The Unit Circle

Concepts	Objective
• Unit Circle • Ordered pair • **Materials** • TI-Nspire • TI-Nspire document	Students will use the unit circle to find the value of trigonometric functions of various angles. **Key Concept** The coordinates of points on the unit circle can be used to determine the sine and cosine of angles.

1. Down load the TI-Nspire document called *UnitCircle* to your handheld. Use TI-Nspire computer link. (Fig 1)	Fig 1
2. Open the document in your handheld. Press Home, 7:MyDocuments, select the document *UnitCircle* using the NavPad (arrows), hit enter.(Figs 2-4)	Fig2 Fig3 Fig4
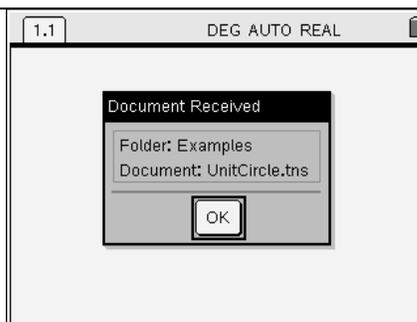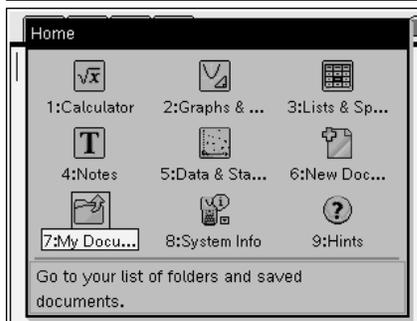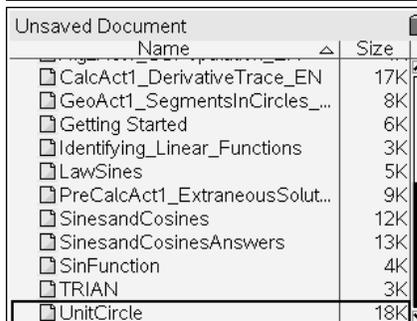
The Unit Circle

3. Go to page 2.2 Press ctrl and right arrow key until you get to that page. Fig 5

Fig 5

4. Drag point B to find the sine and cosine of the ∠ACB
    *   To drag the point move the cursor on top of the point by using your NavPad
    *   When the cursor becomes a hand press ctrl click to hold the point
    *   Move the point to a different position using the NavPad
    *   Press enter to drop the point (Figs 6)

Fig 6

5. Move B and capture its coordinates in the different quadrants. To capture data press ctrl + .   Fig 7

Fig 7

6. Go to page 2.4. Here you will see the graphs of the point that you captured. Could you explain where the graphs came from?
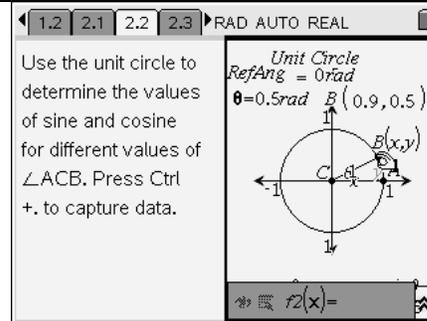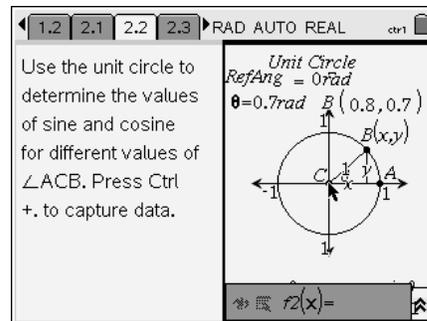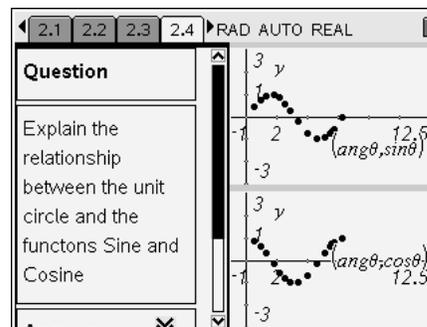
Fig 8

Relationship between the unit circle and the Sine function.

7.Go to page 3.3 and start the animation.

What connections can you find between the two graphs?

| 2.4 | 3.1 | 3.2 | 3.3 | ▶RAD AUTO REAL |

2.78   y

Unit Circle   θ=0.0   y=sin(x)

P(x1,y1)   (1,0.0)   O(x,y)   (0.0,0.0)

0.5

-1.65   0.5 /P   6.63

⏮ ▶
Start animation

-2.73

Fig 9

7. Go to page 4.3 and start the animation
What connections can you find between the two graphs?