Tinkercad™

Have you ever created an image and wished you could see what it would look like in 3D? Discover how Tinkercad™ can be used to bring your creation to life. After a little practice, design your own unique holiday decoration.

TEKS:

MATH 6.2B: The student is expected to design and implement experimental investigations by making observations, asking well defined questions, formulating testable hypotheses, and using appropriate equipment and technology.
MATH 6.5A: The student is expected to represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions.
TECH K-2.1B: The student is expected to create original products using a variety of resources.
TECH K-2.6C: The student is expected to perform basic software application functions, including opening an application and creating, modifying, printing, and saving files.
TECH 3-5.1A: The student is expected to create original products using a variety of resources.
TECH 3-5.2F: The student is expected to perform basic software application functions, including opening applications and creating, modifying, printing, and saving files.

Materials:

- Computer with internet access
- Tinkercad™ account

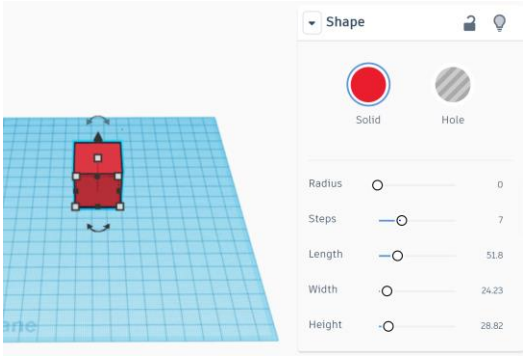
How To:

Starting in Tinkercad™

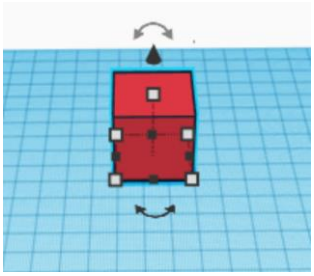
1. On your computer, go to Tinkercad™ online here.
2. Log into Tinkercad™ by clicking "Sign In". If you don't have a Tinkercad™ account, click on "Join Now" in the top right corner of the home page. Create a free account by filling out the required information. Once you have a new account or are logged in, you will be brought to the account dashboard screen.
3. Start exploring the My Tinker Space by clicking "Create new design" to start a new project.
4. Tinkercad™ has many features for your working space so that you can create and edit your own designs. Take some time to explore the different features.

Basic features in Tinkercad™

1. Drag the Tinkercad™ drawing plane by holding a right click on the plane and moving your mouse up, down, left, and right to view different 360° angles of the drawing plane. Other ways to change your view can be found along the left sidebar like zoom in "+", zoom out "-", fit to screen, and more.
2. Along the right side of the screen, there is a menu of different 3D shapes you can use in your design. At the top, there is a drop-down menu where you can find options such as text and circuits. We are going to start practicing with basic shapes and designing a box.
3. Select the solid "Box" from the right-side menu. Click on the box then click on the drawing plane where you would like to start your design. The box will appear!
4. To move your design to a different location on the plane, hold a left click and drag it to a new location.
5. When you click on your shape, a menu opens on the right side of the screen. You can use this menu to adjust the size, radius, and transparency of the shape. Adjust the size and radius by dragging the respective scales. If you want the shape to be transparent, select "Hole," or to change the shape color, click on "Solid" and a menu of colors will appear.



6. Another way you can adjust the size of your shape is by clicking and dragging the white boxes on the shape. The four white squares around the front face of the shape resize the design in the X and Y directions (length and width). The white square centered at the top of the shape can be dragged vertically to resize the shape in the Z direction (height). You can also manually enter values in the scales that open when you click on a white square to give the design exact sizing.



7. In Tinkercad™, your projects automatically save to your account. You can rename a project by double clicking the project name in the top left corner. To 3D print, you can export the file by clicking "export" in the top right corner. Select the proper file type that your 3D printer accepts.
8. Explore other shapes and functions in Tinkercad™ to improve your 3D design skills. Take some time to play around and ask questions! Be curious! Once you are familiar with the different Tinkercad™ functions, get festive and create your own unique holiday designs.

STEM Explanation:

Tinkercad™ is a computer program that helps you design and visualize what you want a product to look like. Tinkercad™ is a virtual three-dimensional space where you can draw, scale, and design objects in a way that helps you visualize the object as it would be in reality. Programs like Tinkercad™ are used by scientists and engineers to create scale models. Tinkercad™ can also communicate with 3D printers to print design prototypes. By being able to adjust the shape, size, and details of a design on the computer, engineers can make many easy adjustments to their design before a final product is printed.

Career Connection:

Biomedical engineers combine engineering principles with medical sciences to design and create equipment, devices, computer systems, and software used in healthcare. Recently, many biomedical engineers have started using 3D printing software to create human tissue and body parts to replace injured and damaged tissues and organs of patients.

Resource:

https://tinkerspace.com/#/