deSTEMber

SCIENCE ★ TECHNOLOGY ★ ENGINEERING ★ MATH

PRESENTED BY: girlstart

Tech Tuesday

Welcome to Tech Tuesday! One of the many technologies Girlstart empowers our girls to use is Google SketchUp. From architects to engineers, many careers use this software to create models and prototypes. Explore the basic tools within Google SketchUp and create your own 3D virtual masterpiece.

TEKS:

3.6C Create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons

3.6D Identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons and describe their attributes using formal geometric language

3.6E Identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language

Materials:

- Computer
- Mouse (not required but is easier to use)
- Access to the internet (only if Google SketchUp isn't already downloaded)

How To

1. Start by downloading Google SketchUp to your computer by going to the link below (ask permission before downloading software):

   http://google-sketchup.en.softonic.com/

2. Click on the green Free Download button. It should take 1-2 minutes for the download to complete. Step through the set up wizard. When it is finished Google SketchUp is ready to use.
3. Now that you have Google SketchUp downloaded and installed, it's time to learn the basics. Click on the SketchUp icon on your desktop. When the application opens click Start using SketchUp. If it is the first time you use the application, a screen will pop up asking you to choose a template before you can begin using SketchUp.

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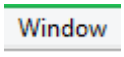
How To Continued...

4. To begin creating in SketchUp you can use the built in shape tools to create a circle  , rectangle  , or polygon  (then click on polygon). You can also freehand your own shape by using the pencil tool  , just make sure any shape you create this way is fully connected otherwise SketchUp will not create a face for it. You now have a two dimensional shape! To make it three dimensional, use the pull/push tool  . You now have a three dimensional object. You can move or rotate a face or edge of the shape you created using the move  or rotate  tools. To move or rotate the whole shape you must use the select tool  and select the whole shape (make sure every face and edge is highlighted blue otherwise some part will be left behind) before using the move and rotate tools. If you make a mistake and want to erase something you can use the erase tool  or go to the edit menu and click undo. To change your view of your object without changing the object itself you can use the pan  , orbit  , and zoom  tools. For more details on how to use each of the tools above you can click on the  menu and select Instructor, which will open a window which will give you more information about each tool you click on.

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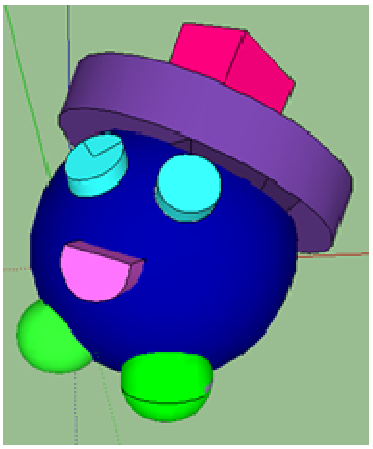
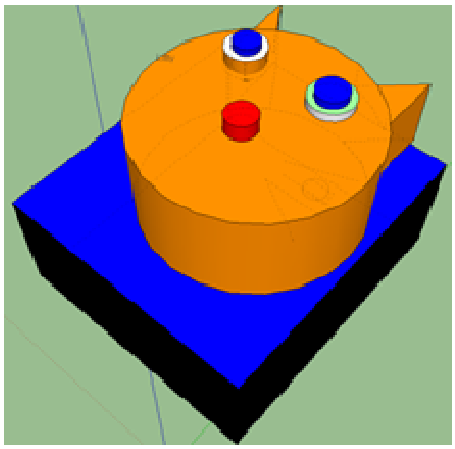
How To Continued…

5. Now that you know the basics to Google SketchUp, channel your inner Product Engineer and design a toy prototype. Make sure to define the appropriate age group and functionality of your toy. Here are a few examples Girlstart's Summer Campers created:





Career Connection:

Product engineers are responsible for developing the concept of the product and the design and development of its mechanical, electronics and software components. Product engineers keep in mind cost, producibility, quality, performance, reliability, serviceability and user features. These product characteristics are generally all considering in the attempt to make the resulting product attractive to its intended market.

Resources: http://google-sketchup.en.softonic.com/

