

Introducing
Blender
Version 3.2.2



The Complete Guide to **Blender Graphics** Computer Modeling & Animation

EIGHTH EDITION

Volume 2

JOHN M. BLAIN



CRC Press
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AN A K PETERS BOOK

The Complete Guide to Blender Graphics

Blender™ is a **free Open-Source 3D Computer Modeling and Animation Suite** incorporating Character Rigging, Particles, Real World Physics Simulation, Sculpting, Video Editing with Motion Tracking and 2D Animation within the 3D Environment.

Blender is **FREE** to download and use by anyone for anything.

The Complete Guide to Blender Graphics: Computer Modeling and Animation, Eighth Edition is a unified manual describing the operation of the program, updated with reference to the Graphical User Interface for **Blender Version 3.2.2**, including additional material covering **Blender Assets, Geometry Nodes, and Non-Linear Animation**.

Divided into a two-volume set, the book introduces the program's Graphical User Interface and shows how to implement tools for modeling and animating characters and created scenes with the application of color, texture, and special lighting effects.

Key Features:

- The book provides instruction for New Users starting at the very beginning.
- Instruction is presented in a series of chapters incorporating visual reference to the program's interface.
- The initial chapters are designed to instruct the user in the operation of the program while introducing and demonstrating interesting features of the program.
- Chapters are developed in a building block fashion providing forward and reverse reference to relevant material.

Both volumes are available in a discounted set, which can also be purchased together with **Blender 2D Animation: The Complete Guide to the Grease Pencil**.

About the author

John M. Blain has become a recognised expert in Blender having seven successful prior editions of this book to date. John became enthused with Blender on retirement from a career in Mechanical Engineering. *The Complete Guide to Blender Graphics* originated from personal notes compiled in the course of self-learning. The notes were recognized as an ideal instruction source by Neal Hirsig, Senior Lecturer (Retired) at Tufts University. Neal encouraged publication of the First Edition and in doing so is deserving of the author's gratitude. Gratitude must also be extended to the author's wife Helen for her continuing encouragement and patience as new editions of the book are compiled.



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Taylor & Francis Group
Boca Raton London New York

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business

AN A K PETERS BOOK

Eight edition published 2024
by CRC Press
2385 Executive Center Drive, Suite 320, Boca Raton, FL 33431

and by CRC Press
4 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

CRC Press is an imprint of Taylor & Francis Group, LLC

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First edition published by AK Peters 2012
Second edition published by AK Peters 2014
Third edition published by AK Peters 2016
Fourth edition published by AK Peters 2017
Fifth edition published by AK Peters 2019
Sixth edition published by AK Peters 2020
Seventh edition published by AK Peters 2022

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ISBN: 978-1-032-51056-9 (hbk)
ISBN: 978-1-032-51055-2 (pbk)
ISBN: 978-1-003-40431-6 (ebk)

DOI: 10.1201/9781003404316

Publisher's note: This book has been prepared from camera-ready copy provided by the authors.

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Introduction



The Complete Guide to Blender Graphics - 8th Edition provides instruction in the use of the Computer Graphics 3D Program **Blender**. The book has been compiled in two separate volumes with Volume 1 being inclusive of all material which will allow a new user to obtain, install and operate the program. Volume 2 is complimentary to Volume 1 encompassing some of the more advanced aspects of the program. The books are an operation manual for those who wish to undertake a learning experience and discover a wonderful creative new world of computer graphics. The books also serves as a reference for established operators.

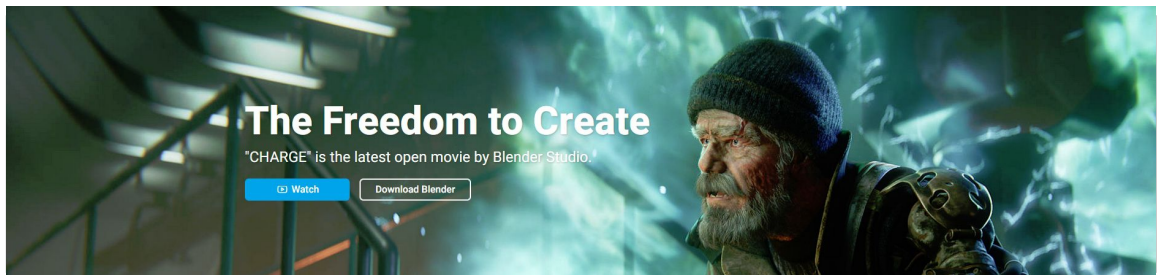
Instructions throughout the book demonstrate Blender with examples and diagrams referenced to the **Graphical User Interface (GUI)**.

In selecting **Volume 2** of **The Complete guide to Blender Graphics** it is assumed you are conversant with Blender and its interface and the fundamentals of operating the Blender Program as described in Volume 1.

Volume 2 provides an introduction to Blenders features which expand on the basics of Modeling and Animation. Knowing that these features exist and where to find them will significantly improve the working experience and enhance your ability to produce fantastic effects.

The Complete Guide to Blender Graphics originated when Blender's Graphical User Interface was transformed with the release of Blender version 2.50. Subsequent editions of the book have kept pace with developments to the program and have included new material.

The **8th Edition of The Complete Guide to Blender Graphics** is applicable to:
Blender Version 3.2.2



The Blender program is maintained by the **Blender Foundation** and released as **Open Source Software** which is available for download and **FREE** to be used for any purpose.

The program may be downloaded from: www.blender.org

The Complete Guide to Blender Graphics provides a fantastic learning experience in **Computer Graphics** using **Blender**, by introducing the operation of the Blender program through the use of its' Graphical user Interface. The book is intended to be read in conjunction with having the program in operation, with the interface displayed.

Instruction is presented using the tools displayed in the Graphical User Interface, with basic examples demonstrating results. Understanding where features are located, their uses and how they are implemented will allow the reader to more easily follow detailed instruction in the many written and video tutorials available on the Internet.

Instruction provided on the internet in the form of written and video tutorials is integral to the compendium of Blender learning material. Although comprehensive, **The Complete Guide to Blender Graphics** is limited by the number of pages in a volume. The internet vastly expands the knowledge base of learning material.

Important: The Blender Program is continually being developed with new features being added and improvements to the interface and operation procedures being amended. When reading instructions or viewing video tutorials the version of the Blender program for which the instruction is written should be considered.

Program Evolution

Blender is continually evolving. New versions of the program are released as additions and changes are incorporated, therefore, it is advisable to check the Blender website, from time to time for the latest version.

At each release of Blender a different **Splash Screen Image** is displayed in the interface.



Blender Version 3.2.2

Earlier versions of the program and documentation may be obtained which provide valuable information when you are conversant with the current release of the program. Video tutorials available on the internet may not strictly adhere to the current user interface or work flow. Major transformations occurred when the program changed from version 2.49 to 2.50 and again at the change from version 2.79 to version 2.82. Since 2.82 development has continued.

Previous Versions of Blender

As previously stated, Blender is continually evolving with new versions being released. To fully utilise internet material you may find it advantageous to study older tutorials by installing previous Blender versions. Previous versions of the program can be obtained at:

<https://download.blender.org/release/>

Index of /release/

../		Blender2.93/	03-Aug-2022 08:58	-
Blender1.0/		Blender3.0/	26-Jan-2022 13:21	-
Blender1.60/	11-Jul-2020 07:17	Blender3.1/	01-Apr-2022 08:23	-
Blender1.73/	05-Jul-2020 16:22	Blender3.2/	03-Aug-2022 08:58	-
Blender1.80/	20-Aug-2003 11:13	BlenderBenchmark1.0/	17-Aug-2018 12:31	-
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	20-Aug-2003 11:13	plugin/	23-Nov-2004 12:56	-
		yafaray.0.0.6/	03-Feb-2004 22:31	-
		yafaray.0.0.7/	05-Aug-2004 10:33	-
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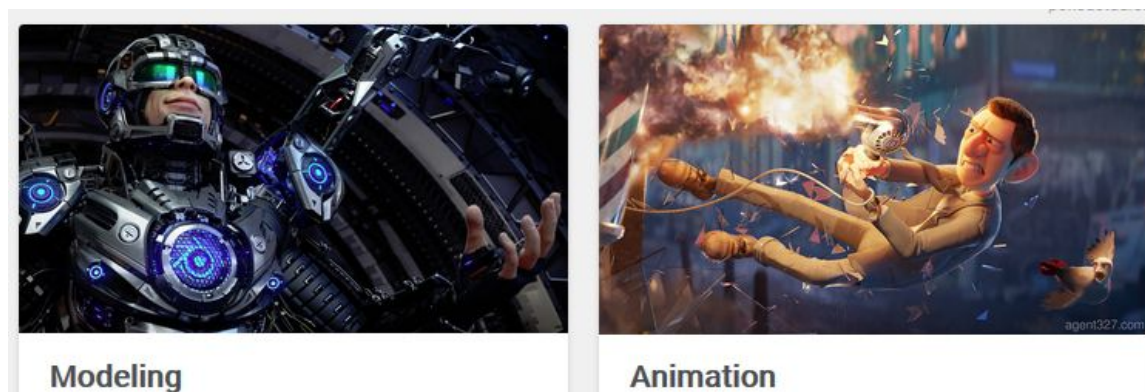
Installation

Note: You may install multiple versions of Blender on you PC.

Blender Features

A comprehensive display of the Blender features is available at:

www.blender.org/features?





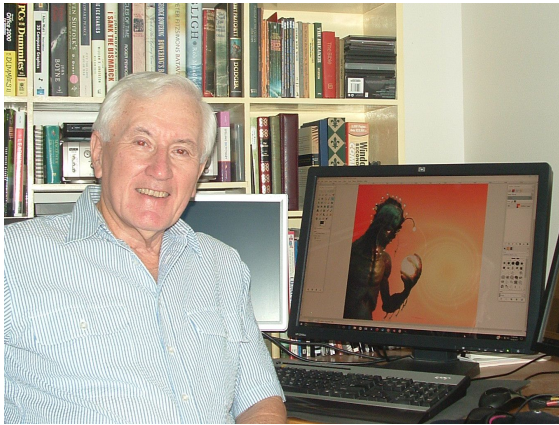
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The Author

John M. Blain



John was born in Swindon, Wiltshire in England in 1942. At the time of writing this makes him a pretty old dude. He emigrated to Canada with his family in 1952 and now lives in Coffs Harbour, New South Wales in Australia.

Drawing and painting were skills John developed from an early age and while attending school on Vancouver Island he became interested in wood sculpture inspired by the work of the indigenous west coast people. Artistic pursuits were curtailed on graduating from high school when he returned to England to undertake a technical engineering

apprenticeship. Following his apprenticeship, he worked for a short period in England and then made the decision to return to Vancouver, Canada. On the voyage between Southampton and Vancouver, he met his wife to be and Vancouver became a stopover for a journey to Sydney Australia. In this new country, he began work as an engineering draughtsman, married, had children and studied engineering. The magic milestone of seven years saw John with his young family move out of the city to the coastal town of Coffs Harbour, New South Wales.

Coffs Harbour was a center for sawmill machinery and John became engaged in machinery design and manufacture. He acquired a sound knowledge of this industry acting as installation engineer then progressing to sales. This work afforded travel throughout Australia, Canada, the United States and New Zealand.

On retirement, artistic pursuits returned with additional interests in writing and computing. Writing notes whilst learning computer animation using Blender resulted in **The Complete Guide to Blender Graphics**. The first edition, published in 2012, was well received and encouraged John to compile a second edition inline with the latest version of the Blender program. This afforded the opportunity to include new material. Subsequent editions have followed until this newly reformatted eighth edition.



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Preamble

The **Preamble** will walk you through the method of reading this book in conjunction with operating the Blender program. It is assumed that you are conversant with the Blender program and its Graphical User Interface as described in Volume 1 of The Complete Guide to Blender graphics.

Formats Conventions and Commands

In writing this book the following formatting conventions have been adopted:

Paragraphs are separated by an empty line and have not been indented.

Key words and phrases are printed in **bold text** with the first letter of a component name specific to Blender capitalised.

Headings are printed in **Bold Olive Green**.

The following conventions will be used when giving instructions.

When using a Mouse connected to a computer, the commands will be:

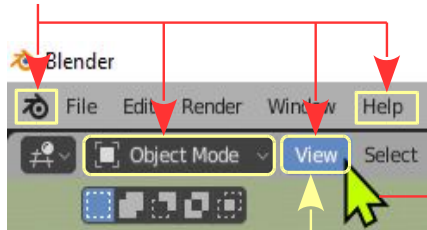
Click or **Click LMB** – In either case this means make a single click with the left mouse button with the Mouse Cursor positioned over a control on the computer Screen.

In some instances it is explicit that the left mouse button should be used.

Note: Computer Screen and Monitor are synonymous.

Mouse Over: Place the Mouse Cursor over a control.

A **Control** is a specific area of the Computer Screen.



Mouse Cursor

Command Example

Mouse Over on **View** (Highlights Blue). Click LMB to display the **View Menu**.

The View Menu contains a selection of text annotations which are button controls for selecting functions affecting the 3D Viewport.

A Control: Is a designated area on the computer Screen represented by an icon in the form of a button or bar, with or without text annotation.

Double Click – Make two clicks in quick succession with LMB (the left mouse button).

Click, Hold and Drag – Click the left mouse button, hold it depressed while moving the mouse. Release the button at the end of the movement.

Click RMB – Click the right mouse button.

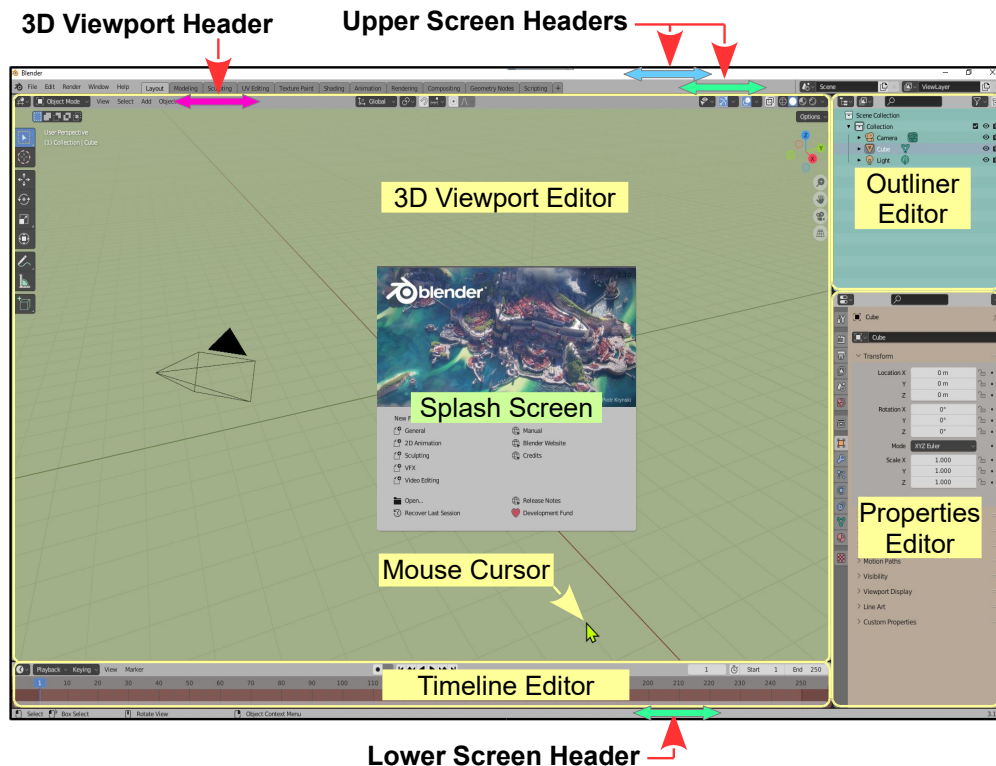
Click MMB – Click the middle mouse button (the middle mouse button may be the scroll wheel).

Scroll MMB – Scroll (rotate) the scroll wheel (MMB).

Clicking is used in conjunction with placing the Mouse Cursor over a button, icon or a slider which is displayed on the Screen.

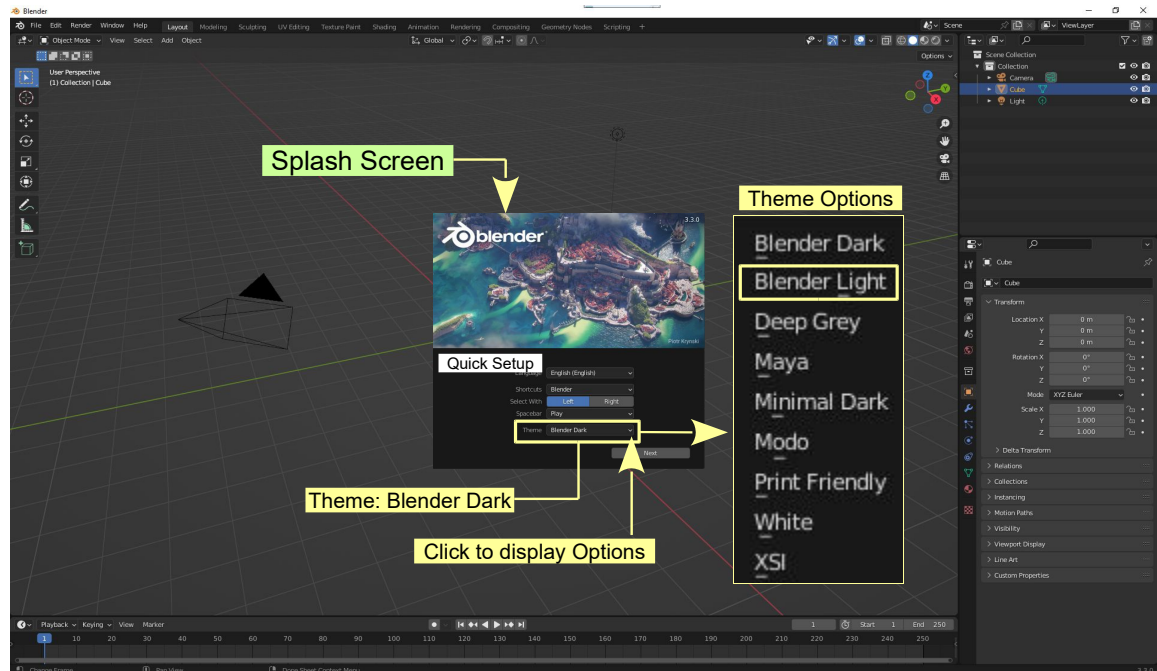
The Graphical User Interface (GUI)

When Blender is first opened what you see on the computer Screen is the **Graphical User Interface (GUI)** for the program. This arrangement of panels is the interface which allows you to communicate with the program by entering commands (data) using the Keyboard and Mouse previously described. The panels that you see are called **Editors** or **Headers** with one exception, the **Splash Screen**.



Note: In the preceding diagram the different Editors have been colored to distinguish one from the other. Changing Editor background colors, in affect, modifies the color scheme or Theme of the GUI. The Theme of the GUI in the diagram is not what you see when you first run Blender.

The very first time Blender runs the Graphical User Interface displays on the computer Screen with a default Theme or color scheme named **Blender Dark**. You will see this as one of the **Quick Setup** options in the **Splash Screen**.

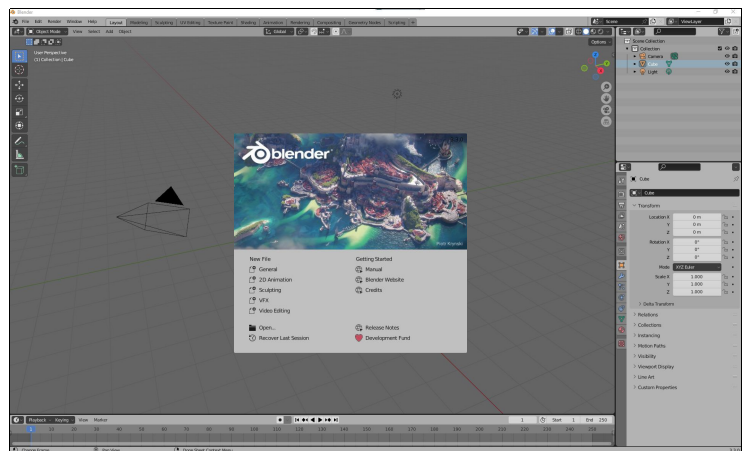


Clicking the **Theme** button displays a menu with alternative **Theme Options**. You may select any option depending on your preference. Having made a selection click the **Next** button to apply your Theme. The color scheme changes and the **Splash Screen** is replaced.

The Graphical User Interface with **Theme: Blender Light** selected.

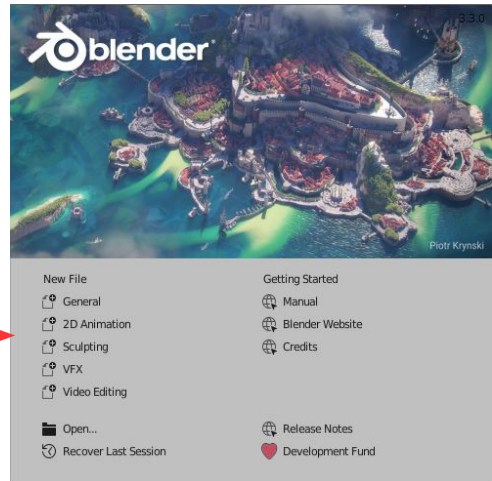
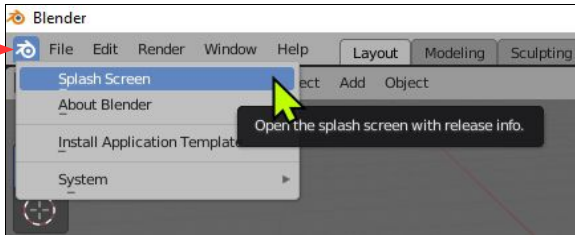
What! You want to try a different Theme!

Logically, you would think, reinstating the Splash Screen would provide the **Quick Setup** controls previously employed.



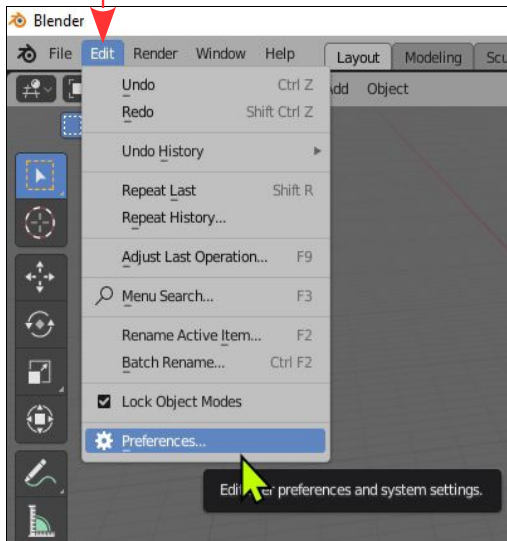
To reinstate the Splash Screen click the little Blender Logo in the Screen Header and select **Splash Screen** in the menu that displays.

Click the Blender Logo.



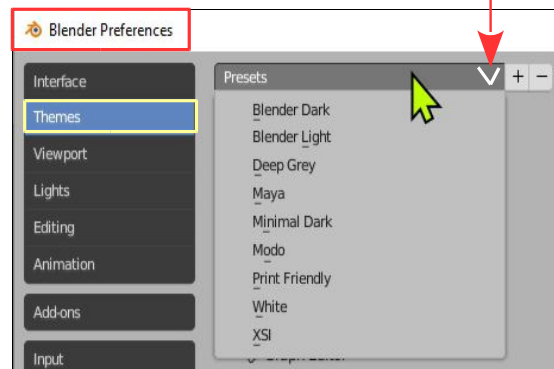
The Splash Screen is reinstated but it is different from the initial display containing the Quick Setup options.

To try a different Theme, in fact, to customise Blender to your personal choice you go to the **Preferences Editor** by clicking **Edit, Preferences** in the Screen Header..



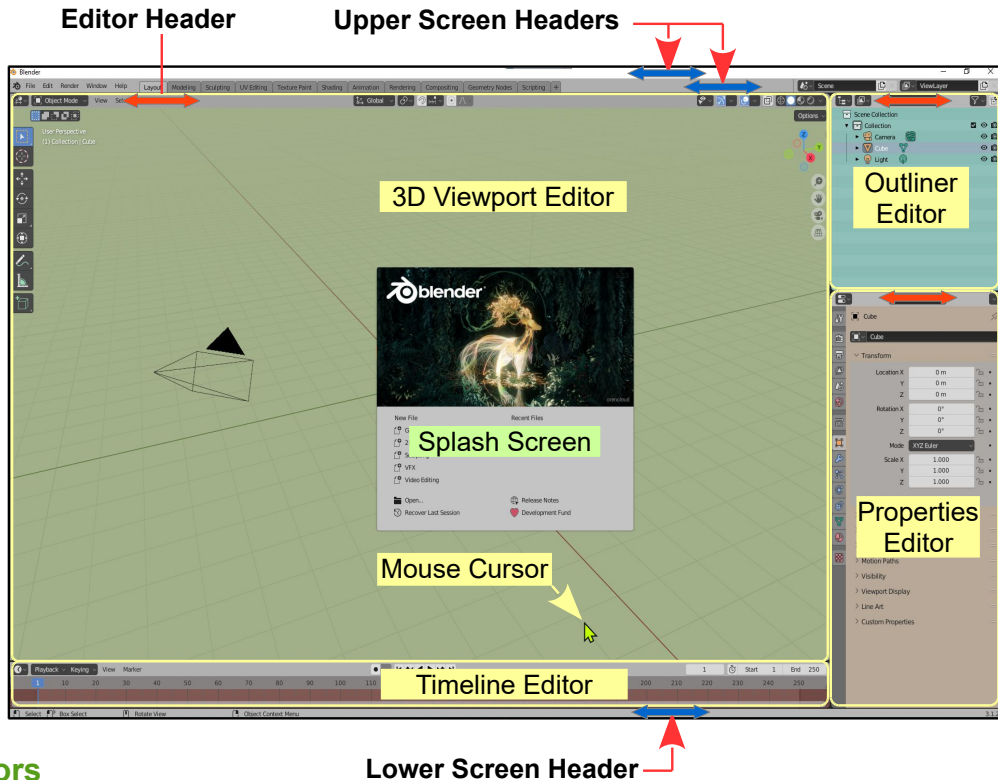
In the **Preferences Editor**, select **Themes** in the left hand column and click on **Preset** to display the list of color schemes.

Click Presets



The assumption has been made that you are conversant with the Blender GUI, therefore, you may be aware of the **Preferences Editor** and the procedure for selecting Themes. The forgoing instruction is provided to familiarise you with the method of presenting instruction in the book which incorporate references to Editors, Headers, Panels and Tabs.

The following diagram will recap on these terminologies when viewing the interface.



Editors

Lower Screen Header

There are four **Editors** displayed when Blender is first opened. The Editors are; the **3D Viewport Editor**, the **Outliner Editor**, the **Properties Editor** and the **Timeline Editor**. In the center of the display you see the **Splash Screen** showing you which version of Blender you have opened and containing buttons for selecting a variety of functions.

Traditionally the Splash Screen image is changed at each new release of the Blender Program.

At the top and bottom of the Screen you see **Screen Headers**. At the top of each Editor Panel there is also an **Editor Header**. Headers contain Button Controls for selecting functions pertaining to the Screen or the Editor as the case may be.

Note: Clicking the **Left Mouse Button** with the **Mouse Cursor** in the **3D Viewport Editor** cancels the display of the **Splash Screen** (Reinstate as previously described).

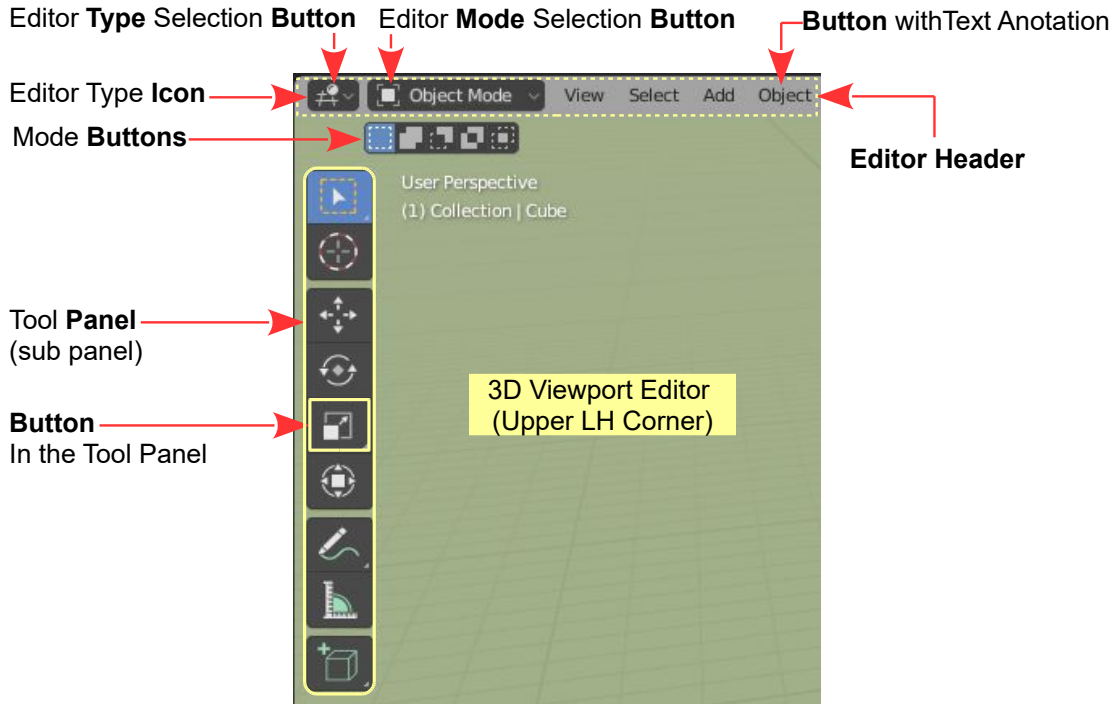
Note: In the preceding diagram the default background colors of the different Editors have been altered to distinguish the panels.

Controls - Buttons, Icons and Sliders

Each **Editor** in the **GUI** is a separate panel with a **Header** at the top of the panel. The Headers contain buttons which activate functions or display sub menus with buttons for activating functions.

A button may be a text annotation which highlights blue on Mouse Over or an icon representing a function or a bar with text annotation. Clicking a button relays data to the program to perform an action.

Example 1 : The 3D Viewport Editor (the default Screen display – **Upper LH Side**)

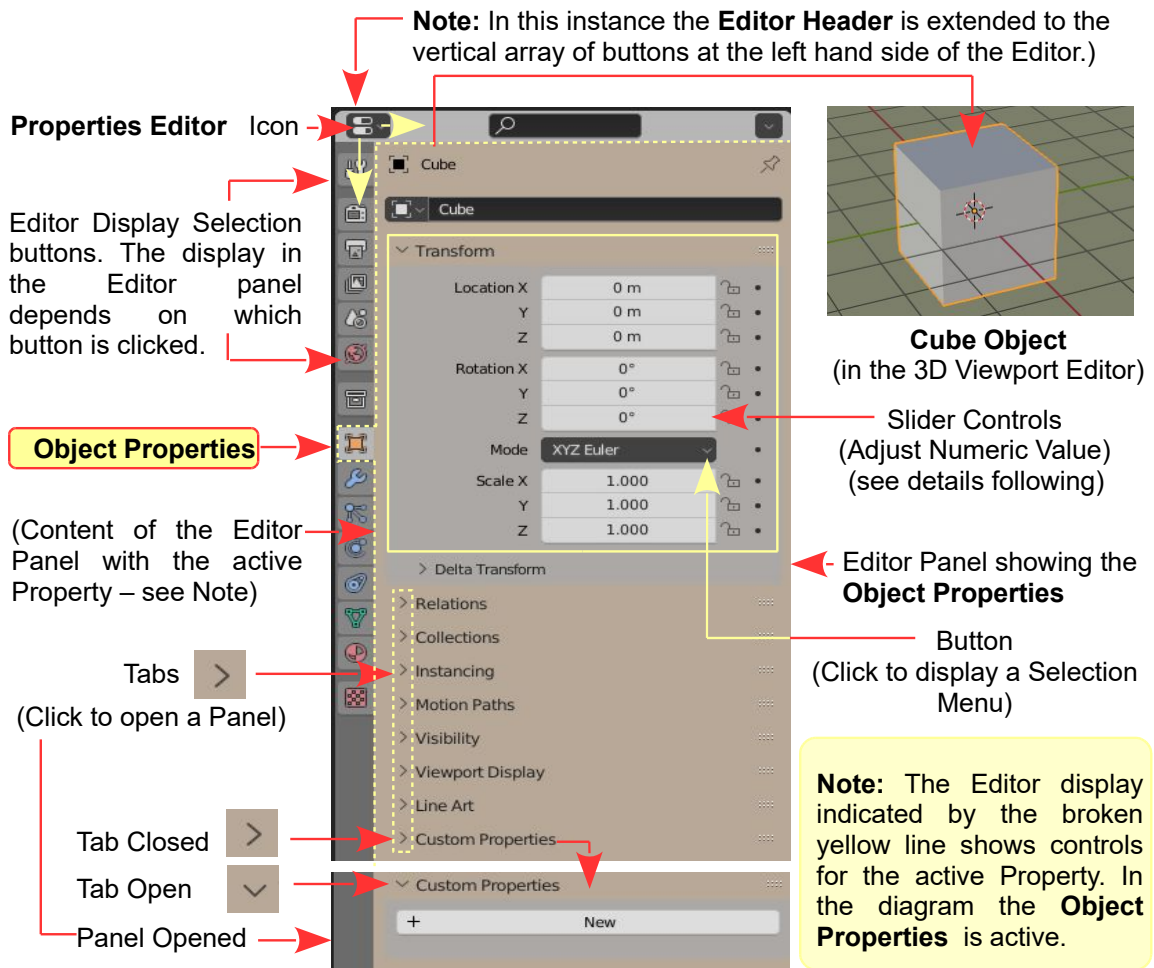


Note: The buttons shown in the diagram can be seen in the panel at the upper left hand side of the **default** Blender Screen arrangement.

Note: In giving instructions, **Default** means, that which is displayed on the computer Screen before any action is taken.

Example 2 : The Properties Editor (the default Screen display – **Lower RH Side**)

The default display shows the content of the **Properties Editor** with the **Object Properties** active. In this state the controls affect the default **Cube Object** in the 3D Viewport Editor.



A **Button** in Blender can be a small square or rectangular area on the screen or an elongated rectangle in which case it may be referred to as a bar. Some buttons display with icons.

An **Icon** is a pictorial representation of a function. In the diagram the icon in the upper left hand corner indicates that the **Properties Editor** is displayed.

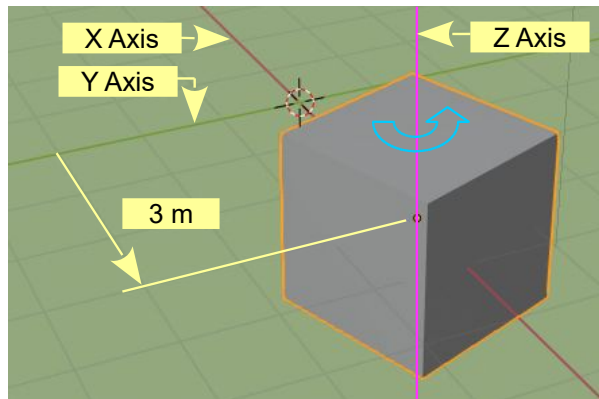
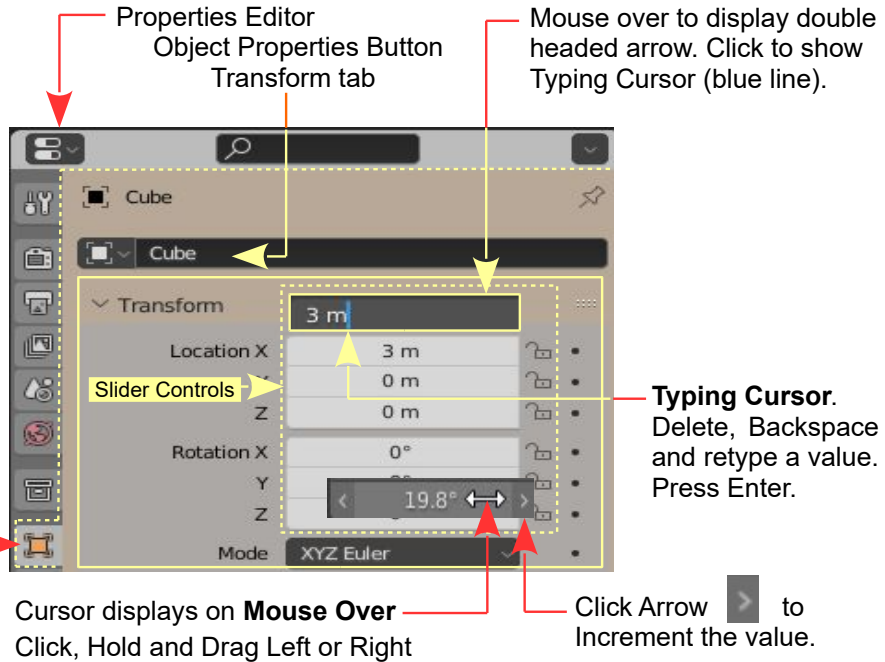
A **Slider** is an elongated area, usually containing a numeric value, which is modified by clicking, deleting and retyping the value, or clicking, holding and dragging the Mouse Cursor that displays on **Mouse Over**, left or right to decrease or increase the value. Some sliders have a small arrow at either end which display when the Mouse Cursor is **positioned over the Slider** (Mouse Over).

Click on an arrow to incrementally alter the value. Some sliders directly alter the display on the computer Screen.

Slider Control Detail

Slider Controls in the **TransformTab** affect the position of the Cube (the selected Object) in the 3D Viewport Editor.

Object Properties



With the Cube Object selected in the 3D Viewport Editor, altering the **X Location Slider** value to 3m and the **Z Axis Rotation Slider** to 19.8° moves the Cube forward along the X Axis (Red Line) and rotates the Cube about the vertical Z Axis.

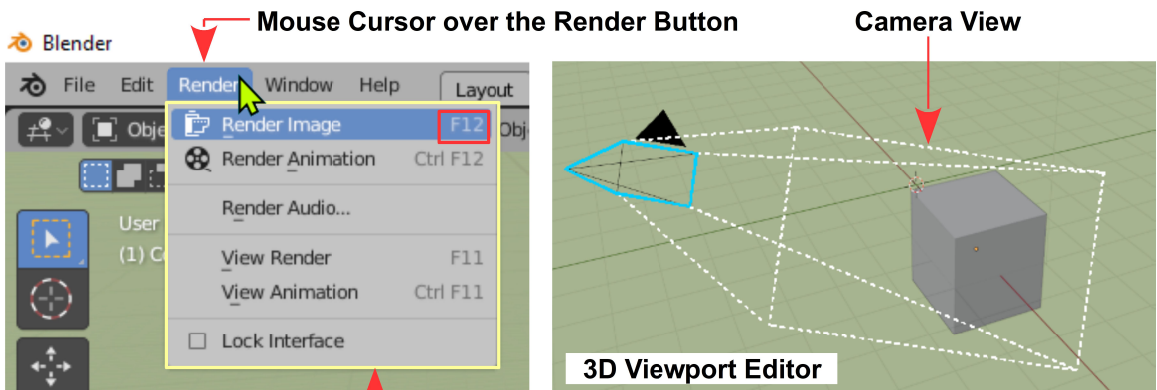
For **Keyboard input**, a command is; to press a specific Key or a series of Keys. Press **Shift + Ctrl + T Key** means, press and hold both the **Shift** and **Ctrl** Keys simultaneously and tap the **T Key**. **Num Pad** (Number Pad) Keys are also used in which case the command is Press **Num Pad 0** to **9** or **Plus** and **Minus**.

Command Instruction Example:

Go to the **Blender Screen Header, Render Properties**, click **Render Image**:

Remember: A control button, icon or slider which is displayed, indicates a specific location on the computer Screen. Positioning the Mouse Cursor at this location and clicking the Mouse button or depressing a keyboard button, inputs a signal to the computer. The interpretation, made by the computer is; signal received at specific location = perform explicit computation and export result.

The example above means; in the **Blender Screen Header**, position the **Mouse Cursor** over the **Render Properties** button and click the left mouse button, clicking once. In this case the signal received by the computer with the Mouse Cursor at the position of the Render Properties button tells the computer to display the **Render Options Sub Menu**. Positioning the Mouse Cursor over **Render Image** in the sub menu and clicking once renders an image of **Camera View** (what the camera sees). The Rendered Image is displayed in a new Editor panel, the **Image Editor**. The image may be saved from this location but for the time being press **Esc** on the Keyboard to cancel the render and return to the 3D Viewport Editor.

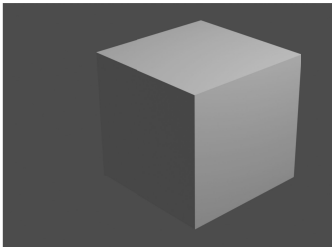


Render Options Sub Menu

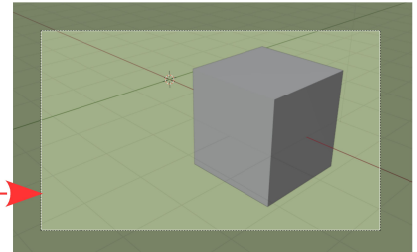
Pressing **Num Pad 0** on the Keyboard shows a preview in the 3D Viewport Editor of what will be **Rendered** in an image (What the Camera sees).

Rendered Image

As seen in the Image Editor



Render Preview



Note: The annotation **F12** adjacent to **Render Image** is a **Keyboard Shortcut**. Pressing **F12** on the Keyboard will also Render the Camera View.

Remember: The purpose of exercises in this preamble are to familiarise you with commands and diagrams not to provide instruction on any particular task. Full instruction will be provided as you progress.



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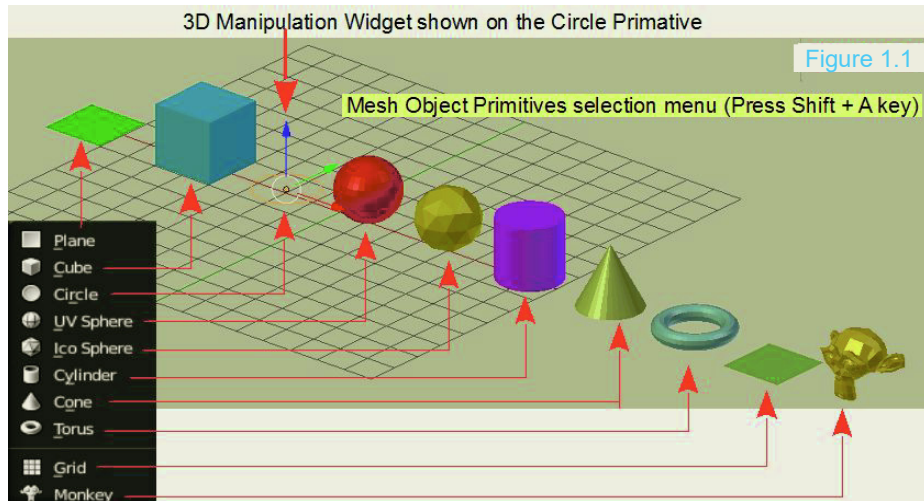
1

Objects in the 3D View Editor

1.1	Object Primitives	1.5	Blender Assets
1.2	Additional Objects	1.6	The Assets Library
1.3	The Add Cube Tool	1.7	BlenderKit Add-on
1.4	Objects from Add-ons		

Objects in the 3D Viewport Editor are the Models and Characters you create as components of a Scene. They also include the Lights that illuminate the Scene and Cameras which capture that part of a Scene you wish to Render. In fact, pretty much everything entered in a Scene is considered an Object in Blender.

One starting point for Modeling is the base **Object Primitives** that are entered in a Scene. Primitives are then modified or edited to create new shapes which is the basis of Modeling. Besides Object Primitives there are other sources for obtaining Objects as a starting point.



1.1 Object Primitives

Object Primitives are entered in a Scene by selecting from the **Add, Mesh** menu in the **3D Viewport Editor Header**.

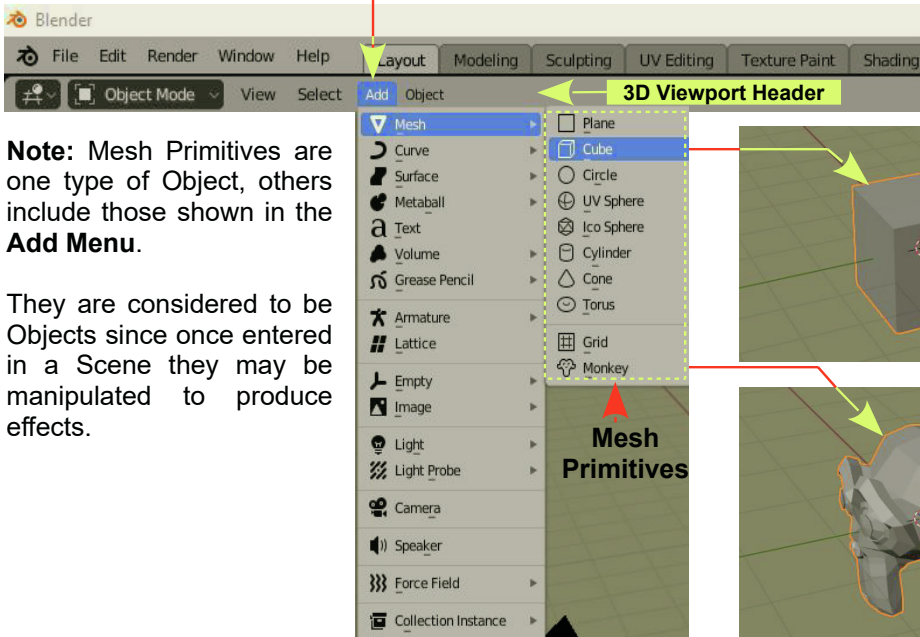


Figure 1.2

Note: Mesh Primitives are one type of Object, others include those shown in the **Add Menu**.

They are considered to be Objects since once entered in a Scene they may be manipulated to produce effects.

1.2 Additional Objects

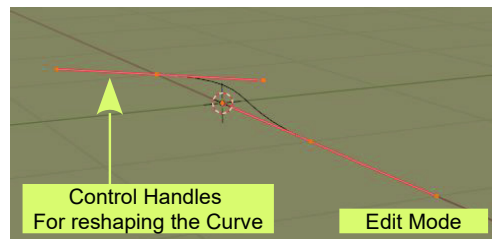
Besides **Mesh Primitive** Objects there are a variety of additional Object Types available from the **Add Menu** in the **3D Viewport Editor Header**.

Curve - Bezier Curve

Figure 1.3



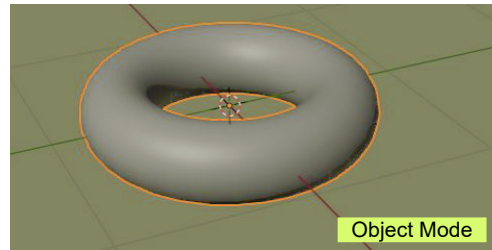
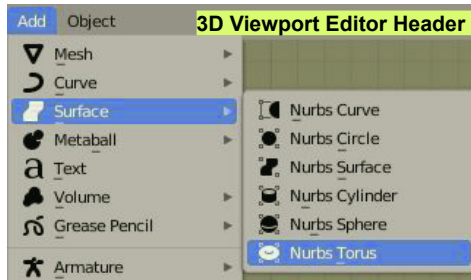
Curve Object Types are used when creating Models and ancillary to the modeling process or for creating Scene effects.



Note: The Bezier Curve is one of five Curve Types; Bezier, Circle, Nurbs Curve, Nurbs Circle and Path.

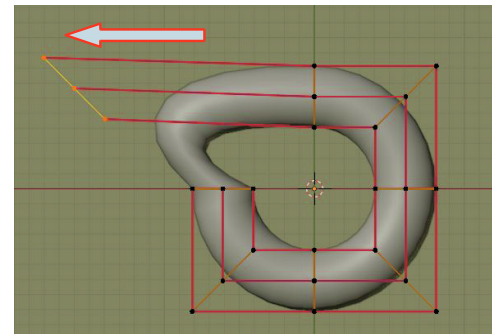
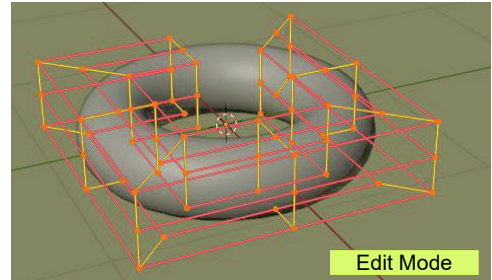
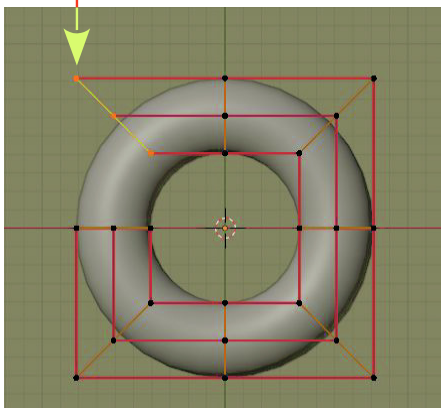
Surface - Nurbs Torus

Figure 1.4



The **Nurbs Torus** has a cage surrounding the mesh, in Edit Mode, which is used for shaping. After shaping, go to Object Mode, RMB click and select **Convert To – Mesh**.

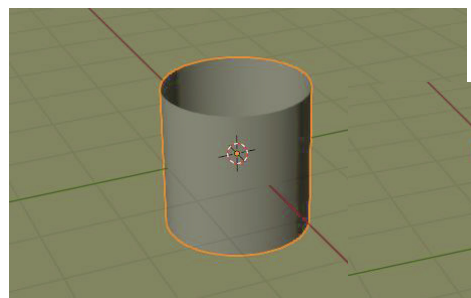
Select Cage vertices and Drag



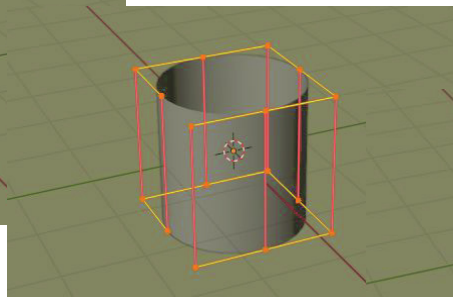
Surface - Nurbs Cylinder

Figure 1.5

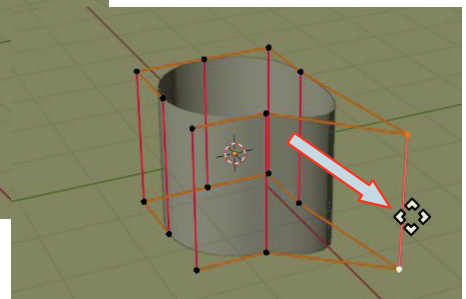
Select Cage vertices and Drag



Object Mode



Edit Mode



Note: Not all Object Types selected from the Add menu Render. The Bezier Curve does not Render while the Surface – Nurbs Torus will Render.

1.3 The Add Cube Tool

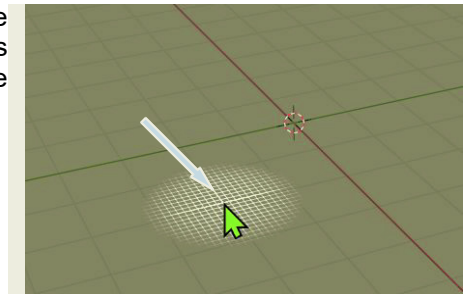
The **Add Cube Tool** in the 3D Viewport Editor, Object Mode, Tool Panel, also provides a means of adding Objects to a Scene.



Mouse over on the Tool, click LMB to see the Tool Options. Hold LMB, drag the Mouse over an option (highlights blue) and release LMB to select the option.

With an option selected the Mouse Cursor in the 3D Viewport Editor displays as a grid which you position in the Scene by dragging the Mouse.

Figure 1.6



Mouse over and click LMB to see options.

Position the grid in the Scene. Click LMB, drag the Mouse to draw a rectangle (not necessarily a square).

Release LMB and drag the Mouse up to draw a cuboid (Figure 1.7).

Click LMB to set the shape.

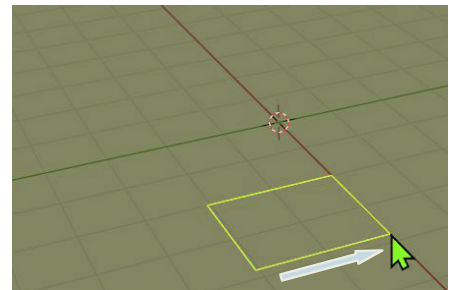


Figure 1.7

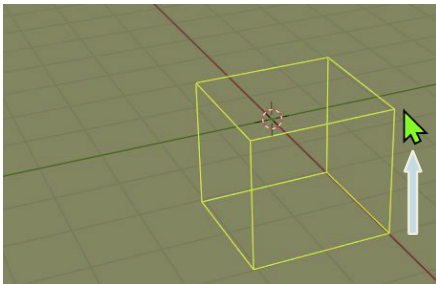
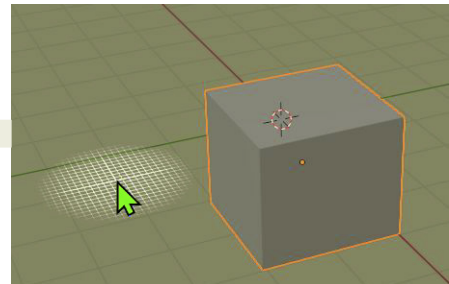


Figure 1.8



Clicking LMB reverts the Mouse to the Cursor with the grid attached. You may repeat the procedure to construct more cuboids (figure 1.8).

To cancel the process click the **Box Select Tool** in the Tool Panel (upper Tool).

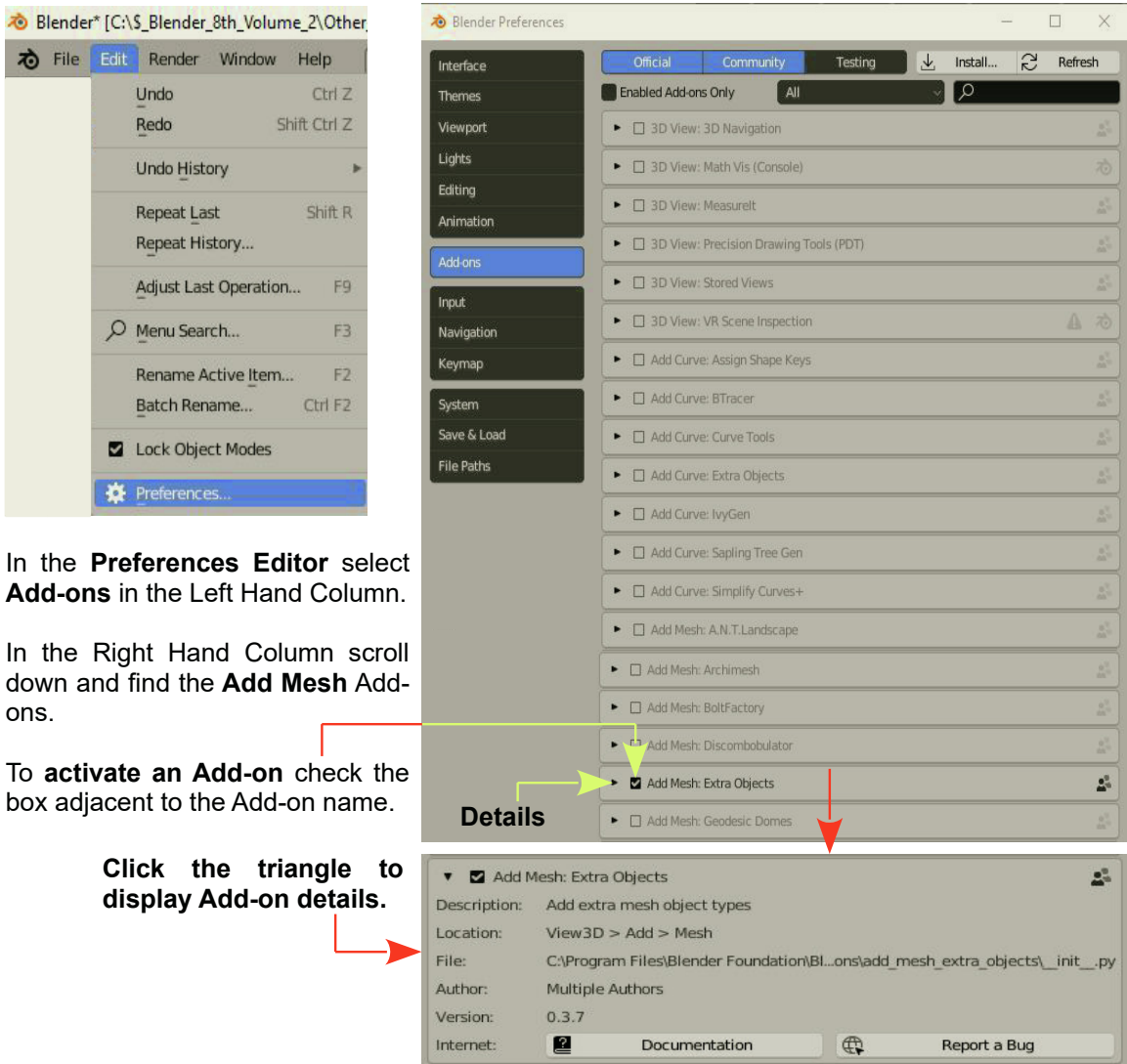
Note: The Add Cube Tool may be employed in Object Mode and Edit Mode. To enter Edit Mode you must have a Mesh Object existing in the Scene. Constructing a new Object using the Add Cube (shape) Tool in Edit Mode will see the new shape joined to the original Mesh Object.

1.4 Objects from Add-ons

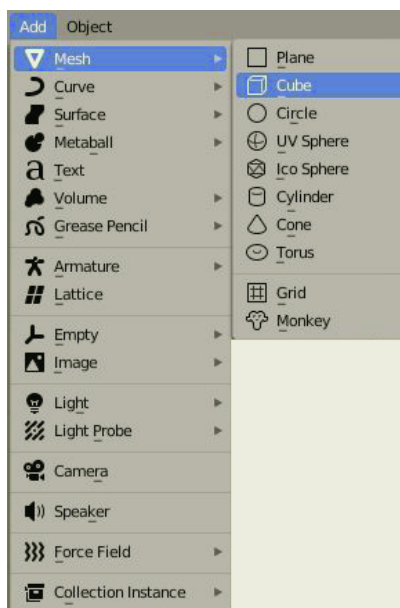
The default selection from the Add Menu in the 3D Viewport Editor includes Mesh Objects and other Object Types. You should, however, be aware that there are other Mesh Objects available in Blender. To access these you have to activate **Add-ons** in the **Preferences Editor**.

The **Preferences Editor** is opened by clicking **Edit** in the **Blender Screen Header** and selecting **Preferences**.

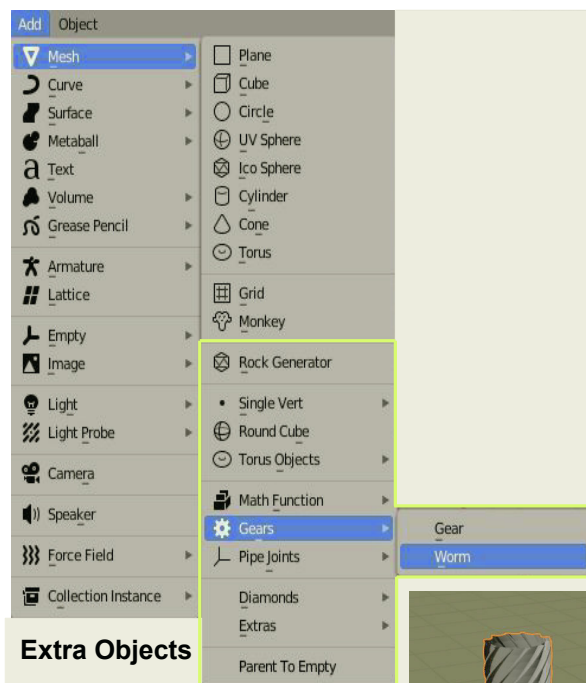
Figure 1.9



Add Mesh: Default Figure 1.10



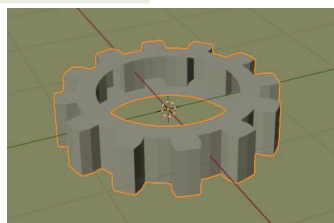
Add Mesh: Extra Objects



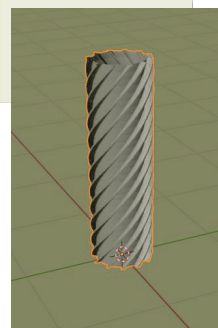
Experiment with the different Add-ons to discover new Objects.

Add Mesh: Archimesh Figure 1.11

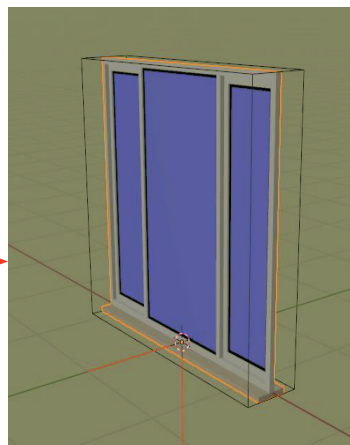
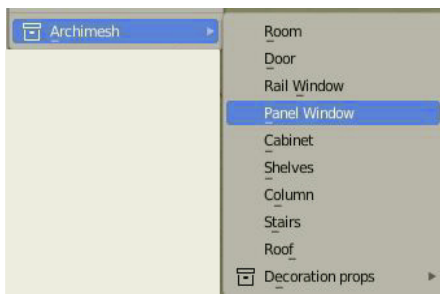
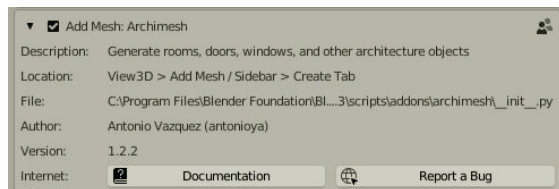
Archimesh provides a selection of Architectural components.



Gear

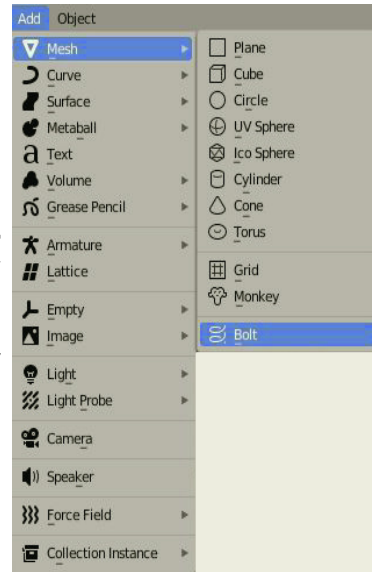
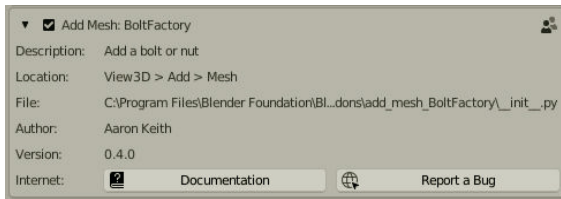


Worm



Add Mesh: BoltFactory

BoltFactory allows you to generate different configurations of **Bolts and Nuts**. [Figure 1.12](#)



With the **Add Bolt Add-on** activated, selecting **Add – Mesh – Bolt** from the 3D Viewport editor Header displays a default Bolt in the viewport.

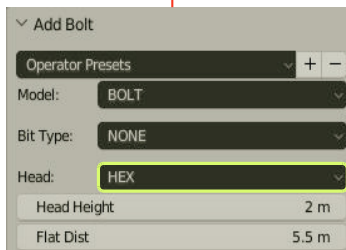
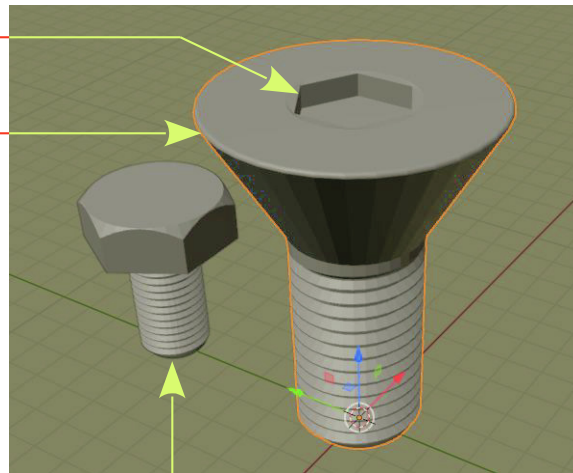
Expand the **Last Operator Panel** in the lower left corner of the viewport to display controls for configuring the Type of Bolt or Nut required.



[Figure 1.13](#)



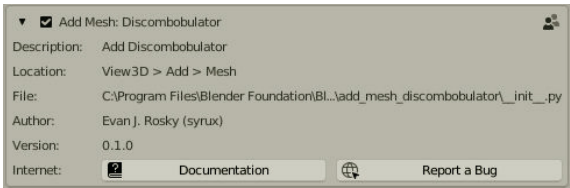
Modified Bolt Settings



Default Bolt Settings

Add Mesh: Discombobulator

Figure 1.14



To use **Add Mesh: Discombobulator** you must have a Mesh Object selected in the 3D Viewport Editor.

With the **Object** selected, select **Add Mesh, Discombobulator** in the Header.

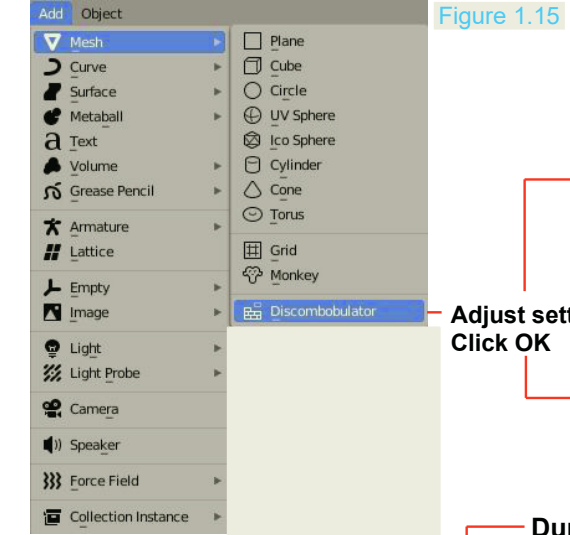


Figure 1.15

Adjust settings.
Click OK

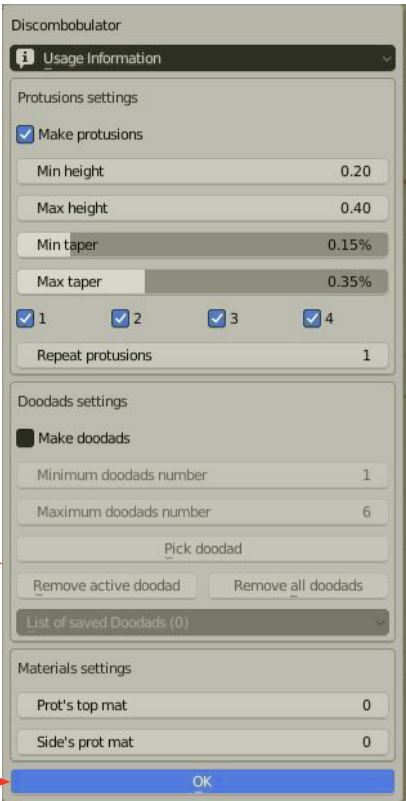
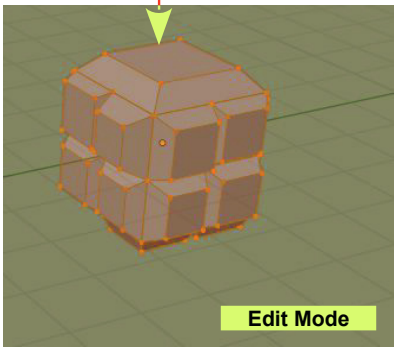
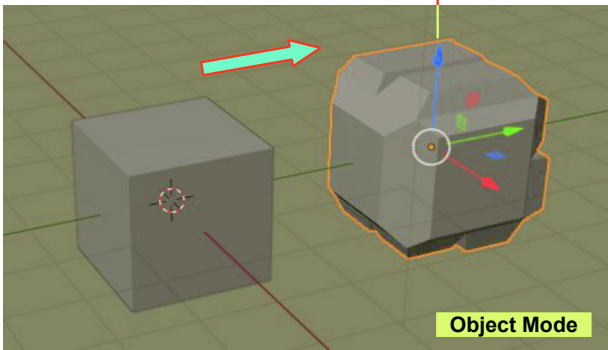


Figure 1.16

Duplicate Object



Discombobulating produces a duplicate of the selected Object, subdivided and reconfigured into a confused shape according to the settings entered in the Discombobulator panel.

1.5 Blender Assets

In blender an **Asset** is a Pre-Constructed Model, a Material (color), or a Material Texture or anything that is useful.

Objects are Assets in that they provide a starting point for Modeling and creating the components of a Scene.

Computer Graphics Artists often draw on **Assets** to embellish their work or to save time. There are many sources on the internet where Assets may be downloaded, therefore, Blender incorporates an **Assets Browser** in the program which links to an **Assets Library**. There are also **Add-ons** which may be installed in Blender to provide additional Asset Resources.

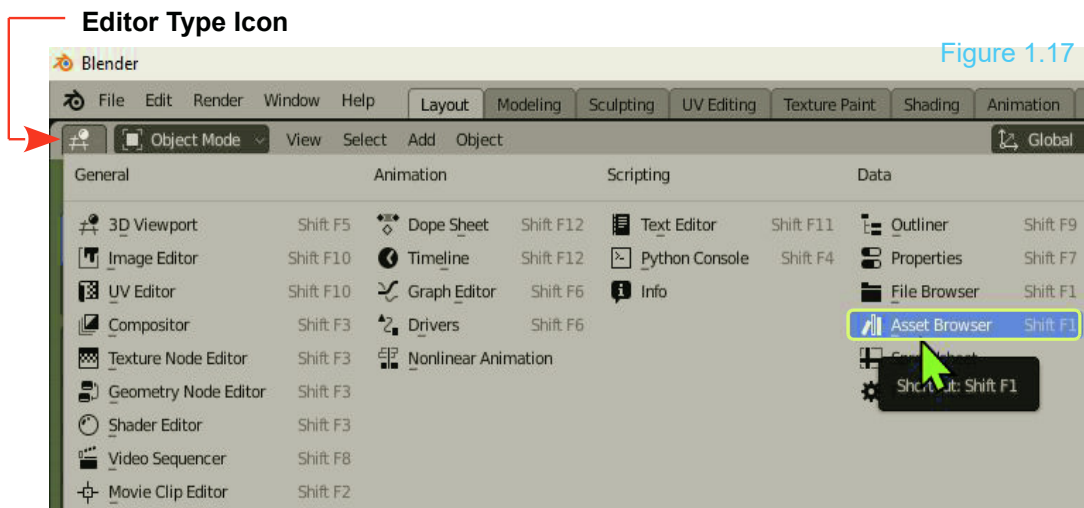
The **Assets Library** is a Folder you create on your hard drive which, initially, will be empty. You add Assets to the Library which may be viewed and selected in the Assets Browser, then entered in the Scene in the current Blender File. The Assets Browser is, therefore, a special Editor.

One **Add-on** is named **BlenderKit** which provides a selection of Models, Materials, Scenes, HDR Images and Brushes. The Add-on has to be downloaded and installed in Blender where it provides links to on-line resources. To obtain **BlenderKit** you have to register as a user then select a Free or Paid option.

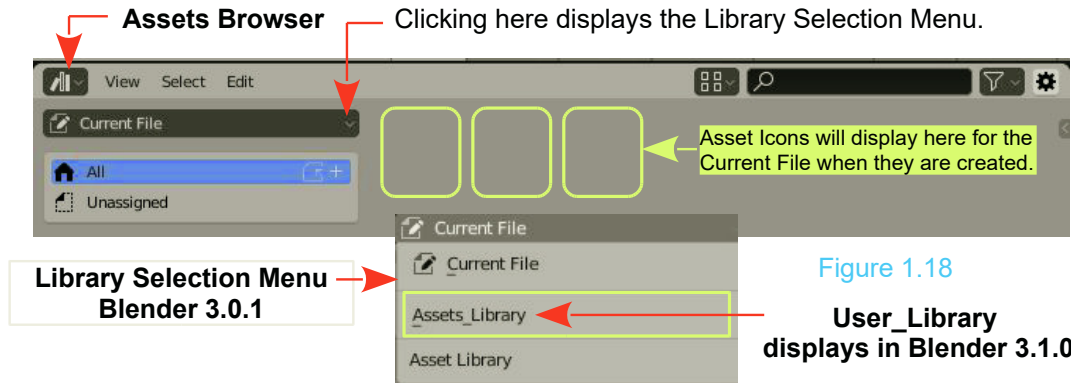
Many on-line sources for Assets provide Free Assets and Paid Assets.

The Assets Browser

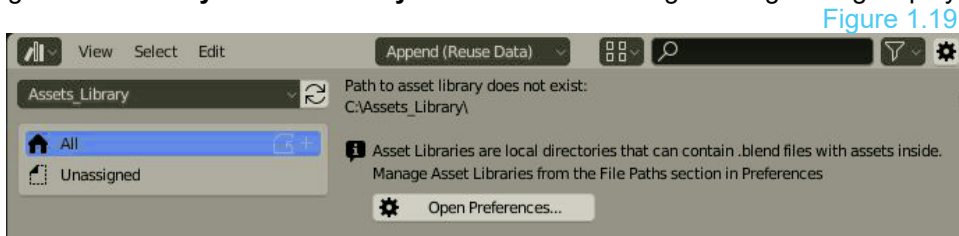
As previously stated the **Assets Browser** links to the **Assets Library**. At the time of writing this feature is under development, therefore, the procedure of operation will depend on your version of the Blender program. Initially access to the Assets Browser is obtained by clicking the Editor Type Icon and selecting **Assets Browser** in the selection menu (Figure 1.17).



For convenience divide the 3D Viewport Editor vertically and make one half the **Assets Browser**.



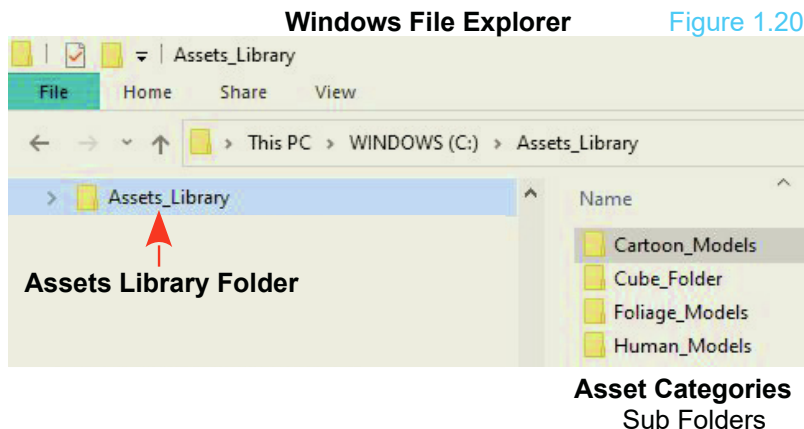
Selecting **Assets Library** or **User Library** results in the following message being displayed.



No Asset Icons display when **Current File** is selected since Assets haven't been created (Marked). The **Path to Asset Library** message displays because the File Path to the Library hasn't been set or the Library hasn't been created.

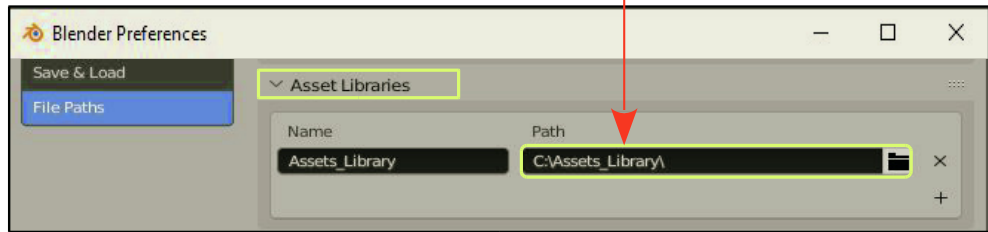
Asset Libraries are Folders created on your hard drive in which you save Blender Files containing content **Marked as Assets**.

The **Assets Library** is simply a Folder that you create on your hard drive. The Folder may include sub Folders to categories your Assets.



To enable the **Assets Browser** to find the **Assets_Library Folder** you set the **File Path** in the **Preferences Editor**.

Figure 1.21



Before creating a Library, Assets may be generated when **Current File** is selected.

For example; A modified default Cube Object can be an Asset. With the Modified Cube selected in the 3D Viewport Editor, go to the Outliner Editor, select Cube, RMB Click and select **Mark as Asset** in the menu that displays. An Icon depicting the Modified Cube appears in the Asset menu when **Current File** is Selected).

Figure 1.22

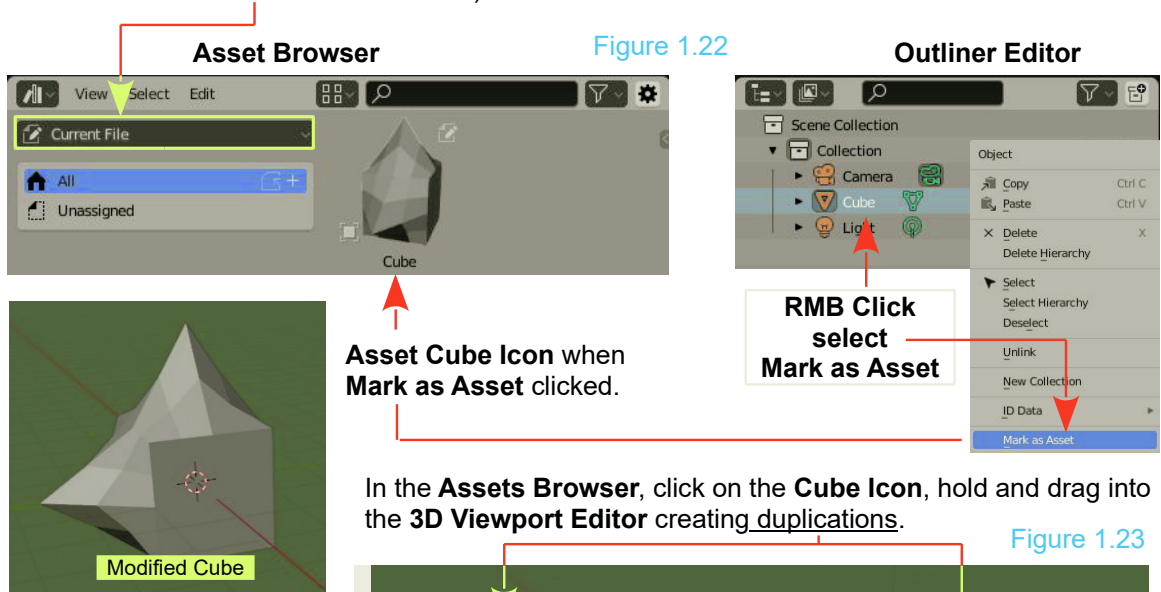
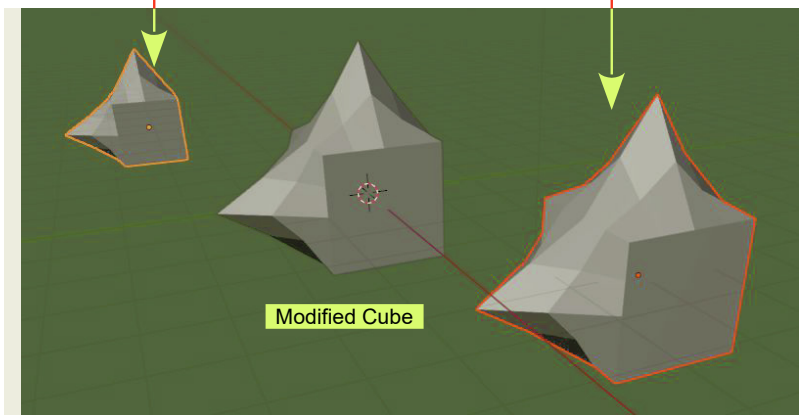


Figure 1.23



Add a **Material** to the Original Modified Cube in the Properties Editor, Material Properties. In the Outliner Editor, select Material under Cube. RMB Click and select **Mark as Asset**.

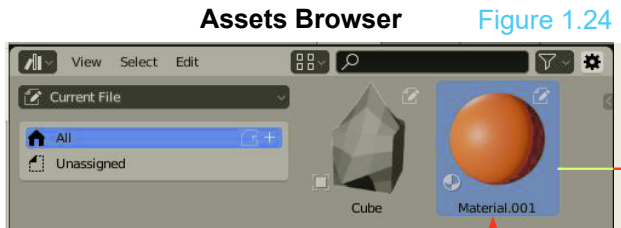


Figure 1.24

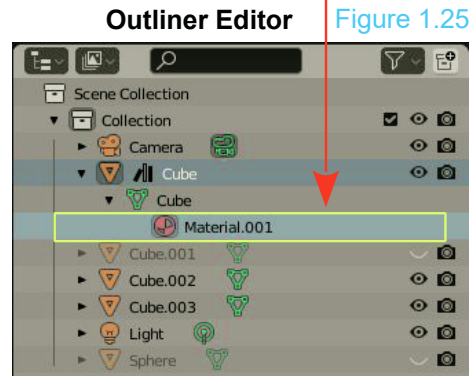


Figure 1.25

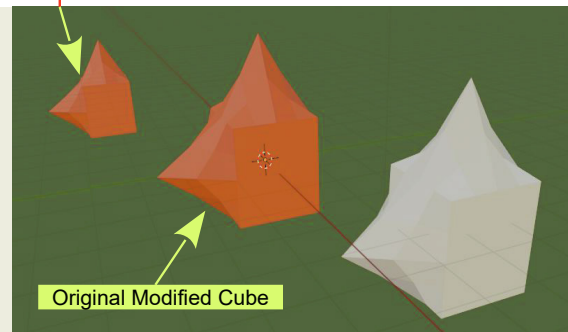
A **Material Icon** is displayed in the Assets Browser.

Click- Hold - Drag

Select one of the duplicated Modified Cubes in the 3D Viewport Editor. Click, hold and drag the Material Icon over to the selected Cube to apply the material to the Cube.

Figure 1.26

The foregoing has created and applied **Assets** with the **Assets Browser** in **Current File** mode. Saving the Blender File saves the Assets. The Assets are available when the File is reopened. When a new Blender File is opened the Assets created are not available in a new Blender File.



To make Assets available for all Blender Files you create the **Assets Library**.

1.6 The Assets Library

Figures 1.24 and 1.25 show the Assets Library Folder created with Sub Folders categories. For convenience the Assets Library Folder has been created in the C: Drive of the computer. You can create a Folder and name it anything you like to be used as an Assets Library, providing you enter the **File Name** and **File Path** to the Folder in the **Preferences Editor**.

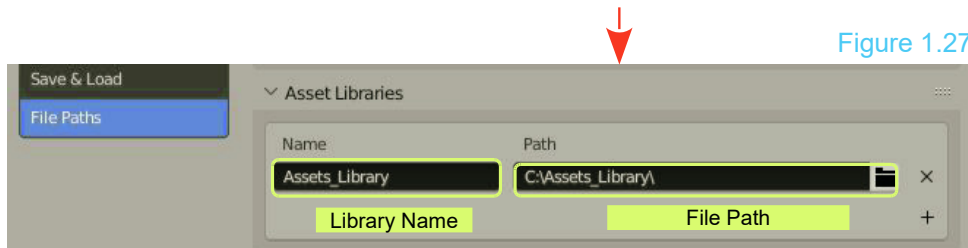


Figure 1.27

Preferences Editor – Asset Libraries Tab