Sine & Cosine Graphs

This project is to let students see some of the features of the Nspire and also see what the graphs of Sine and Cosine look like. I made an attempt to make the project stand alone for the students. Figures 1 and 2 to the right are the dirrections for the start of the project. I am not going to go into the making of page 1.2, figure 3, to the right. The students will use it to creat some data for the graphs later. We spent the previous day creating the unit circle so the students should understand this.

Page 1.3 is were the data will be collected using the capture function of the Nspire. We are going to collect the data in the manual mode. The dirrections page 1.1 tells the students to press CTRL . that will send data to page 1.2.

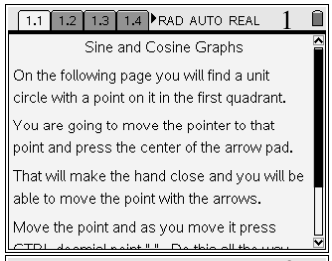
Page 1.4 and 1.5 are were the data will be graphed. In figure 7 and 8 we are collecting that data by moving the point around the circle pressing CTRL . several times as we go around the circle.

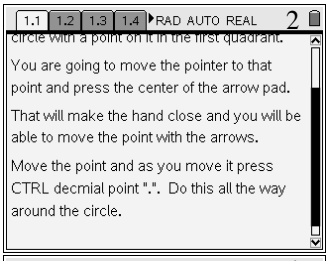
When we are done we move to page 1.3, figure 9 and 10.

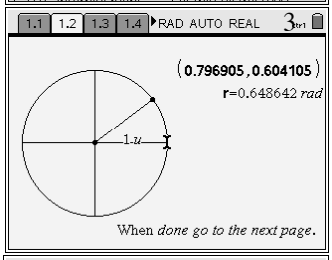
When you get to the page you are at the bottom of the page in the text screen. The directions in this screen are longer that the size of the screen and you will have to go down the screen to be able to read the whole thing. The last directions tells them how to get to the top of the page. When they are there they are saposto type a formula into cell D1. This is more to have them do some of the work and also since we do not know how many points they created they can make the lists the same length.

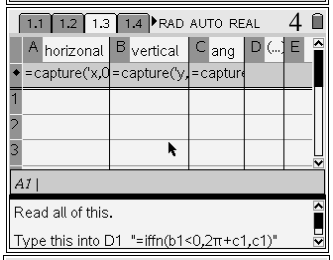
Figures 13 and 14 show how to make the list in the D column be there. The reason we need to do this is so the angles will go from 0 to 2 pi since the Nspire will not give a reading of greater than 180 degrees of pi radians.

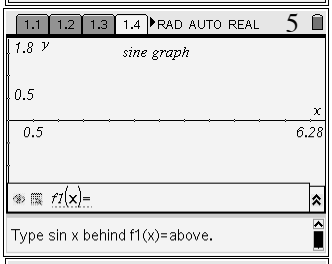
The process continues on the next page.

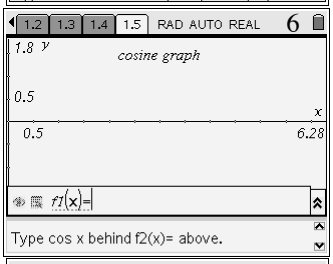


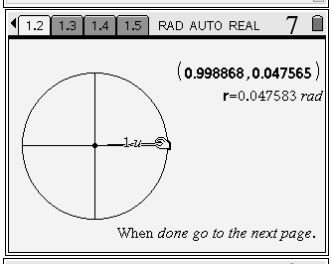


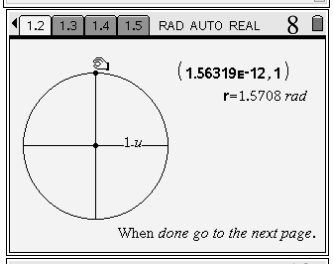


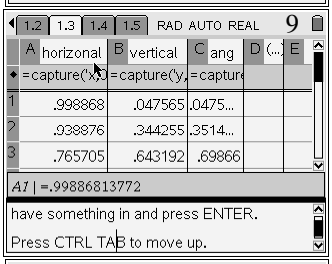


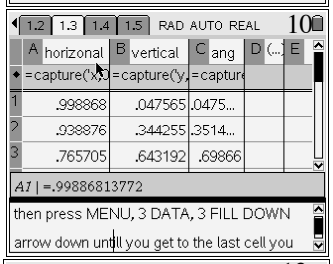


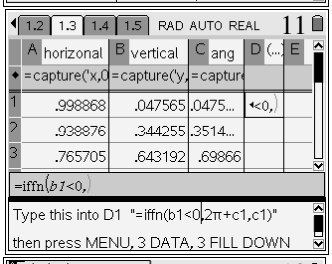


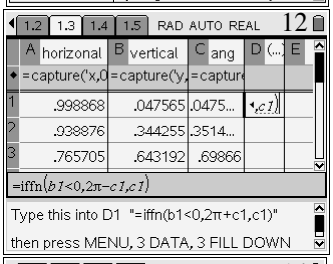


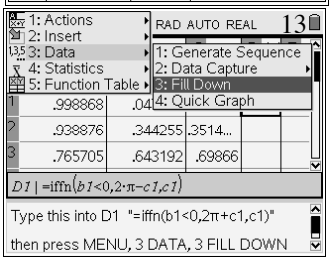












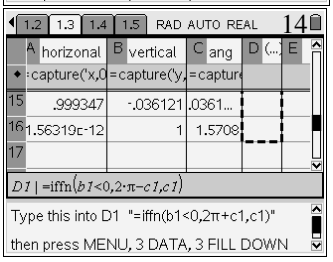


Figure 1 to the right shows the numbers for the radians of the angle around the unit circle.
When this is done the students can go to the next page 1.4, figure 2, and see what the graph of the data will look like for sine. Page 1.5 shows the graph of cosine using the data we collected earlier. We can go back to the page 1.4 and see what happens when we graph sin(x) on page 1.4, figures 4 and 5. Figures 6 and 7 do the same thing on page 1.5 for the graph of cosine(x).
The last thing we are going to do is show the students the differents between the manuel mode and automatic mode. We will go back to page 1.2, figure 8 and move to the cell that has the capture function in it. When on the cell all you have to do is press enter and you can then move to the right with the arrows untill you are behind the 0 in the function. Press the clear button and then type a 1 to replace the 0, figure 9. Do this to all three columns so you have all of them in automatic mode.
Return to page 1.2 and move the point around the circle slowly after you have gone around the whole circle you can return to page 1.3 and repeat the pocess in column D. You will have more data points this time. See figure 13 to see what the graph might look like.

I hope this was as usefull in you classes as it was in mine.