

123D Design 2015

GETTING STARTED

123D Design is made by AutoDesk, the same company that creates the pro CAD tool AutoCad. 123D design allows users to easily create objects ready to 3D print or overlay in a 2D composition.

DOWNLOAD WORKSHOP FILES

Go the STC Workshops page (<http://www.wvu.edu/techcenter/pages/workshops.shtml>) and select WORKSHOP NAME (**FILENAME for PC, use the .zip for Mac**)

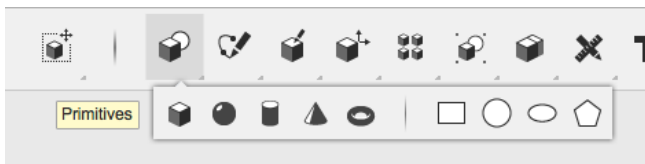
Click '**Save File**' and save to the Desktop

Double-click **FILENAME** on the Desktop, this will create a folder on your desktop called "**training temp**".

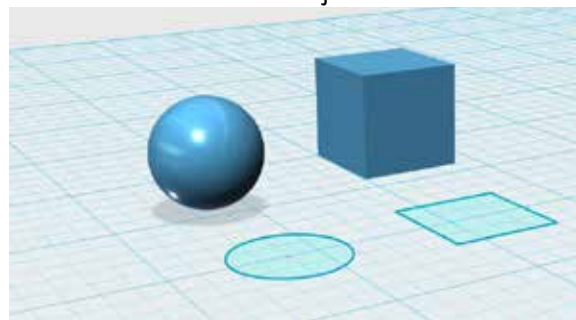
Double-click **FILENAME** to open.

Using shapes (Primitives)

In the Primitives tool drop down, you can select 3D shapes and 2D shapes.

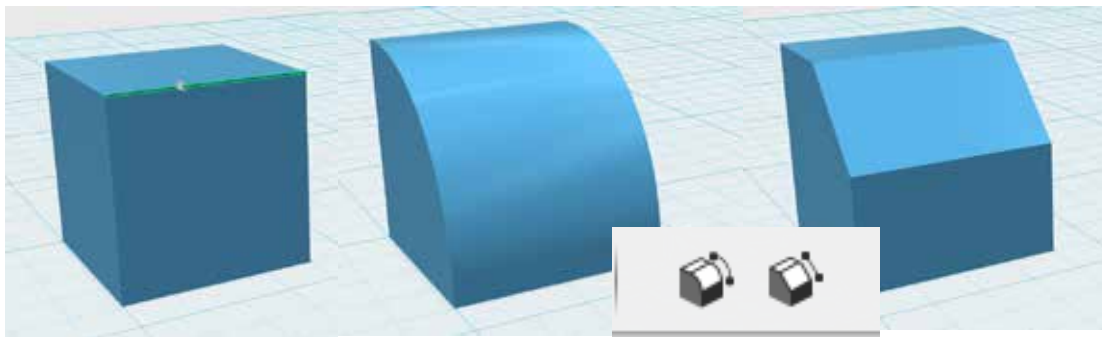


Shapes allow you to combine fundamental forms to create an object.



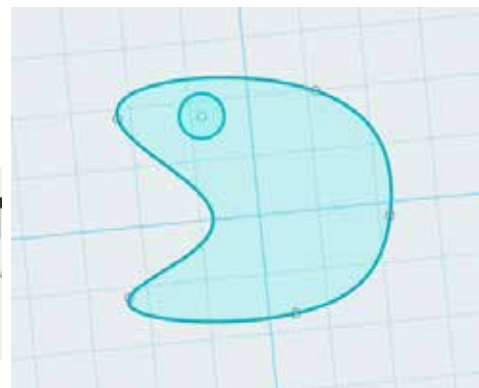
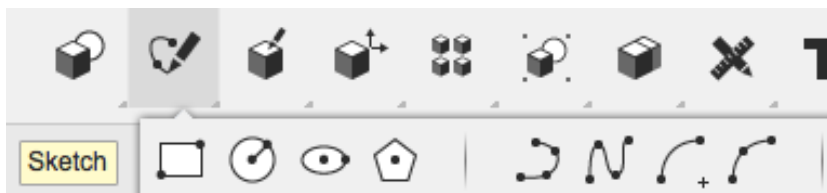
Edging (Radius/Chamfer)

With shapes and objects that have edges, you can round of (radius) or cut off (chamfer) the corners. This especially helps if you are trying to design something with smooth edges such as for handles.



Sketch (Polyline/Spline)

For non geometric or curved shapes, the pen tool will allow you to create the outline and surface that can then be extruded or lofted.

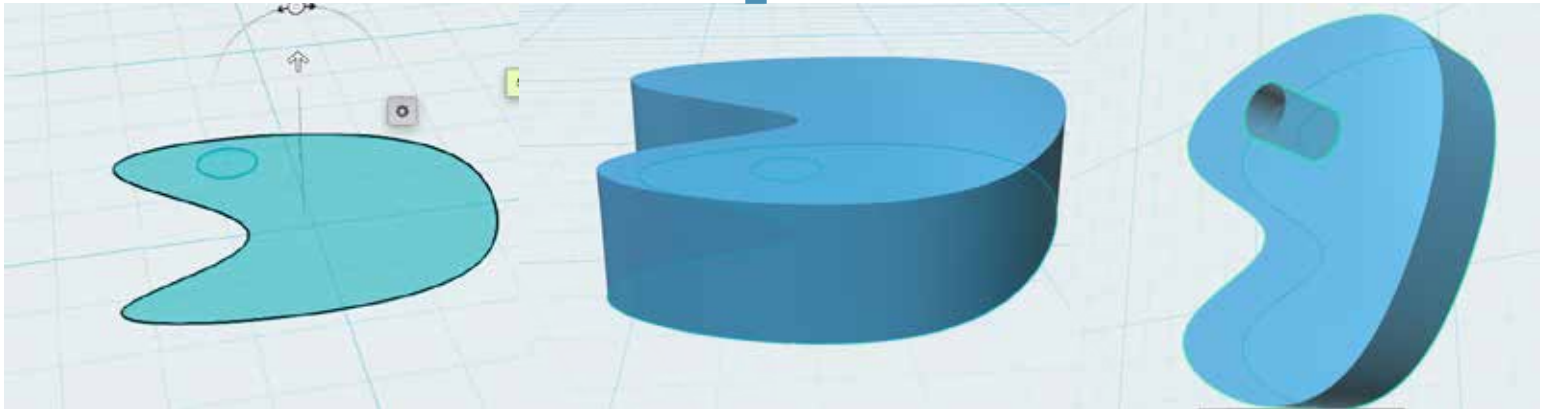


2D to 3D (Extruding)

When you take a surface and extrude in a direction, it will continue the surface and give it an edge based on the shape

Extruding two shape(subtraction)

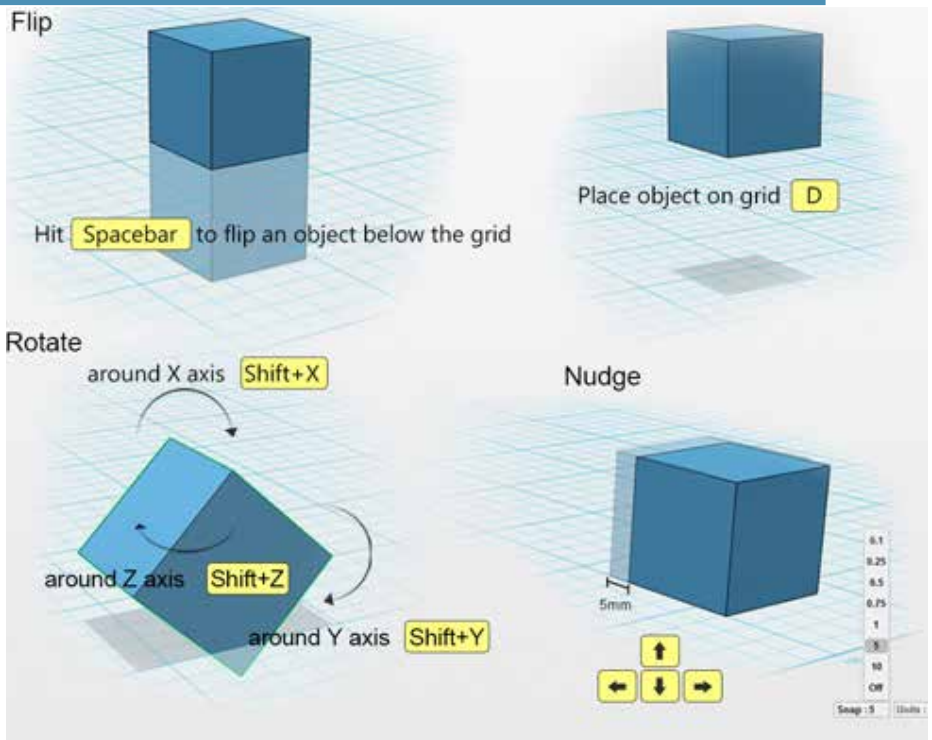
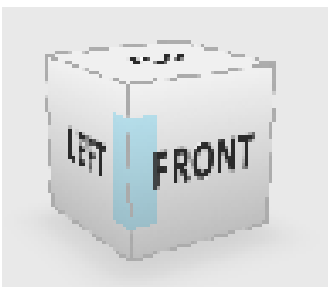
When you extrude a 2D shape within another 3D shape, the result will be a difference subtraction of the two areas.



Object on plane (Grabbing)

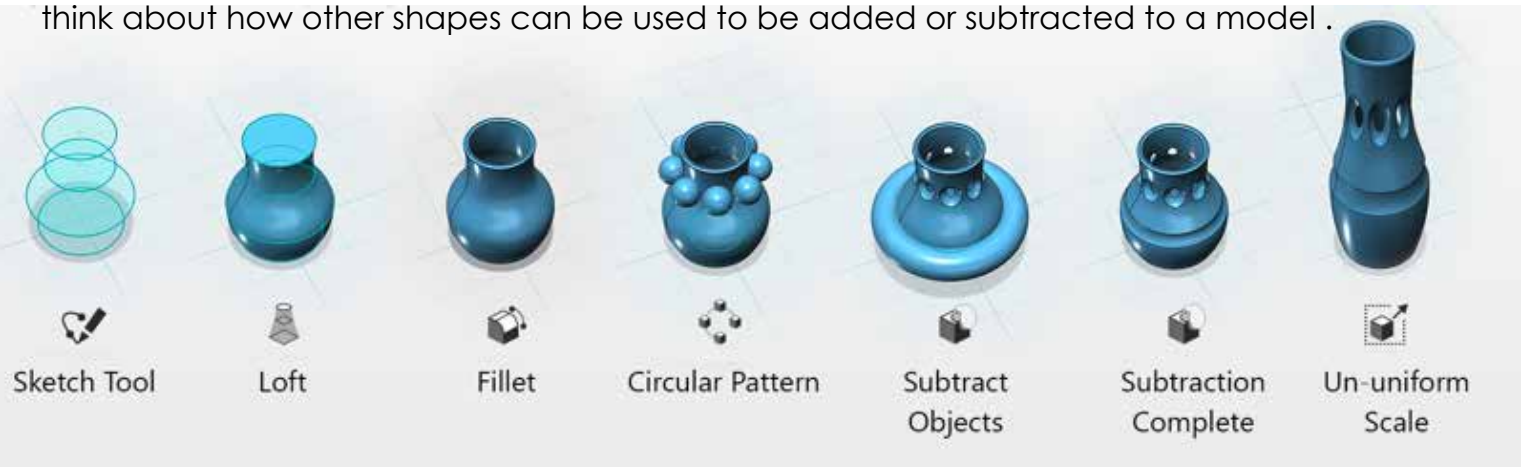
Designing in any CAD software you have to keep in mind that you have an X,Y,and Z axis. When you grab an object you can reorient it based off its relative position to the plane and the view. Also, key comands help speed up orientation based off what axis you are orienting around.

View cube



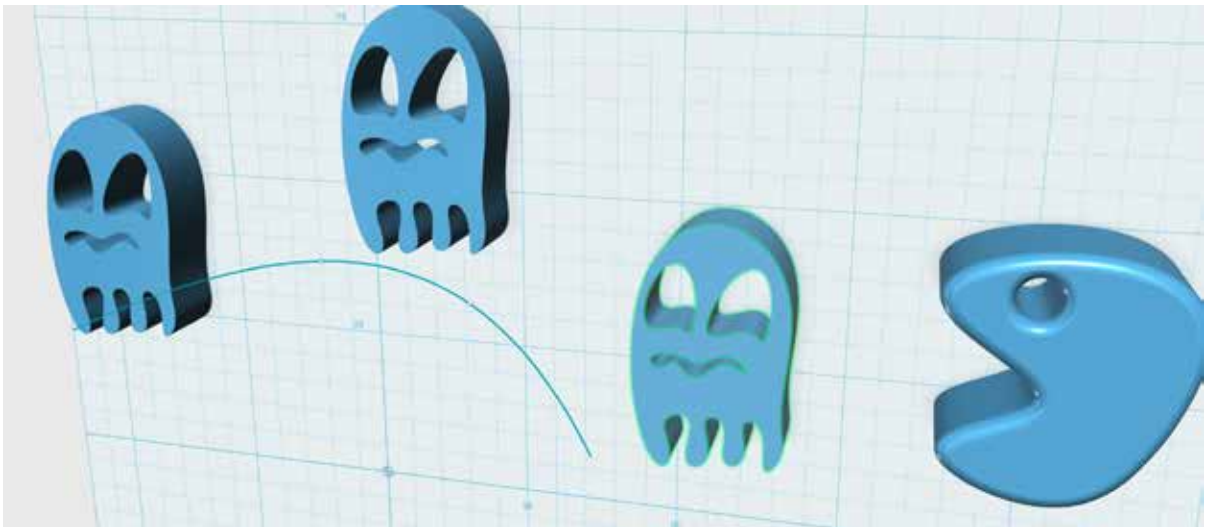
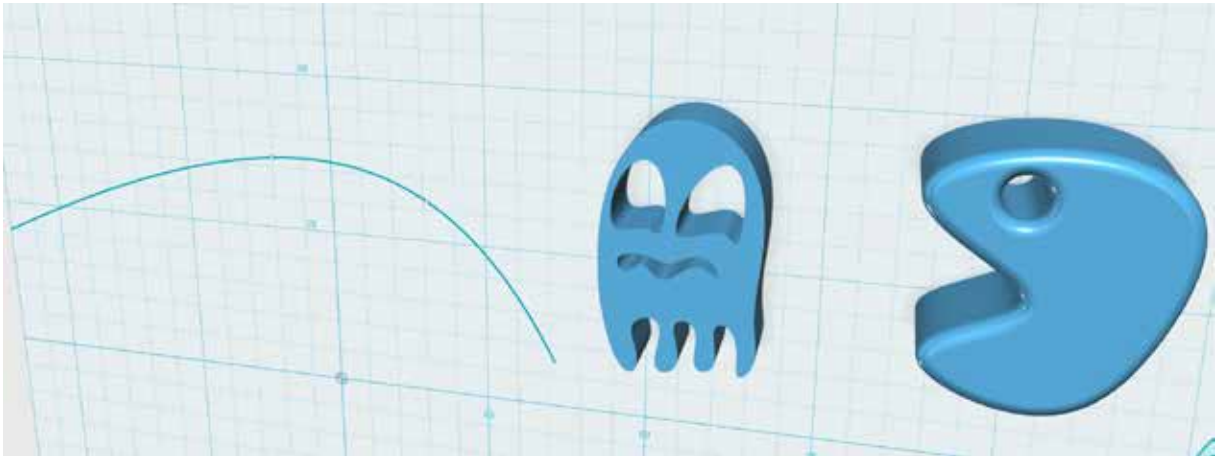
Working with 3D objects

Bringing a sketched 2D design to a 3D form can be done in a verity of ways. Remember to think about how other shapes can be used to be added or subtracted to a model .



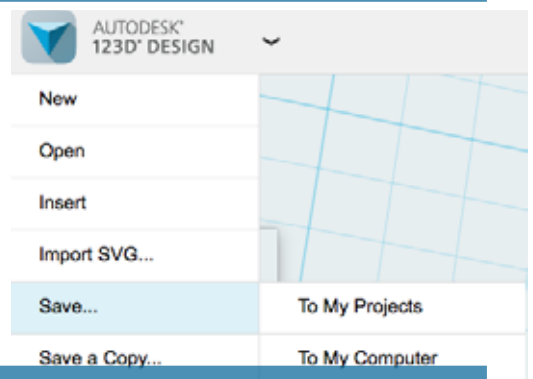
Path (Array)

Array allow you to mirror or replicate several objects made that you want along an axis (polar array) or a line (path array).



Saving

To save the model you have been working on. Use the 123D Autodesk dropdown menu and select **Save > To My Computer**. This creates a .123dx file that can be used to work on the project later

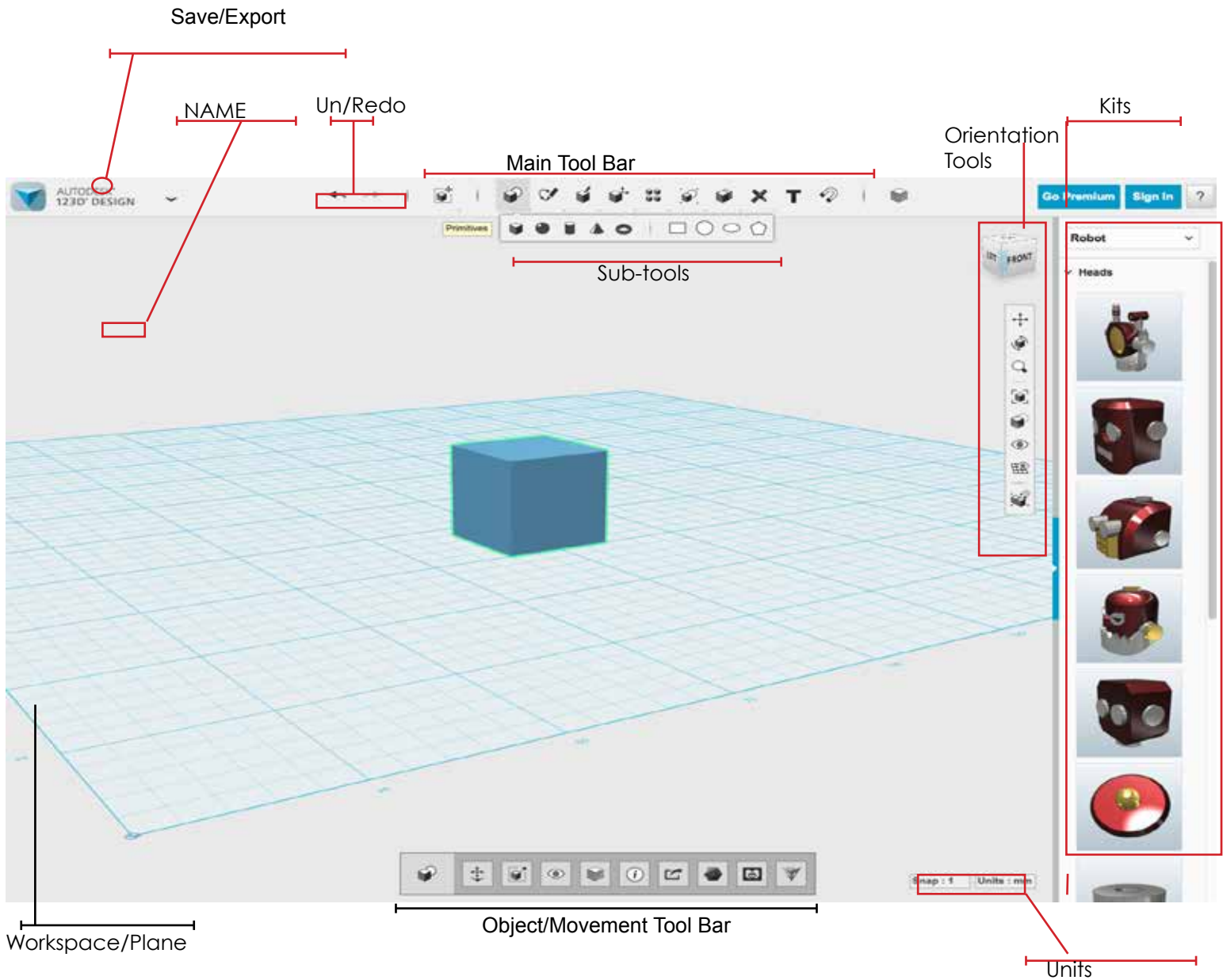


Exporting

To create a model file to 3D print, from the 123D Autodesk dropdown menu select **Export > STL**.

Export...	STL
Send To...	SAT
3D Print	Create 2D Layout

123D DESIGN WORKSPACE OVERVIEW



KEYBOARD SHORTCUTS

Nudge Object Selected	↑ ↓ → ←
Tweak	K
Scale	S
Press Pull	P
Merge	[
Subtract]
Intersect	\
Text	T
To last cell with data	Ctrl + End

MOUSE SHORTCUTS

PAN	ORBIT	ZOOM	FIT
Center Scroll Wheel Click	Right Click	Scroll Wheel	Double Click Scroll Wheel