

# Working with Components

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



# Maya|Components|Contents



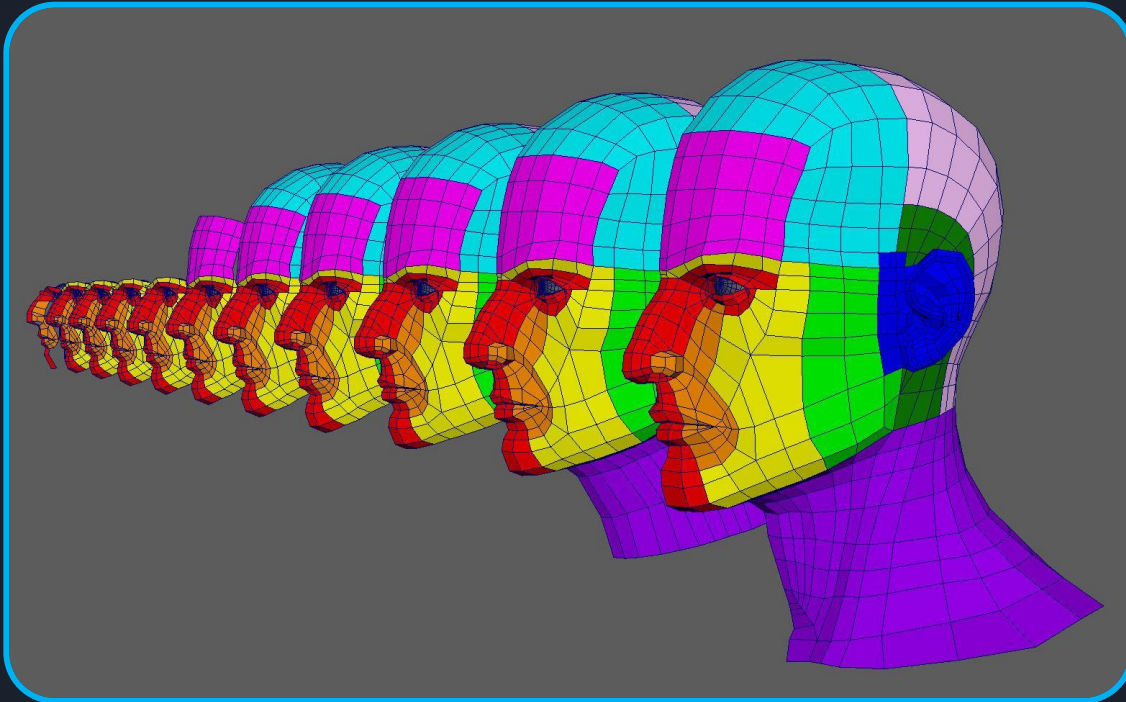
This lesson will get you started with components.

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.

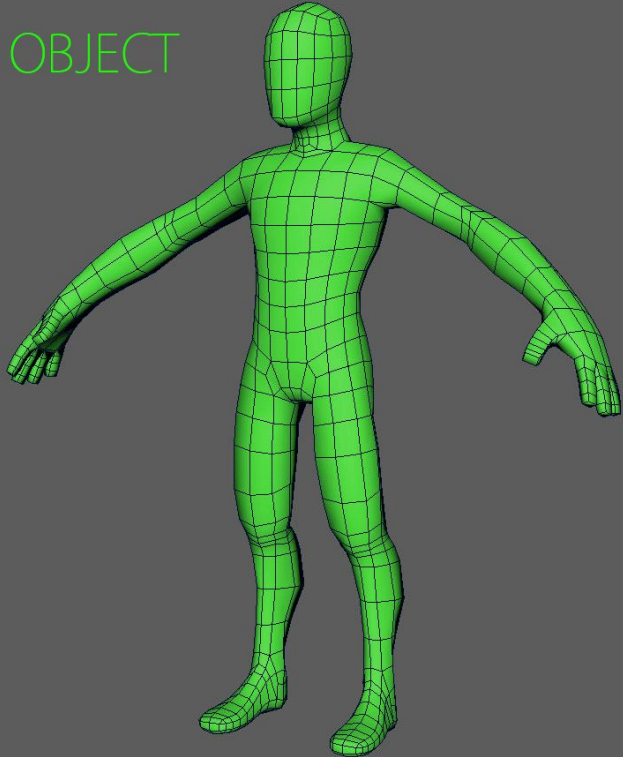


- Components are the building blocks of a polygon object.
- They allow you to change the form and structure of an object.
- In order to make more complex models from primitive geometry, you will need to manipulate components.

Next: Polygon  
Objects

# Maya|What are Components?

OBJECT



## 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.

# 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.

Next: Edge

# 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.

Next: Face

# Maya | What are Components?

Breakdown of components



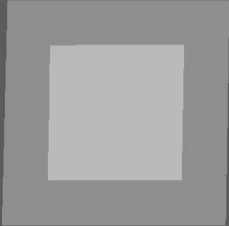
Face  
Edge  
Vertex

## 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

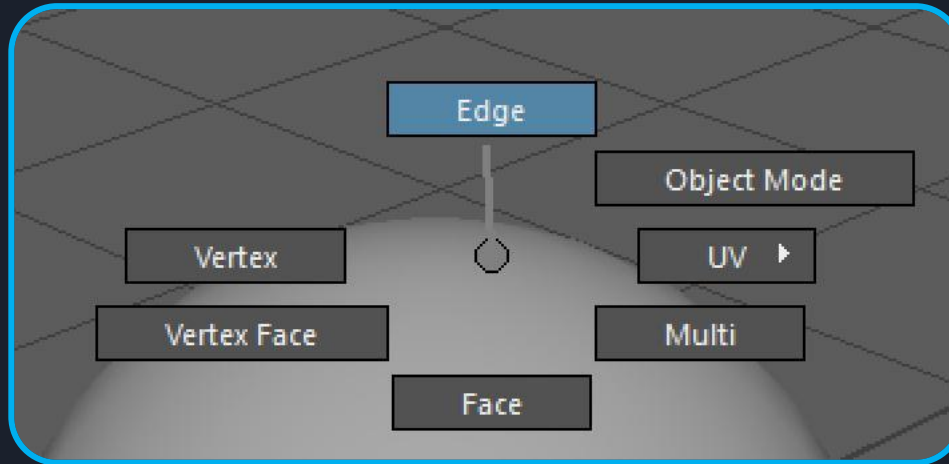


## Setup

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

- Copy the Project folder, **Project-MayaIntro\_Components** to your desktop
- Set the folder as your project.
- Open the scene: **MayaIntro\_Component s\_Scene.mb**

## Component Modes

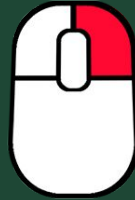
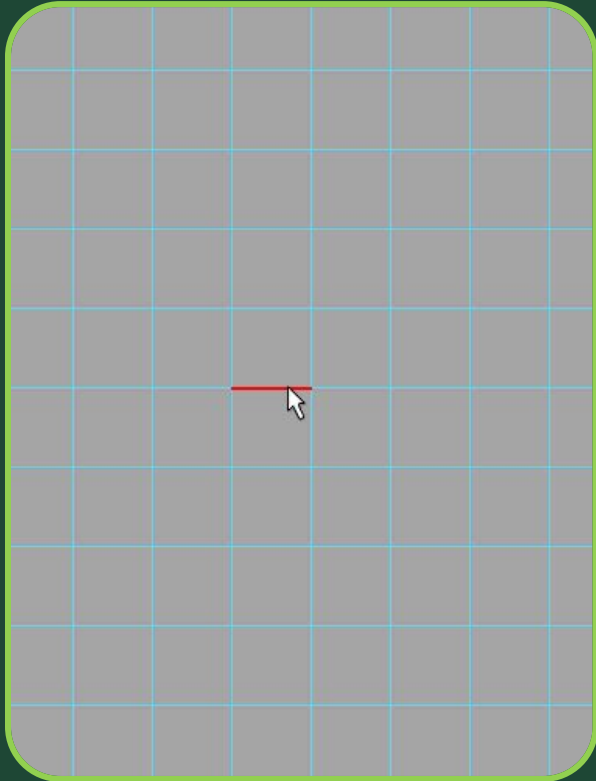


### COMPONENTS MODES

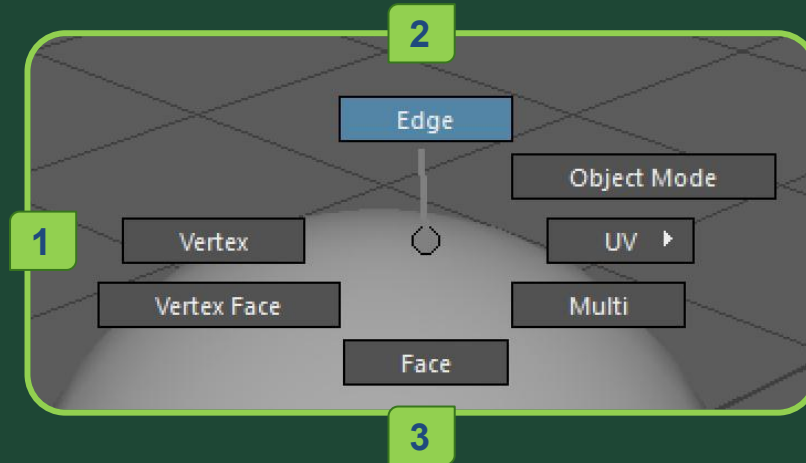
- In order to edit components, you need to enter a component mode.
- You can use the Marking menu to quickly access all of the component modes.
- Selecting Edge, Vertex or Face when hovering the mouse over an object, will allow you to enter a component mode on the object.

# Maya|Component Modes

Using marking menu to select component mode



Object



## COMPONENTS

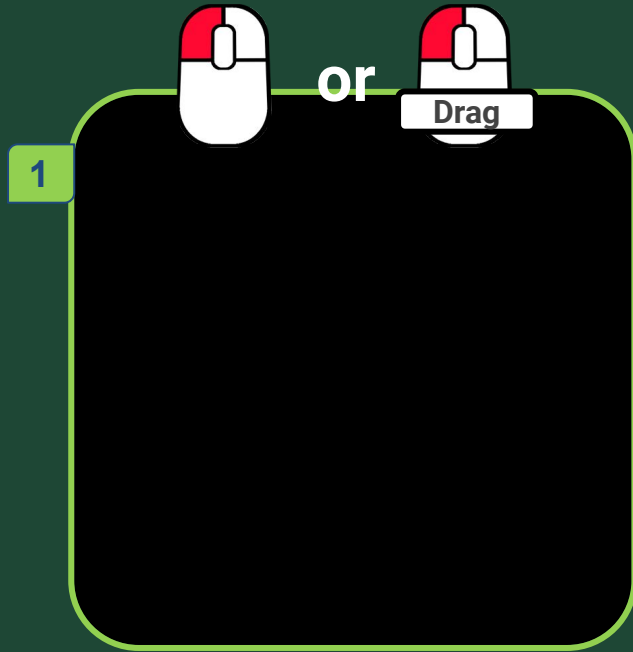
Right mouse button click on the grey plane under the Component Selection heading and select the following components from the list.

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

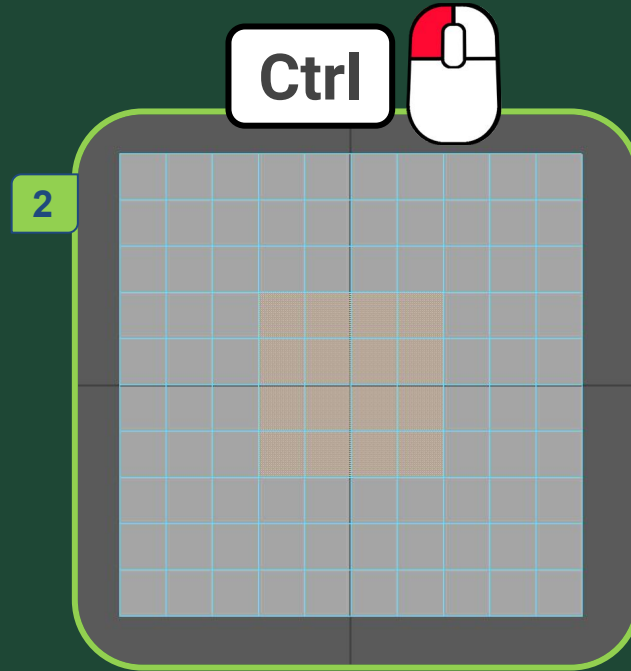
Next:  
Selections

# Maya|Basic Selection

## SELECT COMPONENTS



## DESELECT COMPONENTS



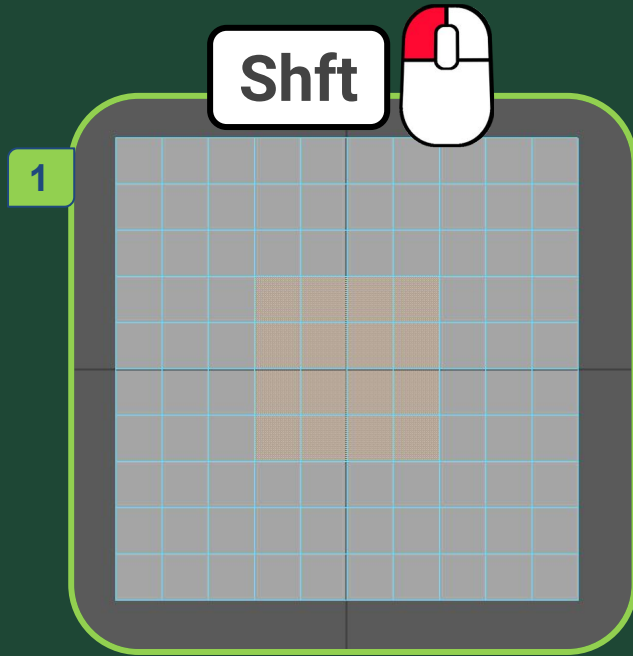
## SELECT & DESELECT

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.

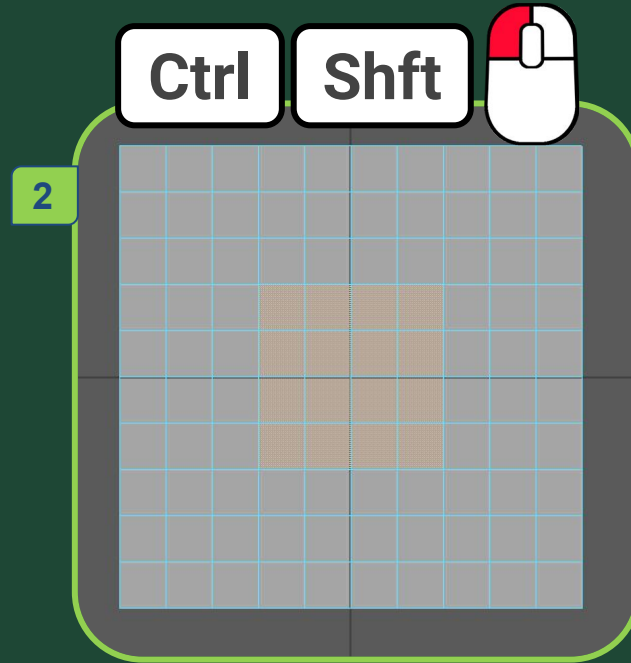
Next: Invert  
Selection

# Maya|Inverse and Add Selection

## INVERSE SELECT



## ADD SELECT



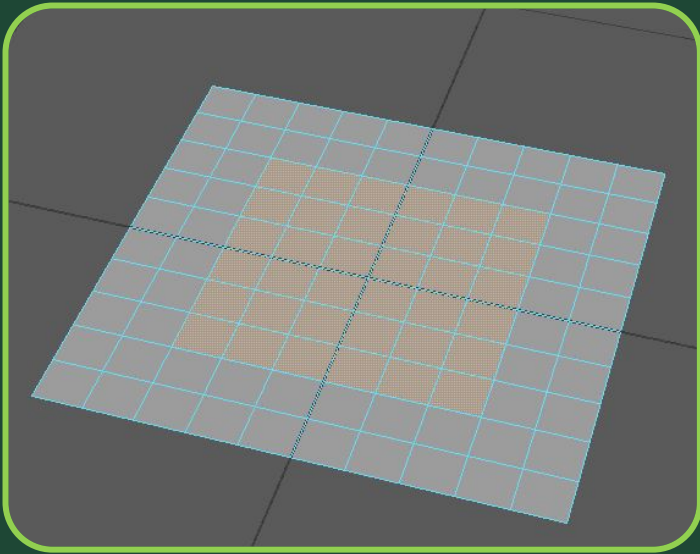
## INVERSE & ADD SELECT

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

Next: Move  
selection

# Maya|Components|Selection

transform components



**Q** = SELECT

**W** = MOVE

**E** = ROTATE

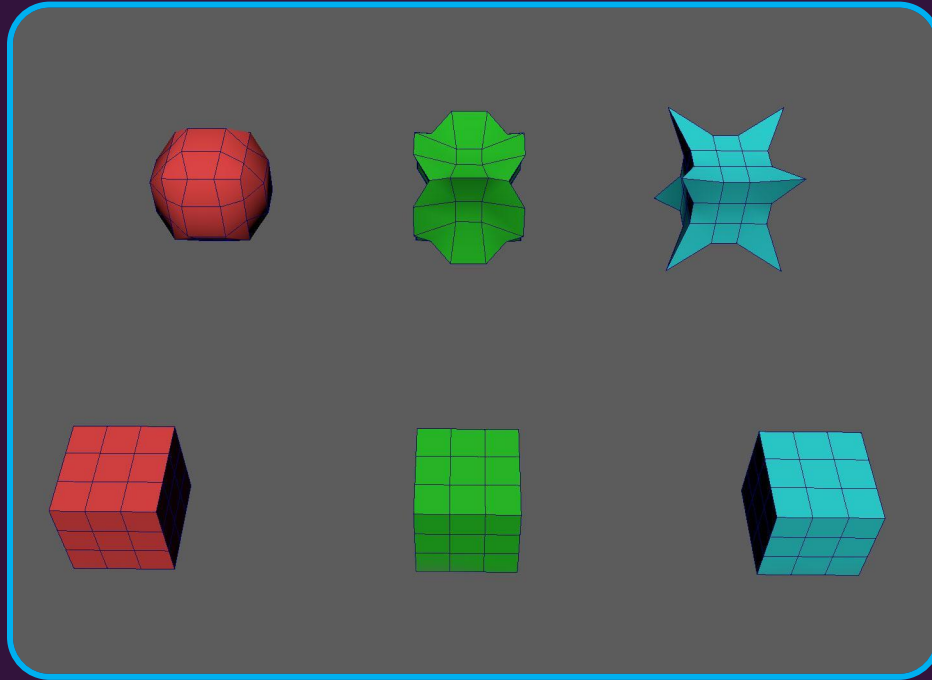
**R** = SCALE

## 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.

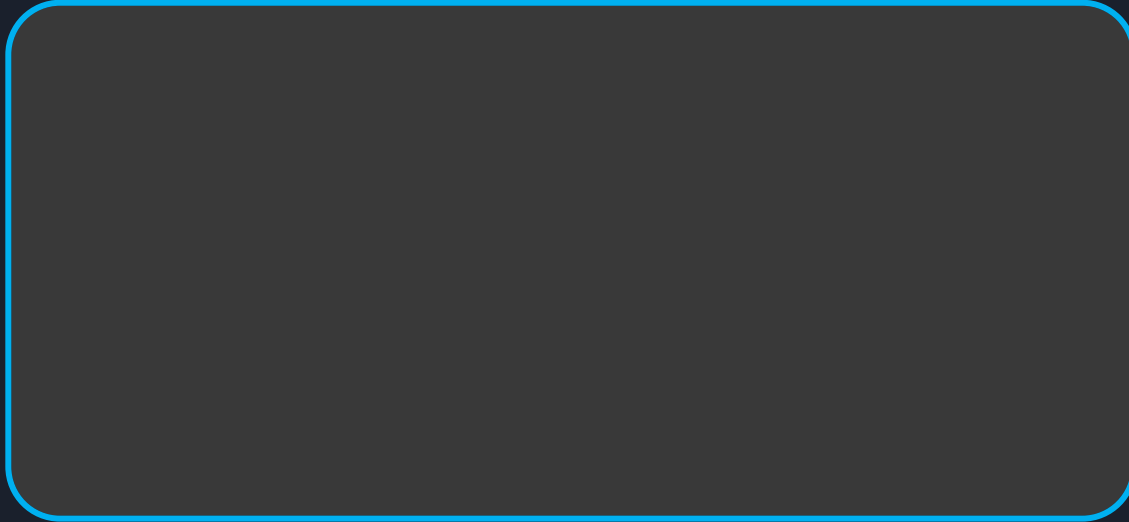
# Exercise | Match the Shapes



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

You have 10 mins

## Advanced Selection



### COMPONENTS MODES

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

# Maya|Components|Selection

## Grow/Shrink selection



Shift + >

= Grow  
Selection

Shift + <

= Shrink  
Selection

### FACE, EDGE, VERTEX

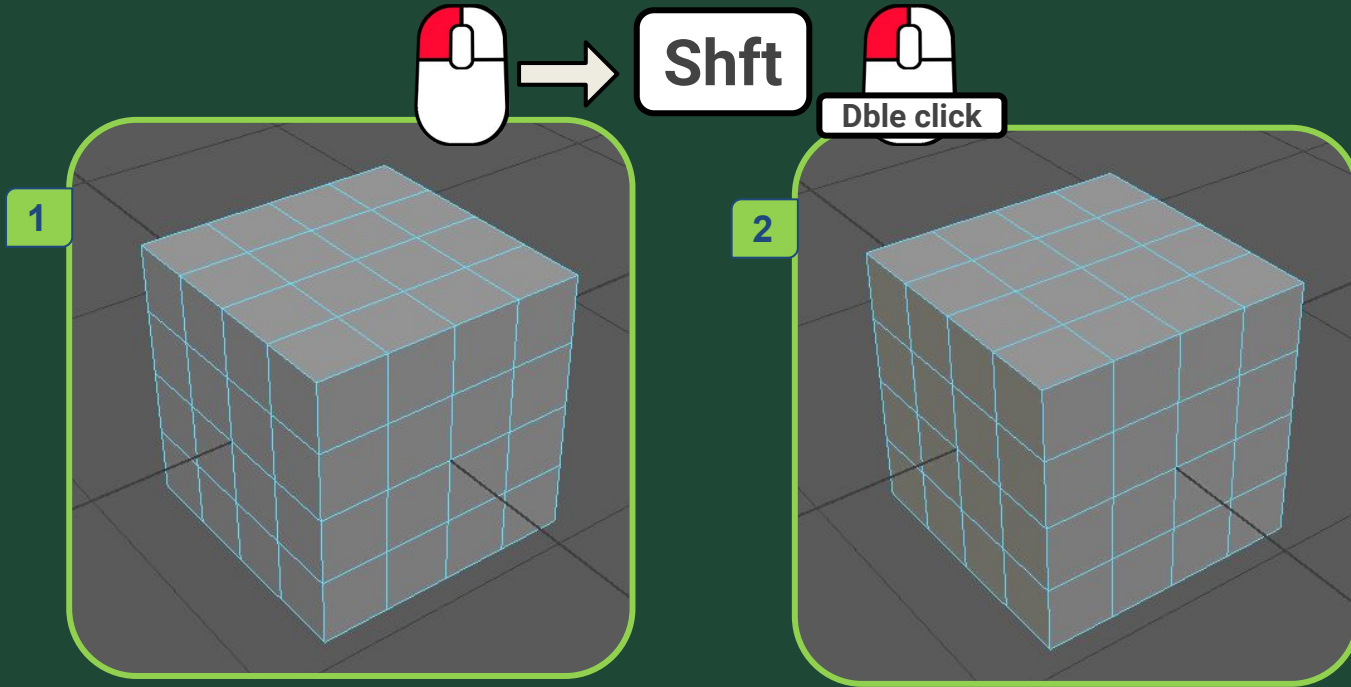
Grow/shrink selection, allows you to select a components and easily increase or decrease the the number of selected components around it.

- 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.

Next: Ring  
selection

# Maya|Components|Selection

## Ring Selection



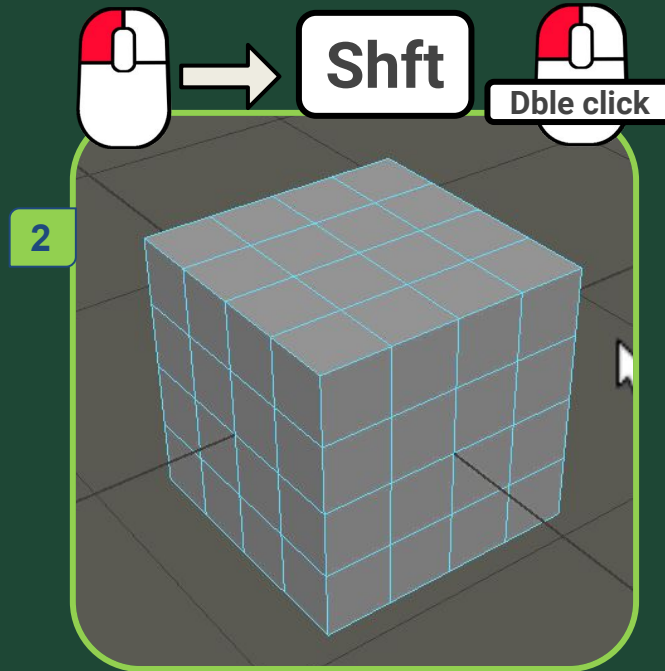
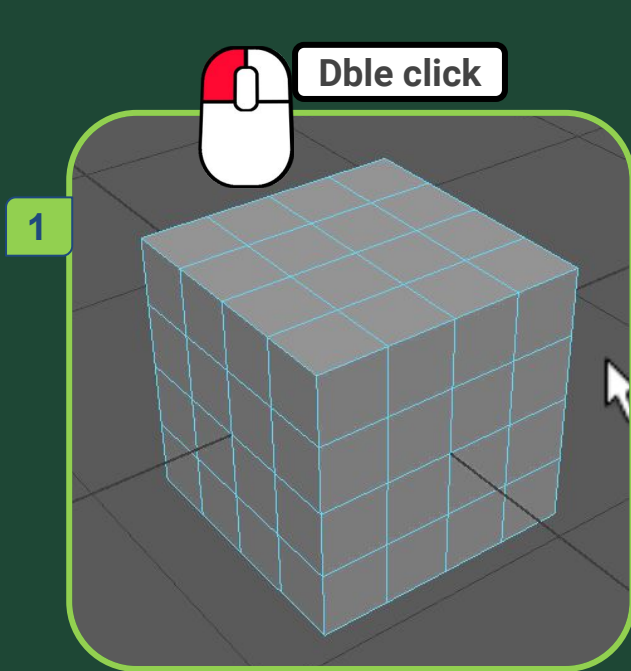
### FACE or EDGE

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

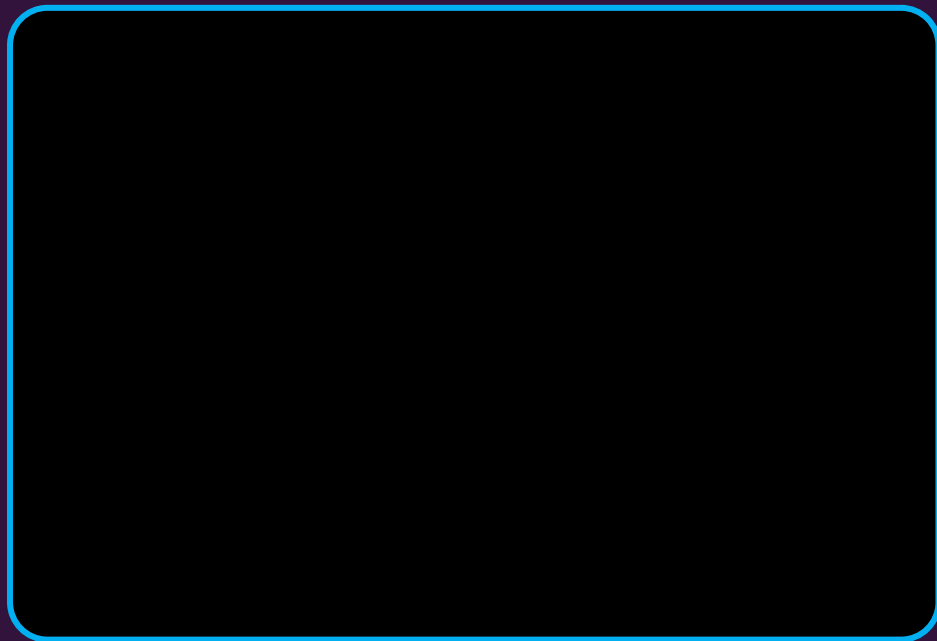


### EDGE MODE

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



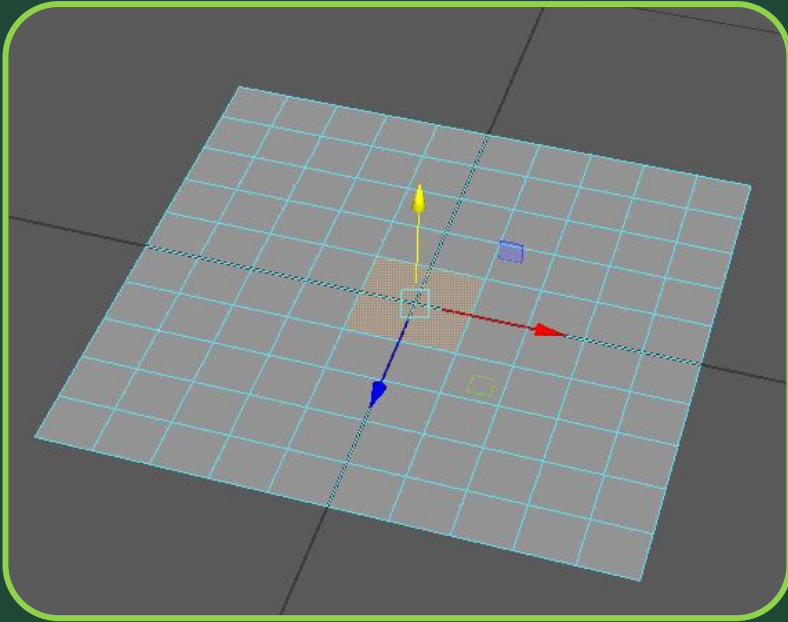
Using the different component selection methods, modify the knife blade and shape the handle to match the template.

You have 15 mins

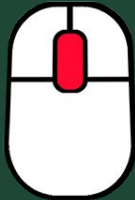
Next: Soft  
selection

# Maya|Components|Selection

## Soft Select components



**B** = Toggle Soft Select

**B**  = Alter Soft select size

### SOFT SELECT

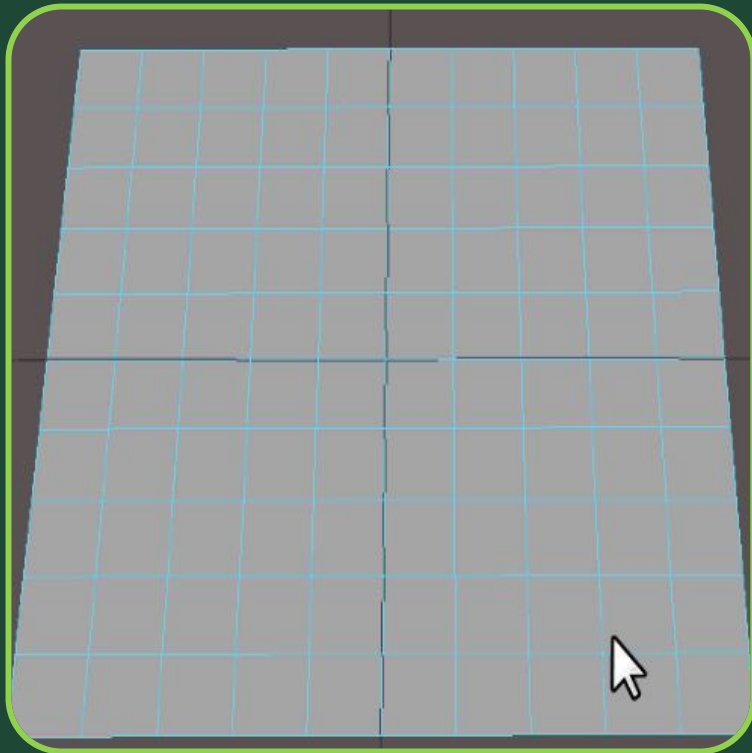
Soft select allows you to increase the area of influence that a selected component has. This is great for organic modelling and refining tapered shapes.

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.

Next:  
Symmetry

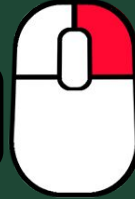
# Maya|Components|Selection

## component symmetry

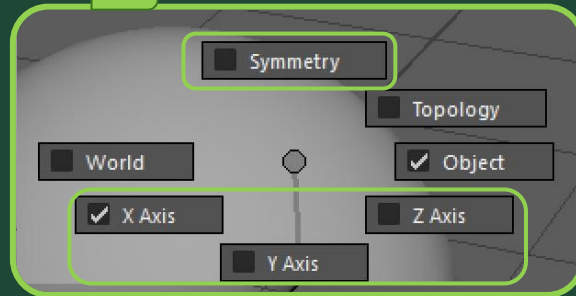


Ctrl

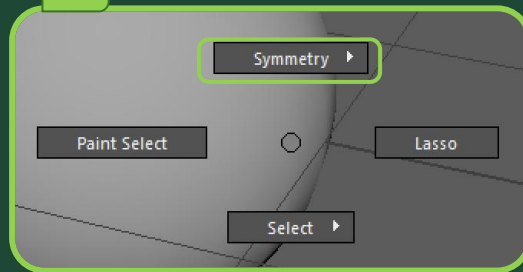
Shift



2



1



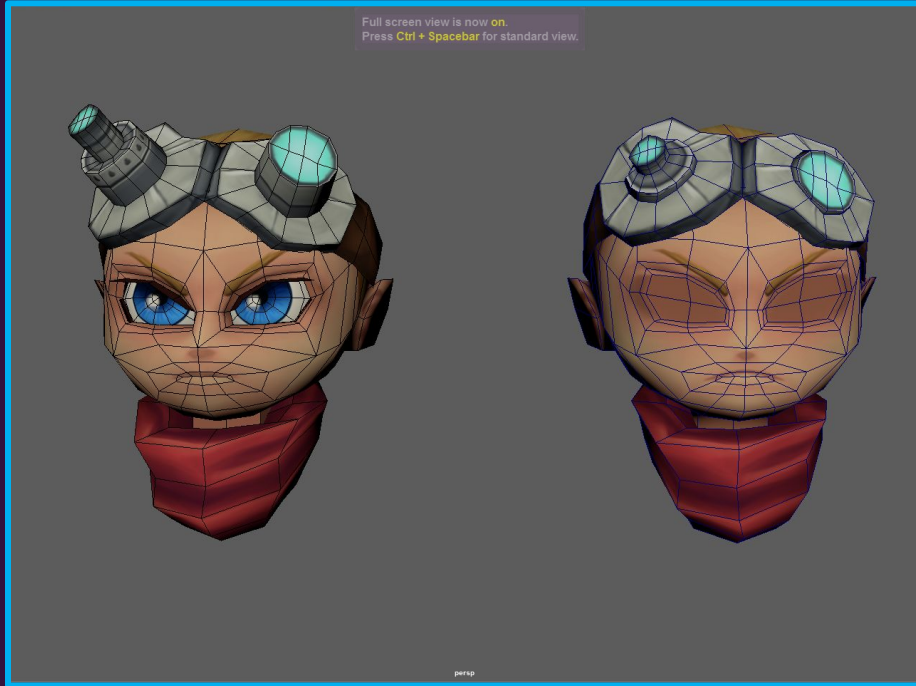
## SYMMETRY

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



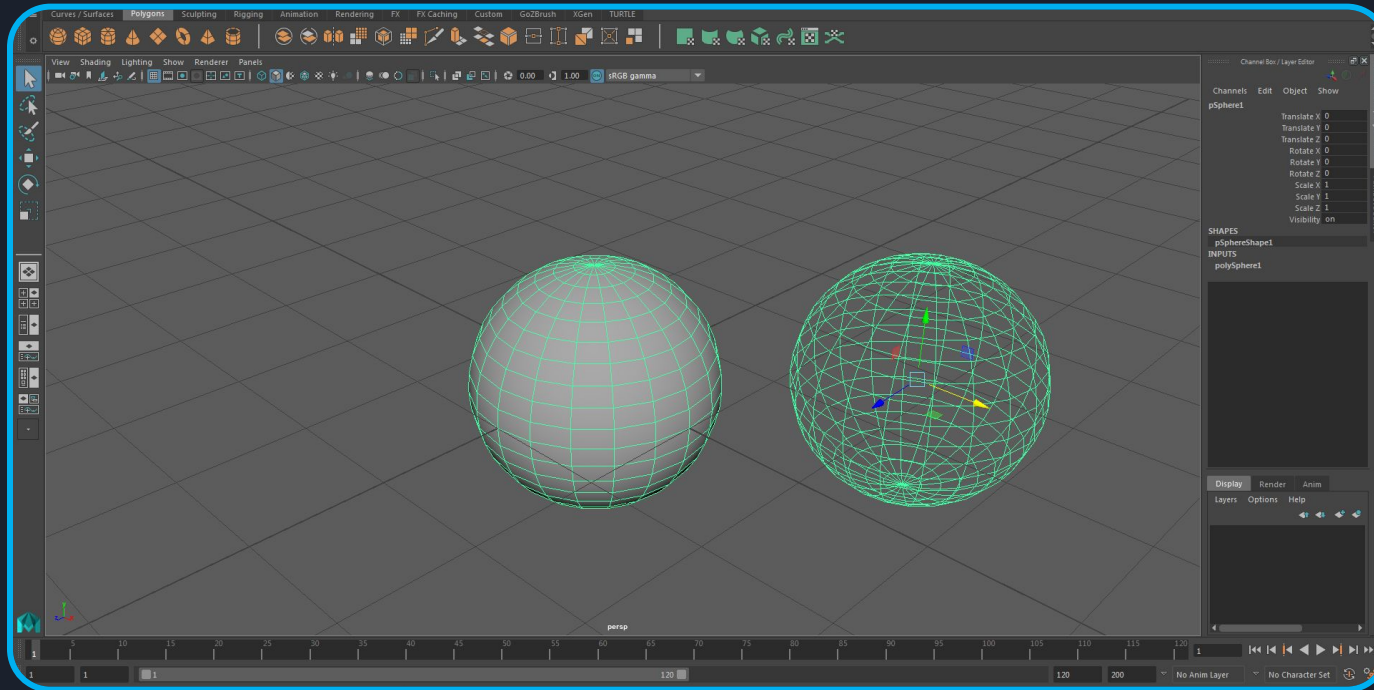
Using the component selection and transform methods, modify the model on the right to match the example on the left.

You have 15 mins

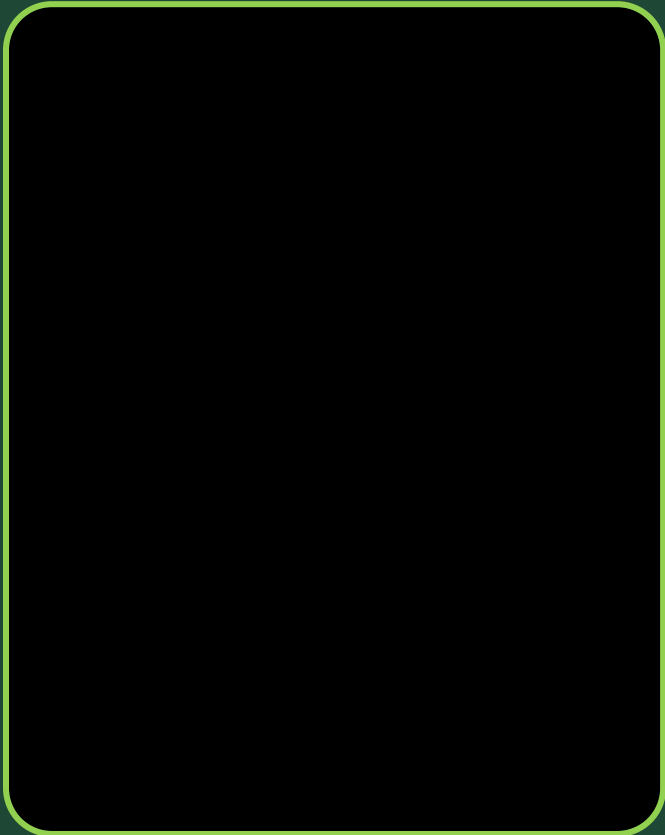
Next: Display

# Maya|Components|Display

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



# Maya|Components|Display



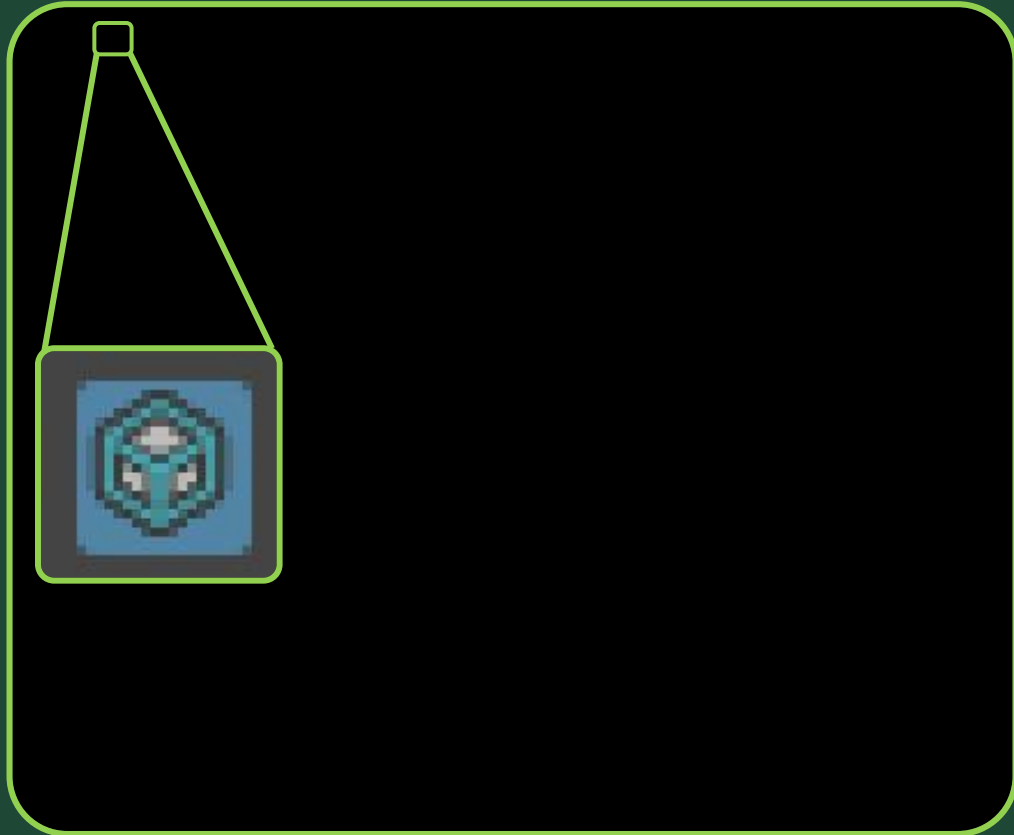
**4** = WIREFRAME

**5** = SHADED

**6** = TEXTURE

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

# 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.

Next: Final  
exercise

# 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