Today we will use the program Geometer's Sketchpad to investigate the ideas of area and perimeter as well as review transformations. We will just be scratching the surface of what Geometer's Sketchpad can do, but this should give you an idea of possible ways to use this program in your classroom.

To start with, we need to open the program. Go to:

Start All Programs Standard Software Design Tools Geometer's Sketchpad GSP 4.07

Familiarize yourself with the layout of the program. Menus are along the top and tools are on the left.

Use the Graph menu to select the "Show grid" option. Choose Grid form: "Square grid."
Use the straightedge tool on the left (4th button down) to draw a line segment. Continue this process until you have a quadrilateral. When you have completed this, select the selection ARROW tool. Highlight one side of your quadrilateral by clicking on it. From the Measure menu, select "length." You should have a box that says "mAB = some number." In addition, your quadrilateral is now labeled with A and B on two vertices.
Do the same thing for the other sides of the quadrilateral (before selecting the next side you need to click away from the figure and the box so that they are no longer highlighted). When you are done, there should be four labeled vertices and four side lengths. Note that by selecting a point and dragging the mouse, you can change the shape of the quadrilateral.

Now use the selection tool to highlight all four vertices. After you have done this, press Ctrl+P. The quadrilateral will be filled in. Use the appropriate options in the Measure menu to determine the perimeter and area of the quadrilateral.

Move the points and the sides of your quadrilateral by clicking and dragging with the mouse. Notice that the area and perimeter change.
With a perimeter of 30 cm (within 0.1 cm), what is the largest area you are able to find? _____
With a perimeter of 30 cm (within 0.1 cm), what is the smallest area you are able to find? _____

Rearrange the vertices of your quadrilateral so you have them placed at (2,1); (10,1); (12, 5) and (4,5).
What is your new shape? _____ What is the area? _____
Move the two vertices on the right so that they are at (12,1) and (10,5).
What is your new shape? _____ What is the area? _____

Erase all of your drawing and start again. Make a triangle by putting the endpoints on the following (2,1); (6,1) and (2,6). Repeat the process to find the length of the sides and the total perimeter and area. Area = _____
Now drag the top vertex left and right along $y = 6$. What is the longest perimeter you can get? _____

Transformations:
Highlight your triangle. Select from the Transform menu and reflect your figure. Highlight it again and select rotate.
For fun, highlight your figure and go to the Display menu. Select Animate and see what happens. ☺