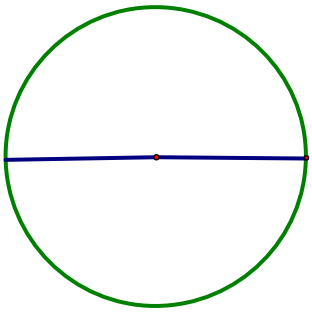
Pi Day Activity: Geometer's Sketchpad

A Recipe for π

Ingredients:

- Computer with Geometer's Sketchpad (GSP)
- Circle
- Radius
- Diameter



Select Tool | Point Tool | Segment Tool | Circle Tool | Labeling Tool

- If GSP doesn't do what you ask, chances are that you have not selected the correct option or that you still have something else selected, that you no longer want.
- **Clear all the highlighting by clicking any blank area on your sketch.** This is another trick commonly used and very important when using GSP.
- If you make create a sketch that you don't want, an easy way to get rid of it is to use the **EDIT/UNDO** feature.

1.	Open up **GSP4** and select **NEW** from the File Menu. Maximize the screen.
2.	Use the **CIRCLE** tool to create a circle. Click on the screen to create the circle. How far you drag determines the size – which can always be changed.
3.	Use the **SELECT TOOL** to choose the circle you just made on the screen.
4.	Choose **MEASURE** from the grey toolbar at the top of the screen and then from

	the pull down menu select **CIRCUMFERENCE**.
5.	GSP will automatically measure the circumference of the circle. Since this is dynamic software, as you change the size of the circle, it will automatically change the measurement. Test this out by using the **SELECT TOOL** to grab the point on the circumference and move it around so that its size changes.
6.	Using the **SELECT TOOL** click on the **CENTRE** of the circle and the point on the **CIRCUMFERENCE**. The select arrow will turn sideways to let you know that you can select something. Then from the grey tool bar at the top of the page choose **CONSTRUCT** and from the drop down menu choose **SEGMENT**.
7.	That segment represents the radius. To measure the radius, use the **SELECT TOOL** to choose the line segment. Then from the grey tool bar at the top of the page choose **MEASURE** and from the drop down menu choose **LENGTH**.
8.	For this recipe for pi we need the diameter, the distance from edge to edge through the centre of the circle. To make the diameter, choose **MEASURE** for the grey toolbar at the top of the page and from the drop down toolbar, choose **CALCULATE.** This will activate the calculator.
9.	To make the diameter, the radius needs to be doubled. Select the measurement of the radius by clicking on it and it will automatically go into the **CALCULATOR. Don't type in the measurement.** To multiply by two choose *****(this means multiplication) and **2** then click on **OK**.
10.	Finally, choose **MEASURE** for the grey toolbar at the top of the page and from the drop down toolbar, choose **CALCULATE.** Use the calculator, and drag in the **CIRCUMFERENCE** of the circle, click on ÷ and click on the **DIAMETER** (radius x 2 that you just calculated) and then click on **OK**.
11.	At this point you should have pi π (approximately 3.14). Pi is the ratio of the circumference of a circle divided by the diameter. It is a constant and doesn't change. To prove this, click on the point on the edge of the circle and drag it to make it larger and smaller. All of the other measurements should change as you change the size of the circle, but pi will remain the same!