



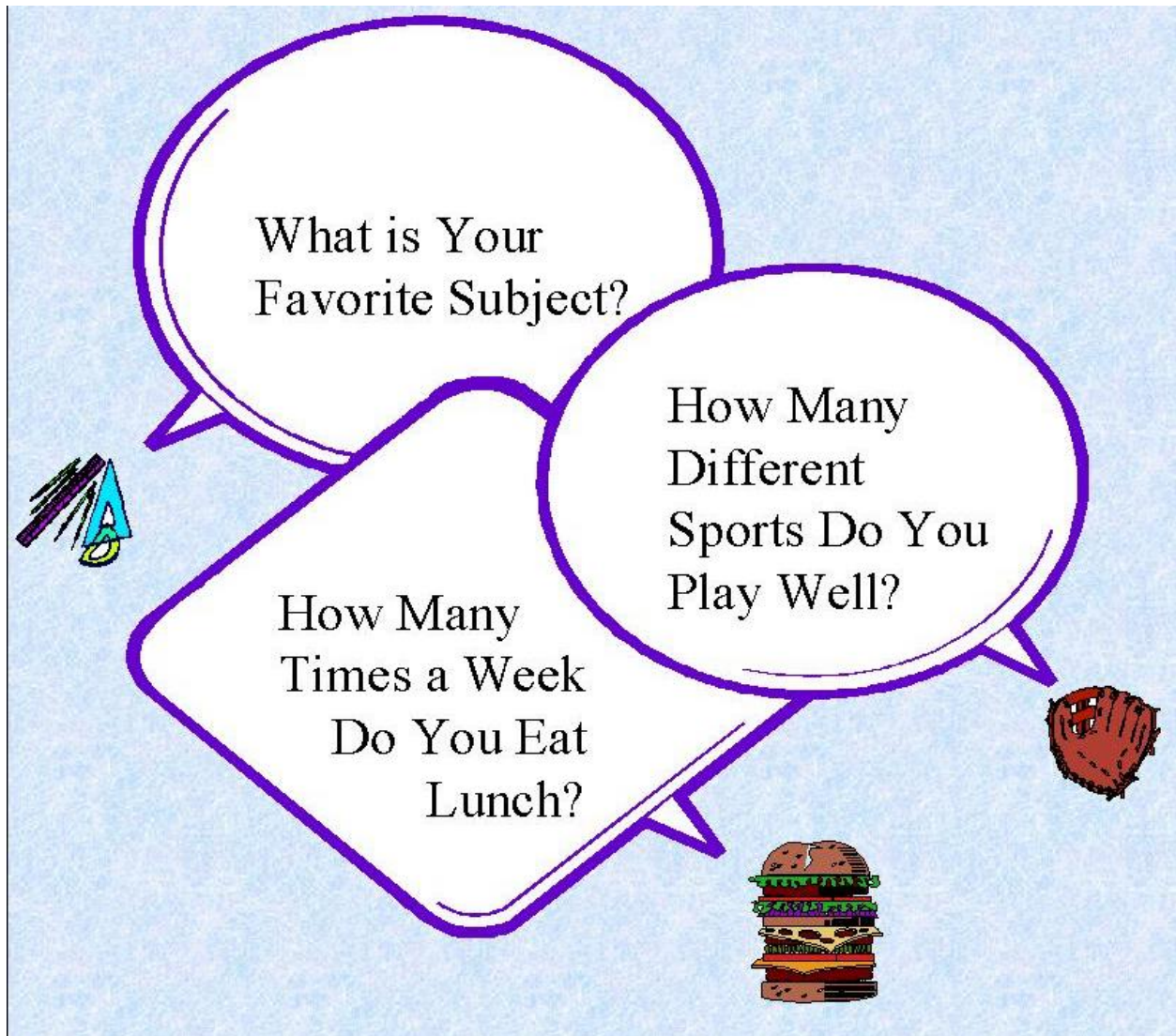
“I Don’t Get It!”

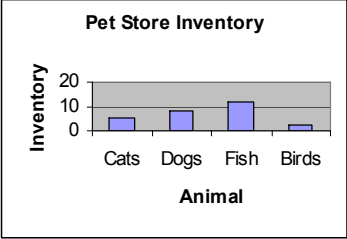
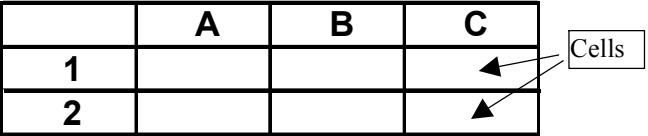
**The Middle School Math
Dictionary and
Instruction Manual**

By Nancy L. Wilkinson

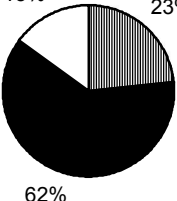


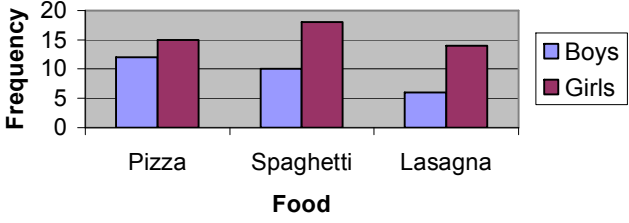
Statistics



Subject Area	Word	Definition												
Statistics	Average	<p><u>The same as the mean</u></p> <ol style="list-style-type: none"> 1) Add up the numbers 2) Count how many numbers you added together 3) Divide the sum of the numbers added together in step one by how many numbers you added together. <p style="text-align: center;">EXAMPLE: $6 + 5 + 5 + 7 + 8 + 4 = 35$ $35 \div 6 = 5.8333$ which rounds to 5.8.</p>												
Statistics	Bar Graph	<p><u>Compares amounts using bars</u></p> <div style="text-align: center;">  <table border="1" style="margin: 10px auto;"> <caption>Pet Store Inventory</caption> <thead> <tr> <th>Animal</th> <th>Inventory</th> </tr> </thead> <tbody> <tr> <td>Cats</td> <td>5</td> </tr> <tr> <td>Dogs</td> <td>8</td> </tr> <tr> <td>Fish</td> <td>12</td> </tr> <tr> <td>Birds</td> <td>2</td> </tr> </tbody> </table> </div> <ol style="list-style-type: none"> 1) Label the items that you are counting below the x-axis (bottom line). Be sure to place the two items that you are comparing next to each other. 2) Label the frequency numbers from 0 to the highest frequency on the y-axis (line on left side.) 3) Draw a frequency bar for each item that you are counting. 4) Be sure to put the main title of what you graph is describing at the top of the graph. 5) Be sure to label your x-axis. 6) Be sure to label your y-axis. 	Animal	Inventory	Cats	5	Dogs	8	Fish	12	Birds	2		
Animal	Inventory													
Cats	5													
Dogs	8													
Fish	12													
Birds	2													
Statistics	Biased Question	<p><u>A question that is unfair and persuades the responder to answer a certain way</u></p> <p>For example "Do you like this yummy cake or that day old piece of bread?"</p>												
Statistics	Cell	<p><u>The box where a row and column meet</u></p> <div style="text-align: center;">  <table border="1" style="margin: 10px auto;"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <th>1</th> <td></td> <td></td> <td></td> </tr> <tr> <th>2</th> <td></td> <td></td> <td></td> </tr> </tbody> </table> </div>		A	B	C	1				2			
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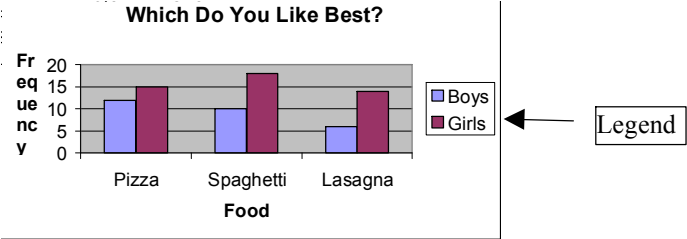
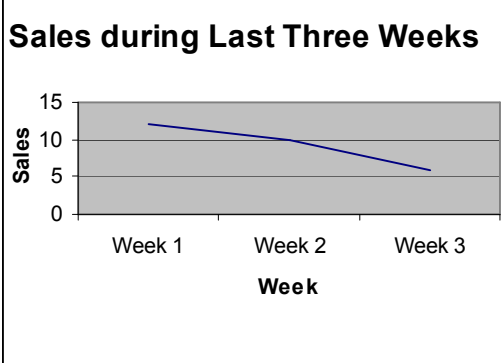
“I Don’t Get It!”

Subject Area	Word	Definition
Statistics	Circle Graphs	<p><u>A graph that is in the shape of a circle</u></p> <p>How to construct circle graphs</p> <p>1) Create a proportion as shown below: $\frac{\text{part}}{\text{whole}} = \frac{n}{360}$ Example: Out of 100 people surveyed, 23 liked pizza, 15 liked ice cream, 62 liked spaghetti.</p> <p>Proportion for pizza: $\frac{23}{100} = \frac{n}{360}$</p> <p>2) Cross multiply</p> $\frac{23}{100} = \frac{n}{360} = 23 \cdot 360 = 100n$ $8280 = 100n$ <p>3) Solve the equation $8280 = 100n$ $8280 \div 100 = n$ $82.8 = n$</p> <p>4) The central angle on the circle graph should be n number of degrees for each category. (In the example pizza would be 82.8 degrees).</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;">  <p>15% 23% 62%</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Food Likes</p> <ul style="list-style-type: none"> pizza spaghetti Ice Cream </div> </div>

Subject Area	Word	Definition												
Statistics	Double Bar Graphs	<p data-bbox="574 245 1032 277">A bar graph that compares two sets of data</p> <div data-bbox="704 310 1328 611" style="text-align: center;"> <p>Which Do You Like Best?</p>  <table border="1" data-bbox="704 390 1328 611"> <caption>Data for 'Which Do You Like Best?'</caption> <thead> <tr> <th>Food</th> <th>Boys</th> <th>Girls</th> </tr> </thead> <tbody> <tr> <td>Pizza</td> <td>12</td> <td>15</td> </tr> <tr> <td>Spaghetti</td> <td>10</td> <td>18</td> </tr> <tr> <td>Lasagna</td> <td>6</td> <td>14</td> </tr> </tbody> </table> </div> <ol data-bbox="672 659 1442 1209" style="list-style-type: none"> 1) Label the items that you are counting below the x-axis (bottom line). Be sure to place the two items that you are comparing next to each other. 2) Label the frequency numbers from 0 to the highest frequency on the y-axis (line on left side.) In the graph above, the y-axis is labeled as 0, 5, 10, 15, 20. 3) Draw a frequency bar for each item that you are counting. 4) Be sure to make a key for each item that you are comparing. 5) Be sure to put the main title of what you graph is all about at the top of the graph. 6) Be sure to label your x-axis. 7) Be sure to label your y-axis. 	Food	Boys	Girls	Pizza	12	15	Spaghetti	10	18	Lasagna	6	14
Food	Boys	Girls												
Pizza	12	15												
Spaghetti	10	18												
Lasagna	6	14												

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Subject Area	Word	Definition												
Statistics	Double Line Graph	<p><u>A line graph with two lines that compare two sets of data</u></p> <div data-bbox="753 302 1263 632" data-label="Figure"> <table border="1"> <caption>Number of Magazines Sold</caption> <thead> <tr> <th>Week</th> <th>Pink Line</th> <th>Blue Line</th> </tr> </thead> <tbody> <tr> <td>Week 1</td> <td>15</td> <td>12</td> </tr> <tr> <td>Week 2</td> <td>18</td> <td>10</td> </tr> <tr> <td>Week 3</td> <td>14</td> <td>6</td> </tr> </tbody> </table> </div> <ol style="list-style-type: none"> 1) label the items that you are counting below the x-axis (bottom line). Be sure to place the two items that you are comparing next to each other. 2) Label the frequency numbers from 0 to the highest frequency on the y-axis (line on left side.) 3) Place a mark on the graph for each item you are counting. 4) Connect the dots. 5) Be sure to make a key for each item that you are comparing. 6) Be sure to put the main title of what you graph is all about at the top of the graph. 7) Be sure to label your x-axis. 8) Be sure to label your y-axis. 	Week	Pink Line	Blue Line	Week 1	15	12	Week 2	18	10	Week 3	14	6
Week	Pink Line	Blue Line												
Week 1	15	12												
Week 2	18	10												
Week 3	14	6												
Statistics	Frequency Table	<p><u>Lists each piece of data</u></p> <ol style="list-style-type: none"> 1) Write down all of the possible responses to the survey. Dog Cat Pig 2) Place a tally mark () next to each possible answer for each survey. Dog Cat Pig 3) When you get to five tally marks, place a crossed line over four marks. This stands for five. 												
Statistics	Histogram	<p><u>A special type of bar graph used to show frequency - There are no spaces between the bars</u></p> <ol style="list-style-type: none"> 1) To create a histogram, create a bar graph, but do not place spaces between the bars 												

Subject Area	Word	Definition												
Statistics	Legend	<p>The same as a key - The box found in graphs that identifies the lines or bars</p>  <table border="1" data-bbox="662 304 1344 541"> <caption>Which Do You Like Best?</caption> <thead> <tr> <th>Food</th> <th>Boys</th> <th>Girls</th> </tr> </thead> <tbody> <tr> <td>Pizza</td> <td>12</td> <td>15</td> </tr> <tr> <td>Spaghetti</td> <td>10</td> <td>18</td> </tr> <tr> <td>Lasagna</td> <td>8</td> <td>14</td> </tr> </tbody> </table>	Food	Boys	Girls	Pizza	12	15	Spaghetti	10	18	Lasagna	8	14
Food	Boys	Girls												
Pizza	12	15												
Spaghetti	10	18												
Lasagna	8	14												
Statistics	Line Graph	<p>A graph that shows changes over time</p>  <table border="1" data-bbox="690 636 1187 997"> <caption>Sales during Last Three Weeks</caption> <thead> <tr> <th>Week</th> <th>Sales</th> </tr> </thead> <tbody> <tr> <td>Week 1</td> <td>12</td> </tr> <tr> <td>Week 2</td> <td>10</td> </tr> <tr> <td>Week 3</td> <td>6</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 1) Write the items that you are counting below the x-axis (bottom line). Be sure to place the two items that you are comparing next to each other. 2) Write the frequency numbers from 0 to the highest frequency on the y-axis (line on left side.) 3) Place a mark on the graph for each item you are counting. 4) Connect the dots. 5) Be sure to put the main title of what you graph is all about at the top of the graph. 6) Be sure to label your x-axis. 7) Be sure to label your y-axis. 	Week	Sales	Week 1	12	Week 2	10	Week 3	6				
Week	Sales													
Week 1	12													
Week 2	10													
Week 3	6													
Statistics	Mean	<p>The same as the average</p> <ol style="list-style-type: none"> 1) Add up the numbers 2) Count how many numbers you added together 3) Divide the sum of the numbers added together in step 1, by how many numbers you added together. EXAMPLE: $6 + 5 + 5 + 7 + 8 + 4 = 35$ $35 \div 6 = 5.8333$ which rounds to 5.8. 												

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Subject Area	Word	Definition										
Statistics	Median	<p><u>The middle number</u></p> <p>1) Put the numbers in order = 4, 5, 5, 6, 7, 8</p> <p>2) Find the middle number(s) = 4, 5, 5, 6, 7, 8</p> <p>3) If there are two middle numbers, add the two numbers and divide by 2 = $5 + 6 = 11$ $11 \div 2 = 5.5$</p>										
Statistics	Mode	<p><u>The most common number</u></p> <p>1) Write down the number that is written the most.</p> <p>2) If there is more than one mode, write them down.</p> <p>3) If there is no mode write “none”.</p>										
Statistics	Negative Correlation	<p><u>In a Scatter Plot, if the values of one set increase, the values of the other set decrease</u></p> <div data-bbox="769 989 1247 1241" style="text-align: center;"> <p>Grade on Test Versus Study Time</p> <table border="1"> <caption>Data for Grade on Test Versus Study Time (Negative Correlation)</caption> <thead> <tr> <th>Study Time</th> <th>Grade on Test</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>14</td> </tr> <tr> <td>3</td> <td>12</td> </tr> <tr> <td>4</td> <td>10</td> </tr> <tr> <td>5</td> <td>8</td> </tr> </tbody> </table> </div>	Study Time	Grade on Test	2	14	3	12	4	10	5	8
Study Time	Grade on Test											
2	14											
3	12											
4	10											
5	8											
Statistics	No Correlation	<p><u>In a Scatter Plot, if the values of one set of data have no relation to the values of the other set of data</u></p> <div data-bbox="781 1379 1235 1619" style="text-align: center;"> <p>Grade on Test Versus Study Time</p> <table border="1"> <caption>Data for Grade on Test Versus Study Time (No Correlation)</caption> <thead> <tr> <th>Study Time</th> <th>Grade on Test</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2</td> </tr> <tr> <td>3</td> <td>8</td> </tr> <tr> <td>4</td> <td>4</td> </tr> <tr> <td>5</td> <td>9</td> </tr> </tbody> </table> </div>	Study Time	Grade on Test	2	2	3	8	4	4	5	9
Study Time	Grade on Test											
2	2											
3	8											
4	4											
5	9											

Subject Area	Word	Definition
Statistics	Outlier	<p><u>A set of numbers that are much higher or lower than the rest of the data - These numbers are usually thrown out whenever statistical analysis is done</u></p> <p>1) Look at the data. If there is one that is way above or below the other sets of data, it is the outlier.</p> <p>Example: 1, 2, 4, 5, 6, 7, 8, 9, 10, 22 22 would be the outlier.</p>
Statistics	Positive Correlation	<p><u>In a Scatter Plot, if the values of one set increase the values of the other set increase as well</u></p> <div data-bbox="808 617 1203 827" style="text-align: center;"> <p>The scatter plot shows a clear upward trend, indicating that as study time increases, the grade on the test also increases.</p> </div>
Statistics	Random Sample	<p><u>A group selected where each object in the population has an equal chance of being included</u></p> <p>For example if you wanted to survey customers at a grocery store or mall for information on shopping habits.</p>
Statistics	Range	<p><u>The difference between the greatest and least values in a set</u></p> <p>1) Write down the highest number. 2) Write down the lowest number. 3) Subtract the highest number from the lowest number.</p>
Statistics	Representative Sample	<p><u>A group selected from the population that has the same characteristics as the population</u></p> <p>For example surveying a group of teenagers to find out something about all teenagers.</p>

“I Don’t Get It!”

Subject Area	Word	Definition																								
Statistics	Scatter Plot	<p data-bbox="571 245 1101 277"><u>A way of organizing two comparisons on a graph</u></p> <div data-bbox="786 306 1300 590" style="text-align: center;"> </div> <ol data-bbox="672 625 1403 898" style="list-style-type: none"> 1) Write the frequency of one item on the x-axis. 2) Write the frequency of the other item you are comparing on the y-axis. 3) Mark the coordinate of the two items you are comparing with a circle. 4) Scatter plots either show a positive, negative or no correlation. 																								
Statistics	Spreadsheet	<p data-bbox="571 934 781 961"><u>Rows and columns</u></p> <table border="1" data-bbox="722 993 1265 1192" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">4</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">5</td> <td></td> <td></td> <td></td> </tr> </table>		A	B	C	1				2				3				4				5			
	A	B	C																							
1																										
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Statistics	Stem and Leaf Plot	<p data-bbox="571 1228 1032 1255"><u>A way of organizing data by groups of ten</u></p> <div data-bbox="764 1283 984 1440" style="margin-left: auto; margin-right: auto;"> <table style="border-collapse: collapse;"> <tr> <td style="padding-right: 10px;">4</td> <td style="border-left: 1px solid black; padding-left: 10px;">1, 3, 4, 6, 7</td> </tr> <tr> <td>5</td> <td style="border-left: 1px solid black; padding-left: 10px;">2, 5, 6, 9</td> </tr> <tr> <td>6</td> <td style="border-left: 1px solid black; padding-left: 10px;">2, 6, 8</td> </tr> <tr> <td>7</td> <td style="border-left: 1px solid black; padding-left: 10px;">5, 8</td> </tr> <tr> <td>8</td> <td style="border-left: 1px solid black; padding-left: 10px;">1, 2</td> </tr> </table> </div> <ol data-bbox="672 1476 1435 1749" style="list-style-type: none"> 1) Put the numbers in order 2) Group the numbers by tens (1-10), (11-20) etc. Circle each group. 3) Place the numbers that are not in the ones digit on the left of the stem line. 4) Place the numbers that are in the ones digit on the right of the stem line on the correct line. 	4	1, 3, 4, 6, 7	5	2, 5, 6, 9	6	2, 6, 8	7	5, 8	8	1, 2														
4	1, 3, 4, 6, 7																									
5	2, 5, 6, 9																									
6	2, 6, 8																									
7	5, 8																									
8	1, 2																									

Subject Area	Word	Definition
Statistics	Time Line	<p data-bbox="574 245 1437 279"><u>Lists events in time in chronological order along a line</u></p> <ol data-bbox="672 306 1437 642" style="list-style-type: none"><li data-bbox="672 306 1437 340">1) List all date and events<li data-bbox="672 367 1437 401">2) Put your events in order by date<li data-bbox="672 428 1437 462">3) Count the number of years your time line encompasses<li data-bbox="672 489 1437 522">4) (1900 - 1910 would be 11 years)<li data-bbox="672 550 1437 583">5) Place the years on your time line equally spaced<li data-bbox="672 611 1437 644">6) Write your events under the correct time.