NSES Content Standards:

- Unifying concepts and processes in science.
- Science as inquiry.
- Physical science.
- Life science.
- Earth and space science.
- Science and technology.
- Science in personal and social perspectives.
- History and nature of science.

| Activity 7: Drawing is Knowing | |
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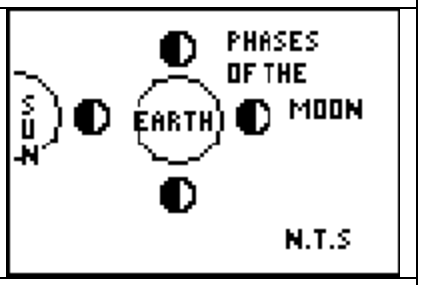
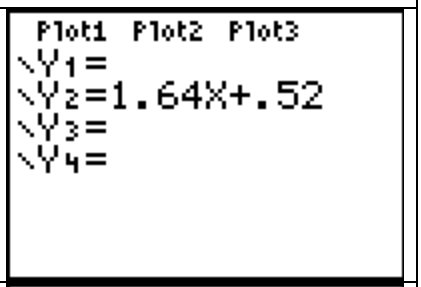
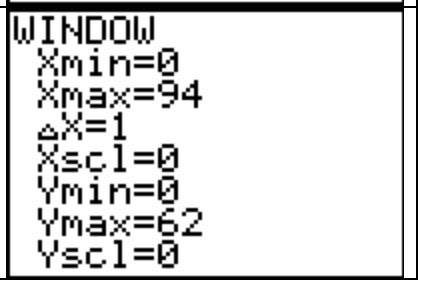
| In this activity we will:<br>• Draw objects or concepts on your handheld<br>• Label drawings to help document and identify.<br>• Save, Load, and Send PICs.<br>• Print images from your handheld. |  |
| If you want to know what one knows about a topic, ask them to draw it. From this drawing you can see what they know which is True, what they "know" which is wrong, and what they don't know since it is missing from the drawing. You can also extract information about a person's beliefs from a drawing.<br>In this investigation we will learn to use the drawing tools and then create a drawing that will be shared with the teacher and the class. | |
| First we will need a blank sheet of paper to draw on.<br>Press [Y=] to see if there are any functions turned on. If there are any either clear them or turn them off. To turn off a function, move the cursor to the = sign and press [ENTER]. Also turn off any **Plots** that are on by highlighting them and pressing [ENTER] |  |
| Now set the **Window**. Press [WINDOW] and set the vales as shown at the right. |  |

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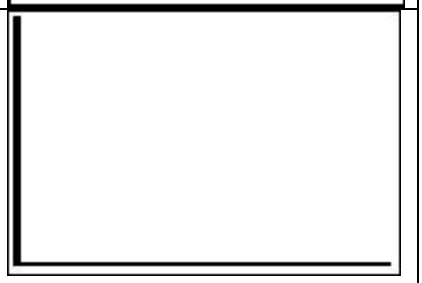
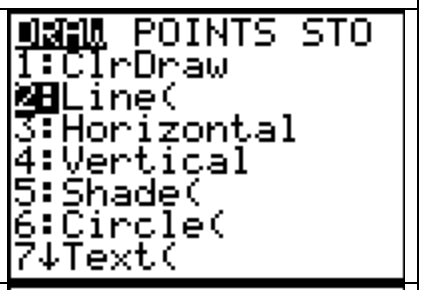
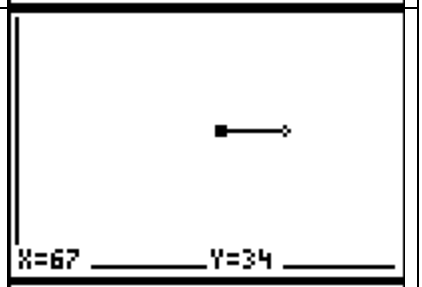
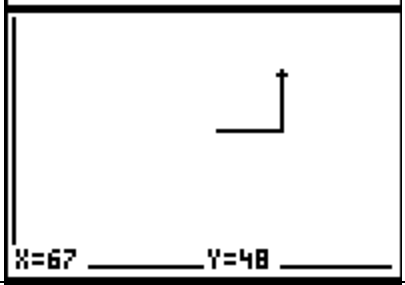
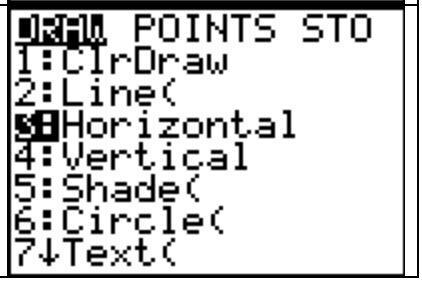
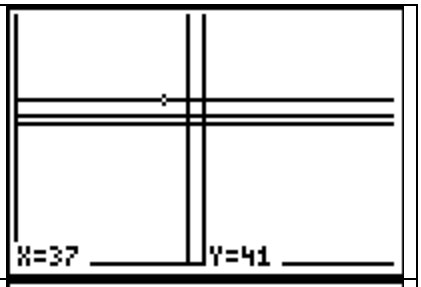
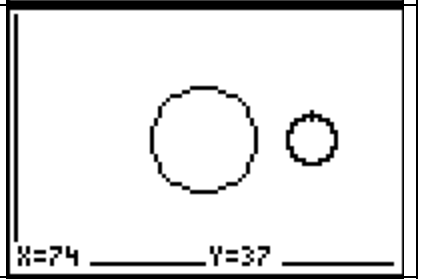
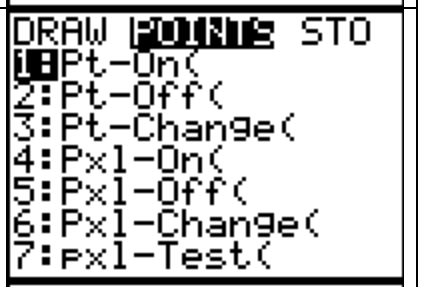
| Check your **Format** by pressing [2nd][FORMAT]. Make it like the image at the right. | |
| Drawing tools may be used in two different ways. If you select the tool from the **Graph** screen you are in the Interactive mode. This allows you to just make the action where you want. If you pick the tool from the **Home** screen, you will need to add parameters to the command, so the computer will know where to do the drawing. We will use the Interactive mode, so press [GRAPH] to start. |  |
| **Lines**: To draw a line, press [DRAW] and select option **2: Line(**. Notice the first choice. Use **1:ClrDraw** to clear off your drawing and start a new one. |  |
| Now you are on the **Graph** screen and ready to draw a line, or more appropriately a line segment. Move your cursor to the start of the line, press [ENTER] and then move the cursor to the end of the line and press [ENTER] again. If you want connected lines, just press [ENTER] before you move again. Notice the shape of the cursor and you draw.<br>**Note**: If you pick the Line tool and are returned to the **Home** screen, you must go to the **Graph** screen and select the tool again, so you will be in the Interactive mode. |  <br>  |
| **Horizontal and Vertical**: These tools are really lines. They are placed on the graph when you press [ENTER]. You keep the same tool until you leave the Graph screen or press [CLEAR]. |  |

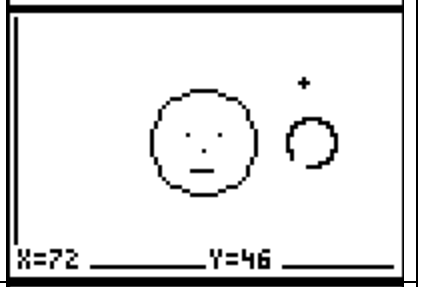



**Circle**: This is drawn by placing the cursor at the center of the circle and then pressing [ENTER]. Move the cursor to the other end of the diameter and press [ENTER] again.

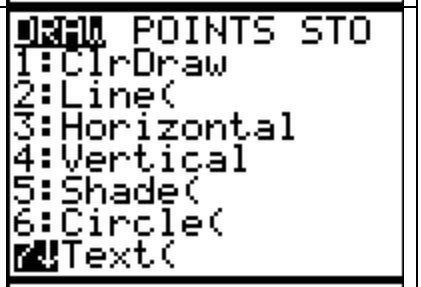


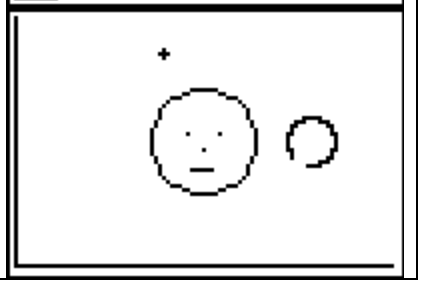

**Points**: You may place points or remove points by using this tool. The **Pt-Change(** option is just to turn on or off a pixel. Just move the cursor to the place you want a point or where you want to remove a point and press [ENTER].




**Text**: You may label your drawings with the Text option. After selecting the tool, move the cursor to the upper left-hand corner of where you want the letter or number to be. Then press the item you want. If you are placing letters, go to the Text Editor and pick the letters you want. Don't forget to select **Done** when you are. If you make a mistake, place your cursor to the upper left of the mistake and then with the Text Editor use the _ which is the space. Pick this enough times and you will erase the mistake.



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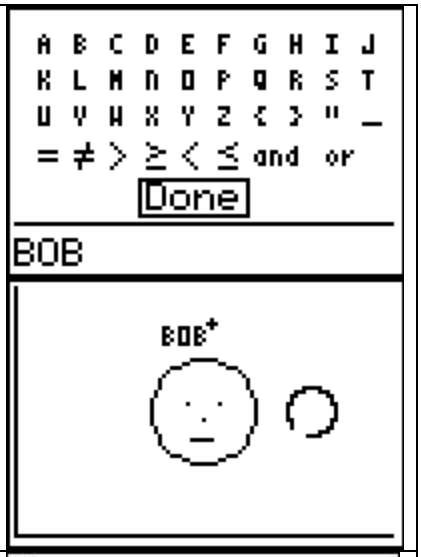
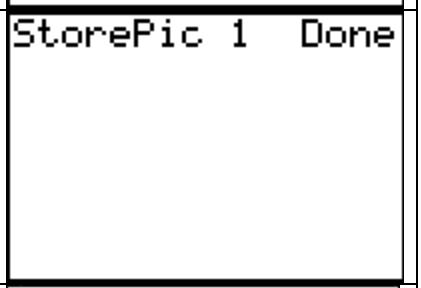
| |  |
| Now we wish to save the picture. Move to the Home screen by pressing [2nd][QUIT][CLEAR][CLEAR]. | |
| From the **Draw** menu select the **STO** option. Press [DRAW][◄] and select **1:StorePic** to store your drawing as a picture. | |
| Now from the **Home** screen pick a number [1,2,3] and press [ENTER]. This will send you to the **Graph** screen. If you return to the **Home** screen you will see the **Done** word. |  |
| To retrieve the save picture we will first want to clear off the drawing, since we won't be sure if it was really saved. From the **Home** screen press [DRAW] [ENTER] [ENTER] [GRAPH]. This sends you to the clean **Graph** screen. | |

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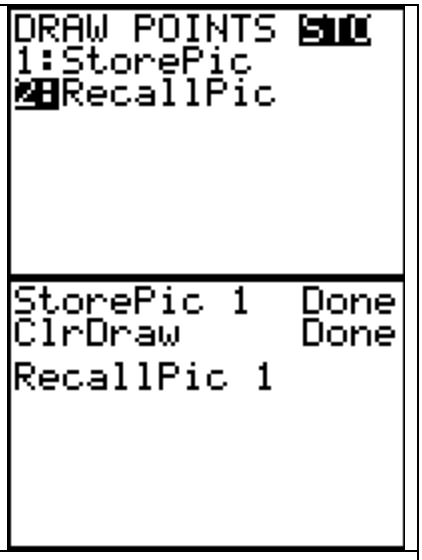
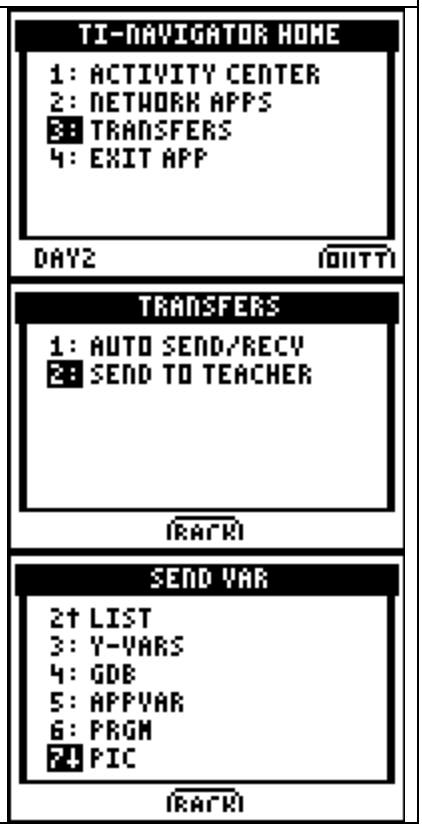
| Press [DRAW] [◀] [2] to get to the **RecallPic** option. Give the number you used when you saved the image and press [ENTER]. You should see your drawing now. |  |
| Now that you know the drawing tools we want you to draw a concept in science or an object. As a class brainstorm ideas. Use your book and the walls of the classroom for ideas.<br>Once you have decided on what to draw, clear off the old drawing and start. Save the image as a picture. Make sure you label it. Include your name, descriptors of parts and other information. | |
| Send the picture to your teacher through the Navigator or using TI Connect. Print the image and post it on the wall. |  |

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| **Note**: Some ideas of things to draw<br>- a cell<br>- a leaf<br>- a cold front<br>- a butterfly<br>- the Solar System<br>- an image from your book<br>- Global Warming<br>- an eclipse<br>- the ecosystem of a mouse<br>- Predator – Prey | |