Appendix G. Guidance for Producing Figures in Excel That Meet NCES Standards

This appendix is meant to serve as a guide for anyone preparing figures for IES reports in Microsoft Excel. The first pages of this appendix provide a quick overview of the basic elements in most IES figures and an explanation of how to add a chart with IES formatting to your Excel program's choice of Chart Types. The next section provides a guide for selecting colors and line styles for printing figures that require multiple colors or line styles. The subsequent pages demonstrate what Excel's default settings produce for seven basic chart types and what NCES standards for these figures require. Each chart type is accompanied by a list of the modifications needed to make the default example meet NCES standards (and how to do the most complicated modifications in Excel). This guide assumes a working knowledge of Excel and does not explain every step involved in creating figures. For basic information, refer to an Excel user's guide.

Note re nonprint media (e.g., web-only materials): In preparing and displaying figures, nonprint media should follow the recommendations of this style guide as far as is practicable. For additional guidance regarding web standards, contact the IES center. Ensure that nonprint media comply with Section 508 accessibility requirements for people with disabilities. (Section 508 of the Rehabilitation Act of 1973 was reauthorized by the Workforce Investment Act of August 1998; standards for accessible technology were issued in December 2000 by the U.S. Access Board, an independent federal agency.)

All figures need the following elements:

1. Title

   Rules for figure titles are the same as those for table titles. For these rules refer to this style guide under Figures and to the *NCES Statistical Standards*, appendix C (NCES Guidelines for Tabular Presentations). Also refer to appendix H of this style guide.

   In particular note that titles need

   (a) a hanging indent inserted if the title runs more than one line and there is a figure identifier (e.g., Figure 2);

   (b) capitalization of only the first word of the title and subtitle (which follows a colon and indicates where or the time frame, or both) and any proper nouns (e.g., Percentage of foreign students studying in the United States: Various years, 1990-2003); and

   (c) the elements describing how the data are classified (e.g., by control of school, age, and sex of students) in the same order as labeled in the chart area and in the legend.

2. Labeled axes

   All axes need to be labeled horizontally, with the same capitalization rule that applies to titles.

   If there is not room on the x axis for all labels to fit without overlapping, remove every other one (when possible), and lengthen the tick marks for the remaining labels. When this is not possible (such as in the case of categorical labels), put every other label at a lower level than the others, to retain all labels while keeping the text running horizontal. (*But* see "6. Tick marks" below regarding year labels.)

3. Proper scaling

   All figures with comparable units must use the same scale throughout a report (e.g., 0-10 should be approximately the same size in all comparable figures). Also, scales showing comparable units should use the same scale increments (e.g., 10 percent increments in all rather than 10 percent in some and 5 percent in others).

   To get figures to print with consistent scales in Excel (or after being inserted into a Word document), you need to create an object (e.g., a text box) the same height as you want your y axis to be in all your figures. Then you need to size each figure manually by dragging and eyeballing the chart size. There is no way to set the size automatically. Also, it is not always possible to make the y axis in all figures the same height because objects in Excel figures cannot be offset from Excel's underlying grid.

   Except in time-series figures, all figures should have continuous scales starting at 0 or the minimum value on the scale. If a scale break is used, it should be clearly marked (usually with a pair of diagonal lines or a squiggly line).

4. Legends or labeled data

   All figures must have either a legend (presenting a key to the colors and line styles used to distinguish data) or labels next to each data line or data area. The text for legends and labels should run horizontally. When possible, use labels instead of a legend.

5. Source

   All figures must properly identify the source of the displayed data. For rules on how to present sources, refer to the Survey Titles section of this style guide, standard 5-4-5, and p. 187 of appendix C of the *NCES Statistical Standards.*

Some figures may also need the following:

6. Tick marks

   If tick marks are needed, place them outside the axis. On the horizontal (x) axis, include a tick mark for every point for which you have data; omit tick marks where you do not have data. Center scale numbers on the tick marks they identify. If your data points are not at equal intervals of time (e.g., you have data for 1992, 1994, and 1998), place your axis labels at proportional intervals (i.e., show twice as much space between 1994 and 1998 as between 1992 and 1994). Label only the years with data points; but if there are too many to keep the labels horizontal, use tick marks without labels for intervening data points. (See "2. Labeled axes" above regarding other types of data labels.)

7. Notes

   For a guide to preparing a general note, refer to the Tables section of this style guide and to appendix C of the *NCES Statistical Standards,* p. 186.

8. Reference notes

   For a guide to inserting reference (numbered) notes, refer to the Tables section of this style guide and to appendix C of the *NCES Statistical Standards,* p. 186.

9. Special notes
   For a guide to inserting special (symbol) notes, refer to the Tables section of the style guide and to appendix C of the *NCES Statistical Standards,* p. 185.

10. Multiple colors and line styles for readers to distinguish data lines, bars, or areas
   For guidance on selecting colors and line styles, see the Color and Line Guide on the next page.

Adding a chart with custom formatting to your Excel program's choice of Chart Types

Excel's Chart Wizard, which you use to create charts, allows you to choose the type of chart you would like to create from two lists of chart types: Standard Types and Custom Types. When you select one of the preset chart types from either of these lists, Excel automatically creates a chart with its default settings for the background color, borders, font size, style of gridlines and data labels, etc. Many of these default settings need to be changed to create a chart that conforms with NCES standards. The rest of this appendix describes how to make these changes manually. However, if you are creating many charts that are the same or quite similar, you may want Excel to remember all the manual changes you make to your first chart's settings so that they can be applied to all the other new charts you will create.

To have Excel remember the settings from a chart you have made or from a chart you have downloaded, right-click anywhere on the chart area and select **Chart Type**. Then click on the tab labeled "Custom Types," go to "Select from" in the bottom left, and select "User-defined." This will bring up a list of chart types that includes Excel's default. It will also make a button labeled "Add" appear at the bottom of the dialog box. Click on the Add button. Excel will prompt you to enter in a name for your chart type settings. Enter a descriptive name (e.g., Standard NCES bar graph), not something that will be hard to interpret months later (e.g., Tom's settings). After you click OK, your new chart type will appear in the list of user-defined custom chart types. You can then select your custom chart type whenever you want to create a new chart with your saved settings or whenever you want to apply those saved settings to a previously made chart.

If you often create charts like those that appear in this appendix, you can download this appendix as an Excel file by clicking on this link [http://nces.ed.gov/statprog/styleguide/excel/appendixG.xls] and add each of the correctly formatted chart types in this appendix as a user-defined custom chart type in your version of Excel.

Color and Line Guide

Files prepared in Microsoft Excel or Word must be converted to PDF for posting on the NCES website and, in most cases, to be sent to GPO for publication. They also must use only black, white, and gray for the final product because Microsoft software does not use the same color system that is used in offset (GPO) printing. The following pages suggest "color" and graphic pattern combinations that can be used to create figures that both (a) reproduce consistently and clearly in black and white photocopies and (b) should hold up when converted into PDFs that can be sent to GPO for publication. However, these are not required color or graphic pattern combinations.

To distinguish among colors, the Standard Microsoft Color Palette is presented below with each column identified by a letter and each row numbered. Printing out this page on a regular black and white printer will provide you with a guide to how these colors print as gray tones. However, products to be converted into PDF and sent to GPO for publications should use only black (A1) and the shades of gray in column H. (Reports with figures in color need to have their figures prepared in professional publishing software.)

Standard Microsoft Excel Color Palette

Suggested color combinations for bar and area charts that need two or three colors:

two colors   three colors

For bar and area charts that need more than three colors and use a legend (a key to the color scheme instead of directly labeling the color fields), repeat these color combinations with an overlaid graphic pattern. Be sure that throughout a single report, the same color and graphic pattern is always used for the same category (e.g., female, Asian, 4-year degree-granting institution, etc.).

Color and Line Guide–Continued

The following are some possible color and graphic patterns; however, reports may use different color and graphic combinations. Whatever colors and graphic patterns are used, authors should check the reproducible consistency and clarity of every report's figures both in terms of photocopying and PDF conversion.
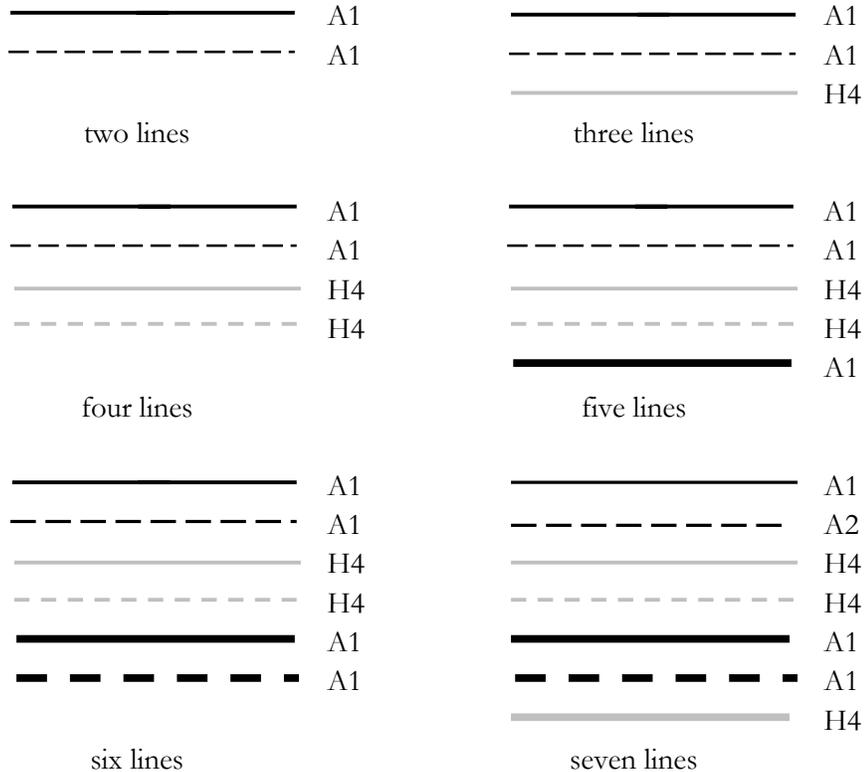
Key to colors: A1   A1   A1   A1   H4   H4

Pattern names in
Excel 2003:

        Dark vertical

            Light horizontal   Dark vertical

                       Outlined diamond   Wide upward diagonal
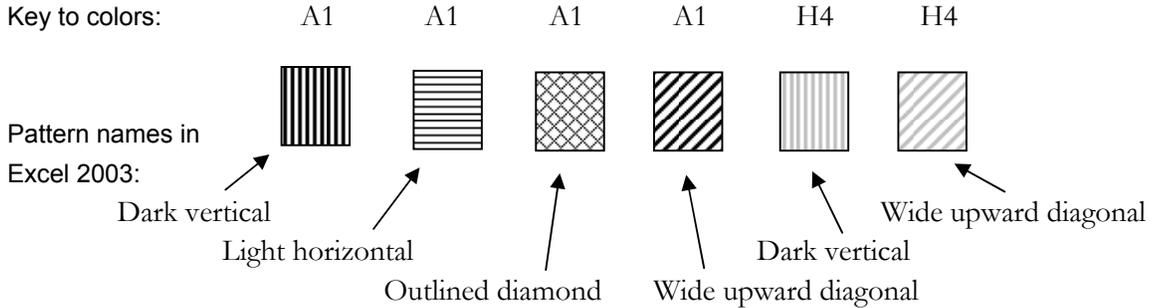
These graphic patterns can be applied when you select an area's color by clicking on the "Fill Effects" button below the Color Palette, then click on the "Pattern" tab, and select the pattern you want. Note that you can change the default foreground and background color for each pattern.

Suggested colors and line styles for line charts that need

                                   A1   A1

A1   A1

two lines — A1, A1

three lines — A1, A1, H4

four lines — A1, A1, H4, H4

five lines — A1, A1, H4, H4, A1

six lines — A1, A1, H4, H4, A1, A1

seven lines — A1, A2, H4, H4, A1, A1, H4

Excel default settings for figure:

Figure 1. Percentage of students enrolled in grades 1-12, by public and private school type: 1993, 1996, and 1999

THIS EXAMPLE DOES NOT MEET NCES STANDARDS.

Legend: 1993, 1996, 1999

Values by school sector and type:
- Public, assigned: 80, 76, 76
- Public, chosen: 11, 14, 14
- Private, church-related: 8, 8, 7
- Private, not church-related: 2, 2, 2

Y-axis: Percent (0–90)
X-axis: School sector and type

NOTE: Includes homeschooled students enrolled in public or private schools for 9 or more hours per week. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, School Readiness Survey of the 1993 National Household Education Surveys Program (SR-NHES:1993); School Safety and Discipline Survey of the 1993 National Household Education Surveys Program (SS&D-NHES:1993); Parent and Family Involvement in Education/Civic Involvement Survey of the 1996 National Household Education Surveys Program (PFI/CI-NHES:1996); and Parent Survey of the 1999 National Household Education Surveys Program (Parent-NHES:1999).

Default Settings

Excel figure with manual formatting to meet NCES standards:

Figure 1. Percentage of students enrolled in grades 1-12, by public and private school type: 1993, 1996, and 1999

Percent

Legend: 1993, 1996, 1999

Values by school sector and type:
- Public, assigned: 80, 76, 76
- Public, chosen: 11, 14, 14
- Private, church-related: 8, 8, 7
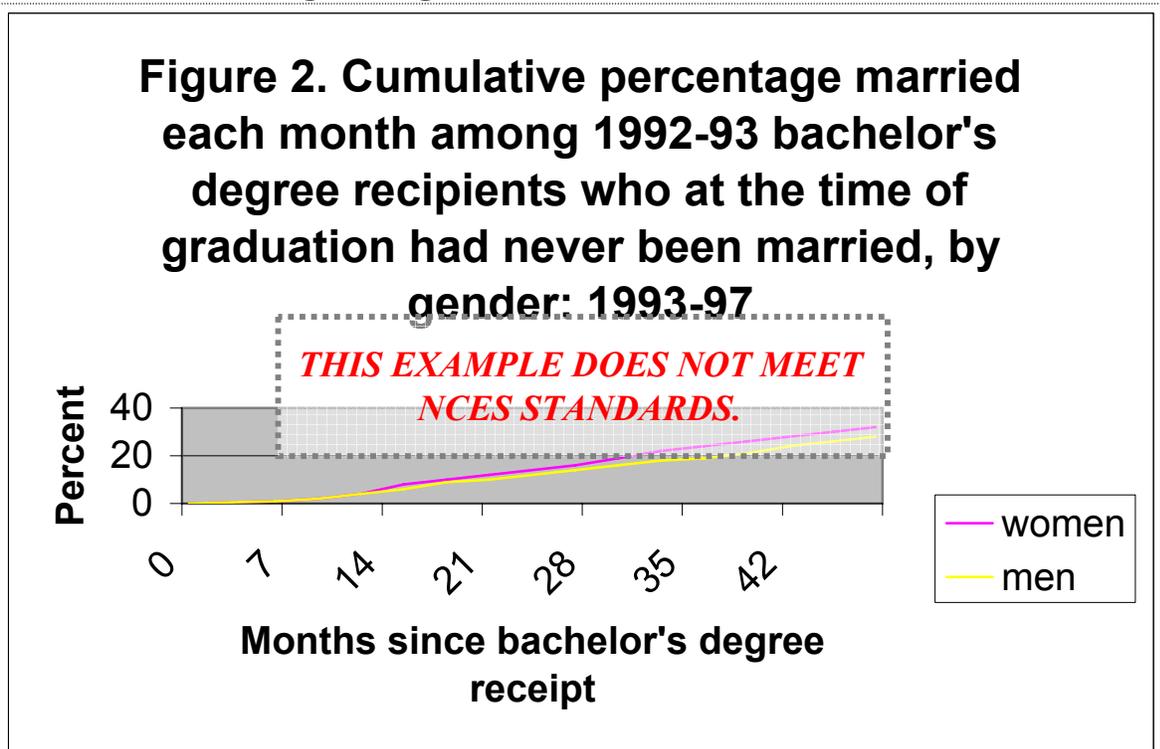- Private, not church-related: 2, 2, 2

Y-axis: Percent (0–100)
X-axis: School sector and type

NOTE: Includes homeschooled students enrolled in public or private schools for 9 or more hours per week. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, School Readiness Survey of the 1993 National Household Education Surveys Program (SR-NHES:1993); School Safety and Discipline Survey of the 1993 National Household Education Surveys Program (SS&D-NHES:1993); Parent and Family Involvement in Education/Civic Involvement Survey of the 1996 National Household Education Surveys Program (PFI/CI-NHES:1996); and Parent Survey of the 1999 National Household Education Surveys Program (Parent-NHES:1999).

Formatted Correctly

Manual formatting steps for figure 1 (bar chart):

1. Enter the title either into a text box or into a merged cell across the top of the chart so that the title can be stretched across the figure precisely (otherwise the title's width on the page and the number of characters in the title may be arbitrarily constrained). Text boxes can be made by clicking on the text box icon in the Drawing toolbar and dragging your activated cursor to the desired size. If necessary, set the text box's background fill color to white and make sure it has no border (right-click on the text box so the **Format Text Box** dialog box comes up and, under the **Colors and Lines** tab, set the Color under Fill to white and under Line to "No Line"). For guidance on creating hanging indents in titles, see appendix H, guideline C.

2. Rescale the y axis (vertical axis) to 100 (right-click on y axis, **Format Axis**, under **Scale** set **Maximum** and **Minimum** appropriately).

3. Transform the y axis label to read horizontally (right-click on the label, **Format Axis Title**, under **Alignment** set the **Orientation** to 0 degrees), take off bold, and place at the top of the axis.

4. Turn off the background border and color (right-click inside the graph, **Format Plot Area**, under **Patterns** set both **Border** and **Background** to none).

5. Turn off the background grid lines (right-click inside the graph, **Chart Options**, under **Gridlines** deselect any marked boxes).

6. Turn off the box around the figure (right-click along the edge of the figure, **Format Chart Area**, under **Patterns** set **Border** to none).

7. Set all the fonts to the same size except the title (which should be slightly larger) (right-click along the edge of the figure, **Format Chart Area**, under **Font** set **Size** accordingly; then right-click on title text box, **Format Text Box**, under **Font** set **Size** slightly larger than that used in the rest of the chart).

8. Delete the tick marks on the x axis (right-click on the x axis, **Format Axis**, under **Patterns** make sure the **Major tick mark type** and **Minor tick mark type** are both set to none).

9. Resize the figure so it is proportionately sized (right-click inside the graph, click and drag any of the corner boxes to resize the chart area), and place the legend so it is easier to read. Note that by dragging the corners of the legend you can expand it vertically or horizontally and the contents will adjust accordingly to the space available.

10. Adjust the color of the bars (right-click on each bar one at a time, **Format Data Series**, under **Patterns** set the **Area** color selection as desired.) For help with color choices, refer to the Color and Line Guide in this appendix.
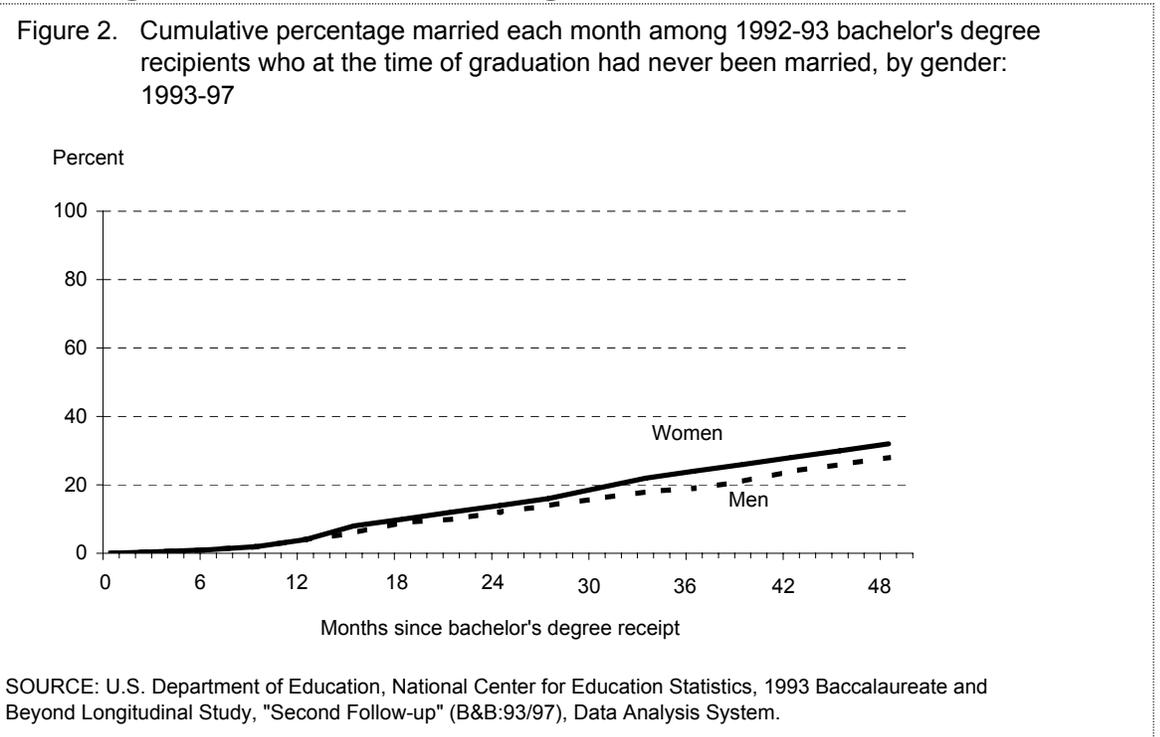
Excel default settings for figure:

Default Settings

Figure 2. Cumulative percentage married each month among 1992-93 bachelor's degree recipients who at the time of graduation had never been married, by gender: 1993-97

THIS EXAMPLE DOES NOT MEET NCES STANDARDS.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, "Second Follow-up" (B&B:93/97), Data Analysis System.

Excel figure with manual formatting to meet NCES standards:

Formatted Correctly

Figure 2. Cumulative percentage married each month among 1992-93 bachelor's degree recipients who at the time of graduation had never been married, by gender: 1993-97
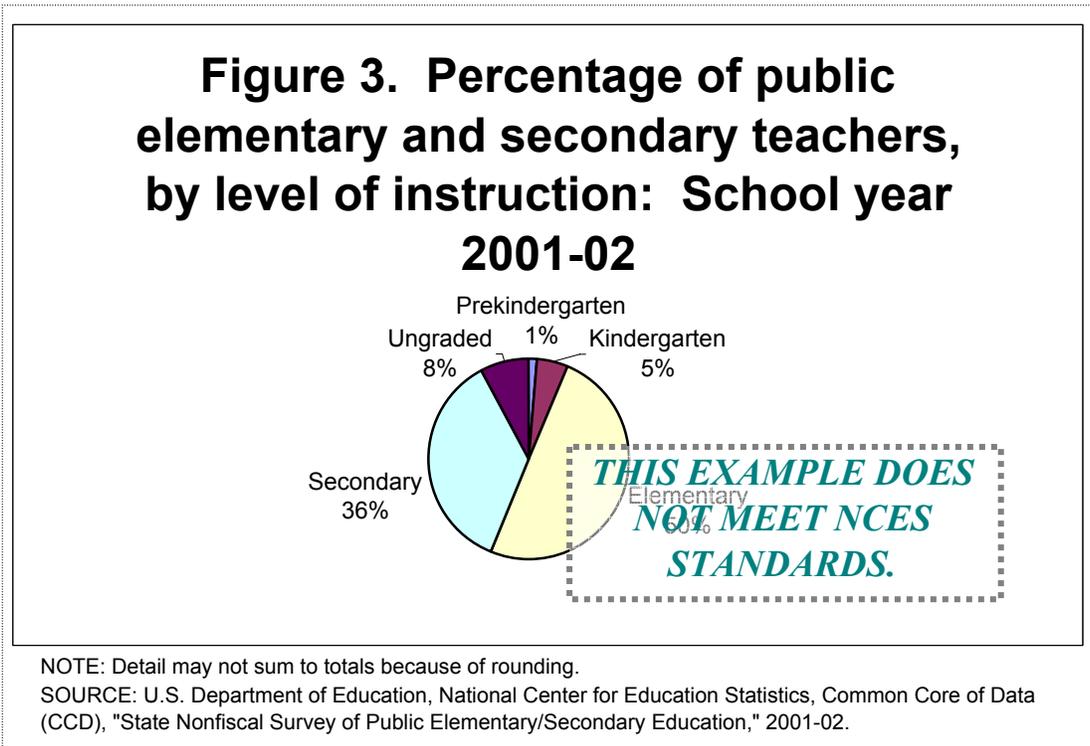

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, "Second Follow-up" (B&B:93/97), Data Analysis System.

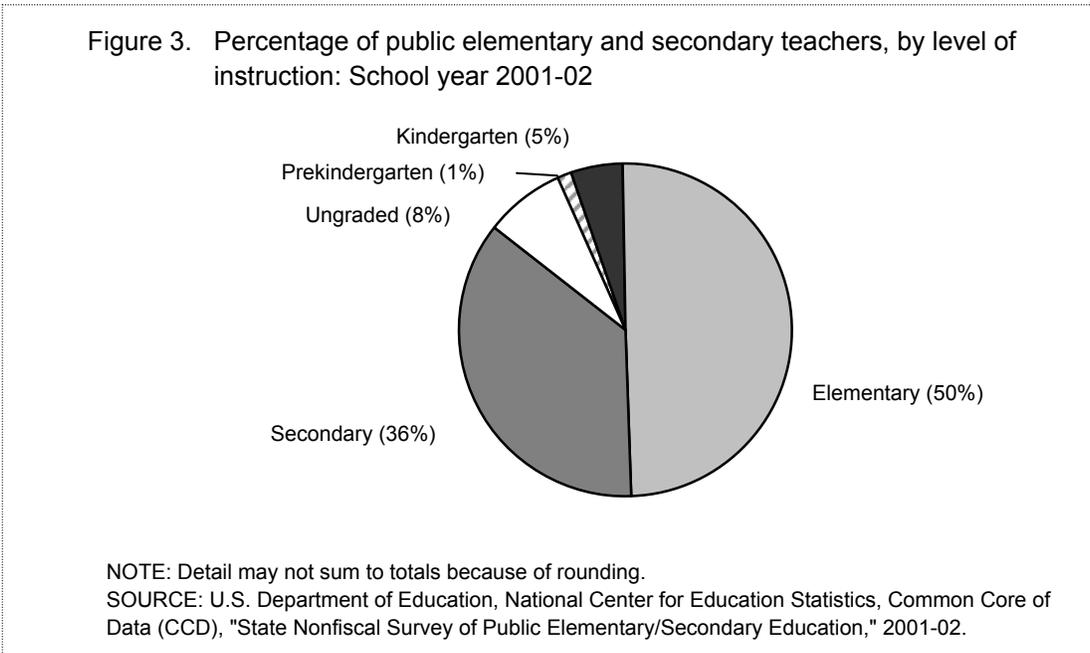## Manual formatting steps for figure 2 (simple line chart):

1. Enter the title either into a text box or into a merged cell across the top of the chart so that the title can be stretched across the figure precisely (otherwise the title's width on the page and the number of characters in the title may be arbitrarily constrained). Text boxes can be made by clicking on the text box icon in the Drawing toolbar and dragging your activated cursor to the desired size. If necessary, set the text box's background fill color to white and make sure it has no border (right-click on the text box so the **Format Text Box** dialog box comes up and, under the **Colors and Lines** tab, set the Color under Fill to white and under Line to "No Line"). For guidance on creating hanging indents in titles, see appendix H, guideline C.

2. Rescale the y axis to 100 (right-click on y axis, **Format Axis**, under **Scale** set **Maximum** and **Minimum** appropriately).

3. Enter the y axis title and the x axis title into separate text boxes (see step 1 on how to create text boxes); size the x and y axis titles correctly; place the y axis title at the top of the y axis; and center the x axis title below the x axis.

4. Turn off the box around the graph and the background color (right-click inside the graph, **Format Plot Area**, under **Patterns** set **Border** and **Background** both to none).

5. Change the background gridlines (right-click on any gridline, **Format Gridlines**, under **Patterns** select appropriate choices).

6. Turn off the box around the figure (right-click along the edge of the figure, **Format Chart Area**, under **Patterns** set **Border** to none).

7. Set all the fonts to the same size except the title (which should be slightly larger) (right-click along the edge of the figure, **Format Chart Area**, under **Font** set **Size** accordingly; then right-click on title text box, **Format Text Box**, under **Font** set **Size** slightly larger than that used in the rest of the chart).

8. Resize the figure so it is proportionately sized (right-click inside the graph, click and drag any of the corner boxes to resize the chart area).

9. Delete the legend and place text boxes with the labels next to the data lines.

10. Create text boxes for the x axis labels (see step 1 on how to create text boxes) so the labels can be centered (manually) on the major tick marks. (Excel by default places x axis value labels flush left with the major tick marks.) Note that after you have positioned the labels where they appear to be centered, you need to check the Print Preview to see how they will print. Text boxes often print differently than they appear on screen; fussing is usually required to get them positioned correctly.

11. Adjust the color, style, and width of the data lines so they contrast clearly (right-click on each data line, **Format Data Series**, under **Patterns** adjust accordingly). For help with color choices, refer to the Color and Line Guide in this appendix.

Excel default settings for figure:

Figure 3. Percentage of public elementary and secondary teachers, by level of instruction: School year 2001-02

NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2001-02.

Default Settings

Excel figure with manual formatting to meet NCES standards:

Figure 3. Percentage of public elementary and secondary teachers, by level of instruction: School year 2001-02

NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2001-02.
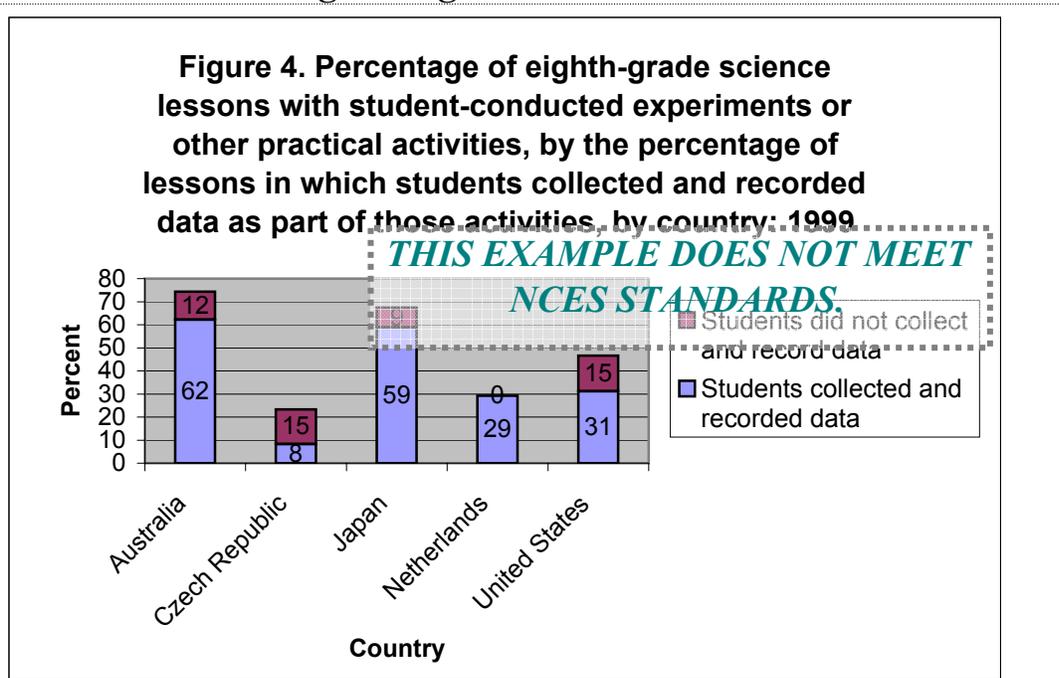
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Manual formatting steps for figure 3 (pie chart):

1. Enter the title either into a text box or into a merged cell across the top of the chart so that the title can be stretched across the figure precisely (otherwise the title's width on the page and the number of characters in the title may be arbitrarily constrained). Text boxes can be made by clicking on the text box icon in the Drawing toolbar and dragging your activated cursor to the desired size. If necessary, set the text box's background fill color to white and make sure it has no border (right-click on the text box so the **Format Text Box** dialog box comes up and, under the **Colors and Lines** tab, set the Color under Fill to white and under Line to "No Line"). For guidance on creating hanging indents in titles, see appendix H, guideline C.

2. If you need percentages rounded to one decimal place or placed in parentheses (or both), turn off the automatic data labels so the percentages can be inserted along with the labels in text boxes (right-click next to chart, **Chart Options**, under **Data Labels** deselect all options under "Label Contains"). Insert each label and its corresponding percentage in a text box to round to the first decimal place.

3. Set all the fonts to the same size except the title (which should be slightly larger) (right-click along the edge of the figure, **Format Chart Area**, under **Font** set **Size** accordingly; then right-click on title text box, **Format Text Box**, under **Font** set **Size** slightly larger than that used in the rest of the chart).

4. Resize the figure so it is proportionately sized (right-click inside the graph, click and drag any of the corner boxes to resize the chart area) and center it (left-click in the plot area and drag the graph to the center).

5. Insert a small line to connect the Prekindergarten label with its pie "piece." (Note that Excel by default draws lines, but it chooses to draw in different lines than may make the most sense. This feature was turned off in step 2 when all data label options were deselected. However, if you want to keep the automatic labels but not the default "leader" lines, they can be turned off by right-clicking next to the chart, **Chart Options**, under **Data Labels** deselect show leader lines.)

6. Adjust the color of the pie "pieces" so they contrast clearly (right-click on each piece, **Format Data Point**, under **Patterns** adjust in accordance with the Color and Line Guide).

7. Rotate the entire pie chart to the orientation that seems best, with a dividing line between wedges at 12 o'clock (right-click on the pie, **Format Data Series**, under **Options** adjust the **Angle of first slice** accordingly).
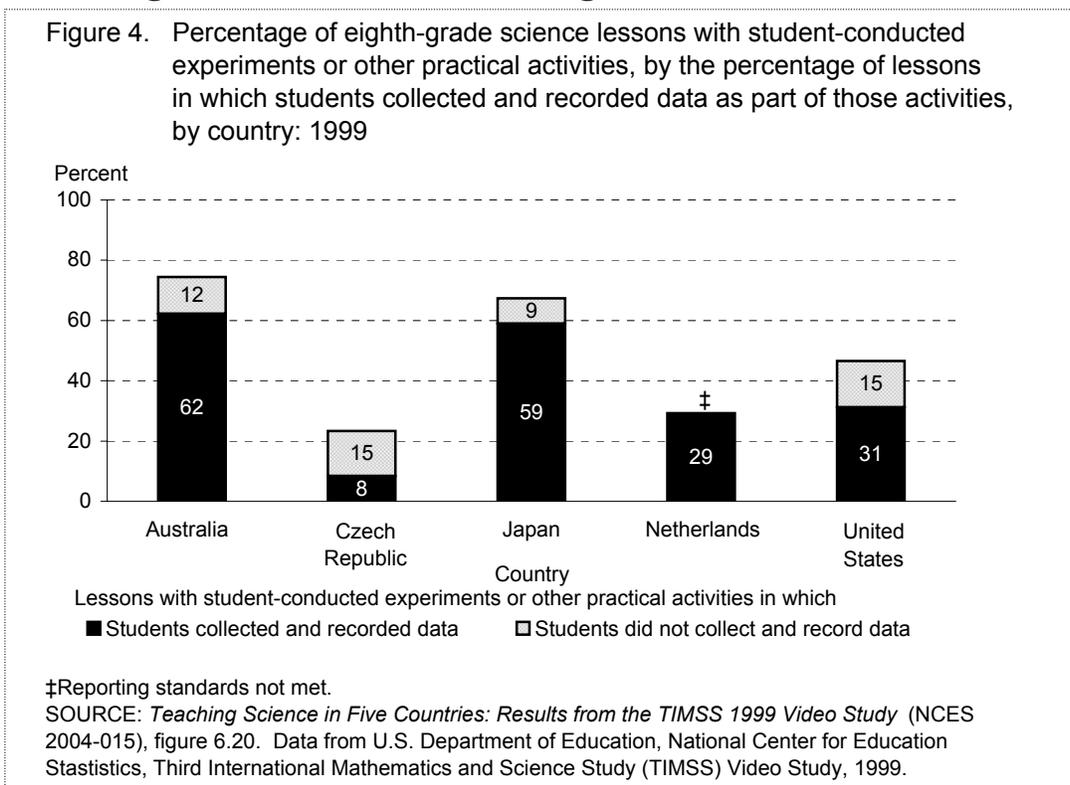
Excel default settings for figure:

Figure 4. Percentage of eighth-grade science lessons with student-conducted experiments or other practical activities, by the percentage of lessons in which students collected and recorded data as part of those activities, by country: 1999

THIS EXAMPLE DOES NOT MEET NCES STANDARDS.

Percent (y-axis: 0, 10, 20, 30, 40, 50, 60, 70, 80)

- Australia: 62 (collected), 12 (did not collect)
- Czech Republic: 8 (collected), 15 (did not collect)
- Japan: 59 (collected)
- Netherlands: 29 (collected), 0
- United States: 31 (collected), 15 (did not collect)

Legend:
- Students did not collect and record data
- Students collected and recorded data

Country

Default Settings

SOURCE: *Teaching Science in Five Countries: Results from the TIMSS 1999 Video Study* (NCES 2004-015), figure 6.20. Data from U.S. Department of Education, National Center for Education Stastistics, Third International Mathematics and Science Study (TIMSS) Video Study, 1999.

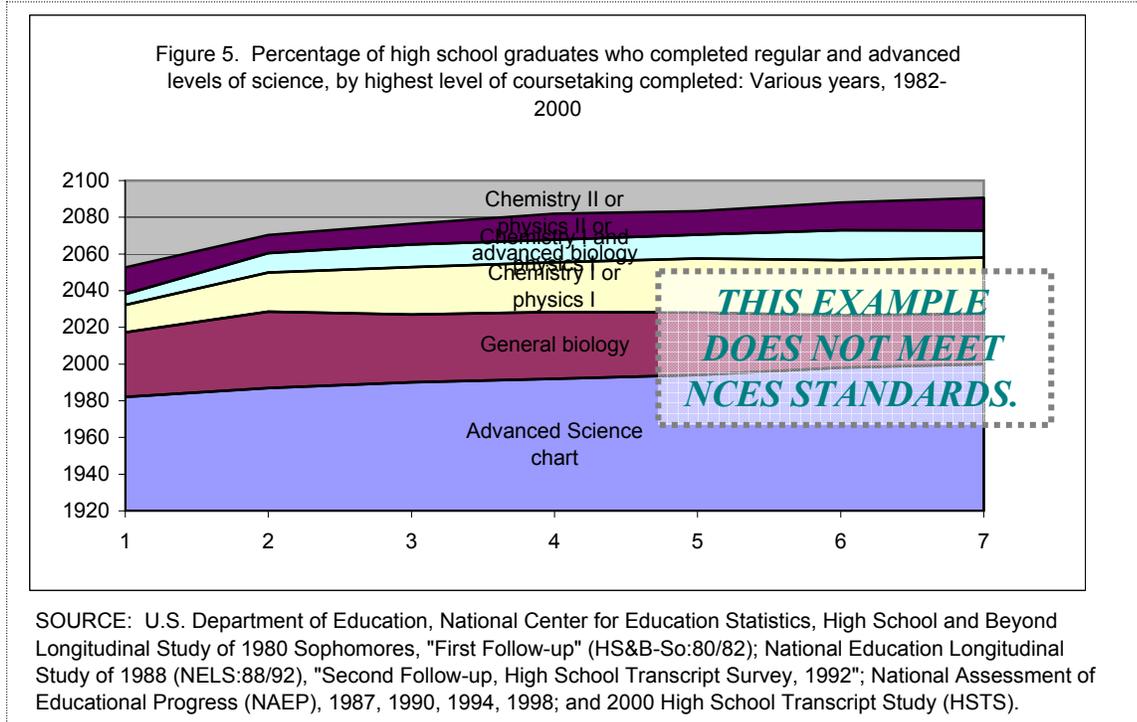## Excel figure with manual formatting to meet NCES standards:

Figure 4. Percentage of eighth-grade science lessons with student-conducted experiments or other practical activities, by the percentage of lessons in which students collected and recorded data as part of those activities, by country: 1999

Percent (y-axis: 0, 20, 40, 60, 80, 100)

- Australia: 62 (collected), 12 (did not collect)
- Czech Republic: 8 (collected), 15 (did not collect)
- Japan: 59 (collected), 9 (did not collect)
- Netherlands: 29 (collected), ‡
- United States: 31 (collected), 15 (did not collect)

Country

Lessons with student-conducted experiments or other practical activities in which
- ■ Students collected and recorded data
- □ Students did not collect and record data

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‡Reporting standards not met.
SOURCE: *Teaching Science in Five Countries: Results from the TIMSS 1999 Video Study* (NCES 2004-015), figure 6.20. Data from U.S. Department of Education, National Center for Education Stastistics, Third International Mathematics and Science Study (TIMSS) Video Study, 1999.

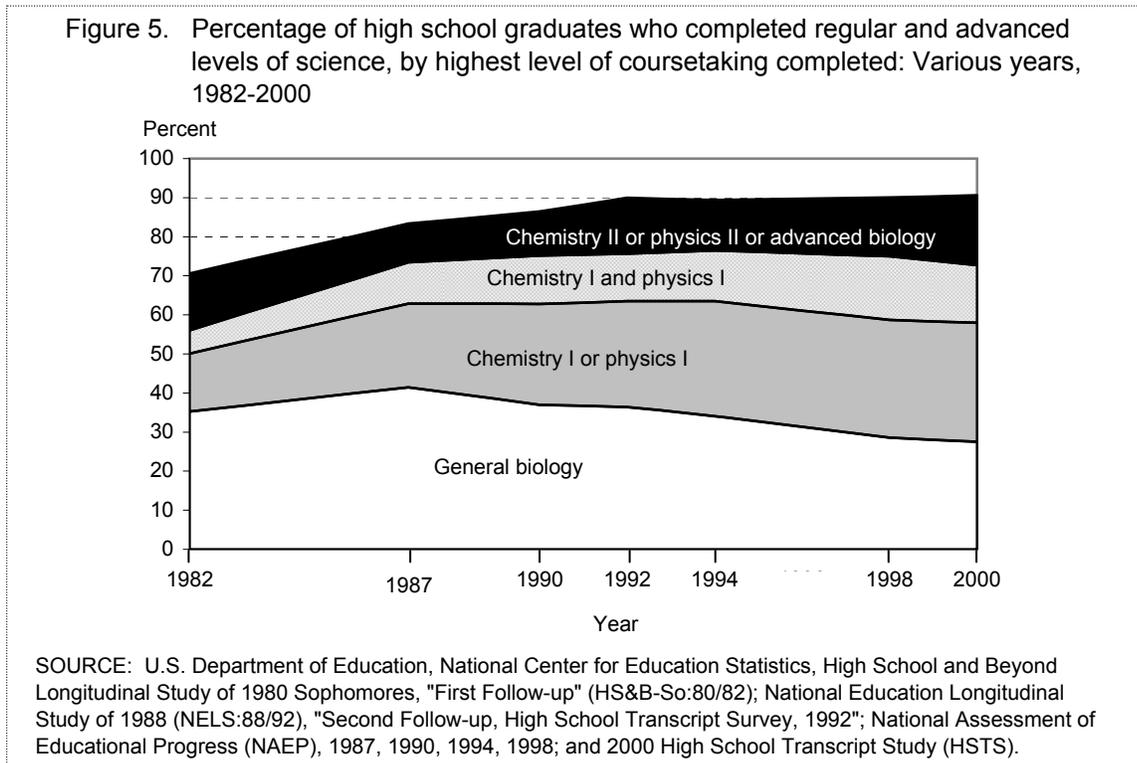## Manual formatting steps for figure 4 (stacked bar chart):

1. Enter the title either into a text box or into a merged cell across the top of the chart so that the title can be stretched across the figure precisely (otherwise the title's width on the page and the number of characters in the title may be arbitrarily constrained). Text boxes can be made by clicking on the text box icon in the Drawing toolbar and dragging your activated cursor to the desired size. If necessary, set the text box's background fill color to white and make sure it has no border (right-click on the text box so the **Format Text Box** dialog box comes up and, under the **Colors and Lines** tab, set the Color under Fill to white and under Line to "No Line"). For guidance on creating hanging indents in titles, see appendix H, guideline C.

2. Rescale the y axis to 100 (right-click on y axis, **Format Axis**, under **Scale** set **Maximum** and **Minimum** appropriately).

3. Transform the y axis title to read horizontally (right-click on the label, **Format Axis Title**, under **Alignment** set the **Orientation** to 0 degrees); transform the x axis labels to read horizontally (right-click on the x axis, **Format Axis**, under **Alignment** set the **Orientation** to 0 degrees); take off bold and size the x and y axis titles correctly; place the y axis title at the top of the y axis; and center the x axis title below the x axis.

4. Turn off the box around the graph and the background color (right-click inside the graph, **Format Plot Area**, under **Patterns** set **Border** and **Background** both to none).

5. Change the background gridlines (right-click on any gridline, **Format Gridlines**, under **Patterns** select appropriate choices).

6. Turn off the box around the figure (right-click along the edge of the figure, **Format Chart Area**, under **Patterns** set **Border** to none).

7. Set all the fonts to the same size except the title (which should be slightly larger) (right-click along the edge of the figure, **Format Chart Area**, under **Font** set **Size** accordingly; then right-click on title text box, **Format Text Box**, under **Font** set **Size** slightly larger than that used in the rest of the chart).

8. Resize the figure so it is proportionately sized (right-click inside the graph, click and drag any of the corner boxes to resize the chart area).

9. Adjust the color, style, and width of the bars so they contrast clearly (right-click on each data line, **Format Data Series**, under **Patterns** adjust accordingly). For help with color choices, refer to the Color and Line Guide in this appendix.

10. Insert the "‡" symbol in a text box above Netherlands' bar to explain why there are no data reported. (See step 1 on how to create a text box.) Select and delete the original data label of "0" if need be. *Make sure there is a special note for the symbol placed before the SOURCE.*

11. Insert "Lessons with student-conducted experiments or other practical activities in which" in a text box above the legend for clarity. (See step 1 on how to create a text box.)

12. Delete the tick marks on the x axis (right-click on the x axis, **Format Axis**, under **Patterns** make sure the **Major tick mark type** and **Minor tick mark type** are both set to none).

Excel default settings for figure after setting font size:

Figure 5. Percentage of high school graduates who completed regular and advanced levels of science, by highest level of coursetaking completed: Various years, 1982-2000

THIS EXAMPLE DOES NOT MEET NCES STANDARDS.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, "First Follow-up" (HS&B-So:80/82); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, High School Transcript Survey, 1992"; National Assessment of Educational Progress (NAEP), 1987, 1990, 1994, 1998; and 2000 High School Transcript Study (HSTS).

Default Settings

Excel figure with manual formatting to meet NCES standards:

Figure 5.   Percentage of high school graduates who completed regular and advanced levels of science, by highest level of coursetaking completed: Various years, 1982-2000

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study of 1980 Sophomores, "First Follow-up" (HS&B-So:80/82); National Education Longitudinal Study of 1988 (NELS:88/92), "Second Follow-up, High School Transcript Survey, 1992"; National Assessment of Educational Progress (NAEP), 1987, 1990, 1994, 1998; and 2000 High School Transcript Study (HSTS).

Formatted Correctly

Manual formatting steps for figure 5 (stacked area chart):

1. Enter the title either into a text box or into a merged cell across the top of the chart so that the title can be stretched across the figure precisely (otherwise the title's width on the page and the number of characters in the title may be arbitrarily constrained). Text boxes can be made by clicking on the text box icon in the Drawing toolbar and dragging your activated cursor to the desired size. If necessary, set the text box's background fill color to white and make sure it has no border (right-click on the text box so the **Format Text Box** dialog box comes up and, under the **Colors and Lines** tab, set the Color under Fill to white and under Line to "No Line"). For guidance on creating hanging indents in titles, see appendix H, guideline C.

2. Delete the category "Advanced Science Chart" (right-click on chart, **Source Data**, **Series,** select category and click remove) and set the x axis labels to report years (not a category number) (under **Source Data**, in the box to the right of "Category (X) axis labels" enter the correct range for the x axis labels—i.e., the cell range for the years).

3. Correct the improper spacing on the x axis between years by inserting a column in the source data field for each missing year and entering the following formula in each cell between columns with data: (value for year A) + (inserted year – year A) * [(value for year B) – (value for year A)]/year B – year A]. Note that the "inserted year – year A" equals 1 in the first inserted column, 2 in the next, etc. The denominator, year B – year A, is the number of years between year A and year B. (*If you download the electronic version of this appendix, you can see the sample source data field above, starting in cell Y32. The link to download this appendix is on page G-3 of the introduction.*)

4. Correct the overlapping and bunched up data labels in the chart by copying and pasting the data labels that are too long to fit on a single line in Excel's (default) fixed-size data label boxes into manually created text boxes. (See step 1 on how to create text boxes.) Position them accordingly (make sure to check the Print Preview to see how they will print; fussing is usually required to space them suitably).

5. Enter the y axis title and the x axis title into separate text boxes (see step 1 on how to create text boxes); size the x and y axis titles correctly; place the y axis title at the top of the y axis; and center the x axis title below the x axis.

6. Turn off the box around the graph and the background color (right-click inside the graph, **Format Plot Area**, under **Patterns** set **Border** and **Background** both to none).

7. Change the background gridlines (right-click on any gridline, **Format Gridlines**, under **Patterns** select appropriate choices).

8. Turn off the box around the figure (right-click along the edge of the figure, **Format Chart Area**, under **Patterns** set **Border** to none).

9. Set all the fonts to the same size except the title (which should be slightly larger) (right-click along the edge of the figure, **Format Chart Area**, under **Font** set **Size** accordingly; then right-click on title text box, **Format Text Box**, under **Font** set **Size** slightly larger than that used in the rest of the chart).

10. Resize the figure so it is proportionately sized (right-click inside the graph, click and drag any of the corner boxes to resize the chart area).
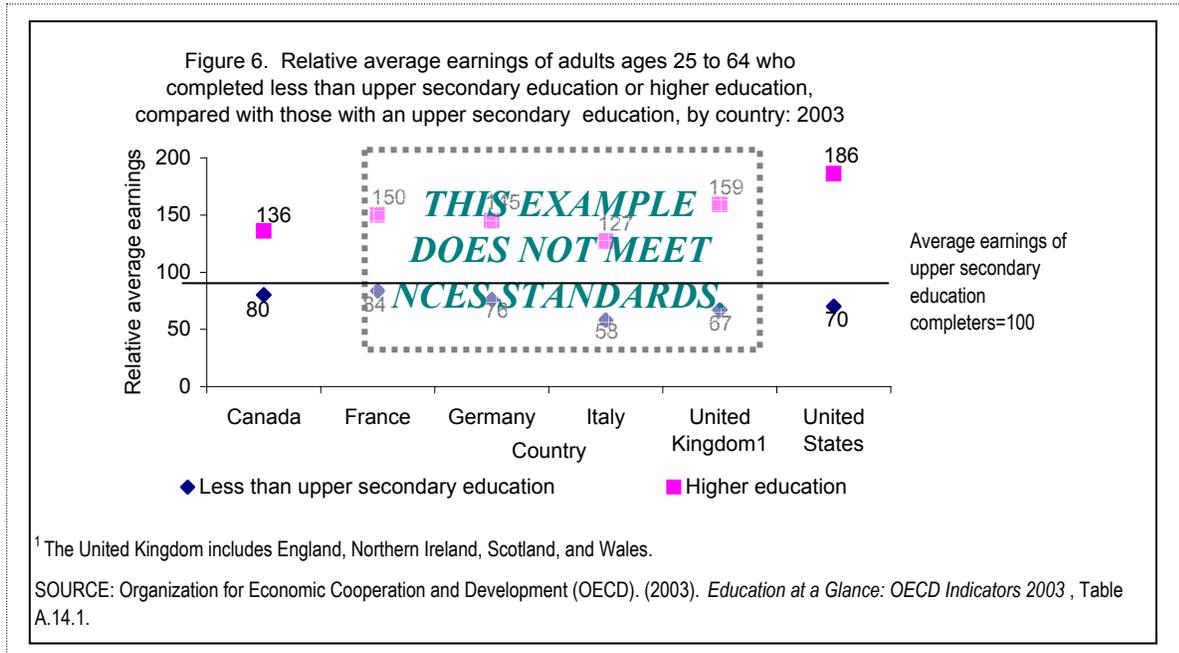
11. Place tick marks under data points. First, turn on minor tick marks on the x axis (right-click on the x axis, **Format Axis**, under **Patterns** set **Minor tick mark type** as outside). Next, manually create tick marks. Set the zoom to 200% so you can be more precise with your lines. Go to "Lines" under AutoShapes on the Drawing toolbar, and select a straight line. Drag your activated cursor to draw a short line on top of the first minor tick mark. Copy and paste the line and use the arrow keys to move it on top of the second minor tick mark. Repeat the last step until you have a tick mark under every data point. Set the zoom back to normal. Use the Print Preview to see how the tick marks print; fussing is usually required to get them placed correctly as they do not usually print as they appear on screen. When all tick marks are placed correctly, delete all the automatic tick marks on the x axis (right-click on the x axis, **Format Axis**, under **Patterns** make sure the **Major tick mark type** and **Minor tick mark type** are both set to none).

12. Insert text boxes to label the data point with the appropriate year or to mask out unneeded year labels. In both cases the text box should be white with no line for the border. (See step 1 on how to create text boxes.) Position the text box labels or masks appropriately (make sure to check the Print Preview to see how they will print; fussing is usually required to space them suitably).

13. Adjust the color of the data areas so they contrast clearly (right-click on each data area, **Format Data Series**, under **Patterns** adjust accordingly). For help with color choices, refer to the Color and Line Guide in this appendix.
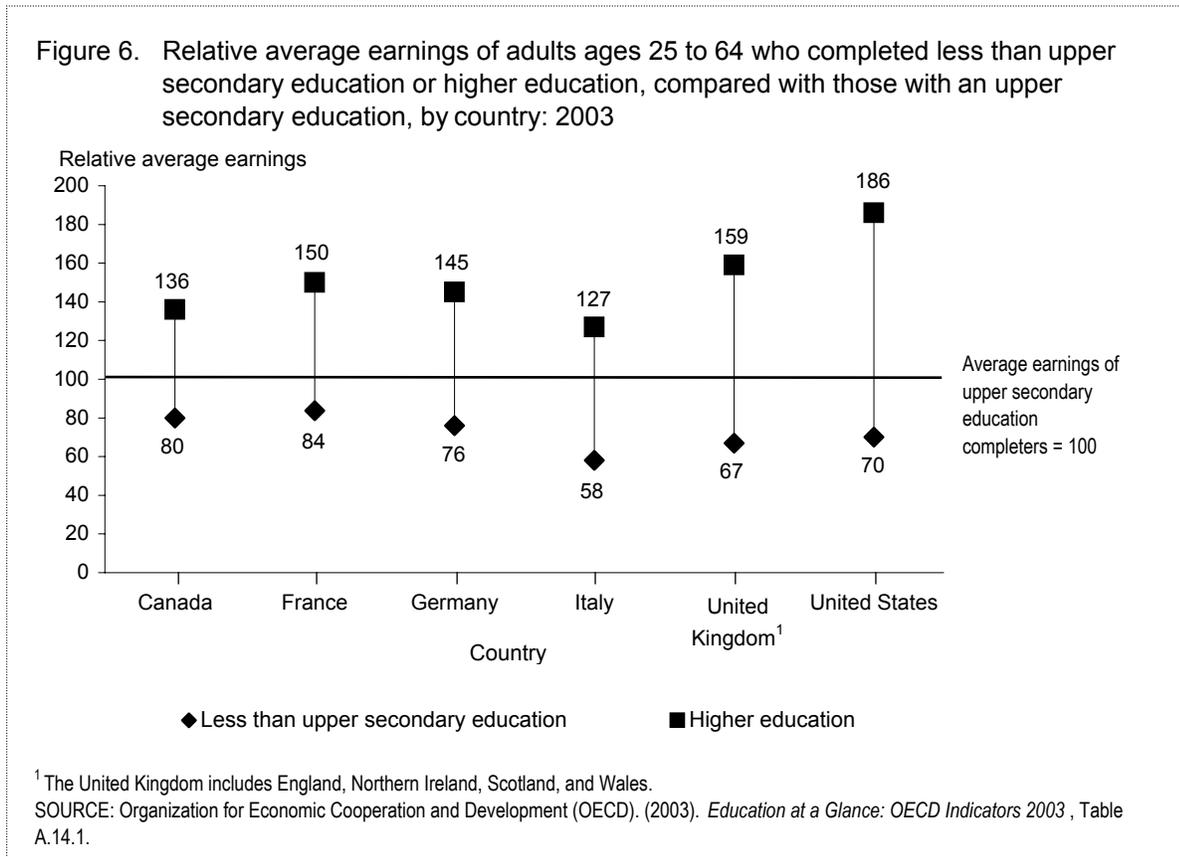
Sample figure 6 starts on the next page.

Excel default settings for figure after setting font size and inserting average earnings line:

Figure 6. Relative average earnings of adults ages 25 to 64 who completed less than upper secondary education or higher education, compared with those with an upper secondary education, by country: 2003

THIS EXAMPLE DOES NOT MEET NCES STANDARDS

Average earnings of upper secondary education completers=100

◆ Less than upper secondary education   ■ Higher education

[1] The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development (OECD). (2003). *Education at a Glance: OECD Indicators 2003* , Table A.14.1.

Default Settings

Excel figure with manual formatting to meet NCES standards:

Figure 6.   Relative average earnings of adults ages 25 to 64 who completed less than upper secondary education or higher education, compared with those with an upper secondary education, by country: 2003

Relative average earnings

Average earnings of upper secondary education completers = 100

◆ Less than upper secondary education   ■ Higher education

[1] The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development (OECD). (2003). *Education at a Glance: OECD Indicators 2003* , Table A.14.1.
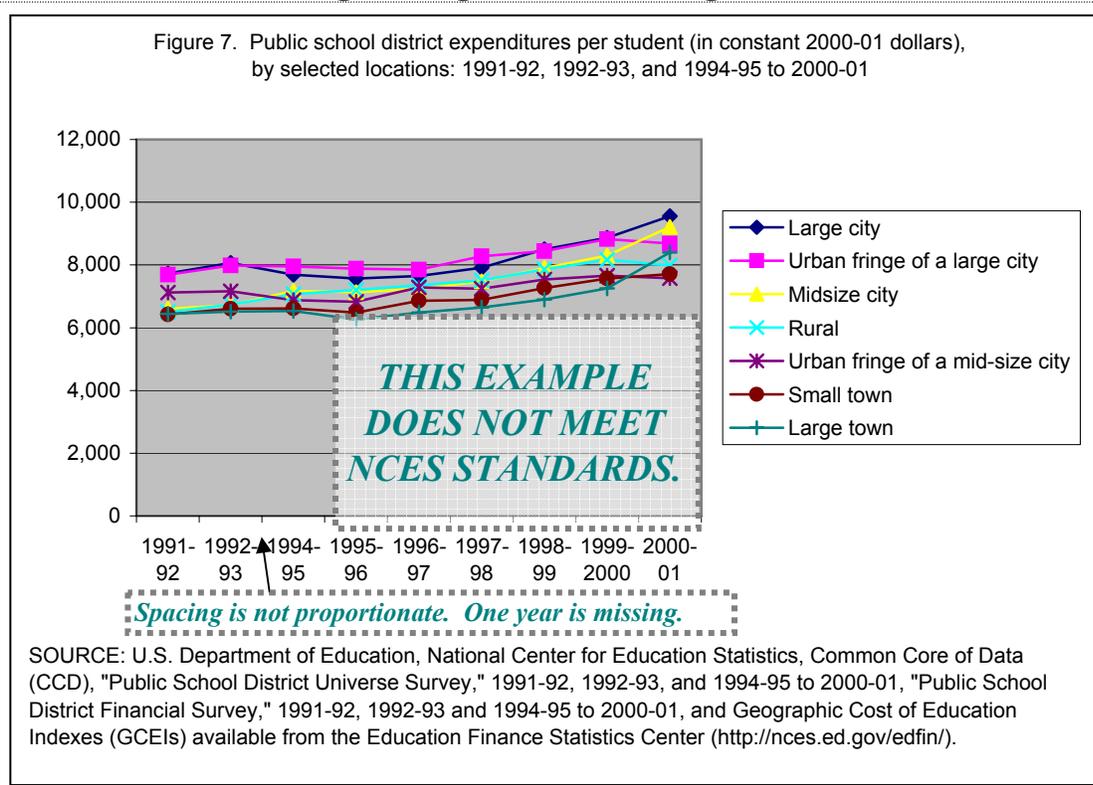
Formatted Correctly

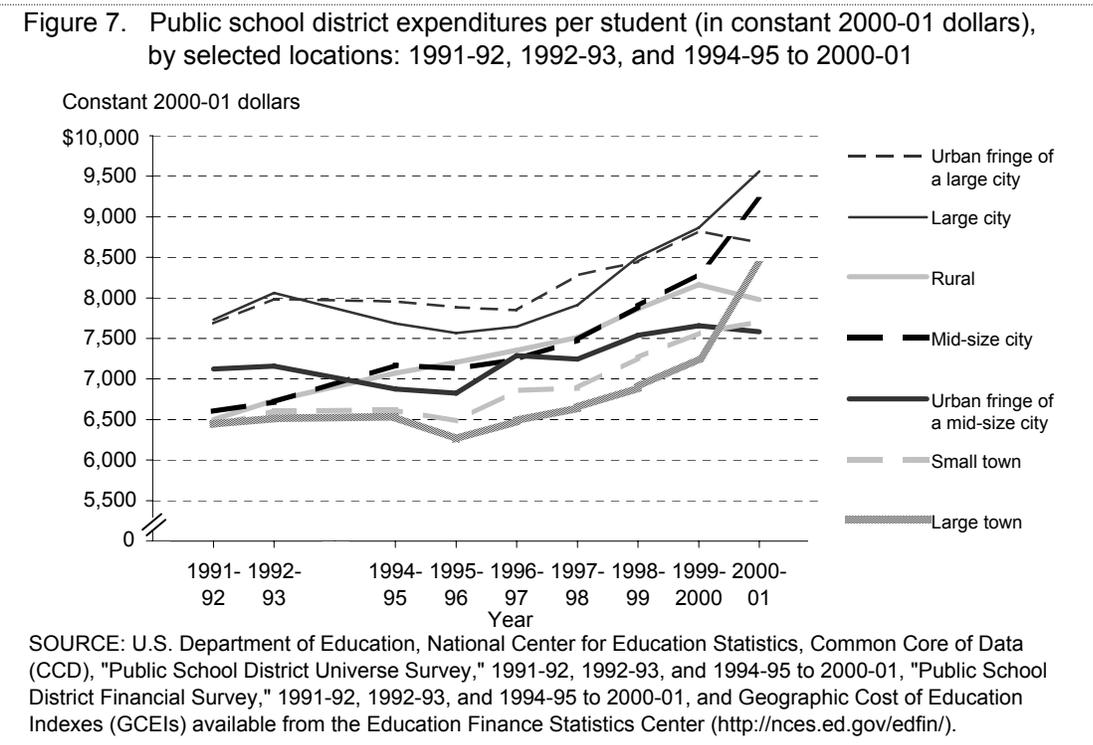## Manual formatting steps for figure 6 (dropline chart):

1. Enter the title either into a text box or into a merged cell across the top of the chart so that the title can be stretched across the figure precisely (otherwise the title's width on the page and the number of characters in the title may be arbitrarily constrained). Text boxes can be made by clicking on the text box icon in the Drawing toolbar and dragging your activated cursor to the desired size. If necessary, set the text box's background fill color to white and make sure it has no border (right-click on the text box so the **Format Text Box** dialog box comes up and, under the **Colors and Lines** tab, set the Color under Fill to white and under Line to "No Line"). For guidance on creating hanging indents in titles, see appendix H, guideline C.

2. Rescale the y axis to 200 (right-click on y axis, **Format Axis**, under **Scale** set **Maximum** and **Minimum** appropriately).

3. Transform the y axis title to read horizontally (right-click on the label, **Format Axis Title**, under **Alignment** set the **Orientation** to 0 degrees), size correctly, and place at the top of the axis.

4. Turn off the background color (right-click inside the graph, **Format Plot Area**, under **Patterns** set **Background** to none).

5. Insert a manually drawn horizontal line crossing the y axis at 100. Use the Line shape on the drawing toolbar, and then select and move line as necessary.

6. Set all the fonts to the same size except the title (which should be slightly larger) (right-click along the edge of the figure, **Format Chart Area**, under **Font** set **Size** accordingly; then right-click on title text box, **Format Text Box**, under **Font** set **Size** slightly larger than that used in the rest of the chart).

7. Resize the figure so it is proportionately sized (right-click inside the graph, click and drag any of the corner boxes to resize the chart area).

8. Adjust the color, style, and width of the data points so they are easy to distinguish (right-click on any point in each data series, **Format Data Series**, under **Patterns** adjust Marker accordingly).

9. Turn on lines to connect data points (right-click on any point in either data series, **Format Data Series**, under **Options** check High-low lines).

10. Insert a text box over United Kingdom that replicates the label but with a superscripted footnote.

11. Place tick marks under data points. First, turn on minor tick marks on the x axis (right-click on the x axis, **Format Axis**, under **Patterns** set **Minor tick mark type** as outside). Next, manually create tick marks. Set the zoom to 200% so you can be more precise with your lines. Go to "Lines" under AutoShapes on the Drawing toolbar, and select a straight line. Drag your activated cursor to draw a short line on top of the first minor tick mark. Copy and paste the line and use the arrow keys to move it on top of the second minor tick mark. Repeat the last step until you have a tick mark under every data point. Set the zoom back to normal. Use the Print Preview to see how the tick marks print; fussing is usually required to get them placed correctly as they do not usually print as they appear on the screen. When all tick marks are placed correctly, delete all the automatic tick marks on the x axis (right-click on the x axis, **Format Axis**, under **Patterns** make sure the **Major tick mark type** and **Minor tick mark type** are both set to none).

Excel default settings for figure after setting font size:

Figure 7. Public school district expenditures per student (in constant 2000-01 dollars), by selected locations: 1991-92, 1992-93, and 1994-95 to 2000-01

THIS EXAMPLE DOES NOT MEET NCES STANDARDS.

Spacing is not proportionate. One year is missing.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public School District Universe Survey," 1991-92, 1992-93, and 1994-95 to 2000-01, "Public School District Financial Survey," 1991-92, 1992-93 and 1994-95 to 2000-01, and Geographic Cost of Education Indexes (GCEIs) available from the Education Finance Statistics Center (http://nces.ed.gov/edfin/).

Default Settings

Excel figure with manual formatting to meet NCES standards:

Figure 7. Public school district expenditures per student (in constant 2000-01 dollars), by selected locations: 1991-92, 1992-93, and 1994-95 to 2000-01

Constant 2000-01 dollars

Year

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public School District Universe Survey," 1991-92, 1992-93, and 1994-95 to 2000-01, "Public School District Financial Survey," 1991-92, 1992-93, and 1994-95 to 2000-01, and Geographic Cost of Education Indexes (GCEIs) available from the Education Finance Statistics Center (http://nces.ed.gov/edfin/).

Formatted Correctly

Manual formatting steps for figure 7 (complex line chart):

1. Enter the title either into a text box or into a merged cell across the top of the chart so that the title can be stretched across the figure precisely (otherwise the title's width on the page and the number of characters in the title may be arbitrarily constrained). Text boxes can be made by clicking on the text box icon in the Drawing toolbar and dragging your activated cursor to the desired size. If necessary, set the text box's background fill color to white and make sure it has no border (right-click on the text box so the **Format Text Box** dialog box comes up and, under the **Colors and Lines** tab, set the Color under Fill to white and under Line to "No Line"). For guidance on creating hanging indents in titles, see appendix H, guideline C.

2. Rescale the y axis to start at 5,000 (right-click on y axis, **Format Axis**, under **Scale** set **Minimum** to 5000).

3. Add a "$" sign to the highest value in the y axis by inserting a text box with "$10,000" over the "10,000" label on the y axis. See step 1 on how to make a text box with a white background and without a border to mask out the y axis label.

4. Insert a zero (in a text box) over the lowest value in the y axis (5,000) and (between zero and 5,500) insert a line break symbol or squiggly line to indicate a break in the axis scale.
   (To insert a line break or squiggly line, first insert a "break" in the axis by creating a small white text box without a border (see step 1) and pasting it over the axis. To create a line break, go to "Lines" under AutoShapes on the Drawing toolbar, and select a straight line. Drag your activated cursor to draw a diagonal line and copy it. Note that copied elements in a chart often appear at the top left-hand corner of the chart. Drag the copy to pair it with the original line. Align both lines with the white text box so they appear to cross at the top and bottom of the whited-out break. To create a squiggly line, go to "Lines" under AutoShapes on the Drawing toolbar, and select a curvy line. Drag your activated cursor to draw a squiggly line and align it with the whited-out break.)

5. Turn off the background color (right-click inside the graph, **Format Plot Area**, under **Patterns** set **Background** to none).

6. Set all the fonts to the same size except the title (which should be slightly larger) (right-click along the edge of the figure, **Format Chart Area**, under **Font** set **Size** accordingly; then right-click on title text box, **Format Text Box**, under **Font** set **Size** slightly larger than that used in the rest of the chart).

7. Resize the figure so it is proportionately sized (right-click inside the graph, click and drag any of the corner boxes to resize the chart area).

8. Correct the improper spacing on the x axis by inserting a column in the source data field where the missing year of data should be. (*If you download the electronic version of this appendix, you can see the sample source data field above, starting in cell M15. The link to download this appendix is on page G-3 of the introduction.*) Insert a white text box (with the Line color set to "No Line") over the tick mark for the year without data.

9. Fill in the gaps in the lines (i.e., in the plotted data series) by setting chart to interpolate data. (Click on the chart so boxes appear in each corner and midway on each side, under **Tools** on the menu bar select **Options,** under **Chart** select to plot empty cells as interpolated).

10. Adjust the color, style, and width of the datalines so they are easy to distinguish (right-click on any point in each data series, **Format Data Series**, under **Patterns** adjust accordingly). For help with color choices, refer to the Color and Line Guide in this appendix.

Appendix H. Guidance for Producing Tables in Excel That Meet NCES Standards

This appendix has been prepared to assist anyone preparing tables for IES reports in Microsoft Excel. The point of this guide is not to recapitulate everything in the *NCES Statistical Standards* about preparing tables, but to show how to create tables in Excel that meet the standards.

This guide is divided into five sections that mirror the major parts of all tables: title, boxheads, table stubs, table body, and bottom of the table or notes. Within each of these sections, tabular rules and guidelines are presented. (The order of presentation only loosely follows the organization of the NCES tabular guide.) Each rule and guideline is identified by a letter or letter and number for easy reference (and to avoid any confusion with the numbering system used in the NCES standards).

Throughout this guide, examples are provided to allow users to see how particular requirements of the NCES standards can be done in Excel. Some of these examples have text boxes and arrows that label parts or point out particular features that are correct or incorrect. All common errors are labeled as such, and the labels describing these errors are in italics.

Ideally, users will download this guide as an Excel file so that they can click on the various examples to see how different cells have been formatted or created, and so they can copy formatting or formulas. To download this appendix, click on this link [http://nces.ed.gov/statprog/styleguide/excel/appendixH.xls].

Note re nonprint media (e.g., web-only materials): In preparing and displaying tables, nonprint media should follow the recommendations of this style guide as far as is practicable. For additional guidance regarding web standards, contact the IES center. Ensure that nonprint media comply with Section 508 accessibility requirements for people with disabilities. (Section 508 of the Rehabilitation Act of 1973 was reauthorized by the Workforce Investment Act of August 1998; standards for accessible technology were issued in December 2000 by the U.S. Access Board, an independent federal agency.)

TITLES

A What to include in the title

All titles should be unique and should state (1) what data are presented in the table, (2) how the data are classified, (3) where the data apply, and (4) what the time frame for the data is.

A1   What   Define the basic content and general limits of the group or subgroup that are shown in the table. Generally titles begin with either "Number of…," "Percentage of…," or "Percentage distribution of…" If a table presents only counts (e.g., number of students enrolled), then "Number of" may be dropped (in this example the title can simply begin "Enrollment…").

A2   How classified   Include information detailing breakouts of data: e.g., by control of school, by age and sex of students, etc. NOTE: This information should appear in a particular order—first describing the column headers from left to right, then top to bottom; then describing the stub (from top to bottom, if there are sub-stubs). See sample title for table 2 below (in C).

A3   Where   Make sure users are aware if the data apply to a particular country, the nation as a whole, or some geographic or political subdivision: e.g., "OECD nations," "Japan and the United States," "Central cities," etc.

A4   When   Include information making the time frame explicit: e.g., "2000," "Fall 2002," "Academic year 1998-99," "Various years, 1950-2000."

B Spacing in titles

B1   Before the actual title, insert the table identifier (i.e., a table number, letter, or letter and number) and a period. Then start the title after a customary space (generally 2/16" to 3/16").

> Table 1. Fall enrollment in educational institutions, by level of institution: 2001

B2   Insert a blank row like this under the title with a border line under the blank row. (The border line can be thick or thin.)

C How to deal with long titles

If a title will not fit on one line, make sure that the first word of every other line is aligned with the first word of the title on the first line. The easiest way to do this is to hit Alt + Enter at the end of each line and insert the table identifier again at the start of the next line, setting the font color of the table identifier to white so it appears as if a hanging indent has been inserted into the title. (Click on the title below to see one way this can be done.)

Table 2.   Associate degrees conferred by degree-granting historically Black colleges
           and universities, by race/ethnicity, major field of study, and sex of
           student: Selected years, 1970-71 through 2001-02

Major field of study and sex of student	Total	White	Black	Hispan-ic	Asian or Pacific Island-er	Ameri-can Indian	Race unknown	Associate's degrees from HBCUs as a percent of total associate's degrees	
								Total	Black

Note how the order of the information in the title telling users "how classified" corresponds to the sample boxhead here. See A2 above for the rule on the order.

D   How to deal with multipage table titles

D1   For each page after the first page, repeat the table identifier and the full table title, with "—Continued" added. For example,

Table 3.   Revenues for public elementary and secondary schools, by source of funding
           and state: 1970-71 through 2001-02—Continued

Before "Continued," use an "em" dash. See W2 below for how to insert this special character.

D2   Note that there are different rules for dealing with double-page-spread tables. Refer to appendix C of the *NCES Statistical Standards,* p. 169.

E   Formatting rules for titles

E1   Start with the topic (i.e., the What, see A1) of the table, followed by a comma and then the "by" list (i.e., the How classified information, see A2).

E2   End the title with a colon followed by the Where information, if any, and the data year(s). (For details on year spans, refer to appendix C of the *NCES Statistical Standards,* p. 172.)

E3   Capitalize only the first word, proper nouns, and the word following the colon.

E4   Avoid footnoting a title; use a general note (i.e., NOTE) instead.

BOXHEADS

Boxheads consist of multiple headers: a stub header or stubhead, column heads, and spanner heads that classify, describe, or qualify the columns to which they refer. See sample boxhead for table 4 below.

Table 4.   Full- and part-time student enrollment in public degree-granting institutions, by sex and state: Fall 2000

F **General formatting for all headers**

F1 All header types should be in normal font (not bold). Use the same font in all tables.

F2 Capitalize only the first letter of the first word in each column head and the first letter of proper nouns.

G **Formatting differences among headers**

G1 Stubhead should be left flush and should describe, define, or amplify the table stubs or stub captions.

G2 Spanners (headers that span more than one column) should be centered horizontally.

G3 Column heads should be right flush and should read horizontally. If you need to hyphenate a word and have word wrap turned on, insert your hyphen and hit Alt + Enter to insert a hard return. If you do not have word wrap turned on, you can put the text into two cells.

G4 The stubhead and all column heads should rest on the same line (the bottom line of the boxhead).

G5 If there is a "Total" column, it should appear to the left of the columns it sums.

G6 If there is a column with derived numbers (e.g., averages, ratios, percentages), it should appear to the right of the columns with the base data.

G7 Take care with race/ethnicity column heads; refer to standard 1-5 of the *NCES Statistical Standards* on what labels to use (pp. 28-32).

H   Column numbers

H1   Column numbers may be used only if you have a large number of columns. If used, column numbers should be flush left under the stubhead and right flush for all other columns. They should not be in bold.

H2   Column numbers can be inserted as numbers without parentheses (as in the sample boxhead for table 4 above) or with parentheses and without a line above them (as in the sample boxhead for table 5 below).

I   Placing lines around and in a boxhead

I1   Horizontal lines should be above and below the entire boxhead to set it off from the title and the table body. The thickness of these lines may vary from report to report, but should be consistent within a single report. These lines are inserted using the border line options under **Cell Format**.

I2   Horizontal lines need to be put under the entirety of each spanner to indicate which column heads the spanner refers to.

I2a   A space between adjacent spanners (such as in the sample boxhead for table 4 above) can be created by inserting an extra column between the two spanners. This column provides space for a cell with the border lines turned off to separate the two horizontal spanner lines.

I3   A vertical line should not separate the stubhead and the first column head unless vertical lines are used throughout the boxhead to separate spanners and column heads.

I4   Either vertical lines or spaces may be used between spanners and column heads. Whichever style you choose, use it consistently throughout your document. The sample boxhead for table 5 below provides an example of vertical lines between all headers. Note that care must be taken to make sure that the lines do not touch the text or impair the legibility of any of the headers.

I5   Always check how boxheads appear using print preview and after printing out the table. Boxheads do not always print as they appear on the screen.

Make sure that all lines are complete and inserted consistently throughout a boxhead.
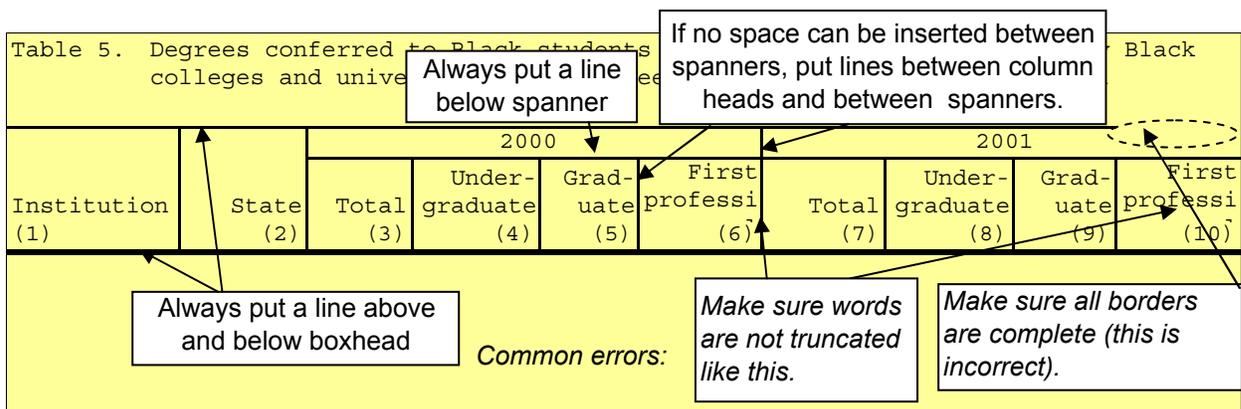
TABLE STUBS

Table stubs (or row labels) appear in the first column of a table and describe the data appearing in that particular row. A table may have several different types of stubs: a "Total," indicating a grand total; a rubric for a major group, indicating a subtotal for this group; and a rubric for a subgroup and/or items (or characteristics), indicating subtotals for this subgroup or items.

J Placement

J1 All stubs should be formatted flush left. (Text must be flush left in order for indent to work.)

J2 Place grand totals at the top of the column stub. Organize all the items in a stub in a logical sequence. Some typical sequences are alphabetical, geographical, chronological, numerical, etc. Sometimes the arrangement of items may fall into two or more such sequences (e.g., major geographic area by size and alphabetic within major geographic areas).

J2a Years: Convention requires year entries showing trends to be chronological, running sequentially from earliest to latest.

K Indentation

K1 Each type of stub is indented a different number of spaces depending on its level of subordination or on the number of other different types of stubs appearing in the table, such as in the example below. The point of having different spacing for different types of stubs is to allow readers to easily distinguish among the different logical groupings presented in a table. The example below identifies the names NCES uses for the different types of stubs to indicate their level of subordination. To the right of the example are the spatial relationships that NCES uses to distinguish among the different logical groupings presented in a table. Note that the size of indentations varies with the font and the font size used. In your tables, approximate the spacial relationships provided in the example below. As a general rule of thumb, a 2 space indent has customarily been about 1/8". The rules for how many spaces to indent are explained below in the discussion of each type of stub.

	Teacher characteristic	Indented spaces from margin	
		Stub	Overrun
Stubhead			
Total	**Total**	3 or 5	6 or 8
Major group	Elementary school teachers	0	3
Subgroup 1	Teaching in public schools	2	5
Subgroup 2	Sex	4	7
Item (or characteristic)	Male	6	9
Item (or characteristic)	Female	6	9

K2 For the total: If the stub includes another level or subordinated group, indent the total about three spaces. Indent about five spaces if there are two or more levels of subordination (as in the above example).

K2a If the first line of a table is Total, that stub should be indented. If there is not room to set it off with a blank row underneath it, the whole row should be in bold (as in the example below).

K   Indentation—Continued

Stub header	A	B	C	D	E	F	G	H
1	2	3	4	5	6	7	8	9
Total	†	**9,524**	**8,745**	**857**	**10**	**655**	**635**	**20**
Item 1	AL	233	242	34	0	342	234	2
Item 2	CA	29	48	27	1	45	89	5
Item 3	CT	84	98	78	0	93	236	4

K3   For a major group: Always start the stub at the left margin (i.e., do not indent the first line).

K4   For subgroups: Indent two additional spaces for each subsequent level of subordination (e.g., a total of four spaces for the third-level group and six spaces for the fourth level).

K5   For overrun lines: Indent any overrun lines three more spaces than the line being continued. [An "overrun line" refers to any line of text for a stub caption that is too long to fit on one line and needs to "run over" onto a second line.] For examples of overrun lines, see both pages in the sample stub below.

K6   For continuation lines: When a category with subcategory listings breaks over to another page, all superior categories should be repeated, with the word "—Continued." Subcategory listings should be indented the same on all pages. For example:

First page

```
Foreign languages ...............
  French .......................
  Spanish ......................
  Other foreign languages ........
Social sciences including psycho-
  logy and history ..............
  U.S. history .................
  World history ................
  Other history:
    Mesopotamian, Egyptian,
      and Greek history...........
```

Next page

```
Social sciences including psycho-
  logy and history—Continued ....
  Other history—Continued
    Oriental history ............
    Local history ...............
  Sociology ....................
  Political science ............
    Governance .................
    Political economy...........
  Psychology ...................
```

← Dotted lines indicate desired spacing.

L   Vertical spacing

L1   Normal vertical spacing (i.e., normal spacing between rows) in the stub leaves a blank line between the total and the first group caption (see example on next page), between group captions, and between a subordinate series and a following superior group caption (e.g., between the last item of a minor group series and the major group caption just below).

L2 When available vertical space is tight, reduce the height of blank lines or remove all blank lines between stub captions and then bold total and bold all major group (subtotal) captions if there are subgroups under them.

L3 It is customary to leave a blank row between every 5 items when a stub has more than 10 items under a single category (e.g., states, institutions). See example below.

```
                              Total direct
                                   general
                              expenditures
      State                   (in millions)

      (1)                               (2)
      _____
        United States  .......   $1,398,533

                                              ◄──── Blank row to set off total
        Alabama ...............       20,119          from the first group of captions.

        Alaska ...............        7,131

        Arizona ..............       20,302

        Arkansas .............       10,662

        California ...........      180,875
                                              ◄──── Blank row to break long list of items
                                                    into groups of five.
        Colorado .............       20,068

        Connecticut ..........       19,688

        Delaware .............        4,483

        District of Columbia ...      4,630

        Florida ..............       71,631
```

M Leaders

M1 Leaders are rows of periods connecting the last word of a stub caption with the first data column when there is a wide space between the two. Leaders are optional.

M2 Make sure that leaders begin after one space after the end of the row label and go all the way to the end of the cell as in the example above. Unlike in Word, leaders must be entered by hand in Excel.

N Repeated stubs in multipage tables

N1 For tables that run more than one page, copy and insert the stub on the next page. Do *not* use the "columns to repeat at left" option under **Page Setup** and **Sheet** in Excel, as this will not give you the correct title since you need to insert "—Continued" (see D1).

N2 For a table with a double-page spread, the table stub should be repeated on the right side of the right-hand page. Line numbers may be substituted for the right-hand stub if space is tight.

O Line numbers

Insert line numbers for reference for tables with a large number of entries in the stub or to avoid repeating an entire stub in the right-hand side of a double-page spread. (For more information, see appendix C of the *NCES Statistical Standards,* pp. 180-181.)

TABLE BODY

P   Columns and rows

P1   Vertical border lines may be inserted to divide data columns. They are optional. However, if they are used, space the entered data so they do not touch the vertical border lines (as in the example below). There also should be no line along the left-hand side or the right-hand side of the table.

P2   Use the indent button to indent stubs that should be indented (do not use the space bar as it will not always be consistent).

Agriculture	341	35	281	1	1	0	20	3
Men	147	20	113	1	—	0	11	2
Women	194	15	168	—	1	0	9	1

Q   Cells

Q1   Insert data or a symbol flush right in every cell.

Q1a   For numerical entries, if the flush right icon does not make the contents of the cell flush right correctly, then select cells, under Format on the menu bar, select Cells, then the Number tab, and select "Number" from the Category menu on the left, and choose either "-1234.10" or "(1234.10)" as appropriate from the Negative numbers menu on the right.

*   If you can't get this to work, use the format paint brush to copy formatting from a table with correctly formatted cells.*

Q2   No cells should be left blank in a table.

When no data apply in a category, insert into the cell: †← Be sure to make flush right
When no data are available, insert into the cell: —← Be sure to make flush right
    Don't insert the dash in Courier New, or you get: —

See section W for details on how to insert the special symbols.

R   Footnote callouts

R1   When you need to insert a footnote callout in Excel, it should be superscripted (highlight the number and go to **Format Cells**, under **Font** select superscript). The cleanest and most legible footnotes print in Verdana. If your rows are close, use font size 8 to avoid having them clipped at the top.

R2   If the footnote is for a label, just insert the footnote callout at the end of the label, as in the following example:

Undesignated fields[1] ....

R3   If the footnote is for a number in a cell, insert the footnote callout in a separate column (as is done below), so that the number (not the footnote callout) remains decimally aligned with the other numbers in the column.

R4   If a numbered footnote callout stands alone in a cell, put it in parentheses: e.g.,

194.5
(4)

R5   The order for numbering footnote callouts is left to right within a line, then down, as in the example below.

R5a   Note that spanners come above all column heads, so they must be numbered first (see the example below).

Teacher characteristic[2]	All teachers[3]	Elementary teachers[1]		
		All	Public	Private[4]
Total	**100.0**	**76.7**	**79.0**	**21.0**
Sex[5]				
Male	53.7 [6]	44.9	48.2	32.4
Female	46.4	55.1	(7)	67.6

Common errors:

S   **Decimals and zeros**

S1   All figures in a table that are reported in the same unit of measurement should present data carried out to the same decimal place. (Use **Format Cells** under **Number** to set the decimal place.)

S2   In order to place a zero in a cell, the measure must actually be zero based on universe data. It is expressed as a single zero without a decimal point, if all other numbers in the column are rounded to whole numbers. If the other numbers in the column are carried out to some decimal place, carry out the zero the same number of decimal places (e.g., 0.0 or 0.00).

S3   If the column consists entirely of whole numbers, do not use decimal points.

S4   Figures of value less than 1 have a zero to the left of the decimal point (e.g., 0.7) unless the number cannot be greater than 1 (e.g., levels of statistical significance, proportions, correlations). To enter figures with a value less than 1 without a zero, enter the figure as text (i.e., type a ' before the numeral or format the cell so the Number Category is "Text."

T   **Rounding**

T1   In text and summary tables, round percentages to no more than one decimal place, round four- and five-digit numbers to hundreds, and round six-digit numbers and over to thousands. (For details on the rules for reference and methodology tables, refer to standard 5-3-5 of the *NCES Statistical Standards,* p. 100.)

T2   The best way to round numbers in an Excel table is to enter the unrounded data outside the print area and to enter the formula '=ROUND ([cell with unrounded data], -[the number of digits from the ones place you want the data rounded to])' in the table cell. Thus to round to the thousands place, enter -3. See the example below.

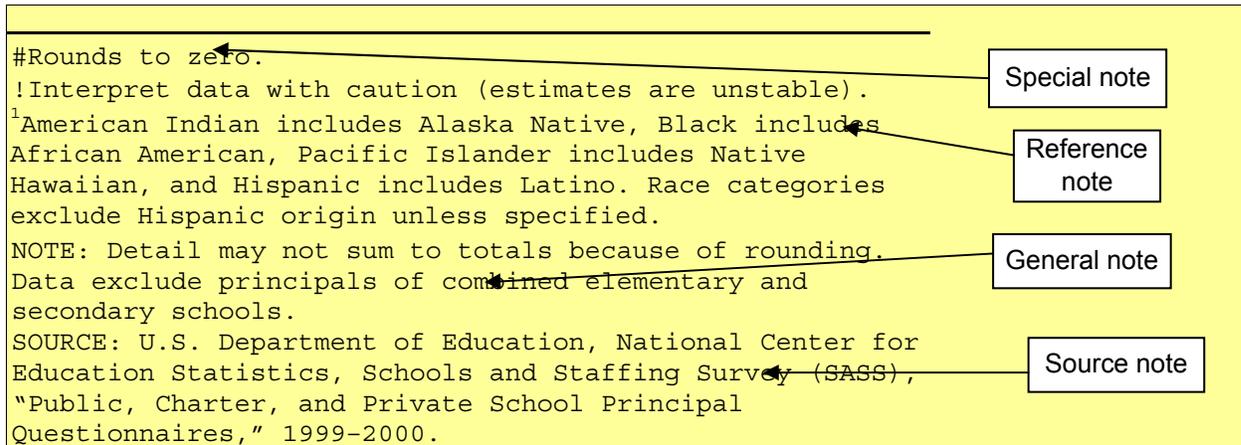| Table excerpt		Outside the print area	
2,000	45,000	2328	45389
348,000	354,000	347865	354354

Formula in cell reads =ROUND(H77,-3)

U   **Symbols**

U1   When all the figures in a column pertain to money, the first figure in the column should be preceded by a dollar sign ($). None of the other figures in the column should have a dollar sign.

U2   A percent sign (%) should not follow figures in the field. Instead, write out the word "percent" wherever it is needed in a spanner, stub, column head, etc. Use the word "percentage(s)" in a title.

BOTTOM OF THE TABLE

V   **Organization**

V1   The sections of notes at the bottom of the table go in the following order: special (symbol) notes, reference (numbered) notes, general note, and source note.

```
#Rounds to zero.                                        ┌──────────────┐
!Interpret data with caution (estimates are unstable).  │ Special note │
¹American Indian includes Alaska Native, Black includes  └──────────────┘
African American, Pacific Islander includes Native      ┌──────────────┐
Hawaiian, and Hispanic includes Latino. Race categories │  Reference   │
exclude Hispanic origin unless specified.               │    note      │
NOTE: Detail may not sum to totals because of rounding. └──────────────┘
Data exclude principals of combined elementary and      ┌──────────────┐
secondary schools.                                      │ General note │
SOURCE: U.S. Department of Education, National Center for└──────────────┘
Education Statistics, Schools and Staffing Survey (SASS),┌──────────────┐
"Public, Charter, and Private School Principal          │ Source note  │
Questionnaires," 1999–2000.                             └──────────────┘
```

V2   There should be no extra (blank) row under the last line of data and the first line of notes, or between any special notes, footnotes, the NOTE, and/or the SOURCE.

V3   Each note and source at the bottom of a table should be inserted in its own row but in only one row, with cells under the width of the table merged and word wrap turned on. (Avoid entering the note and source into cells in multiple rows.) Make sure the entirety of the text appears when the table prints and that there are no unnecessary blank lines (always check for this in Print Preview before printing).

W   **Special notes**

W1   When special notes are used they should be listed in the following order:
```
— Not available.  [Note: Use an em dash for this special symbol.]
† Not applicable.
# Rounds to zero.
! Interpret data with caution.
‡ Reporting standards not met.
* p < .05
```

W2   The symbols for these special characters can either be copied and pasted from Microsoft Word or entered using the following key strokes:

Hold down the Alt key and type on the numerical keypad 0150 to get – (en dash).

Hold down the Alt key and type on the numerical keypad 0151 to get — (em dash).

Hold down the Alt key and type on the numerical keypad 0134 to get †.

Hold down the Alt key and type on the numerical keypad 0135 to get ‡.

Note: If you are using a laptop without a separate numerical keypad, you will need to turn on the Numbers Lock and enter the numerals using the keyboard's alternative numerical keypad (not the numbers across the top of the keyboard). Typically on the alternative numerical keypad 1, 2, and 3 correspond with the keys J, K, and L, respectively.

X   Reference (numbered) notes

Footnote numbers should be superscripted and match their corresponding footnote callout in the body of the table in terms of size and font. Insert a space between the number and the first character of the footnote. For example:

> [1] Hinds Community College, Utica Campus reported 152 degrees but not by field of study.

Y   General note

Y1   Not all tables need a general note. For those tables that do, capitalize NOTE and put a colon after it to indicate a general note.

Y2   If there are any race/ethnicity labels used in the table, insert the following text in the NOTE *(if the text below is not appropriate for a particular table [e.g., the category Other is used instead of American Indian and Pacific Islanders], adjust this text accordingly; for further guidance on phrasing this note, see standard 1-5-4 of the* NCES Statistical Standards, p. 30*):*

> NOTE: American Indian includes Alaska Native, Black includes African American, Pacific Islander includes Native Hawaiian, and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified.

Y3   If there are percentage distributions or data that should sum to totals, insert the following text in the NOTE:

> NOTE: Detail may not sum to totals because of rounding.

Z   Source

Every table needs a source note, which begins with SOURCE in capitals and a colon. The source note should cite the report, relevant survey(s) and subsurvey(s) if any, data reference year, file version number, department name, and agency name. Here are some common examples:

> SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2002.

> SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD) surveys. (This table was prepared April 2002.)

> SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1992, 1994, 1998, 2000, 2002, and 2003 Reading Assessments.

> SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Public School Questionnaire," "Charter School Questionnaire," and "Private School Questionnaire," 1999-2000.

AA   **Multipage table notes**

The end of each page preceding the last page of a multipage table should carry a note advising the reader to "See notes at end of table." The notes for a multipage table appear on the last page only.

Asian or Pacific Islander	8	1	0
American Indian	1	0	0
Nonresident alien	47	72	27
See notes at end of table.			

Example of the bottom of the first page of a multipage table.