

Introduction to 3D Printing and Computer-Aided Design

Create 3D Models

- TinkerCAD
tinkercad.com
tinkercad.com/quests
- 3Dtin
3dtin.com
- AutoDesk 123D
123dapp.com/create
- SketchUp
sketchup.com/products/sketchup-make

Find 3D Models

- Thingiverse
thingiverse.com/categories
- TinkerCAD
tinkercad.com/things
- YouMagine
youmagine.com/designs
- CubeHero
cubehero.com/categories

Build Your Own 3D Printer

- RepRap
reprap.org/wiki/RepRap_Options

Use Someone Else's 3D Printer

- 3D Hubs
3dhubs.com
- Make XYZ
makexyz.com

Keyboard shortcuts on TinkerCAD.com

- Workplane: 'W' then click to place workplane
- Ruler: 'R' then click to place ruler
- Fit view to selection: 'F' Press F to fit the view on selected object
- Group: Press 'ctrl/cmd' + 'G' to group objects
- Ungroup: Press 'ctrl/cmd' + 'shift' + 'G' to ungroup objects
- Duplicate in place: Press 'ctrl/cmd' + 'D' to duplicate selection in the same place
- Lock: Press 'ctrl/cmd' + 'L' to lock selection
- Select all: Press 'ctrl/cmd' + 'A' to select all objects
- Delete: Press 'backspace' to delete object

Moving selection

- Move on workplane: 'all arrows'
- Move up & down: 'ctrl/cmd' + 'up&down arrows'
- Move x10 on workplane: 'shift' + 'all arrows'
- Move x10 up & down: 'ctrl/cmd' + 'shift' + 'up&down arrows'

Keyboard shortcuts using the mouse

- Duplicate: Hold 'alt' while starting to move to duplicate selection
- Select multiple objects: Hold 'shift' + 'left mouse button' to select multiple objects
- 45°step rotation: Hold 'shift' while rotating to constrain rotation to 45 degree steps
- 1D scale (center of the object): Hold 'alt' while scaling object from side handle to scale proportionally on one direction
- 2D scale (center of the object): Hold 'alt' while scaling object from corner handle to scale proportionally on two direction
- 3D scale (opposite corner): Hold 'shift' while scaling object from corner handle to scale proportionally on all directions
- 3D scale (bottom center of the object): Hold 'shift' + 'alt' while scaling object from corner handle to scale proportionally on all directions
- 3D scale (center of the object): Hold 'shift' + 'alt' while scaling object from top handle to scale proportionally on all directions
- Pan view: Hold 'shift' + 'right mouse button' to view panoramic