

Working with Components

You will learn how to select and manipulate components to make a sky ladder



Maya|Components|Contents

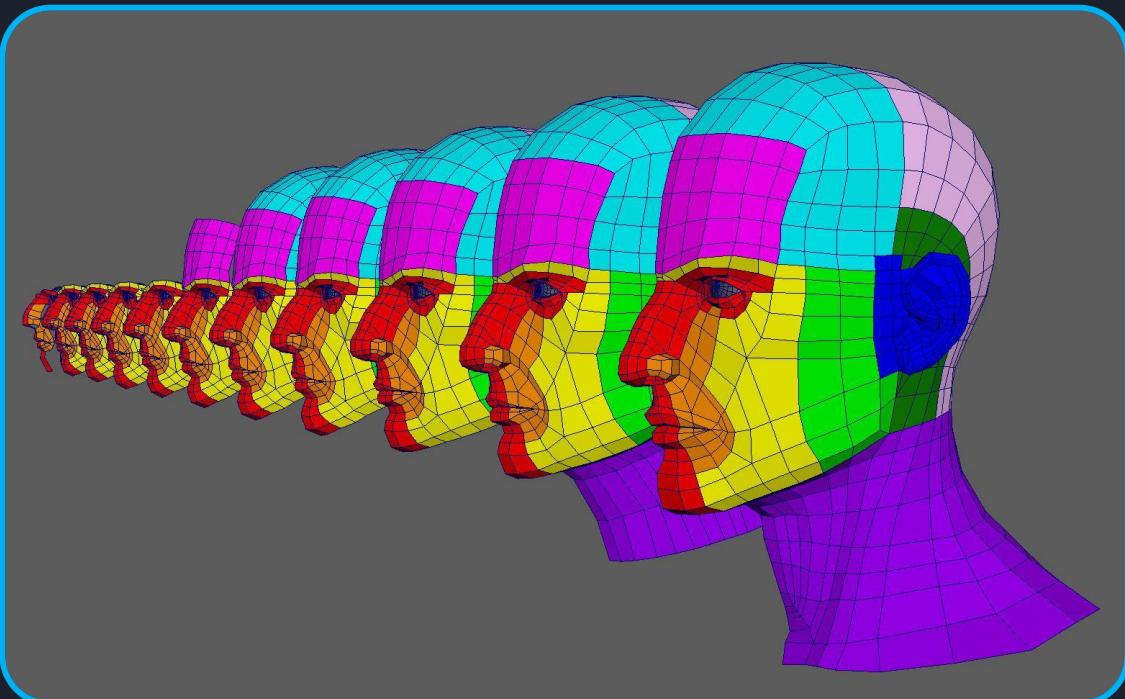
This lesson will get you started with components.

Topics will be:

1. What are components?
2. Component modes
3. Basic selection
4. Advanced selection
5. Component display

Maya|What are Components?

Components allow you to make complex models.



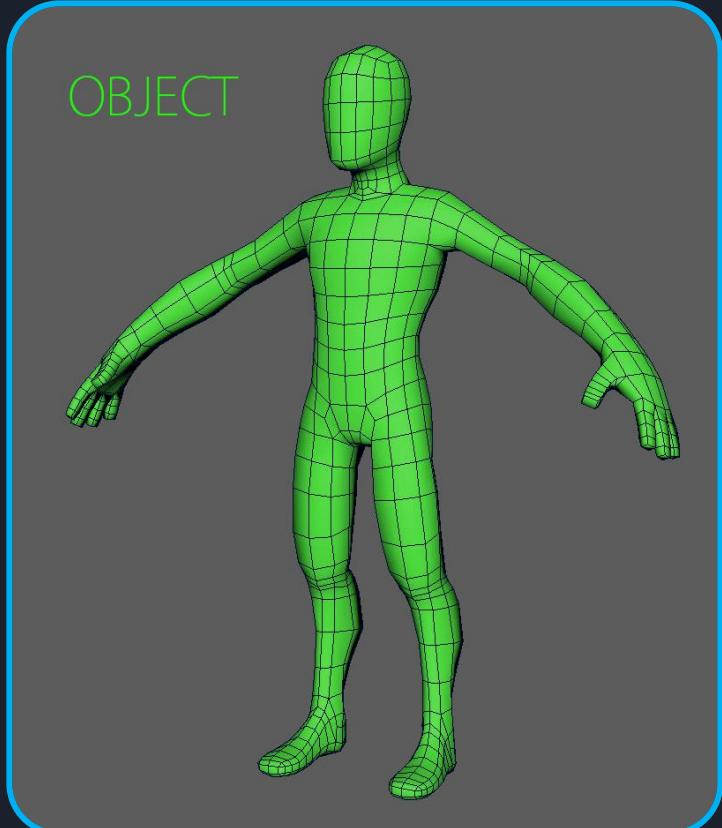
- Components are the building blocks of a polygon object.
- They allow you to change the form and structure of an object.
- In order to make more complex models from primitive geometry, you will need to manipulate components.



Next: Polygon Objects

SPECIALIST EDUCATORS IN
GAMES, ANIMATION & FILM VFX

Maya|What are Components?



Polygon Object



- Face
- Edge
- Vertex

Objects are made up of components.

- Faces
- Edges
- Vertices

Many faces stitched together will create what we call a polygonal mesh or object.



Next: Breaking down polygons (Vertex)
SPECIALIST EDUCATORS IN GAMES, ANIMATION & FILM VFX

Maya|What are Components?

Breakdown of components



Vertex

VERTEX

- A vertex is a point at the intersection of two or more edges.
- Vertices are manipulated to make detailed changes to an object.
- You will learn later that vertices can contain more information than just 3D positional data.

Maya|What are Components?

Breakdown of components



Edge
Vertex

EDGE

- Edges form the borders of a face.
- Edges are used to make detailed changes to the borders of connected faces.

Maya|What are Components?

Breakdown of components



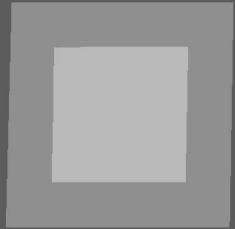
Face
Edge
Vertex

FACE

- Faces are visible to the render engine and so are used to create the surface of 3D models.
- Faces are manipulated to make broad changes to objects.
- Faces are often referred to as polygons or polys.
- Faces can be triangles, Quadrangles or Ngons (more than 4 side)

Maya|Set the Lesson Project

Component Selection



Match the Shape



Fix the Face



Shape the Knife



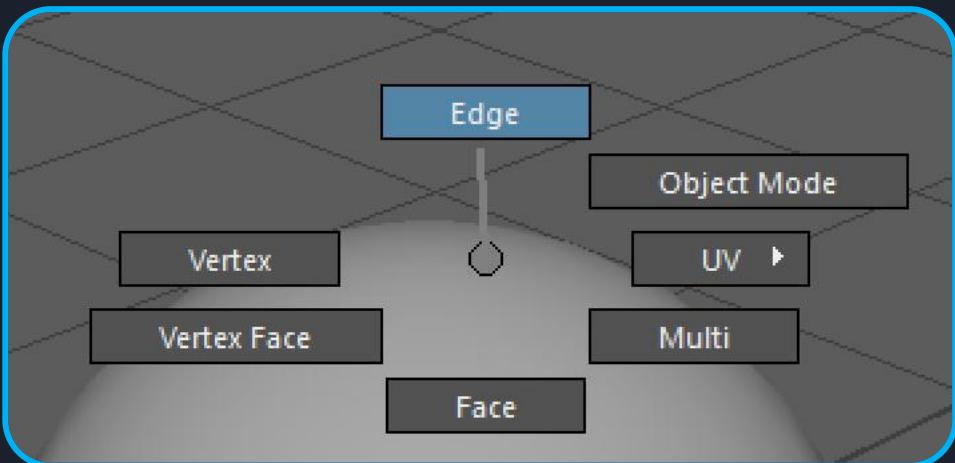
Setup

Before getting started, let's setup the lesson project.

- Copy the Project folder, **Project-MayalIntro_Components** to your desktop
- Set the folder as your project.
- Open the scene: **MayalIntro_Components_Scene.mb**

Maya|Selection

Component Modes

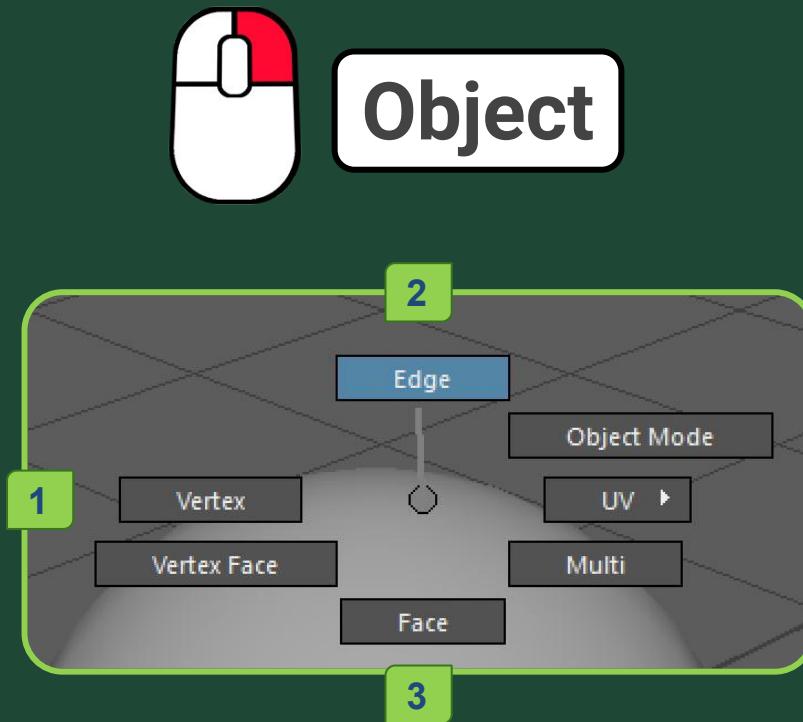
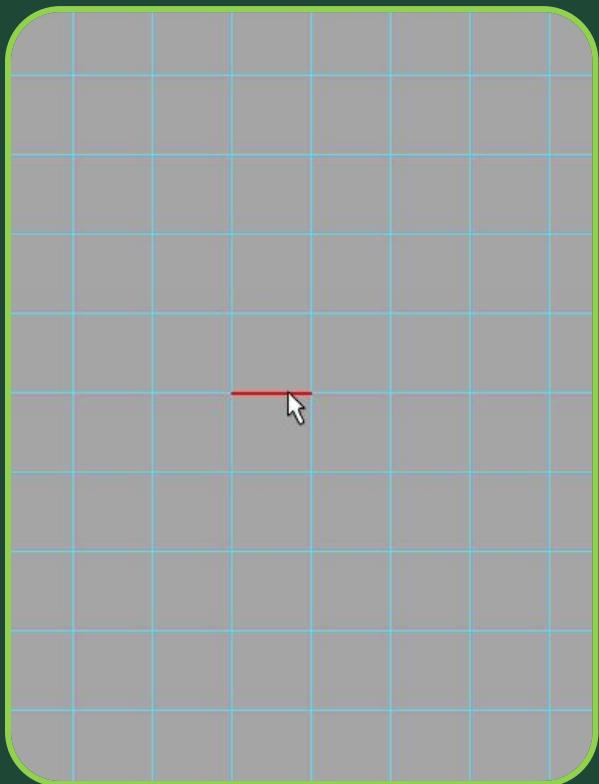


COMPONENTS MODES

- In order to edit components, you need to enter a component mode.
- You can use the Marking menu to quickly access all of the component modes.
- Selecting Edge, Vertex or Face when hovering the mouse over an object, will allow you to enter a component mode on the object.

Maya|Component Modes

Using marking menu to select component mode



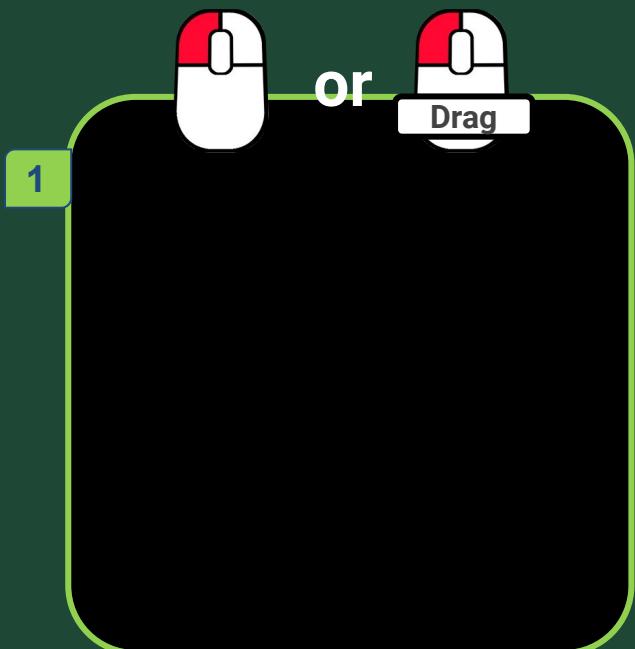
COMPONENTS

Right mouse button click on the grey plane under the Component Selection heading and select the following components from the list.

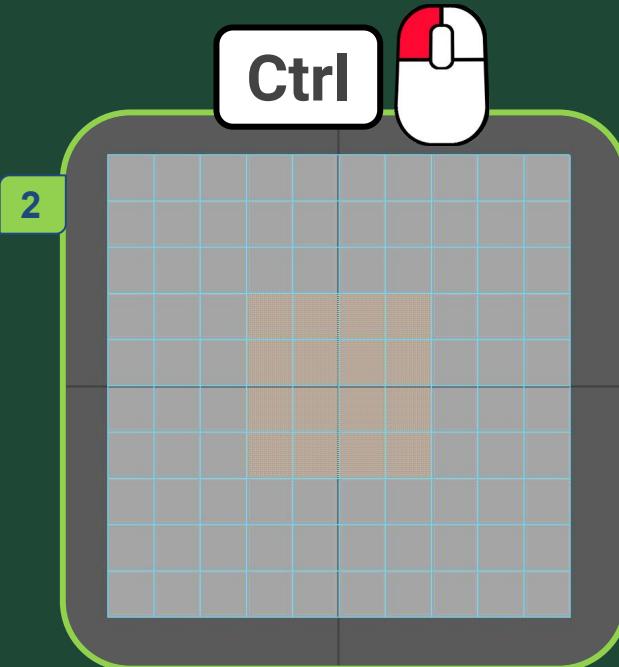
1. VERTEX MODE
flick to the left
2. EDGE MODE
flick up
3. FACE MODE
flick down

Maya|Basic Selection

SELECT COMPONENTS



DESELECT COMPONENTS

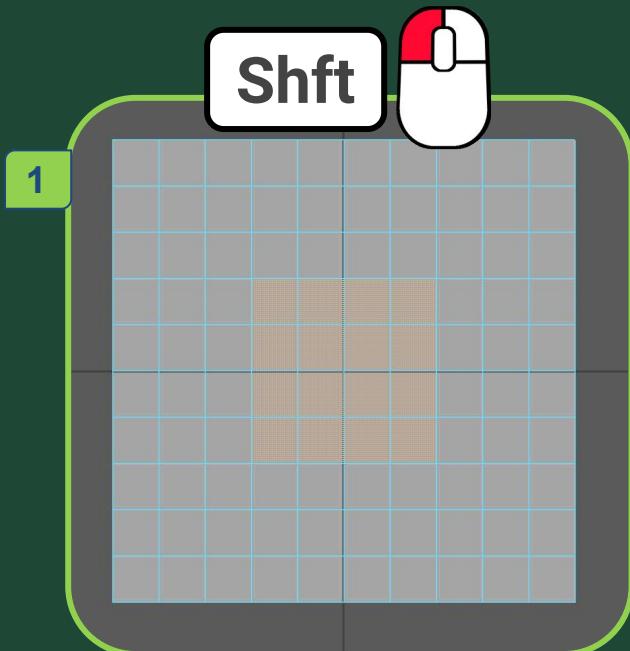


SELECT & DESELECT

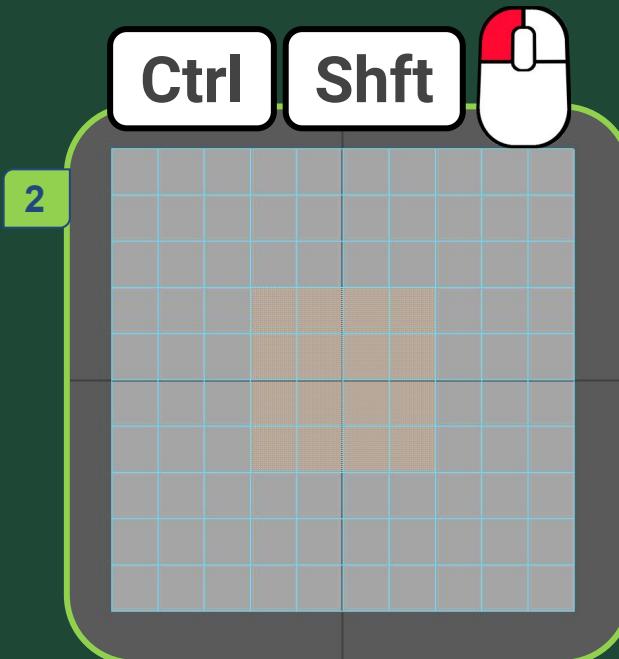
1. **SELECT**
Left Mouse button click or drag will select components.
2. **DESELECT**
Left Mouse click in a blank area of the viewport. Or, Left Mouse button plus Control click or drag will deselect components selectively.

Maya|Inverse and Add Selection

INVERSE SELECT



ADD SELECT

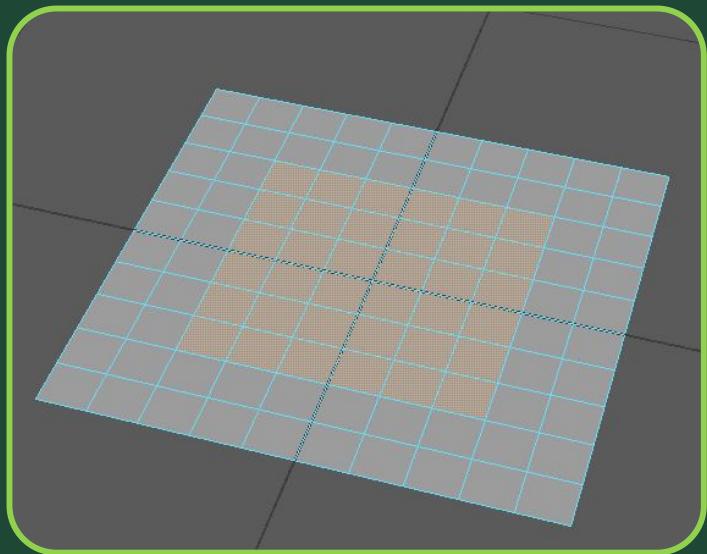


INVERSE & ADD SELECT

1. INVERSE SELECT
Left Mouse button click plus shift and drag will invert select components
2. ADD SELECT
Left Mouse button plus Control and shift click and drag will add select components

Maya|Components|Selection

transform components



Q = SELECT

W = MOVE

E = ROTATE

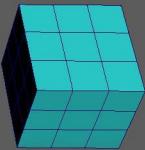
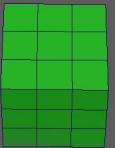
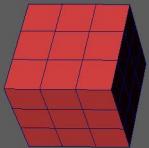
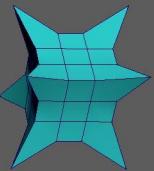
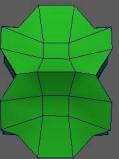
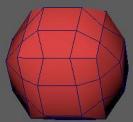
R = SCALE

COMPONENT TRANSFORM

You transform components in the same way that you transform objects.

Tip: If you hold down Ctrl, you can constrain scaling to the selected axis.

Exercise|Match the Shapes



Using the different component types and selection methods, edit the cubes to match the reference shapes.

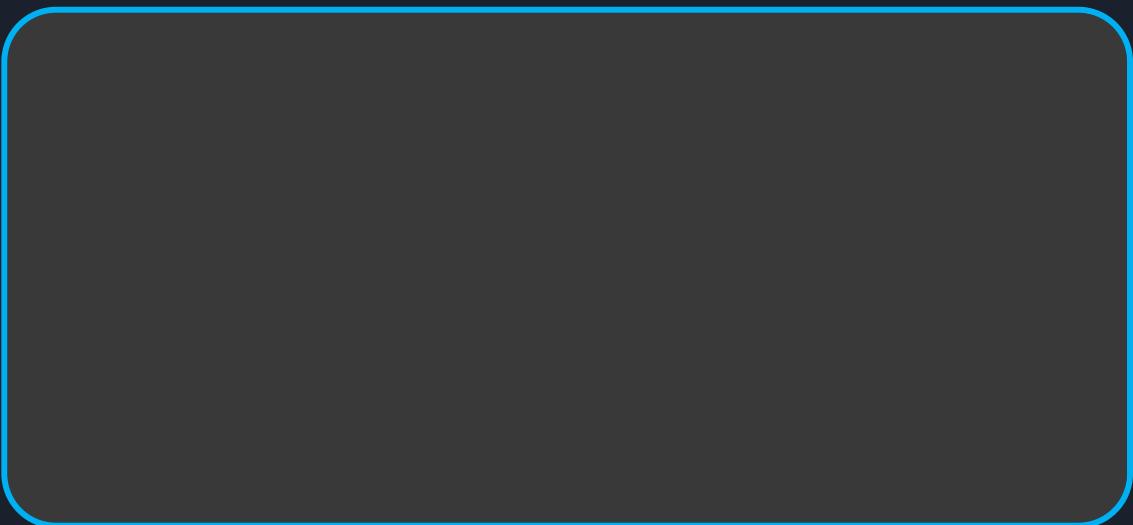
You have 10 mins

Maya|Components|Selection

Advanced Selection

COMPONENTS MODES

- There are a number of different ways to select components that make them easier to work with.



Next:

Grow/Shrink selection

Maya|Components|Selection

Grow/Shrink selection

Shft + >

= Grow
Selection

Shft + <

= Shrink
Selection

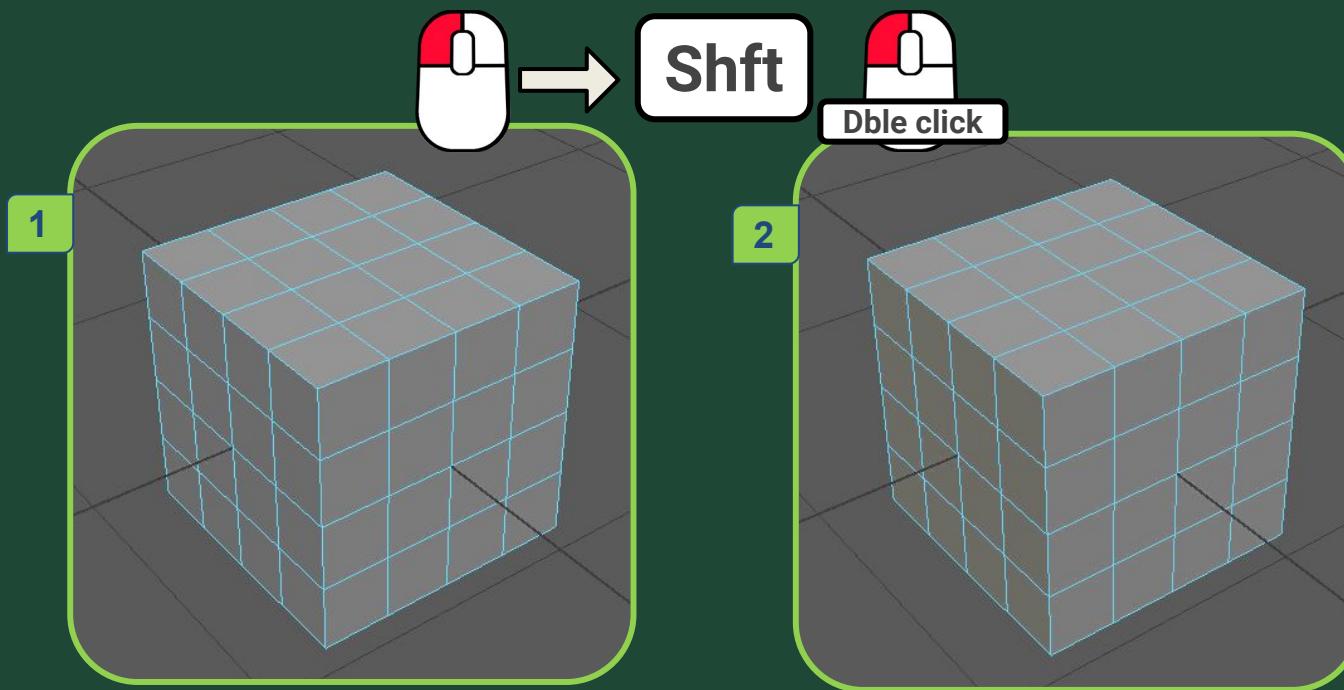
FACE, EDGE, VERTEX

Grow/shrink selection, allows you to select a components and easily increase or decrease the the number of selected components around it.

- Select a Face, vertex or Edge.
- Hold down Shift and press the > key to grow the selection.
- Hold down Shift and press the < key to shrink the selection.

Maya|Components|Selection

Ring Selection



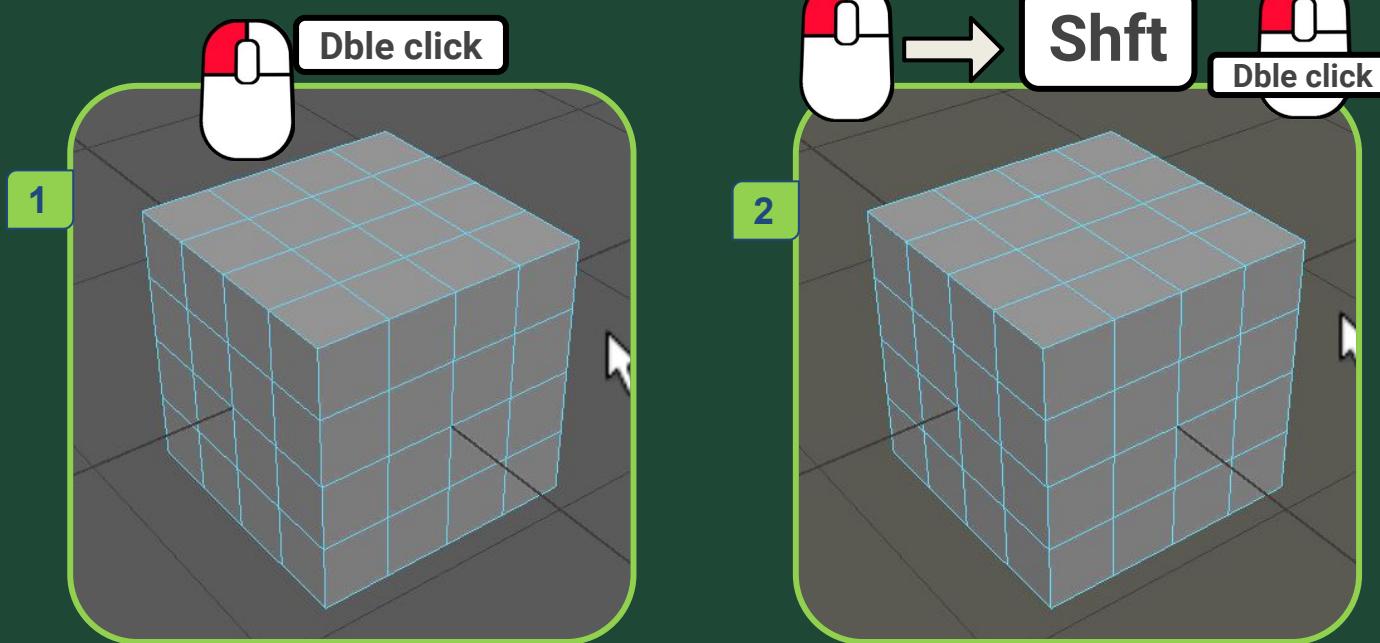
FACE or EDGE

Ring selection allows you to select a ring of faces or edges around an object. This is great for shaping and manipulating the profile of an object.

- 1. PARTIAL RING SELECT**
Select a face or edge. Hold Shift and double left click on the last face or edge you would like to include in your selection.
- 2. FULL RING SELECT**
Select a face or edge. Hold Shift and double the face or edge next to it to make a complete ring selection.

Maya|Components|Selection

Edge loop selection



EDGE MODE

Loop selection allows you to select a loop of edges around an object. This is great for finer shaping and manipulating the profile of an object.

- 1. EDGE LOOP**
Left double click on an edge to select an edge loop.
- 2. PARTIAL EDGE LOOP**
Select an edge. Hold Shift and double click on the last edge you would like to include in your loop selection.

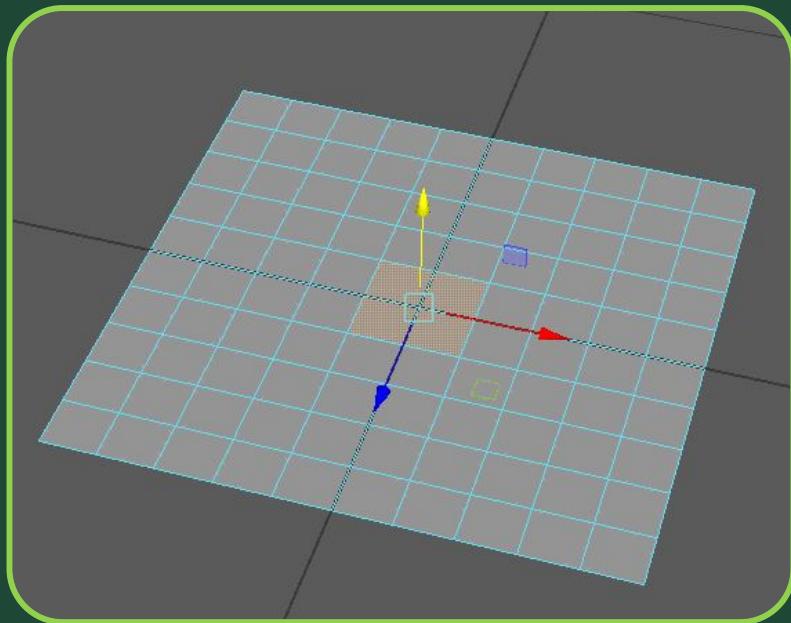
Exercise|Fix the Knife

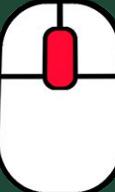
Using the different component selection methods, modify the knife blade and shape the handle to match the template.

You have 15 mins

Maya|Components|Selection

Soft Select components



- B** = Toggle Soft Select
- B**  = Alter Soft select size

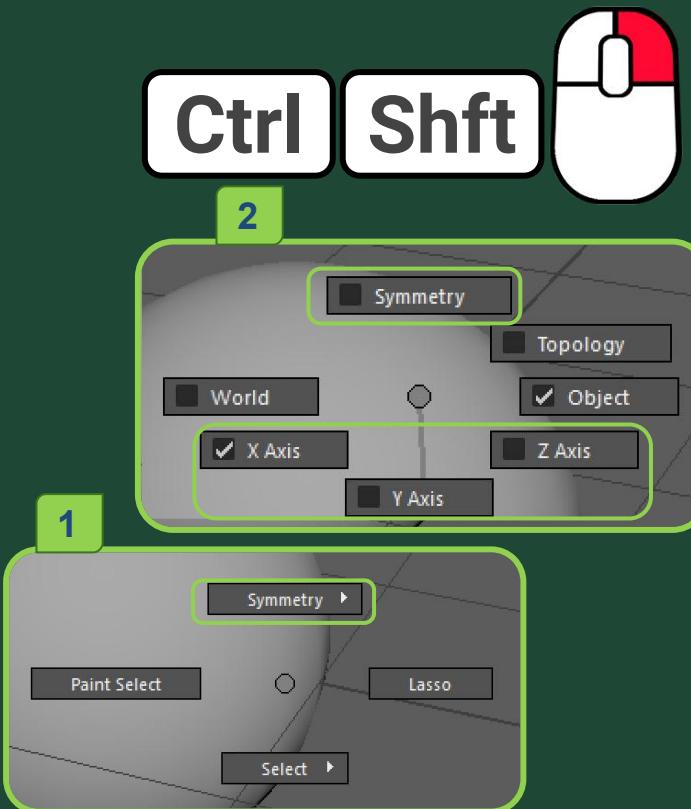
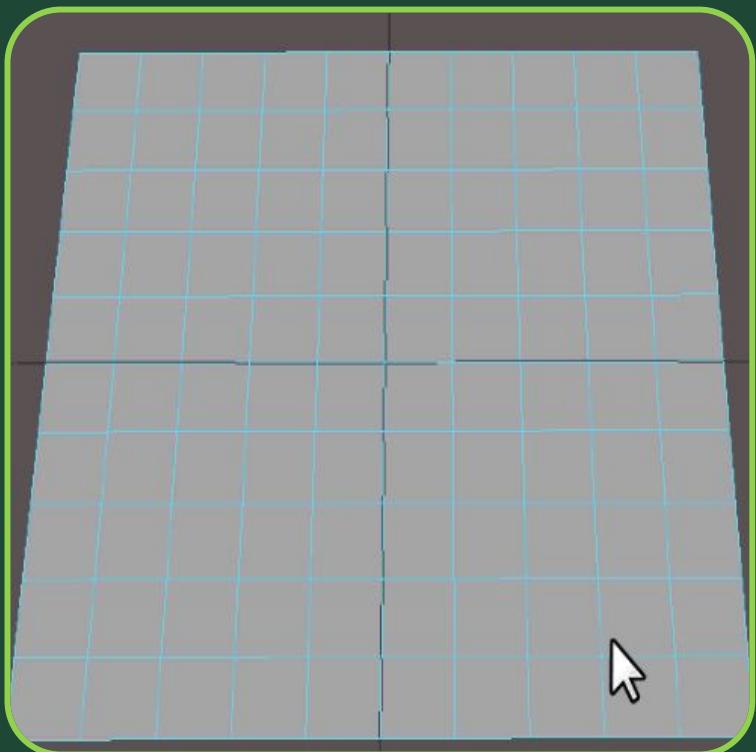
SOFT SELECT

Soft select allows you to increase the area of influence that a selected component has. This is great for organic modelling and refining tapered shapes.

You can toggle soft selection on and off by tapping the B key in component mode. To increase the radius of soft selection hold down the B key and left/middle mouse button, and drag left and right.

Maya|Components|Selection

component symmetry



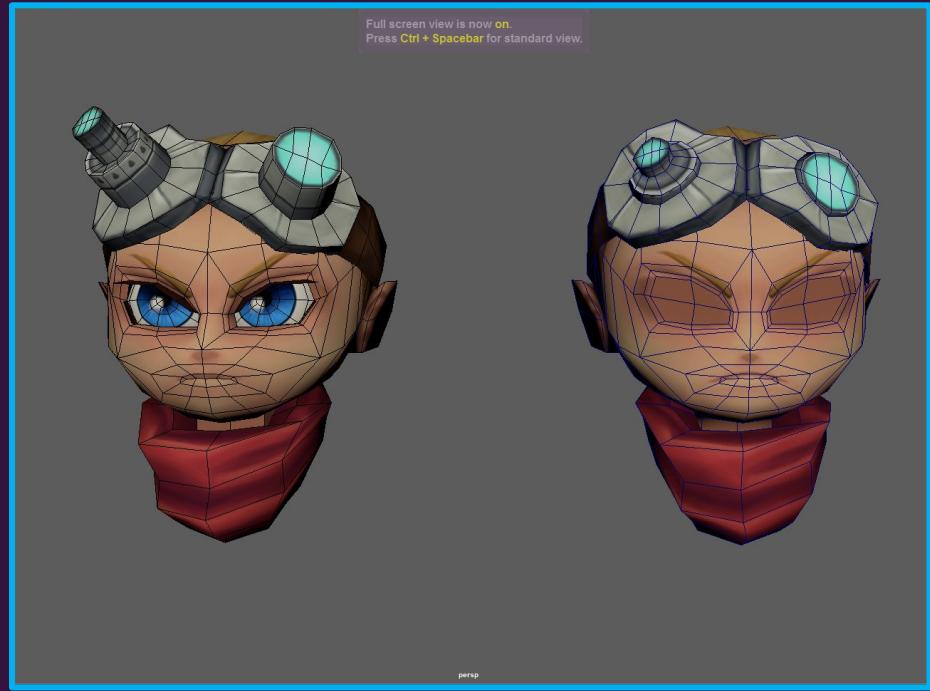
SYMMETRY

Symmetry is a great way to work on objects that are symmetrical eg the human face.

1. Using the Tool setting
Marking Menu select
symmetry
2. Turn on the Symmetry
and set the axis. The
ticked box indicates
what is on.

NOTE: Axis symmetry only works across the centre of the grid.
When working off the grid use object symmetry.

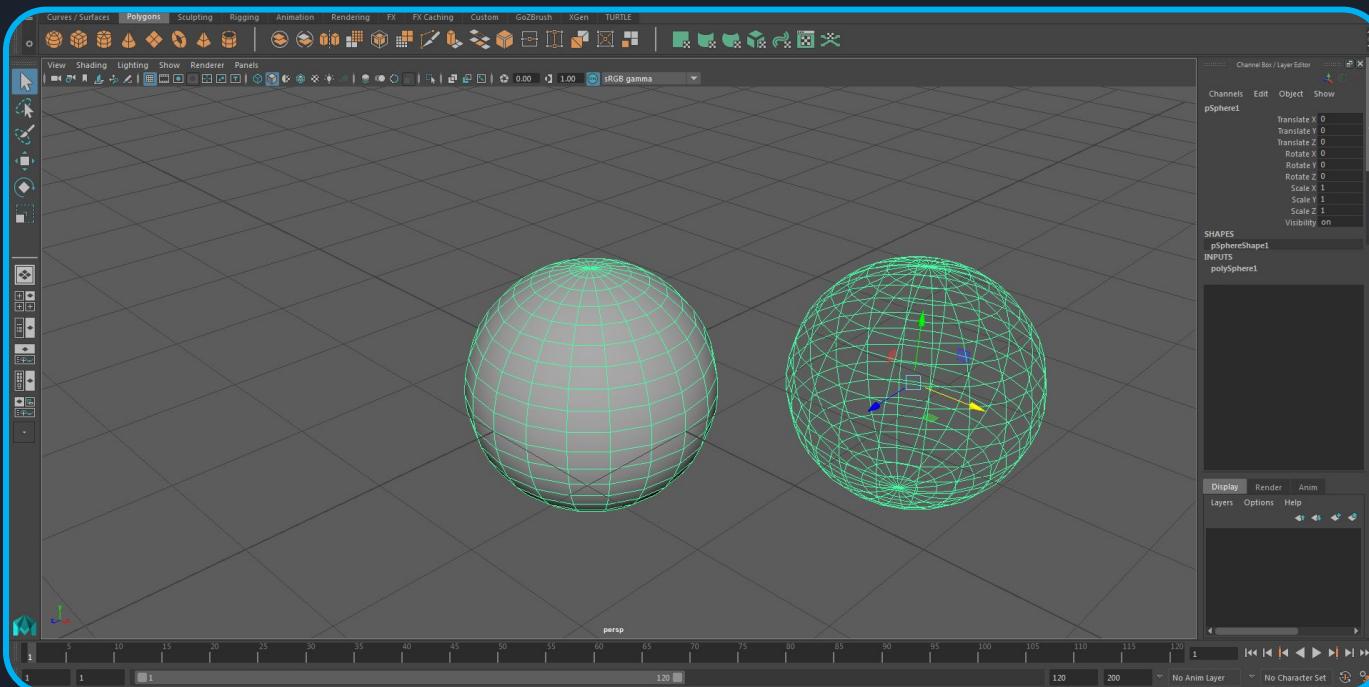
Exercise|Fix the face



Using the component selection and transform methods, modify the model on the right to match the example on the left.

You have 15 mins

Maya|Components|Display



Object can be displayed in a number of ways to help with modelling.

Maya|Components|Display

You can switch between various display modes with the number keys.

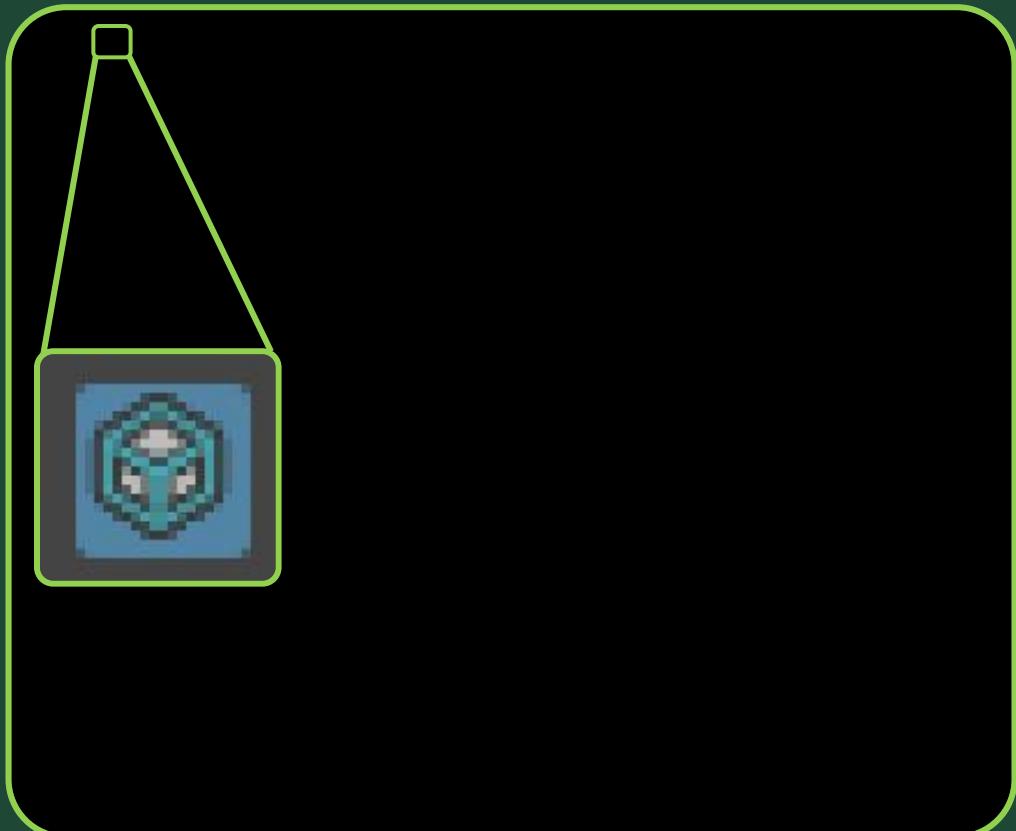
4 = WIREFRAME

5 = SHADED

6 = TEXTURE



Maya|Components|Display



Wireframe on shaded, overlays a wireframe on your shaded model.

Click on the wireframe on shaded icon in the viewport to activate it.

This can be useful when modelling to visualise your geometry.

Exercise|Sky Ladder



Create a Sky Ladder.
Open Skyladder_Scene.mb

Use the geometry in the box to assemble a sky ladder. You will need to manipulate the components on objects to create the appropriate shapes. Use the orthographic viewports to help align objects.

You have 1 hour