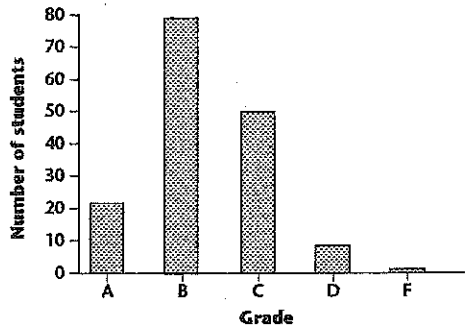
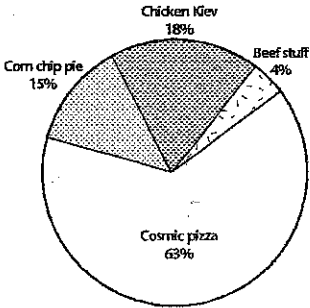
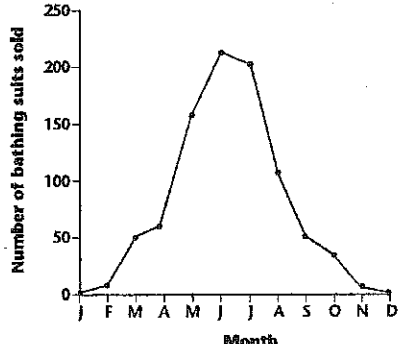


Introduction to Graphs, continued

Choosing the Right Graph

Data tables provide an organized way of viewing information, and **graphs** are *pictures* of the information in a data table. Sometimes it is faster and easier to interpret data by looking at a graph. It is important to choose the type of graph that best illustrates your data. The following table summarizes the best uses for three of the most common graphs:

Type of graph	Best use for this graph																										
<p>Bar graph Grade Distribution of Students Enrolled in Science Class</p>  <table border="1"> <caption>Grade Distribution of Students Enrolled in Science Class</caption> <thead> <tr> <th>Grade</th> <th>Number of students</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>22</td> </tr> <tr> <td>B</td> <td>78</td> </tr> <tr> <td>C</td> <td>50</td> </tr> <tr> <td>D</td> <td>10</td> </tr> <tr> <td>F</td> <td>2</td> </tr> </tbody> </table>	Grade	Number of students	A	22	B	78	C	50	D	10	F	2	<p>A bar graph is best used for comparing data quickly and easily, such as the grade distribution of students enrolled in science class or the growth of plants in different pots.</p>														
Grade	Number of students																										
A	22																										
B	78																										
C	50																										
D	10																										
F	2																										
<p>Pie graph Percentage of Students Picking Various Lunch Entrees</p>  <table border="1"> <caption>Percentage of Students Picking Various Lunch Entrees</caption> <thead> <tr> <th>Entree</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Cornic pizza</td> <td>63%</td> </tr> <tr> <td>Chicken Kiev</td> <td>18%</td> </tr> <tr> <td>Corn chip pie</td> <td>15%</td> </tr> <tr> <td>Beef stuff</td> <td>4%</td> </tr> </tbody> </table>	Entree	Percentage	Cornic pizza	63%	Chicken Kiev	18%	Corn chip pie	15%	Beef stuff	4%	<p>A pie graph is best used for showing percentages, such as the percentage of the student body who picked certain entrees for lunch or the percentage of your allowance that will go toward purchasing various things.</p>																
Entree	Percentage																										
Cornic pizza	63%																										
Chicken Kiev	18%																										
Corn chip pie	15%																										
Beef stuff	4%																										
<p>Line graph Number of Bathing Suits Sold Each Month</p>  <table border="1"> <caption>Number of Bathing Suits Sold Each Month</caption> <thead> <tr> <th>Month</th> <th>Number of bathing suits sold</th> </tr> </thead> <tbody> <tr> <td>J</td> <td>10</td> </tr> <tr> <td>F</td> <td>50</td> </tr> <tr> <td>M</td> <td>60</td> </tr> <tr> <td>A</td> <td>160</td> </tr> <tr> <td>M</td> <td>215</td> </tr> <tr> <td>J</td> <td>205</td> </tr> <tr> <td>J</td> <td>110</td> </tr> <tr> <td>A</td> <td>50</td> </tr> <tr> <td>S</td> <td>30</td> </tr> <tr> <td>O</td> <td>10</td> </tr> <tr> <td>N</td> <td>5</td> </tr> <tr> <td>D</td> <td>2</td> </tr> </tbody> </table>	Month	Number of bathing suits sold	J	10	F	50	M	60	A	160	M	215	J	205	J	110	A	50	S	30	O	10	N	5	D	2	<p>A line graph is best used for looking at changes over time, such as the number of bathing suits sold each month during the year or the change in your sister's height throughout the year.</p>
Month	Number of bathing suits sold																										
J	10																										
F	50																										
M	60																										
A	160																										
M	215																										
J	205																										
J	110																										
A	50																										
S	30																										
O	10																										
N	5																										
D	2																										

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COMMUNICATING SKILLS

Introduction to Graphs, continued

Choose the Graph

What graph type do you think best presents each set of data? Explain.

1. The percentage of rabbits preferring various foods

Food	Percentage preferring that food
Skippy's Rabbit Chow	32
Homemade rabbit food	13
Happy Rabbit	10
Joe's Special Food for Rabbits	44
Premium Rabbit Nutrition Diet	1

2. Albert's grades for each month of the school year

Month	Grade in science class
September	98
October	94
November	88
December	78
January	82

Month	Grade in science class
February	83
March	86
April	81
May	97

3. The pH of solutions in experimental test tubes

Test-tube number	pH
1	6.7
2	7.1
3	7.4
4	7.1
5	7.0

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WORKSHEET

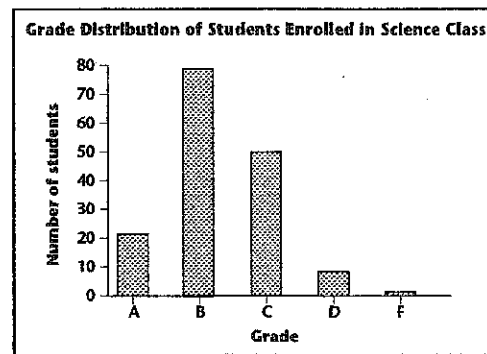
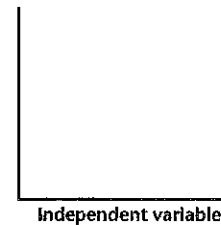
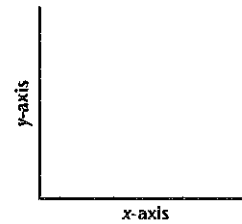
26 COMMUNICATING SKILLS

Grasping Graphing

When you bake cookies, you must use the right ingredients to make the cookies turn out right. Graphs are the same way. They require the correct ingredients, or components, to make them readable and understandable.

Bar and Line Graphs

- First, set up your graphs with an *x*-axis and a *y*-axis. The *x*-axis is horizontal, and the *y*-axis is vertical as shown in the example at right. The axes represent different variables in an experiment.
- The *x*-axis represents the independent variable. The **independent variable** is the variable whose values are chosen by the experimenter. For example, the range of grades is the independent variable.
- The *y*-axis represents the dependent variable. The values for the **dependent variable** are determined by the independent variable. If you are grouping students by grades, the number of students in each group depends on the grade they get.
- Next choose a **scale** for each of the axes. Select evenly spaced intervals that include all of your data, as shown on the grade-distribution bar graph. When you label the axes, be sure to write the appropriate units where they apply.
- Next, plot your data on the graph. Make sure you double-check your numbers to ensure accuracy.
- Finally, give your graph a title. A **title** tells the reader what he or she is studying. A good title should explain the relationship between the variables. Now your graph is complete!



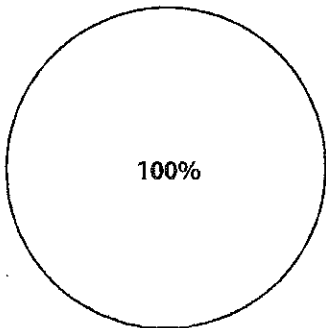
Grasping Graphing, continued

Pie Graphs

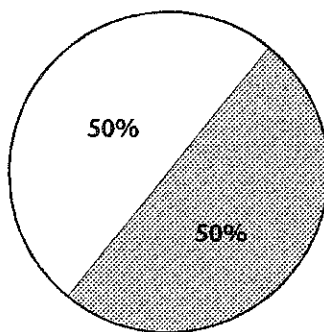
When you convert data to show percentages, you can use a pie graph. Pie graphs are shaped like a circle. The size of each "pie slice" is determined by the percentage it will represent. A full pie is equal to 100 percent, half a pie is equal to 50 percent, and so on.

Like bar and line graphs, pie graphs have independent and dependent variables. The independent variable is whatever the pie or slice of pie represents. The dependent variable is the size of the pie slice, the percentage of the whole it represents.

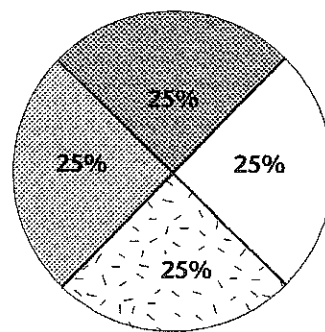
Percentage of Students Picking Various Lunch Entrees



Percentage of Students Picking Various Lunch Entrees



Percentage of Students Picking Various Lunch Entrees



Your Turn

For each table (a) identify the independent and dependent variable, (b) determine the type of graph to use, and (c) provide a title.

1.

Amount of daily sunlight exposure (min)	Average height of plants (cm)
50	14.8
60	14.9
95	15.2
75	15.1
110	16.5
135	17.3
100	16.1
30	11.0

- a. _____
- b. _____
- c. _____

Grasping Graphing, continued

2.

Student	Number of jelly beans consumed
Anthony	15
Keiko	28
Leigh Ann	58
Adam	22
Katie	12
Juan	17

- a. _____
- b. _____
- c. _____

Give It a Try

Graph the data below in your ScienceLog. Don't forget to do the following:

- Select the appropriate graph type.
- Identify the independent and the dependent variable.
- Choose an appropriate scale.
- Label the axes.
- Give your graph a title.

Amount of fertilizer added to soil (g)	Average height of plants (cm)
5	13.2
10	14.1
15	14.9
20	15.4
25	16.5
30	17.3
35	16.1
40	11.0

Quarter-inch Graph Paper

