

Notes for videos 1-10

Blender has many shortcut keys to learn! Learning the shortcut keys allows you to work much faster.

Numpad 1: Front View

Numpad 3: Right side view

Numpad 7: Top view

Numpad 0: Camera view

G: Grab and move

G then X/Y/Z: Grab and move along X/Y/Z axis

S: Scale

S then X/Y/Z: Scale and move along X/Y/Z

R: Rotate

R then X/Y/Z: Rotate along X/Y/Z

A: Select all / Select none

Shift+A: Add something (objects / lights)

Shift+D: Duplicate objects

Mouse commands:

To rotate the view: **hold down mousewheel and drag**

To zoom the view: **scroll mousewheel**

To pan the view: **hold mousewheel and drag while holding down shift key**

To select objects: **right click**

To select multiple objects: **right click while holding down shift key**

To position the 3d cursor: **left click**

To join objects: **select objects to join and press Ctrl+J**

Notes for videos 11-19

OBJECT / EDIT MODE

We have basic “primitives” (cube, sphere, torus, cone etc) which act as a good starting point but need additional work to create the objects we need. To edit a primitive object we use blenders edit mode.

TAB KEY - switch between **object** and **edit** mode



Select faces, edges, vertices with right click

Ctrl - R creates a “loop cut”

With a faces/edges or vertices selected:

E - extrude a face/edge/vertex

S/G/R - scale / grab / rotate

SUBDIVISION SURFACES

Blender (and other 3d software) uses “modifiers” which modify your 3d geometry for you. The **subdivision surface** modifier is useful for creating **organic/rounded** shapes (people/snails/beanbags). You find the modifier in the properties panel.



Subdivision surface modelling **requires practice** to master! It is a tricky technique at first but it **will** come to you.

Like learning to drive a car, all of a sudden you just “get it” - but you need to keep practicing. You will have many “ugly” models to get out of your system before you can start to create the models you actually have in mind!!! Don't give up!

Notes for videos 20-23.

Press **B key** for box (also called border) selection. Works for selecting objects in object mode or verts/edges/faces in edit mode.

When animating, objects should be rotated around the origin point (orange dot)

To set the origin point for an object:

- ⤴ Position 3d cursor where you want origin to be for an object
- ⤴ Select the object in **object mode**
- ⤴ Go to menu: **Object → Transform → Origin to 3d cursor**

To insert a keyframe press the **I key**, and chose what to record:

- ⤴ Location
- ⤴ Rotation
- ⤴ Scale (size)
- ⤴ Location and Rotation
- ⤴ etc


Note that you should keyframe **only** the information required, if you have not changed an objects location, but you have changed the rotation, then only record a rotation keyframe.

Likewise, if multiple objects are rotating/moving/scaling at the same time **as a whole** (think of the various pieces of the dalek's head) then you should either join these objects into one (**Ctrl J**) or have a **parent** object (an "empty" is the best choice) that moves and have the various pieces follow as children to the parent. Otherwise you are creating separate sets of keyframes for *every element of your model* which makes editing the animation later on a hassle.

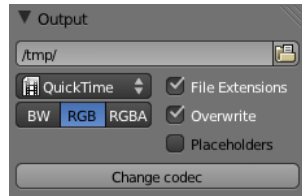
To set a parent/child relationship:

- ⤴ Add an **empty** if you want to use an empty as the parent (**Shift A**)
- ⤴ Select all objects, then shift+right click the parent so that it is the final object added to the selection. Press **Ctrl P**
- ⤴ Rule is: children are free to do what they want but they must follow the parent.
- ⤴ To remove a parent child relationship use **Alt P**

To render an animation:

- ⤴ Make sure the camera has a nice view of your objects
- ⤴ Click the camera to access render settings:

- ⤴ Change the render size (can use the presets)

- ✧ Change the format to something like quicktime, and chose where to save the animation:



- ✧ Click the **animation** button to render the animation, then go have a cup of tea and wait :)