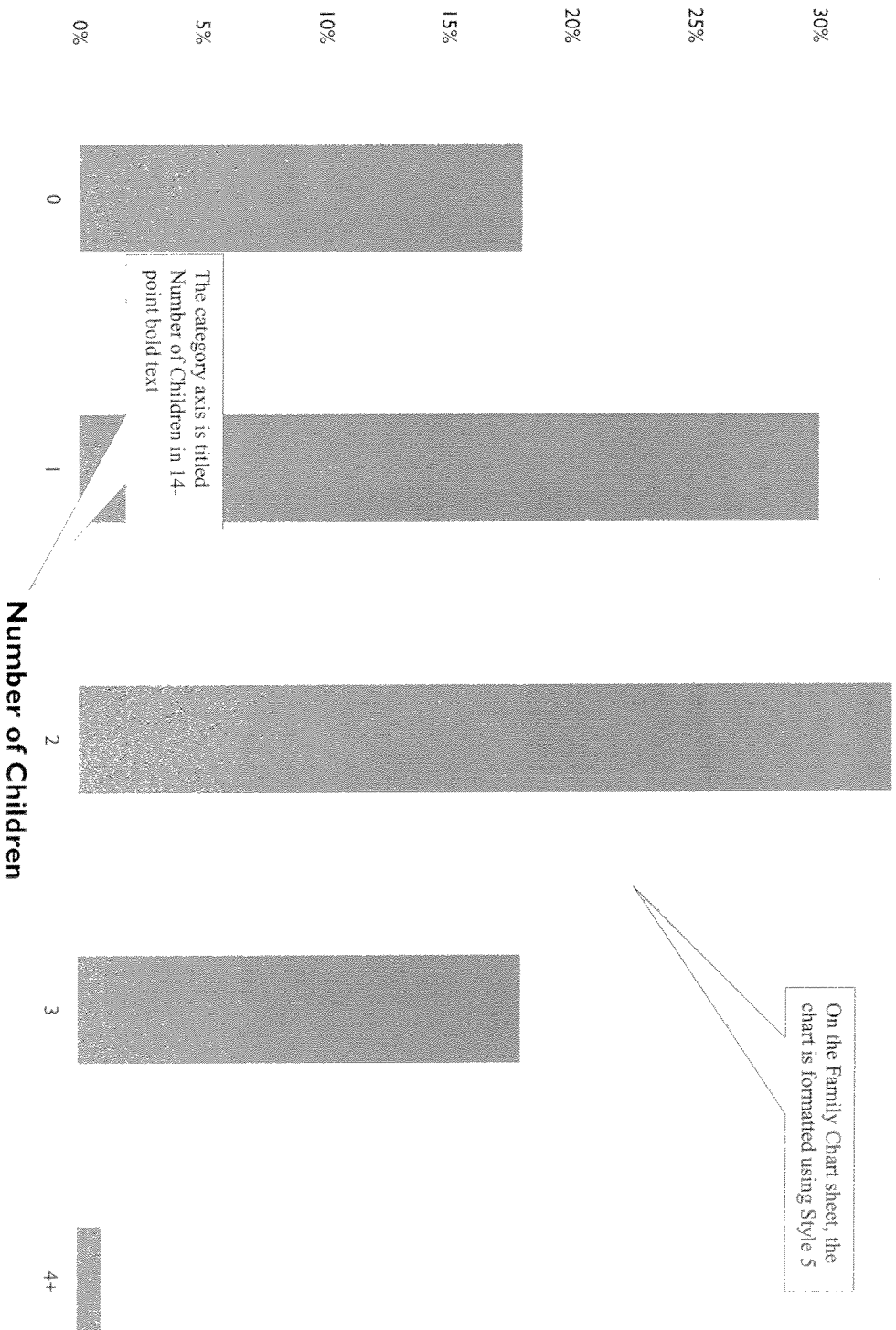
Your Name

## Family Data

A standard cluster column chart appears on the Family data worksheet

The title *Family Data* appears above the chart with a black gradient fill, a white outline, and an outer shadow

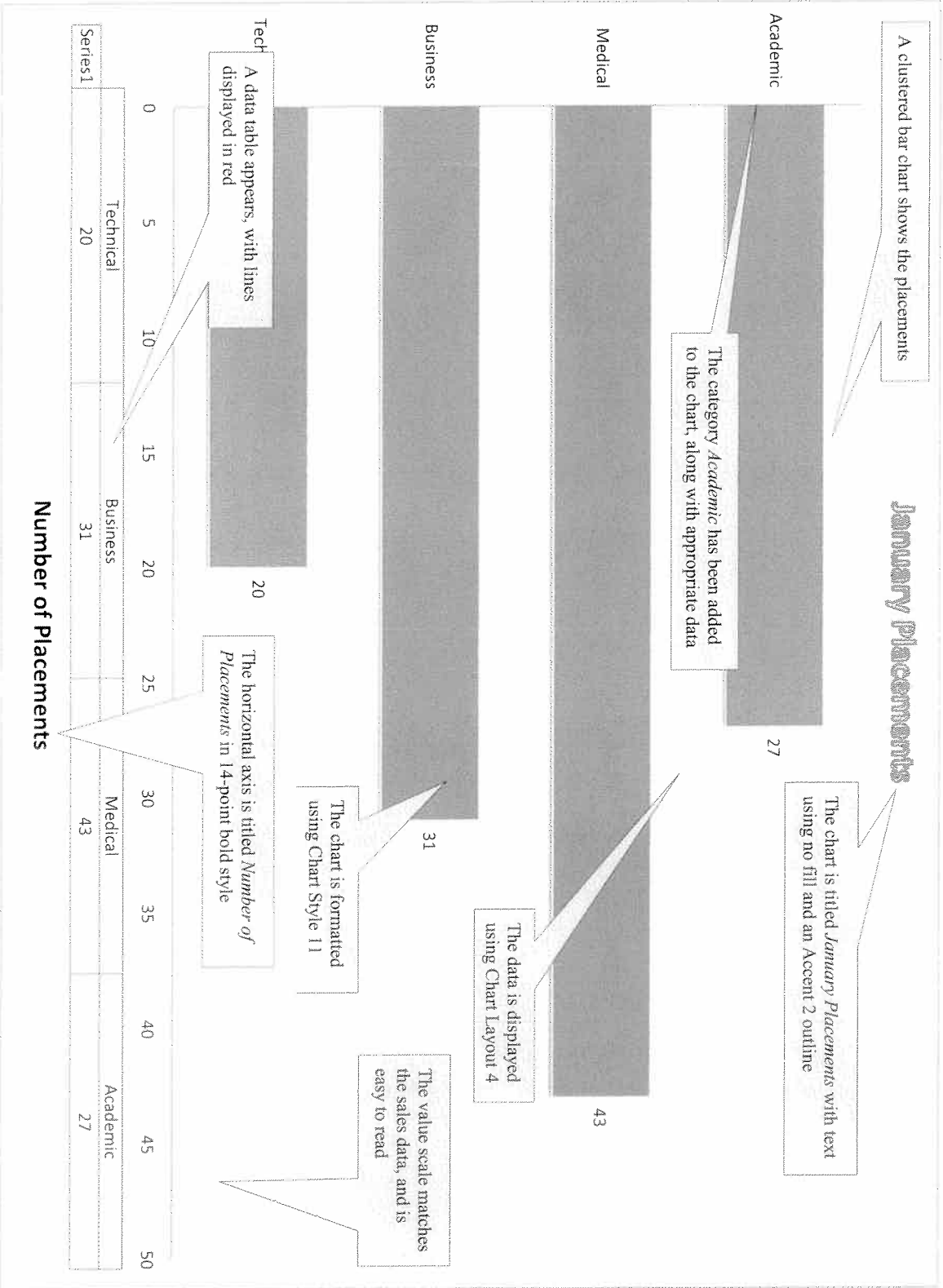
On the Family Chart sheet, the chart is formatted using Style 5



The category axis is titled  
Number of Children in 14+  
point bold text

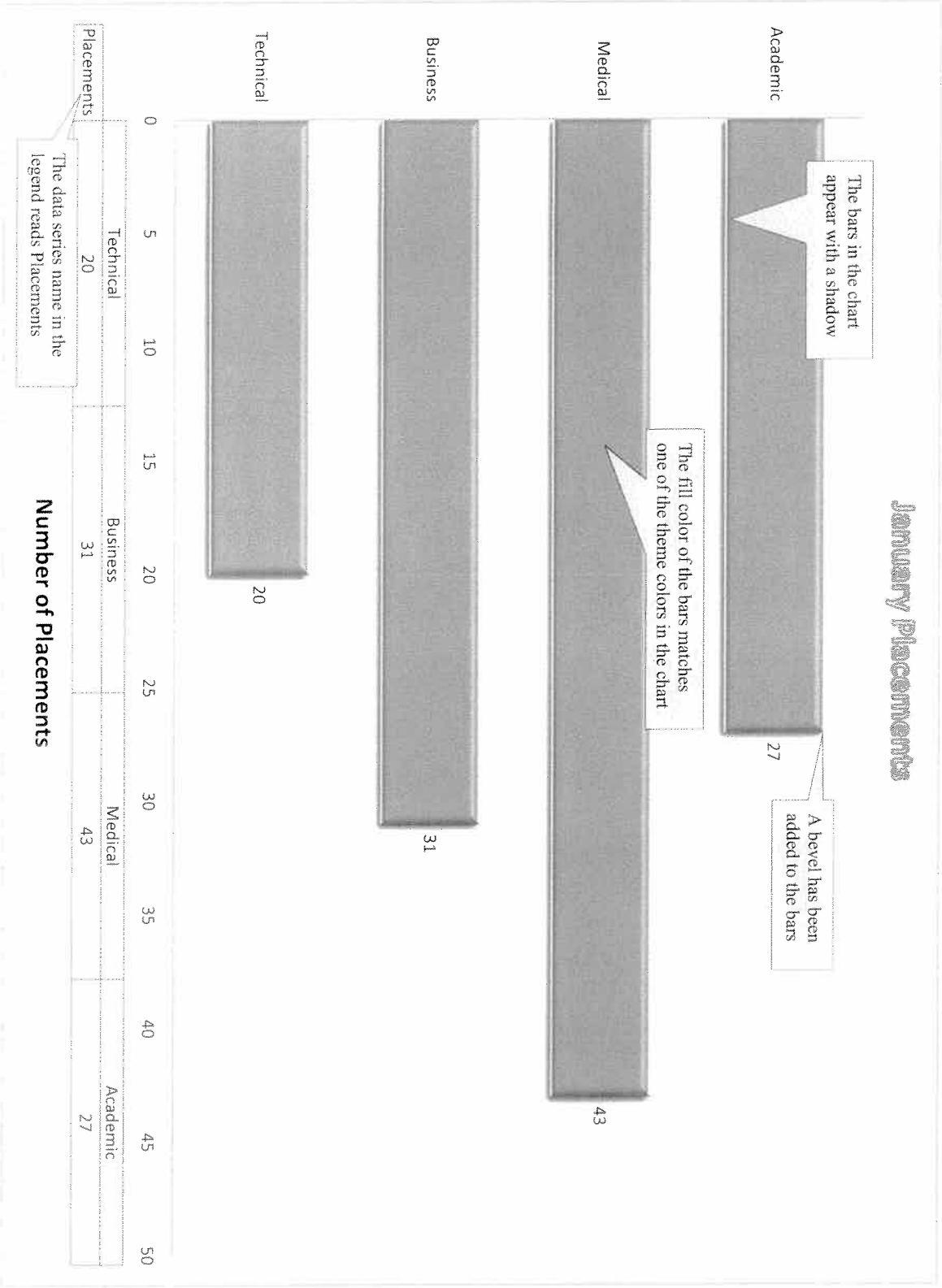
**Number of Children**

Your Name



Your Name

## January Placements



The data series name in the legend reads Placements

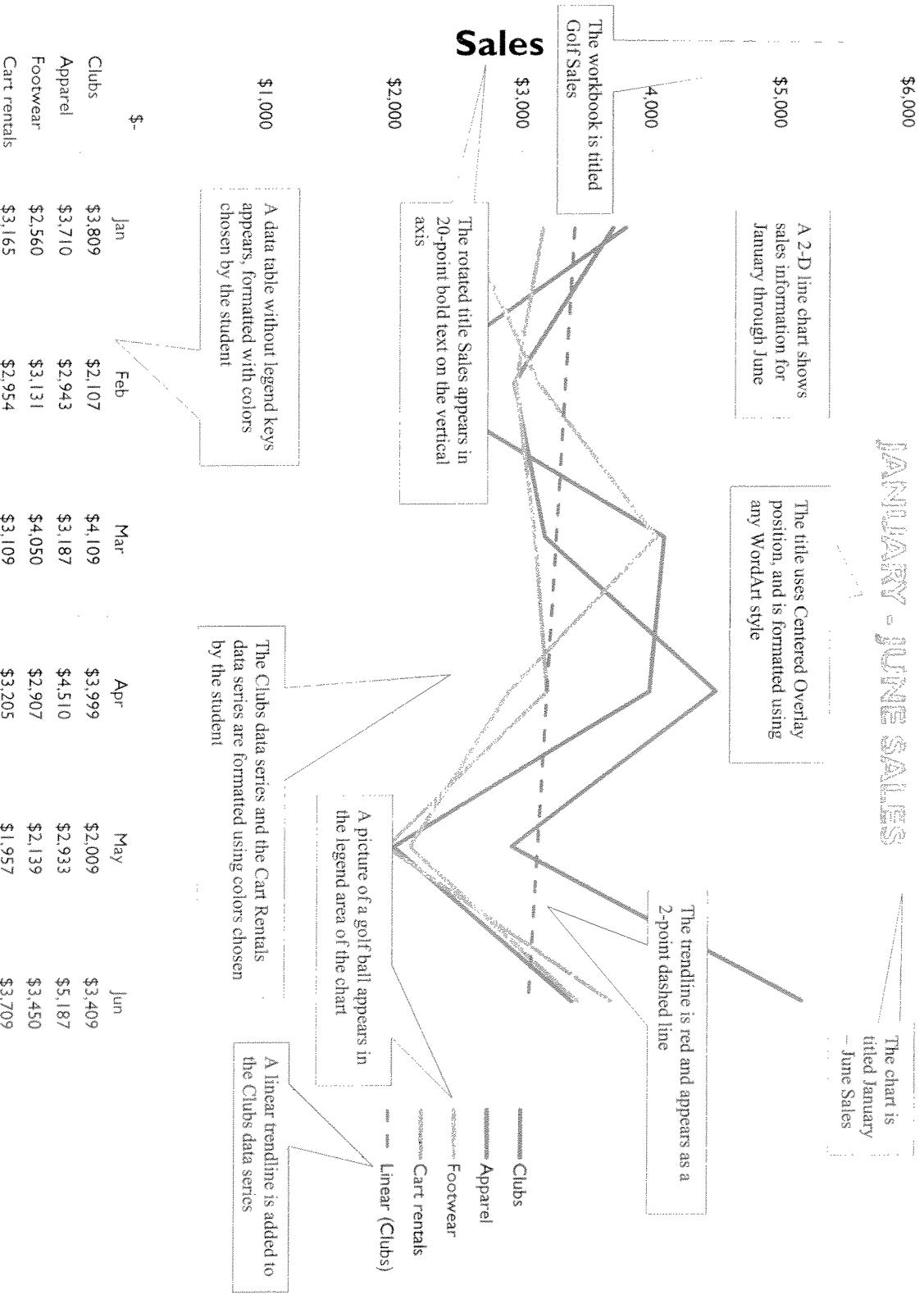
The bars in the chart appear with a shadow

The fill color of the bars matches one of the theme colors in the chart

A bevel has been added to the bars

### Number of Placements

Your Name



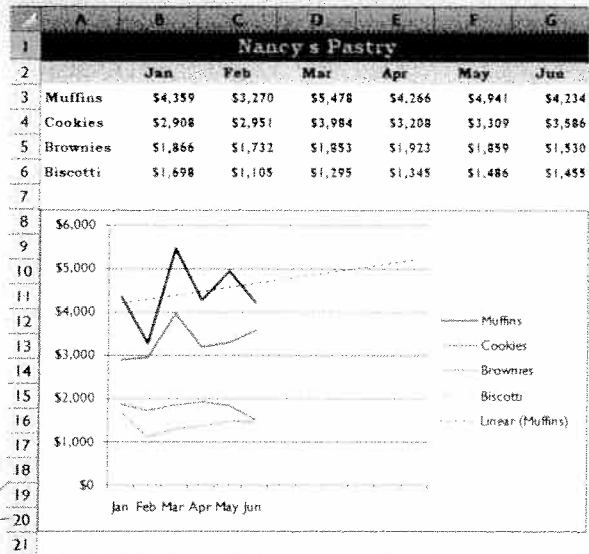
Your Name

## ▼ SKILLS REVIEW (CONTINUED)

### 8. Identify data trends.

- Activate the Sales sheet and scroll to the top of the worksheet.
- Create a 2-D line chart using the data in the range A2:G6, then move and resize the chart to fit in the range A8:G20.
- Add a linear trendline to the Muffins data series.
- Change the trendline color to red and the line style to dash.
- Set the forward option to six periods to view the future trend, then compare your screen to Figure J-21.
- Add your name to the center footer section, save the workbook, then preview and print the worksheet.
- Exit Excel.

FIGURE J-21

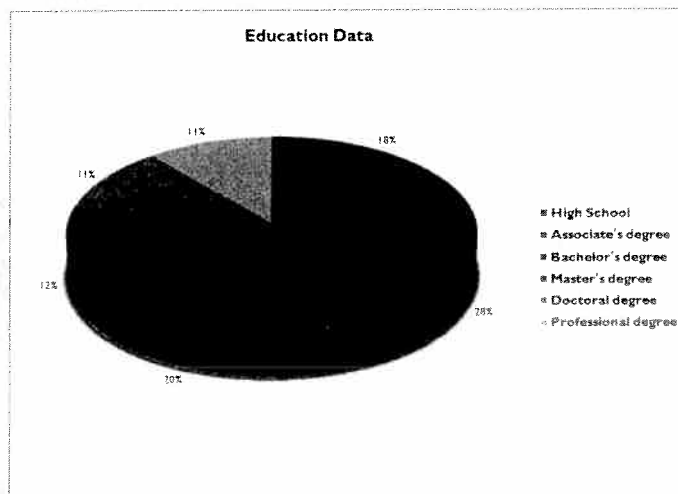


## ▼ INDEPENDENT CHALLENGE 1

You are the assistant to the vice president of marketing at the Metro-West Philharmonic located outside of Boston. The vice president has asked you to chart some information from a recent survey of the Philharmonic's customers. Your administrative assistant has entered the survey data in an Excel worksheet, which you will use to create two charts.

- Start Excel, open the file titled EX J-3.xlsx from the drive and folder where you store your Data Files, then save it as **Customer Survey**.
- Using the data in A2:B7 of the Education data worksheet, create a 3-D pie chart (the first chart in the 3-D Pie group) on the worksheet.
- Add a title of **Education Data** above the chart. Format the title using Word Art Gradient Fill - Accent 6, Inner Shadow.
- Move the chart to a separate sheet named **Education Chart**. Format the chart using chart Style 13. Add data labels to the outside end of the data points. Format the legend text in 14-point bold. (*Hint*: Use the font options on the Home tab or the Mini toolbar.)
- Select the Bachelor's degree pie slice by clicking the chart, then clicking the Bachelor's degree slice. Change the slice color to the standard color of purple. (*Hint*: On the Chart Tools Format tab, click the Format Selection button in the Current Selection group and use the Format Data Point dialog box.) Compare your chart to Figure J-22
- On the Family data worksheet, use the data in A2:B6 to create a standard clustered column (The first chart in the 2-D Column group) chart.
- Delete the legend. (*Hint*: Select the legend and press [Delete].)
- Place the chart on a new sheet named **Family Chart**. Format the chart using chart Style 5.
- Add a chart title of **Family Data** above the chart and format the title using WordArt Style Gradient Fill - Black, Outline - White, Outer Shadow.
- Title the category axis **Number of Children**. Format the category axis title in 14-point bold. (*Hint*: Use the font options on the Home tab or use the Mini toolbar.)
- Enter your name in the center sections of the footers of the Family Chart and Education Chart sheets.
- Save the workbook, then preview and print the Family Chart and the Education Chart sheets.
- Close the workbook and exit Excel.

FIGURE J-22



## ▼ INDEPENDENT CHALLENGE 2

DO\*

You were voted **employee** of the month for January at Careers, an employment agency. Your manager has asked you to assemble a brief presentation on your **placements** during January to show to the newly hired staff. You decide to include a chart showing your placements in each of three job categories: technical, business, and medical.

- a. Start Excel and save a new workbook as **Careers** in the drive and folder where you store your Data Files.
- b. Enter worksheet labels and your own data on a worksheet named **January Placements**. Use Table J-2 as a guide for the worksheet layout.
- c. Create a clustered bar chart (the first chart in the 2-D Bar group) on the worksheet, showing your placements. Format the chart using Chart Style 11. Make sure the Office theme is selected.
- d. Display data values using Chart Layout 4.
- e. Add a chart title of **January Placements** above the chart and format it using WordArt Style Fill - None, Outline - Accent 2.
- f. Delete the chart legend.
- g. Add new data to the worksheet for the Academic job category.
- h. Add the new data to the chart.
- i. Move the chart to a sheet named **January Chart**.
- j. Add a horizontal axis title of **Number of Placements** and format the title in 14-point bold font.
- k. Change the value scale if necessary to fit your sales data and improve its readability.
- l. Add a data table to the chart. Format the data table lines to display in red.

TABLE J-2

Job Category	Number of Placements
Technical	
Business	
Medical	

### Advanced Challenge Exercise

DO\*



- Change the name of the chart's data series name in the legend to **Placements**. (*Hint: On the Chart Tools Design tab, use the Select Data button and use the editing features in the Select Data Source dialog box. Change the existing Series name to Placements.*)
  - Use the Format Data Series dialog box to add a shadow with a format of your choice to the bars in the chart.
  - Add a bevel with a format of your choice to the bars in the chart.
  - Change the fill color for the bars to one of the theme colors.
- m. Enter your name in the center section of the January Chart sheet footer, save the workbook, then preview and print the sheet.
  - n. Close the workbook and exit Excel.

## ▼ INDEPENDENT CHALLENGE 3

DO\*

You manage the Pine Hills Pro Shop. You meet twice a year with the store owner to discuss store sales trends. You decide to use a chart to represent the **sales trends** for the department's product categories. You begin by charting the sales for the first five months of the year. Then you add data to the chart and analyze the sales trend using a trendline. Lastly, you enhance the chart by adding a data table, titles, and a picture.

- a. Start Excel, open the file EX J-4.xlsx from the drive and folder where you store your Data Files, then save the workbook as **Golf Sales**.
- b. Create a 2-D line chart on the worksheet showing the January through May sales information. Move the chart and resize it if necessary.
- c. Format the Clubs data series and the Cart rentals data series using colors of your choice.
- d. Add the June data from Table J-3 to the worksheet. Add the June data series to the chart.
- e. Move the chart to its own sheet named **Jan - June** and add a data table without legend keys. Format the data table line color using the color of your choice.
- f. Add a chart title of **January - June Sales** using the Centered Overlay position. Format the chart title using the WordArt Style of your choice.

TABLE J-3

Jun
\$3,409
\$5,187
\$3,450
\$3,709

## INDEPENDENT CHALLENGE 3 (CONTINUED)

- g. Add a rotated title of **Sales** in 20-point bold to the vertical axis.
- h. Add a linear trendline to the Clubs data series.
- i. Change the color of the trendline to red and format the width in 2-pt dash style.
- j. Insert the golfball.gif picture from the drive and folder where your Data Files are stored into the legend area of the chart.

### Advanced Challenge Exercise



- Move the legend to the left side of the chart. Move the vertical axis title to the right if necessary.
  - Remove the horizontal chart gridlines.
  - Change the value axis scale to increment by 500.
  - Add a gradient fill of your choice to the plot area.
  - Drag the legend to the plot area and add a clip art background. Adjust the transparency of the legend background and the font color, if necessary, so that the legend text is readable.
- k. Enter your name in the center footer section of the chart sheet, save the workbook, then preview and print the chart.
  - l. Close the workbook and exit Excel.

## REAL LIFE INDEPENDENT CHALLENGE

This Independent Challenge requires a Web connection.

Stock charts are used to graph a stock's high, low, and closing prices. You will create a stock chart using four weeks of high, low, and close prices for a stock that you are interested in tracking.

- a. Start Excel, save a new workbook as **Stock Chart** in the drive and folder where you store your Data Files.
- b. Use the search engine of your choice to research the high, low, and close prices for a stock over the past four weeks.
- c. Create a worksheet with the data from your chart. Use Table J-4 as a guide for the worksheet structure. Apply a document theme of your choice.
- d. Create a High-Low-Close stock chart using your worksheet data. (*Hint: To find the stock charts, click the Other Charts button.*)
- e. Format the horizontal axis to change the major unit to seven days.
- f. Change the color of the high-low lines to the standard color of dark red.
- g. Add a rotated vertical axis title of **Stock Price**. Format the title in 14-point bold.
- h. Delete the chart legend.
- i. Add a chart title with your stock name. Format the title with a WordArt style of your choice from the WordArt Styles gallery.
- j. Add data labels above the data series. (*Hint: Use the Data Labels button on the Layout tab.*) Delete the High and Low labels but keep the Close data labels. Add a line to the chart title with the text **Closing Prices**.
- k. Format the chart area using a gradient and transparency of your choice. Format the plot area with a clip art fill related to the company or its product. Adjust the clip art transparency as necessary to view the chart.
- l. Enter your name in the center footer section of the worksheet, save the workbook, then preview and print the sheet in landscape orientation on one page.
- m. Close the workbook and exit Excel.

TABLE J-4

Stock Name			
Date	High	Low	Close