

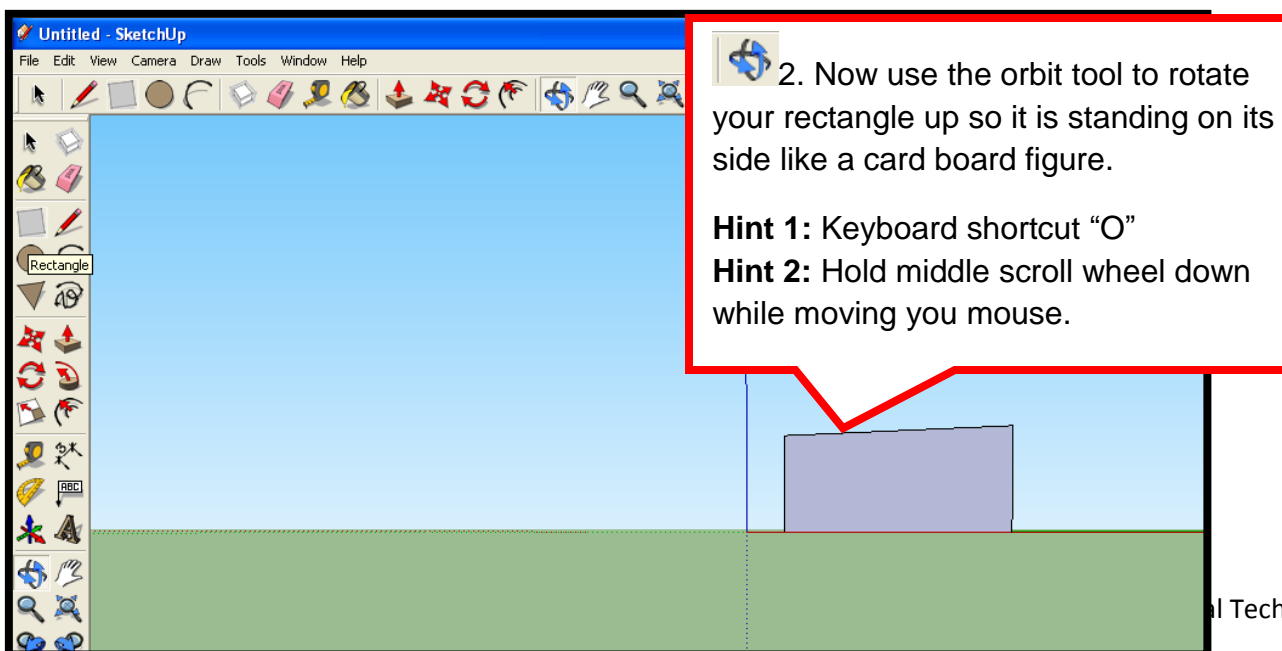
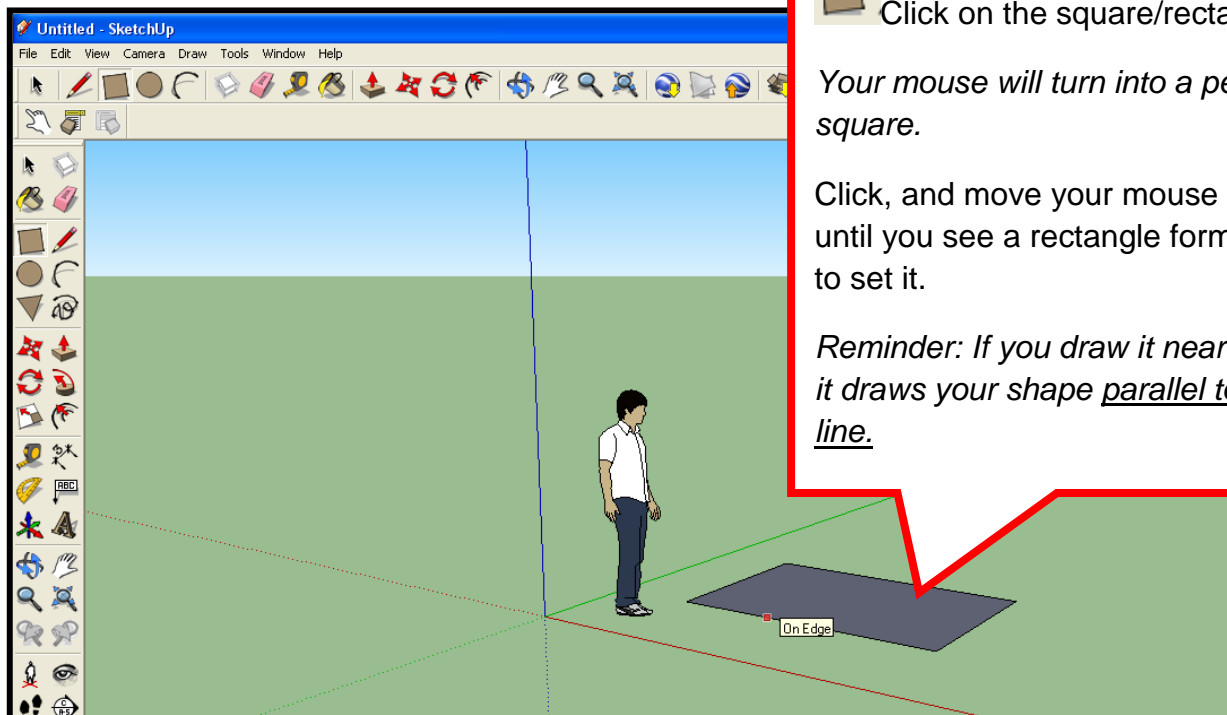
## What makes a polygon?

2.7 (A) describe attributes (the number of vertices, faces, edges, sides) of two- and three-dimensional geometric figures such as circles, polygons, spheres, cones, cylinders, prisms, and pyramids

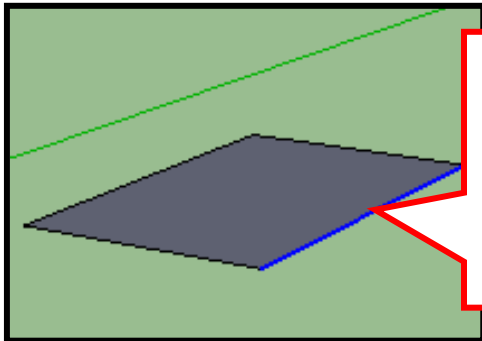
**Question:** Is a rectangle a polygon?

**Theory:** A polygon has to have closed straight sides. Let's investigate:

1. First let's create a rectangle.



3. Press the space bar to exit the drawing tool- defaults back to selection tool (arrow.)



- 4. Click on one of the edges (sides) of the rectangle to select it. It will turn bright blue as shown.
- Now press the **delete key** on your keyboard.

**\*Tip:** The backspace key doesn't work in Google Sketch up

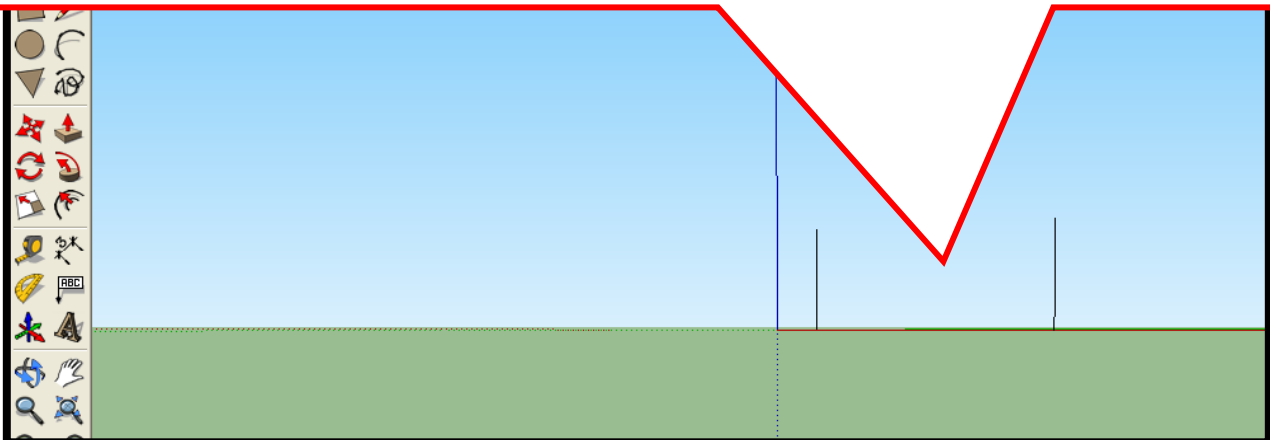
Notice how the surface face of the rectangle disappears as shown leaving only 3 lines (edges.)

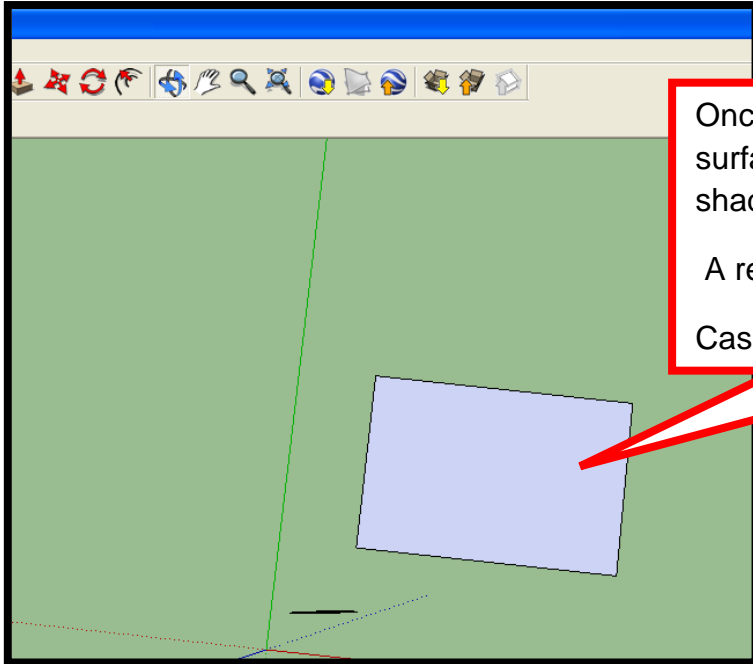
- A rectangle or any other shape with closed straight sides **is a polygon**.
- **Theory proved!** *A polygon has to have closed straight sides.*

To get the face back, (called healing the surface) click on Edit in the toolbar and choose undo or you can do one of the following.

Keyboard shortcut= Ctrl +Z keys

**Best for Students:** Use the pencil tool and drag from one green end point to another to recreate the line which will restore the surface face and the rectangle.





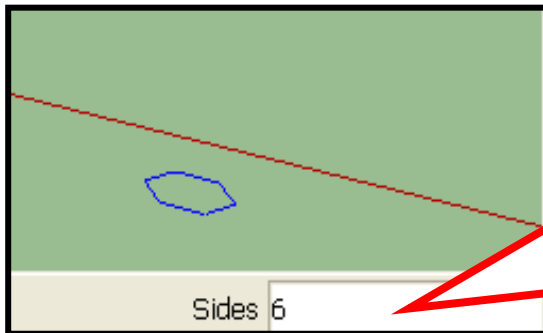
Once you draw the line back and the surface is healed you will see your shaded rectangle (polygon)


A rectangle is a polygon.

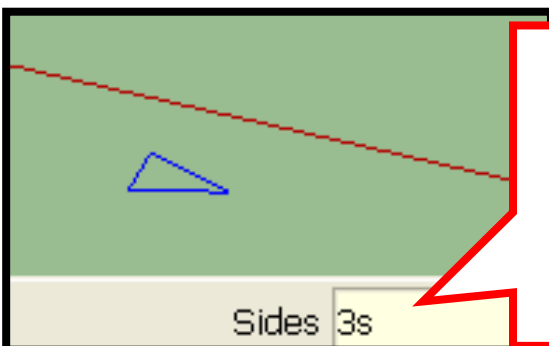
Case closed!

### More Practice: What other shapes can be considered polygons?

- Students can practice drawing more shapes using the polygon tool.
- They can remove and replace edges (lines) to restore each polygon



- The polygon tool  is not a triangle as the shape would infer when you click on it.
- The default number of sides is set to 6 for a hexagon.
- You will see a hexagon skeleton like shown.



- To change that number, click on the polygon tool, do not click, but release your mouse.
- Type in the number of sides desired followed by an S (Ex: 3s will enable you to draw a 3 sided triangle.)
- Press the enter key. Now you can click and draw a triangle.