Data Driven Instruction: A Step by Step Manual of How to Create Tables and Charts for Units of Instruction in Excel 2007

- Begin by collecting Diagnostic/Pre-test data AND Summative/Post-Test data on your unit of instruction.

- Sample data has been supplied below on an integrated ELA and science unit. The table was created in Microsoft Word. You must put this data into Excel.

TABLE 1:   Oil Spill Conclusion Diagnostic vs. Summative Data by Proficiency Level
(Total Number of Students: 20)

Assessment	Number of Developing Students	Percent Developing	Number of Proficient Students	Percent Proficient	Number of Distinguished Students	Percent Distinguished
Diagnostic Assessment	13	65 %	7	35%	0	0%
Summative Assessment	1	5%	10	50%	9	45%

Directions:

1. Open Excel on your computer.

2. Set up the table below within Excel.

|	A	B	C
1		Diagnostic	Summative
2	Developing		
3	Proficient		
4	Distinguished		

3. Fill in the NUMBER of STUDENT data from the above table in each proficiency level (i.e. Developing, Proficient, Distinguished) within the chart on Excel. The table should appear as follows:

	Diagnostic	Summative
Developing	13	1
Proficient	7	10
Distinguished	0	9

4. Highlight the entire table and click on the Insert ribbon on the top of your screen. Click on ▌▌ Column above the word Charts. Click on the first 2-D Chart option. The chart should appear as follows:
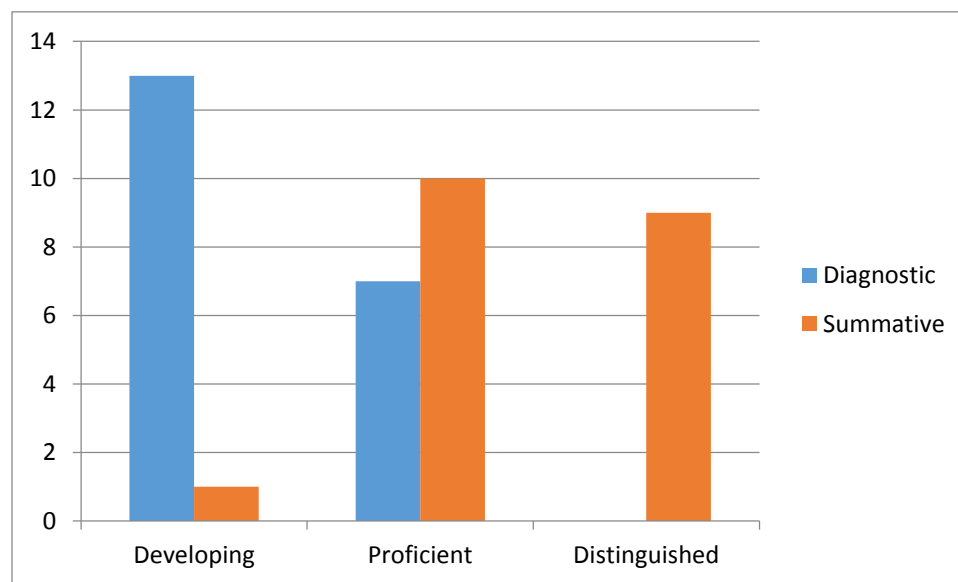
5. Keep the Chart highlighted by clicking on it. Click on Layout on the top ribbon. Click on Chart Title above Labels. Click on Above Chart in the dropdown menu. Insert the title *Oil Spill Diagnostic vs. Summative Data by Proficiency Level* by typing it in the space provided. The chart should appear as follows:

Oil Spill Diagnostic vs. Summative Assessment by Proficiency Level
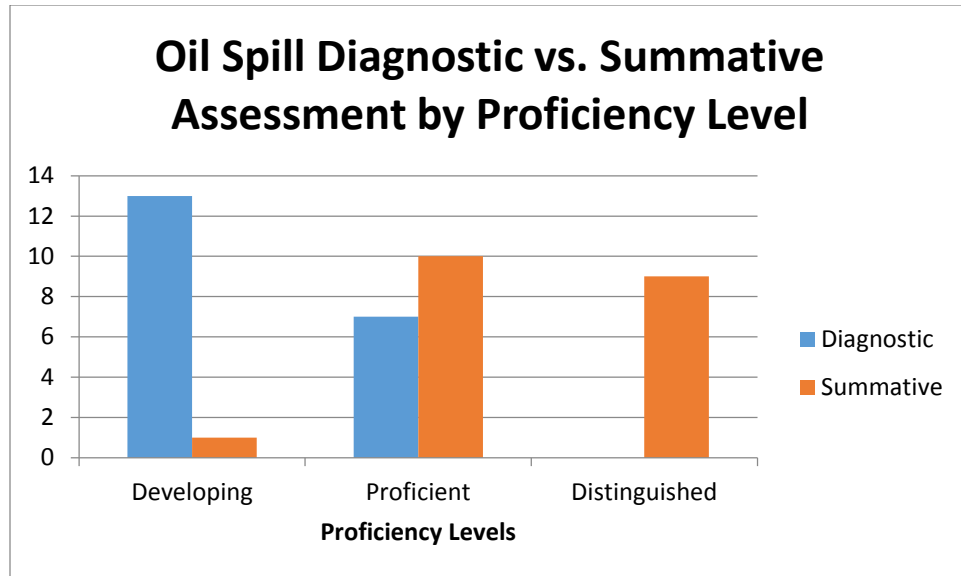
Diagnostic
Summative

Developing   Proficient   Distinguished
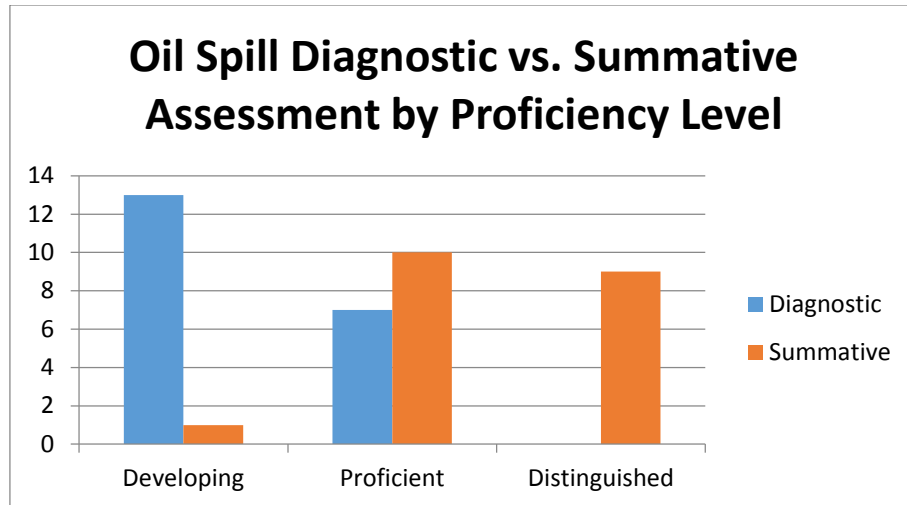
6. Add a label to your x-axis by clicking on Axis Titles above Labels on the top ribbon. Click on Primary Horizontal Axis in the dropdown box. Click on Title Below Axis in the side box. Your chart should appear as follows:

Oil Spill Diagnostic vs. Summative Assessment by Proficiency Level

Diagnostic
Summative

Developing   Proficient   Distinguished
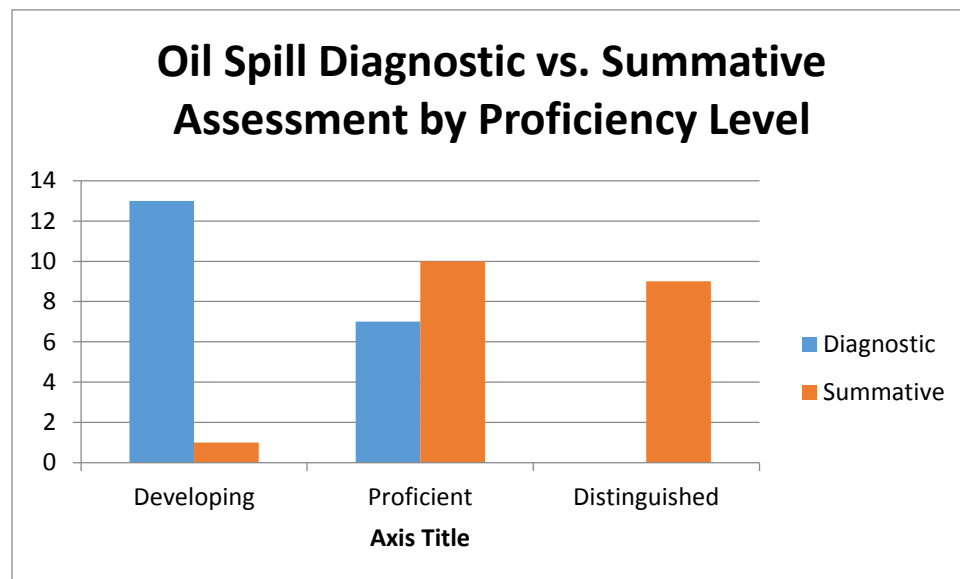
Axis Title

7. Click on Axis Label in the x-axis (horizontal axis) and type in *Proficiency Levels*. The chart should appear as follows:

Oil Spill Diagnostic vs. Summative Assessment by Proficiency Level

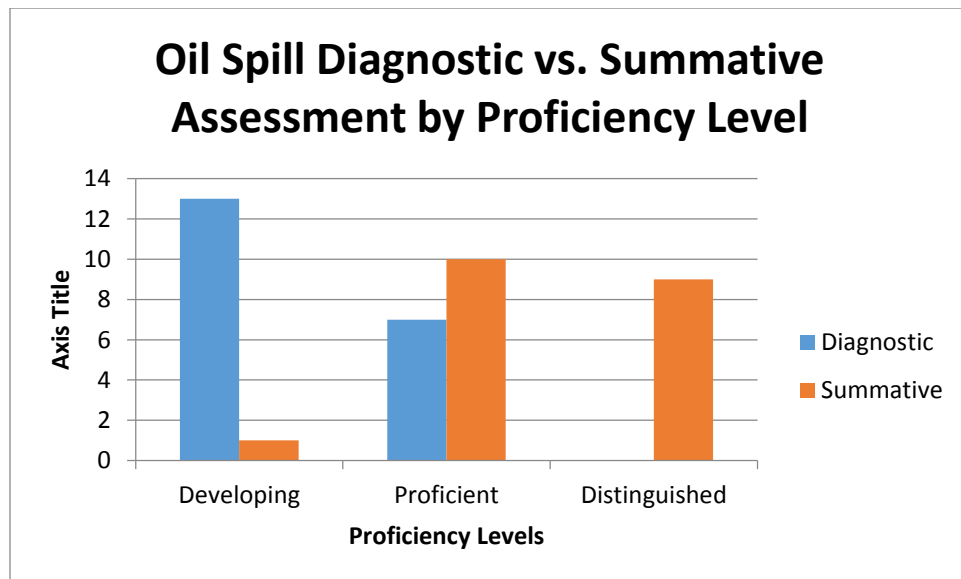8. Add a label to your y-axis (vertical axis) by clicking on Axis Titles above Labels on the top ribbon. Click on Primary Vertical Axis Title in the dropdown box. Click on Rotated Title in the side box. The chart should appear as follows:
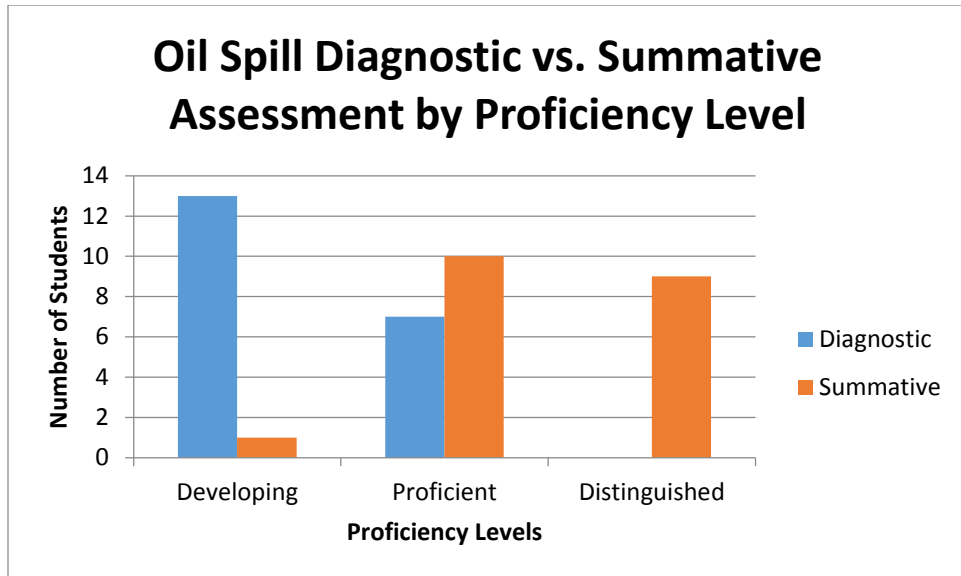

Oil Spill Diagnostic vs. Summative Assessment by Proficiency Level

9. Click on Axis Label in the y-axis (vertical axis) and type in *Number of Students*. Your chart should appear as follows:

Oil Spill Diagnostic vs. Summative Assessment by Proficiency Level

[Bar chart showing Number of Students by Proficiency Levels. Y-axis: Number of Students (0 to 14). X-axis: Developing, Proficient, Distinguished. Legend: Diagnostic (blue), Summative (orange). Developing: Diagnostic 13, Summative 1. Proficient: Diagnostic 7, Summative 10. Distinguished: Summative 9.]

10.   To change the Diagnostic bars to a pattern/texture for ease of differentiating between the Diagnostic and Summative Assessments when photocopied, click on the first diagnostic bar within the chart. Right click on the first diagnostic bar and click on Format Data Series in the dropdown box. Click on Fill under Series Options. Click on either Pattern or Texture and select a pattern or texture that will be easily visible in photocopied format.
The chart should be similar to the following:

Oil Spill Diagnostic vs. Summative Assessment by Proficiency Level

[Bar chart showing Number of Students by Proficiency Levels. Y-axis: Number of Students (0 to 15). X-axis: Developing, Proficient, Distinguished. Legend: Diagnostic (textured), Summative (orange). Developing: Diagnostic 13, Summative 1. Proficient: Diagnostic 7, Summative 10. Distinguished: Summative 9.]
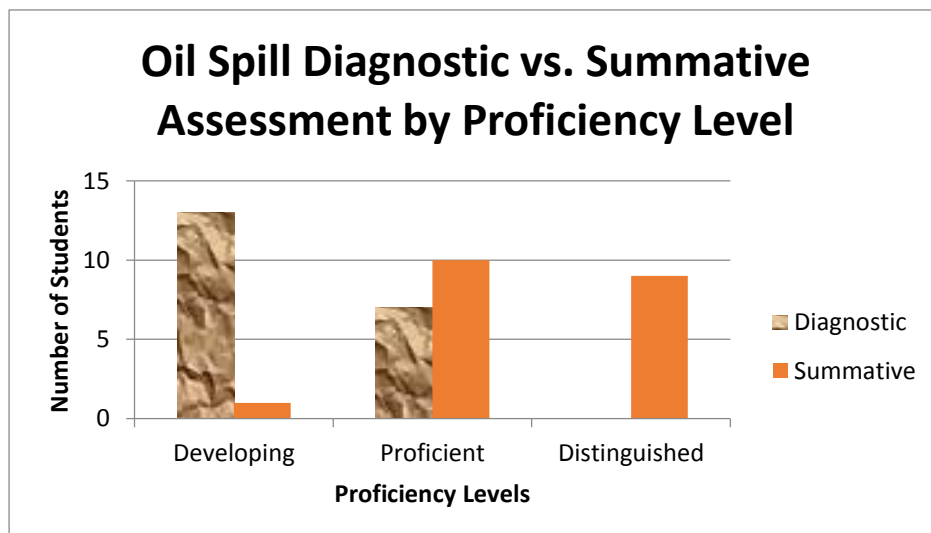
11.   Follow the same directions if you wish to change the Summative Assessment to a pattern. This is not necessary however, since one can now discern between the Diagnostic and Summative Assessment if the chart was photocopied.

12.   Rename Sheet 1 at the bottom of your Excel spreadsheet by right clicking on Sheet 1 and clicking Rename. Type in *Diagnostic vs. Summative Data*.

13.   Open Sheet 2 at the bottom of your Excel spreadsheet and rename it *Individual Student Data* by following the directions in 14 above.

14.   The next table shows Diagnostic vs. Summative data for every student in the class. This data is powerful because it shows how individual students performed on both assessments, thus showing individual growth. The table was created in Excel and includes Conditional Formatting, which is optional (See Optional: Conditional Formatting toward the end of the manual for directions). It was inserted into Microsoft Word. You must recreate this data in Excel, without Conditional Formatting by following the steps below.

Student	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75

Key: Developing

Proficient

Distinguished

15.   Set up the table below within Excel using columns A-C and rows 1-21.

A	B	C
Student Number	Diagnostic	Summative
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

16.   To center the contents on the table, highlight the entire table and right click. Click on Format Cells toward the bottom of the menu. Click on Alignment in the top ribbon of the box. Under Text Alignment, change Horizontal from General to Center. Click OK at the bottom. The chart should appear as follows:

| Student Number	Diagnostic	Summative
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

17.   Type in the Diagnostic and Summative data into the table from step 16 above. The chart should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75

18. Highlight ONLY columns B and C on the table and click on Insert on the top ribbon. Click on ⬛ Column above the word Charts. Click on the first 2-D Chart option. The chart should appear as follows:
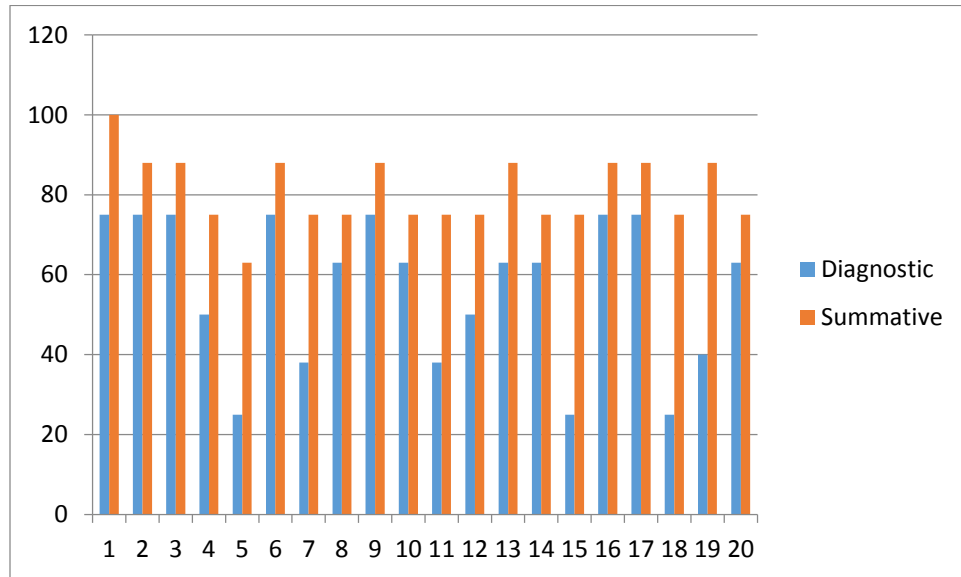
19. Follow the directions in steps 7-11 above to insert the title *Oil Spill Diagnostic vs. Summative Achievement per Student*; the x-axis title *Student* and the y-axis title *Percent*. The chart should appear as follows:
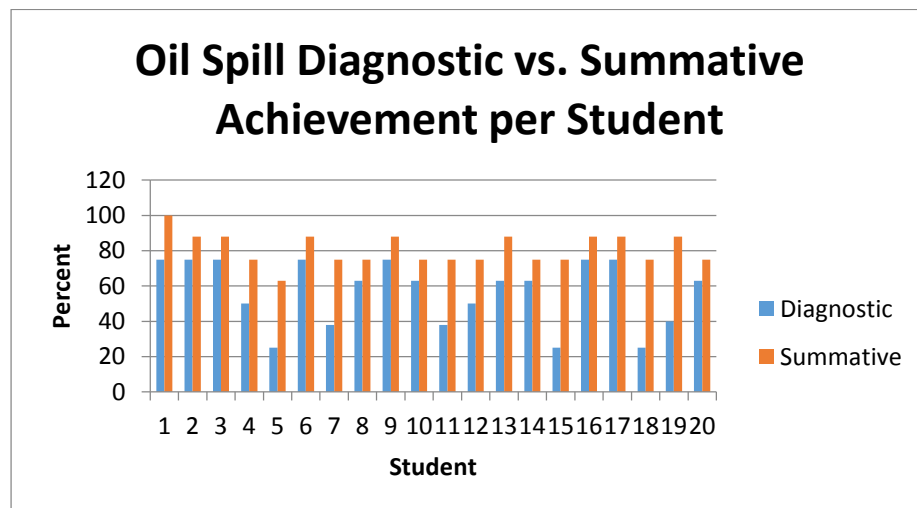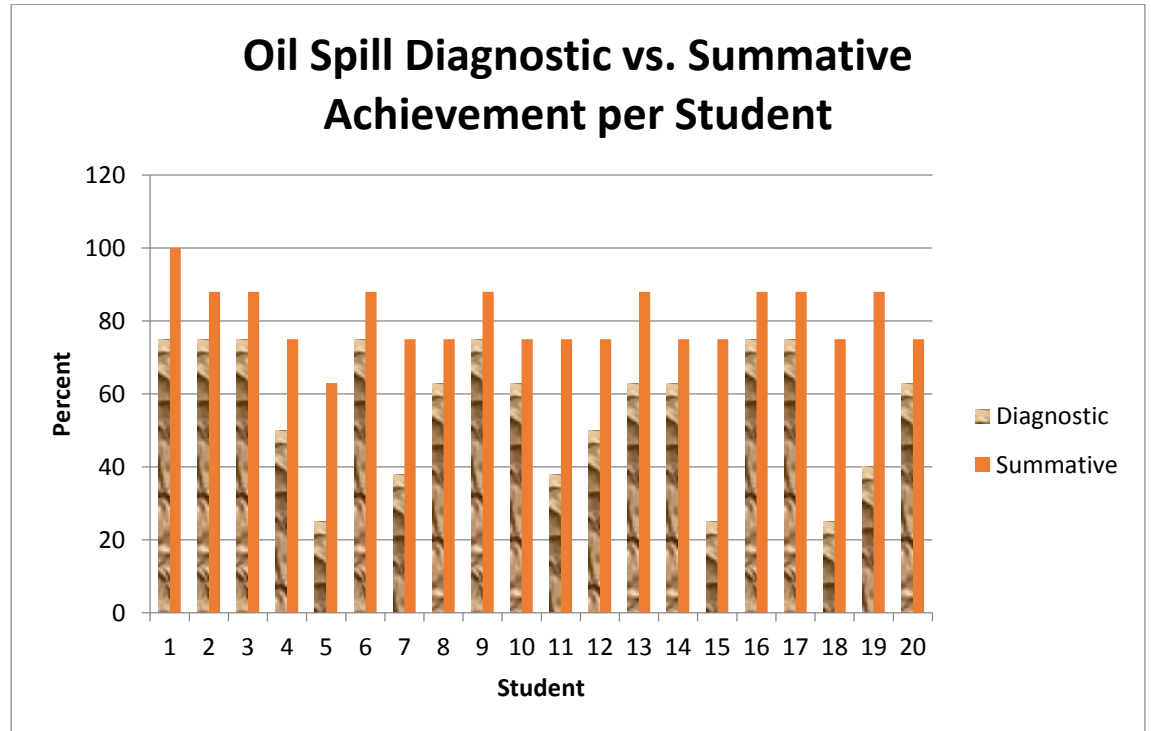
20.   Change the Diagnostic bars to a pattern by following the directions in step 12 above. The chart should be similar to the following:

Oil Spill Diagnostic vs. Summative Achievement per Student

21.   Format the y-axis numbers to change the maximum to 100% by double clicking anywhere on the y-axis number series. A rectangle should appear around the y-axis numbers. Right click and select Format Axis in the dropdown window. In Axis Options, change Auto to Fixed and type 100.00 into the Maximum box; then press Enter on your keyboard. This will change the y-axis bounds to 0-100%. The chart should appear as follows:

Oil Spill Diagnostic vs. Summative Achievement per Student
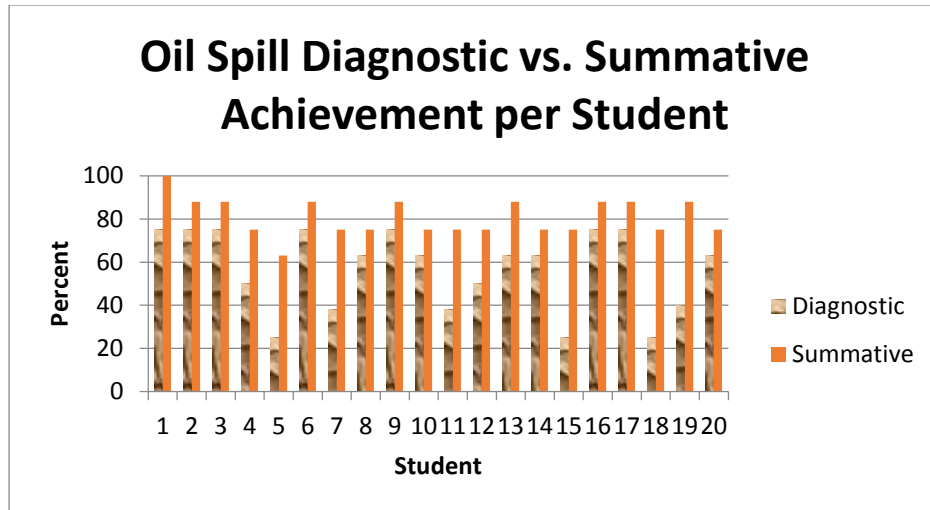
22.   To find the Mean (averge), Median and Mode of your diagnostic and summative assessments, type in Mean, Median and Mode in separate rows under student 20 on your Achievement per Student table. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean		
Median		
Mode		

23.   In the cell next to Mean, type in the formula =average(B2:B21) and press Enter on your keyboard. You can either type in B2:B21 (the diagnostic data, numbers only, for students 1-20) or highlight cells B2 through B21. If you highlight, you must add an end parentheses before pressing Enter on your keyboard. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	56.55	
Median		
Mode		

24.   Carry the formula over to the Summative assessment by placing your cursor in the lower right corner of B22. Click on the bottom right corner and wait until you get a solid black + sign (without arrows on the end). Click and drag the formula to the Summative assessment to get the Summative average. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	56.55	80.85
Median		
Mode		

25.   If dragging the formula is frustrating, merely retype the formula, highlighting the Summative Assessment data within the parentheses OR retype the formula as follows: =average(C2:C21) and then press Enter on your keyboard.

26.   Do the same for Median by using the formula =median(B2:B21) for the Diagnostic Assessment. Either drag the median formula over to the Summative or type in the formula again using the Summative data. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	56.55	80.85
Median	63	75
Mode		

27.   Follow the same directions for Mode by using the formula =mode(B2:B21). The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	56.55	80.85
Median	63	75
Mode	75	75

28.	To change the Mean to a whole number, highlight the 2 cells with the Diagnostic and Summative Means (cells B22 and C22) and right click.

29.	Click on Format Cells and Number under the Format Cells ribbon. Change the Decimal Places to 0 and press OK. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75

30.	Follow the directions in 20 to center the Mean, Median and Mode cell contents. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75

31.   For the Data Rationale, the Mean is the average of the individual student data set. If the mean increases from the diagnostic to the summative assessment, it was most likely due to effective formative instruction.

32.   The Median is the middle number in a number series that is lined from low to high. For example, in the number set 1, 4, 6. 9, 12, 6 is the Median since it is the middle number in the data set. The Median can sometimes be more valuable than the mean, because it can determine if outliers have affected your data set. For example, if most of your class grades range from 63-99 with the exception of 1 student scoring a 15 on a 100 point assignment, the Mean will be affected by the low outlier. This will skew your data as the Mean may be lower than expected (i.e. Mean = 72). The Median will not be affected as drastically (Median= 80). Hence, the Median should be the reported number for explaining the outcome of the assessment.

33.   The Mode is the number in a series that is most often present in the data set. The Mode can be important if the

most common number was in a lower proficiency level on the diagnostic assessment, and in a higher proficiency level on the summative assessment.

34. To calculate the Standard deviation for a data set, enter Standard Deviation below Mode on the last table placed in Excel. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75
Standard Deviation		

35. Enter the formula =stdev(B2:B21) under the Diagnostic's Mode of 75. Press Enter. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75
Standard Deviation	19	

36.   Either drag the formula over to the Summative Data column or type in the Standard Deviation formula again using the Summative data. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75
Standard Deviation	19	9

37.   For the Data Discussion, the Standard deviation indicates how many points away from the mean (= or -) most of your data lies. For example, in the above data set most students scores from 36 to 76 (57 +/- 19 points) on the Diagnostic and from 72 to 90 (81 +/- 9 points) on the Summative assessment. Hence, students scored from Developing to a Low Proficient level on the Diagnostic Assessment; whereas their scores were more closely clustered in the Proficient to Distinguished level on the Summative assessment.

38.　　To add a t-test, type in t-test below Standard Deviation on your Excel table. The table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75
Standard Deviation	19	9
t-test		

39.　　Type in =ttest(C2:C21,B2:B21, 1,1) under the Diagnosatic Standard Deviation of 19 and press enter. Your table should appear as follows:

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75
Standard Deviation	19	9
t-test	1.42E-07	

40.   For the Data Rationale, a t-test compares 2 data seta (Summative vs. Diagnostic or array 1 and 2) and asks you the number of tails needed. Paired t-tests determine if the treatment (Formative Instruction) between the Diagnostic and Summative Assessment was effective. Since we are using the same population and are looking for the results from 2 tests, we use 1,1 after the chosen arrays are selected in the Excel formula. The resulting p value is much lower than the standard alpha value of 0.05 (a statistical constant), hence the Foremative Instruction was effective because the results on the Summative Assessment are most likely not due to chance.

Optional
Conditional Formatting

To get a table to show Conditional formatting like the table below on Excel, follow these directions:

Student Number	Diagnostic	Summative
1	→ 75	⬆ 100
2	→ 75	⬆ 88
3	→ 75	⬆ 88
4	⬇ 50	→ 75
5	⬇ 25	⬇ 63
6	→ 75	⬆ 88
7	⬇ 38	→ 75
8	⬇ 63	→ 75
9	→ 75	⬆ 88
10	⬇ 63	→ 75
11	⬇ 38	→ 75
12	⬇ 50	→ 75
13	⬇ 63	⬆ 88
14	⬇ 63	→ 75
15	⬇ 25	→ 75
16	→ 75	⬆ 88
17	→ 75	⬆ 88
18	⬇ 25	→ 75
19	⬇ 40	⬆ 88
20	⬇ 63	→ 75
Mean	57	81
Median	63	75
Mode	75	75

1. Highlight only the Diagnostic and Summative data in colums B and C for students 1-20 (cells B2-B21 and C2-C21).

2. Click on Conditional Formatting on the top ribbon under HOME.

3. Click on Icon Sets and More Rules at the bottom.

4. Change the Icon Style to 3 colored arrows by scrolling up OR choose your desired style.

5. Change Type for the green arrow to Number. Do not forget this step, Percent is tricky to use.

6. Change the Value for the green arrrow to 85 OR your desired number. The Distinguished level for the Oil Spill learning segment fell between 85-100.

7. Change Type for the yellow arrow to Number.

8. Change the Value for the yellow arrow to 65 OR your desired number. The Proficient level for the Oil Spill learning segment fell between 65-84.

9. Press OK and you have Conditionaly Formatted your table. Now, simply by perusing your table, you can see how the students responded to formative instruction.

Inserting Grid Lines on Tables

1. When copying your tables into Microsoft Word, the gridlines are barely visible. The table appears as follows:

	Diagnostic	Summative
Developing	13	1
Proficient	7	10
Distinguished	0	9

2. To insert gridlines in a table on Excel, highlight the table and click on a barely visible square below Font in the ribbon under HOME.

3. Click on All Borders. The table should appear as follows:

	Diagnostic	Summative
Developing	13	1
Proficient	7	10
Distinguished	0	9

Placing an Conditionally FormattedExcel Table
into Microsoft Word

1. To ensure your Conditional Formatting, etc. in your tables transfers to from Excel to Microsoft Word, highlight your table and click on Copy and then Copy as Picture in the HOME ribbon, OR click on Paste and Paste as Picture in the dropdown menu. Click on Copy as picture in the side menu. A screen should appear with Appearance checked for As Shown on Screen and Format checked for Picture. Select OK. Paste the picture into Microisoft Word using the usual method.

Without Copy as Picture

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75

With Copy as Picture

Student Number	Diagnostic	Summative
1	75	100
2	75	88
3	75	88
4	50	75
5	25	63
6	75	88
7	38	75
8	63	75
9	75	88
10	63	75
11	38	75
12	50	75
13	63	88
14	63	75
15	25	75
16	75	88
17	75	88
18	25	75
19	40	88
20	63	75
Mean	57	81
Median	63	75
Mode	75	75

Item Analysis: Difficulty

1. Create an Item Analysis Chart like the following:

Pre-test							
Student	Item 1	*Item 1a*	*Item 1b*	Item 2	Item 3	Item 4	Test Mean
Key	**10**	**4**	**6**	**4**	**4**	**4**	
1	4	0	4	3	4	2	59%
2	9	4	5	3	4	2	75%
3	9	4	5	2	2	1	64%
4	8	4	4	1	4	2	68%
5	9	4	5	1	4	1	68%
6	9	4	5	3	3	3	82%
7	8	3	5	2	2	4	73%
8	7	3	4	3	2	2	64%
Mean/Question	8	3	5	2	3	2	
Difficulty							
Discrimination							

2. Each question/item can be evaluated for its difficulty level by adding the sum of each question using =sum(array 1)
   a. = tells the program a calculation is to be done
   b. **(array 1)** tells the range of values that will be used in the calculation; i.e. all values included in cells B2 through B9 for the sum
   c. To find difficultyof Item 1, use =(cell with the sum/cell with total points on the question) OR the =(total accrued points/total number of feasible points). For item 1, =(63/80). This gives an Difficulty of 0.79.
   d. Do the same for Items 1a, 1b, 3 and 4 using the correct total points.

			Pre-test				
Student	Item 1	*Item 1a*	*Item 1b*	Item 2	Item 3	Item 4	Test Mean
Key	**10**	**4**	**6**	**4**	**4**	**4**	
1	4	*0*	*4*	3	4	2	59%
2	9	*4*	*5*	3	4	2	75%
3	9	*4*	*5*	2	2	1	64%
4	8	*4*	*4*	1	4	2	68%
5	9	*4*	*5*	1	4	1	68%
6	9	*4*	*5*	3	3	3	82%
7	8	*3*	*5*	2	2	4	73%
8	7	*3*	*4*	3	2	2	64%
Mean/Question	8	*3*	*5*	2	3	2	
Difficulty	0.79	*0.81*	*0.77*	0.56	0.78	0.53	
Discrimination							

3. To interpret the difficulty, use the following:
    a. P-values <u>above 0.90 are very easy items</u> and should be carefully reviewed based on the instructor's purpose.
    b. P-values <u>below 0.20 are very difficult items</u> and should be reviewed for possible confusing language, removed from subsequent exams, and/or identified as an area for re-teaching.
4. Which Item was most difficult for the students? Which item was easiest?

Item Analysis: Discrimination

1. Using the same chart, find discrimination as follows:

			Pre-test				
Student	Item 1	*Item 1a*	*Item 1b*	Item 2	Item 3	Item 4	Test Mean
Key	**10**	**4**	**6**	**4**	**4**	**4**	
1	4	*0*	*4*	3	4	2	59%
2	9	*4*	*5*	3	4	2	75%
3	9	*4*	*5*	2	2	1	64%
4	8	*4*	*4*	1	4	2	68%
5	9	*4*	*5*	1	4	1	68%
6	9	*4*	*5*	3	3	3	82%
7	8	*3*	*5*	2	2	4	73%
8	7	*3*	*4*	3	2	2	64%
Mean/Question	8	*3*	*5*	2	3	2	
Difficulty	0.79	*0.81*	*0.77*	0.56	0.78	0.53	
Discrimination							

2. Discrimination is the relationship between how well students did on the item and their total exam score.
    a. The range is from −1.00 to 1.00.
    b. Acceptable range: 0.20 or higher
    c. Ideal value: The closer to 1.00 the better
    d. Use for test evaluation.
        i. The higher the value, the more discriminating the item. A highly discriminating item indicates that the students who had high exams scores got the item correct, whereas students who had low exam scores got the item incorrect.
        ii. Items with discrimination values *near or less than zero* should be removed from the exam. This indicates that students who did poorly overall on the exam did *better* on that item than students who did well overall. The item may be confusing for your better scoring students in some way.
3. Calculate the mean for each student using =average(array 1).
4. To find the item discrimination of Item 1, use =PEARSON(array 1, array 2)
    a. = tells the program a calculation is to be done
    b. PEARSON refers to the type of calculation, a Pearson coefficient or discrimination.
    c. (array 1) is the mean array on the test
    d. (array 2) is student scores on the particular test item
5. Do the same with items 1a, 1b, 2, 3 and 4 using their arrays for array 2.

|							
Pre-test							
Student	Item 1	*Item 1a*	*Item 1b*	Item 2	Item 3	Item 4	Test Mean
Key	**10**	*4*	*6*	**4**	**4**	**4**	
1	4	*0*	*4*	3	4	2	59%
2	9	*4*	*5*	3	4	2	75%
3	9	*4*	*5*	2	2	1	64%
4	8	*4*	*4*	1	4	2	68%
5	9	*4*	*5*	1	4	1	68%
6	9	*4*	*5*	3	3	3	82%
7	8	*3*	*5*	2	2	4	73%
8	7	*3*	*4*	3	2	2	64%
Mean/Question	8	*3*	*5*	2	3	2	
Difficulty	0.79	*0.81*	*0.77*	0.56	0.78	0.53	
Discrimination	0.65	*0.58*	*0.61*	0.12	0.03	0.52	

6. Which items did not discriminate between the students that performed well on the test vs. those whose success rate was lower? Which item did discriminate between the students that performed well on the test vs. those whose success rate was lower?

Relevant Demographics

1. Insert Student data by Gender, Ethnicity, etc. into an Excel spreadsheet as follows:

	Number
Boys	10
Girls	15

2. Highlight the chart and click on Insert on the top ribbon. Select Pie above Charts, and select the first 2-D chart. The chart should appear as follows:
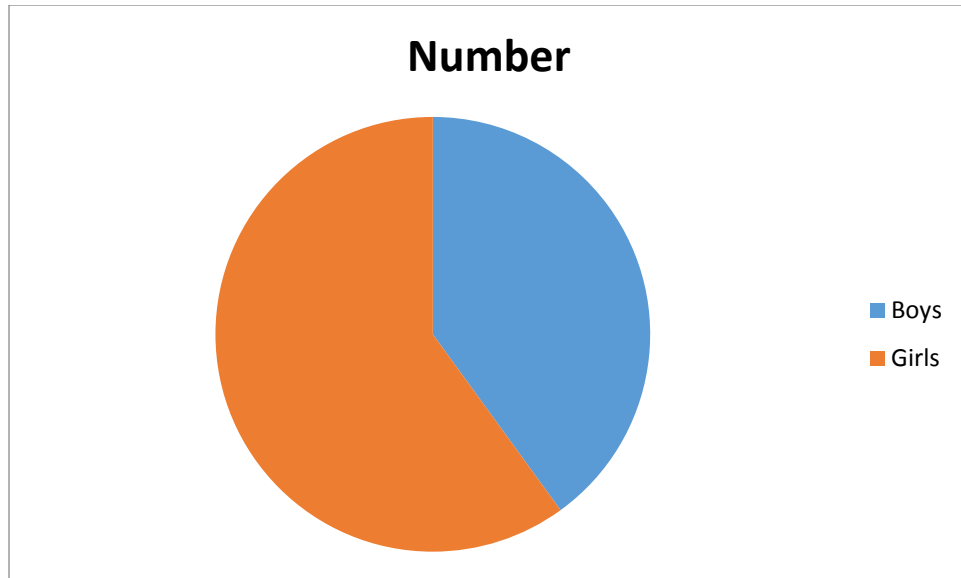
3. Highlight the pie chart and change the layout above Chart Layout to the desired type. The chart should look similar to the following:
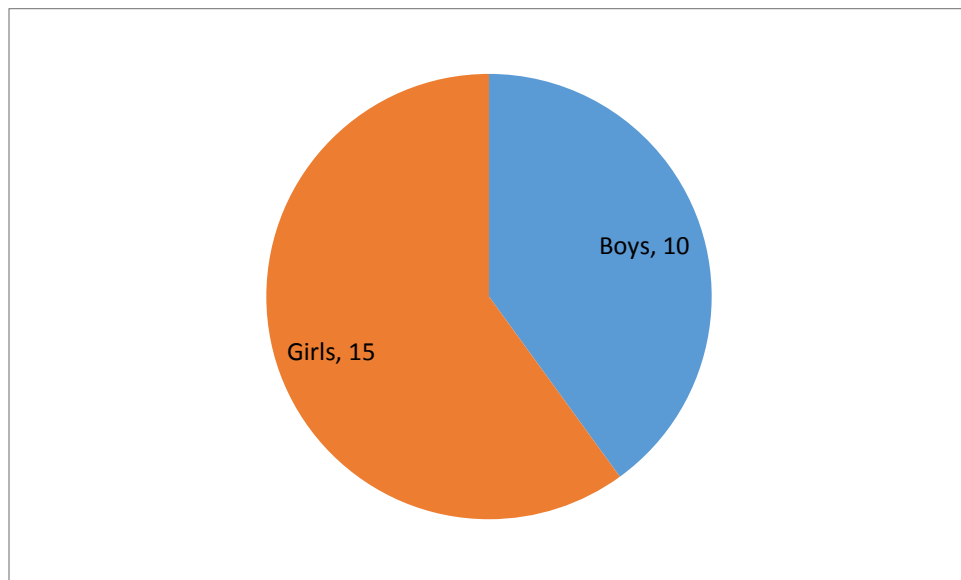
4. Insert a title by clicking on Layout in the top ribbon, and then Chart Title above Labels. Click on Above Chart to insert a Title. Either keep the suggested title or type in a more suitable one. The chart should look similar to the following:

Number of Boys vs. Girls

Boys, 10

Girls, 15
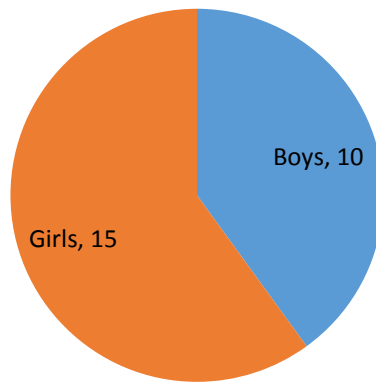
5. Insert a Data Rationale by stating why the demographic data placed in the unit is relevant.
6. Include all demographic data in chart and pie chart form that is relevant for the unit.