3D Design in Tinkercad

Activity Description

Now that you have created your response to the aid agency's request, you will now create new 3D objects to include in your virtual environment.

Using a 3D drawing environment, you will create new 3D objects and export these designs, ready for importing into your virtual environment.

Steps

1

Sketch a few design ideas before getting into the software. Consider with your team which objects might be useful additions to your proposed container solution.

You must consider:

- Need
- Cost
- Power requirement
- A reasoned justification for inclusion of the object
- Availability of area/space needed

Keep your ideas simple, combining basic 3D shapes such as spheres, cylinders, cubes to achieve your result.

When you have decided on the additional objects complete the New Asset Sheet.

2

Tinkercad is a simple online 3D design app.

You'll find Tinkercad at:
https://www.tinkercad.com

Click on **Sign In**
 Username: davosVR
 Password: davosVR18
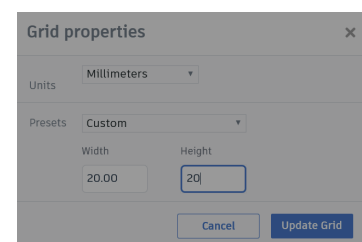
Click **Create new design.**

3

Resize the grid by clicking on the **Edit Grid** button in the bottom right-hand corner of the main area.

The object needs to be created at a specific size.

Set the grid to 20 x 20 click **Update Grid**.
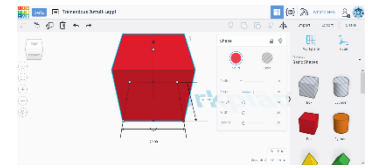
Click the plus to zoom in on the grid.

Grid properties		✕
Units	Millimeters ▾	
Presets	Custom ▾	
	Width	Height
	20.00	20
	Cancel	Update Grid

4 **To add a shape** single click to select a shape, move your mouse to the intended location on the grid, then click again to place the shape.
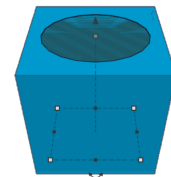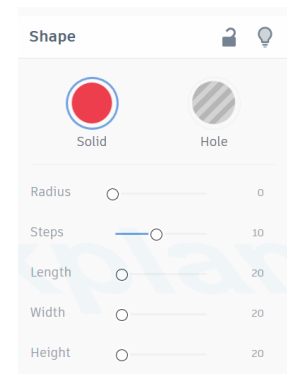
Hover over the object handles to see the size and resize if needed.

5 **To change the colour** of your object, select the object. Click on the coloured circle above Solid (in this case the red) and select the colour that you would like.

Objects can be placed inside another, then set as hole to create an opening.

6 **To adjust the height** of an object, select the object, then click and drag the white handle at the top of the object.

The small black cone shape, at the top of the object, adjusts the vertical position of the object in relation to the grid/plane. The object should remain on 0.

7 **Changing your view** of the object is easy with the right mouse click and dragging.

If you would like to get to a particular view, use the cube in the top left-hand corner by clicking on a face to view.

Once select the view of the cube will change, use the navigational triangles and arrows, to alter the viewpoint.

8

Rename your object, by giving it a short meaningful name.

Tinkercad automatically creates names for each Tinkercad design created. They are often long and always completely random!

Locate the design name, at the top right-hand side of the webpage. Single click on the name, then type in a short description, begin it you're your organisation number and ensure there are no spaces.
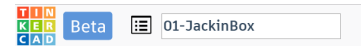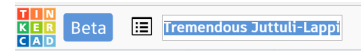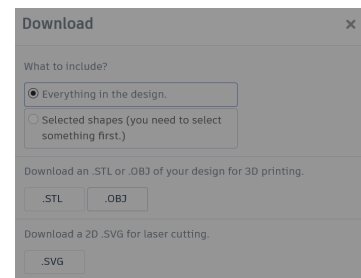
9

To export your finished design click on the Export button, ensure **Everything in the design** is selected.

Click **.OBJ**.

Set the save location to **Downloads**.

Choose **Show in Finder** against the downloaded file.

10

Download the asset-bundle-builder visit: https://github.com/pozil/salesforce-wef-vr

Then select **asset-bundle-builder** and click on **Clone or Download**.

Click **Download Zip** and save to the **Downloads** folder.

Finally, to unzip the files go to **Show in Finder** against the downloaded file, locate the file then double click to extract to the Downloads location.

Download

What to include?

◉ Everything in the design.

◯ Selected shapes (you need to select something first.)

Download an .STL or .OBJ of your design for 3D printing.

.STL   .OBJ

Download a 2D .SVG for laser cutting.

.SVG

11

**Run Unity to Import your 3D object** open the **asset-bundle-builder** project from **Downloads**.

Locate the Project window (in default view, this should be at the bottom).

Right-mouse click on the **Assets** folder within the Project window, then select **Reveal in Finder**.

Next move your 3D object files into the Assets folder. Cmd+Tab to swtich to the downloaded Zip folder.

- Cmd+A to select all files within the Zip folder.
- Cmd+C to copy these files
- Cmd+Tab to switch to the Assets folder
- Cmd+V to paste the copied files.

Move on to the next activity 3D Design - Building New Assets.
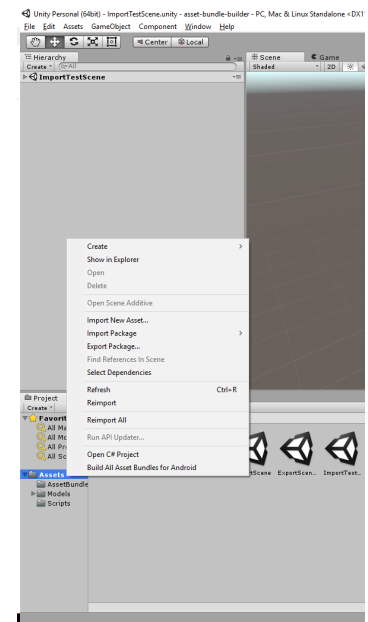
New Asset Sheet (per asset)

Organisation Number:	
Object Name:	
Purpose/Need:	
Cost:	
Power Requirement:	
Space Requirement:	
Space Available:	Yes / No
Justification for Inclusion:	
Priority:	High / Medium / Low
Deemed a Necessity:	Yes / No
Sketch:	