

# The Complete Guide to Blender Graphics

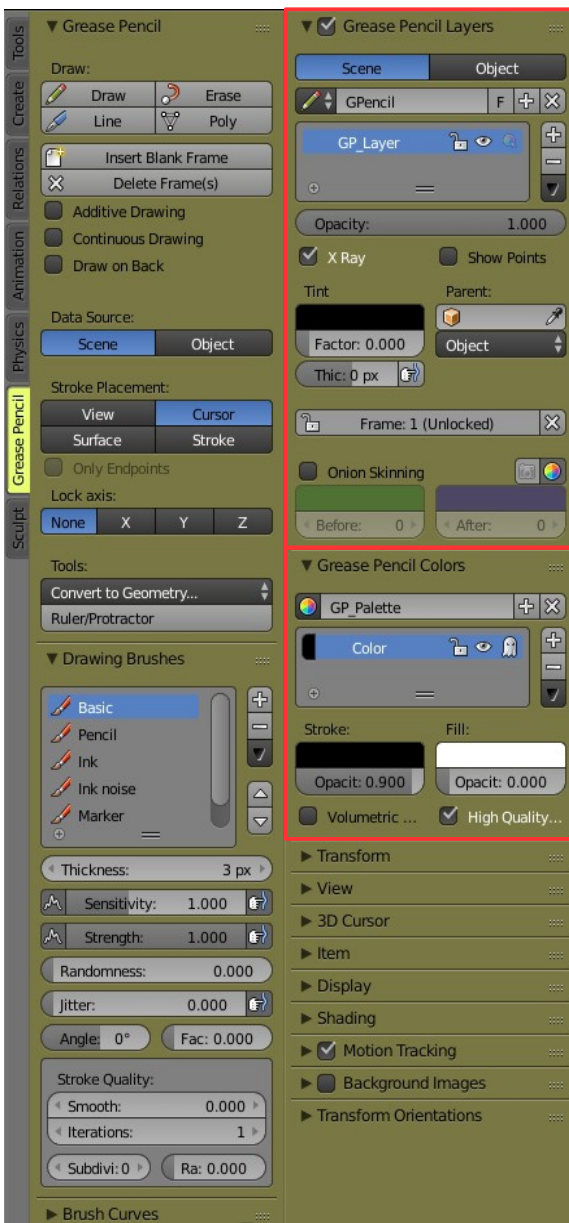
## Supplement-08

### Grease Pencil – Layers and Colors

In Supplement 07 you were introduced to drawing Strokes and the Grease Pencil Layer System. How to select Stroke Colors was explained and one method of animating Strokes was shown.

Before attempting further 2D Animation you should understand how Strokes, Stroke Colors and Grease Pencil Layers are associated.

Tools Panel **Figure 8.1** Properties Panel



In this explanation, Strokes will be draw using **Drawing Brushes** type **Basic** with Thickness 3px. **Data Source: Scene. Stroke Placement: Cursor**

In the Properties Panel note: The Grease Pencil Layers tab.

In the Layers tab: **GPencil** is a Datablock containing a single Layer named **GP\_Layer**.

In the Colors tab: **GP\_Palette** is a color palette containing a single color named **Color**.

Color is the **Stroke color** which is applied when a Stroke is drawn. By default, this is black (RGB 0.000) with Opacity 0.900.

There is also a **Fill color** which is white (RGB 1.000) with Opacity 0.000.

The Fill color is applied to the interior of a Stroke which forms an enclosed area.

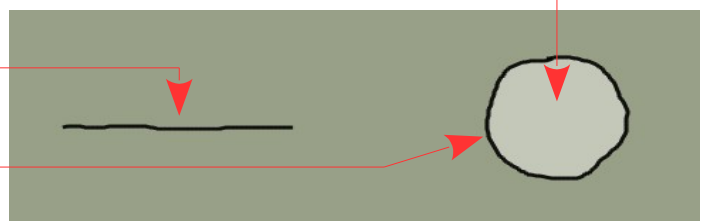
**Opacity** determines the strength or transparency of a Stroke or Fill (Opacity value: 0.000 -1.000).

**Note:** All names denoting Datablocks, Layers, Color Palettes and Colors may be renamed.

When you draw a Stroke with the default settings the Stroke is drawn on the Layer named **GP\_Layer** with the color named **Color** from the color palette named **GP\_Palette**. If the Stroke forms an enclosed are the **Fill** color is applied (Increase Opacity).

**Stroke** – Default 3px Black

**Stroke** – Forming an enclosed area. Fill applied.



**Figure 8.2**

To demonstrate how to draw and organize Strokes perform the following:

- A. Draw a circular Stroke. Press Esc to cancel Draw mode.

LMB click the black Stroke button to display the color picker.  
 Change the color to blue (drag the brightness slider up).  
 Reduce the Opacity value (drag the slider).

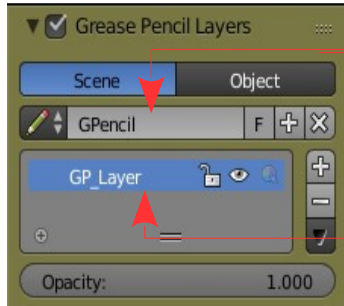
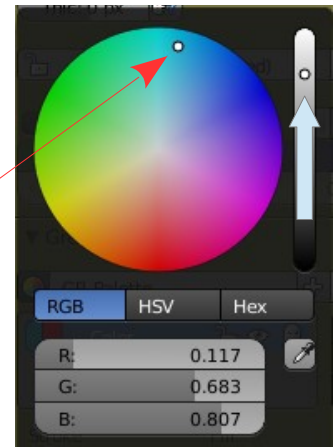
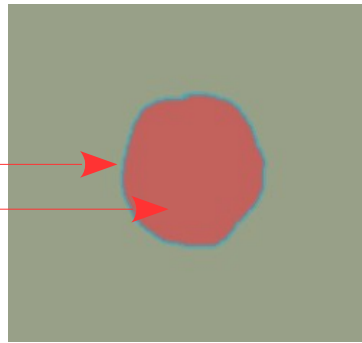
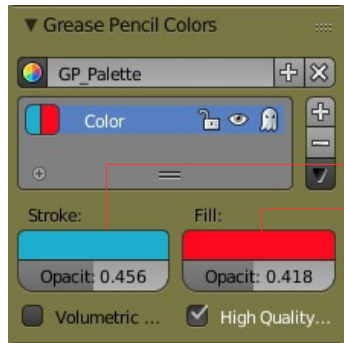


Figure 8.3



Stroke Color

- LMB click on the white Fill button to display the color picker.  
 Change the color to Red.  
 Increase the Opacity value (drag the slider).



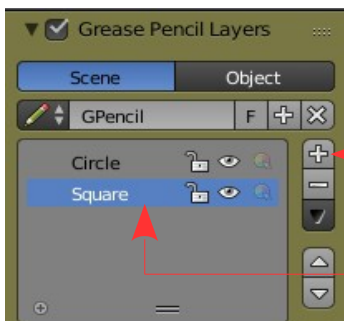
Circular Shape



Fill Color

The above procedure has entered data in the Datablock named **GPencil** for the circular shape drawn. The shape has been drawn on the Layer named **GP\_Layer** using colors specified as Color from the **GP\_Palette**.

- B. In the Grease Pencil Layers tab, double LMB, click on **GP\_Layer** and change the name to **Circle**.  
 Add a new Layer (by default it will be named GP\_Layer)  
 Change the new Layer name to **Square** (Figure 8.4).



LMB click to add a New Layer

Figure 8.4

**Note:** If you leave the first Layer name as GP\_Layer and add a New Layer the New Layer will be automatically named GP\_Layer.001

- C. In the Grease Pencil Colors tab, add a New Color (by default the Stroke color will be black and the Fill color white) (Figure 8.5).



Note: Colors are indicated in the color channel. Stroke: Blue, Fill: Red.

LMB click to add a New Color

A New Color is entered named Color.000 with the default Stroke: Black, Fill: White.

Figure 8.5



Change the New Color properties (Figure 8.6). Stroke: Green with Opacity 0.900 Fill: Blue (R:0.093 G: 0.576 B: 1.000) Opacity appx. 0.500.

**Note:** The Fill color is not indicated until the Opacity value is increased.

Figure 8.6

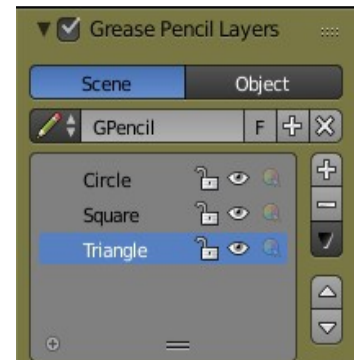


Figure 8.7

- D. With the Layer named Square selected in the Grease Pencil Layers tab (highlighted blue) and Color.000 selected in the Grease Pencil Colors tab, draw a square shape overlapping the circle shape.

- E. Add a New Layer and name it Triangle. Add a New Color and change the default colors (Figure 8.8).

- F. On the New Layer draw a Triangle overlapping the Square (Figure 8.9).

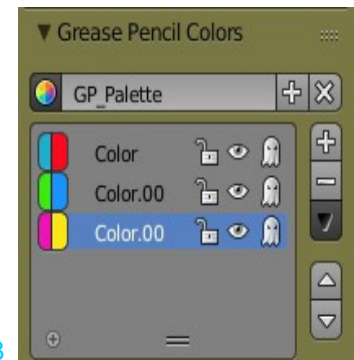
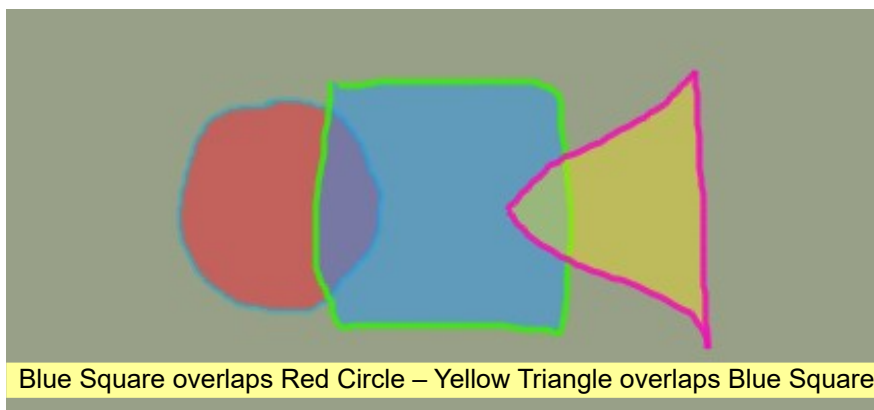


Figure 8.8



Blue Square overlaps Red Circle – Yellow Triangle overlaps Blue Square

Figure 8.9

**Note:** The Red Circle is on the Layer named Circle.  
 The Blue Square is on the Layer names Square  
 The Yellow Triangle is on the Layer named triangle.

The significance of naming Layers and Shapes the same will become evident as the complexity of the Scene increases and you begin animation.

Consider the shapes (Strokes) that have been drawn as components of a figure or character. In Figure 8.9, with a wild imagination, you may be able to visualize a child lying prone on the floor maybe throwing a tantrum (red head, blue body, yellow legs. This being the case it is probably kicking its legs.

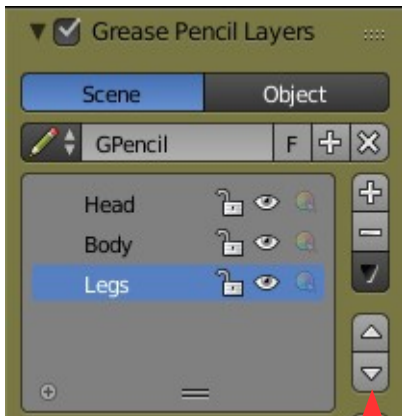
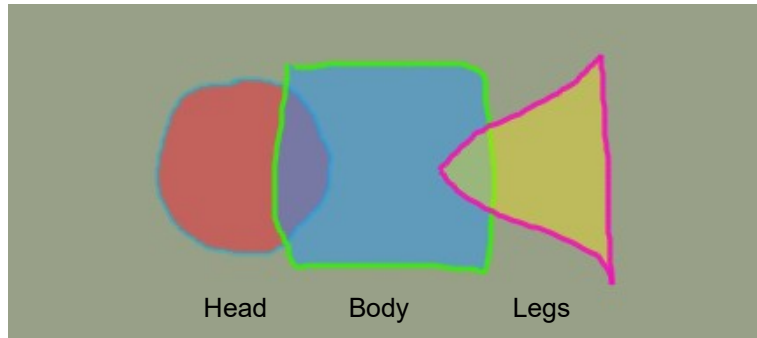


Figure 8.10

In the Properties Panel, Grease Pencil Layers tab, rename the Layers to make them relevant to the imaginary character (Figure 8.10).



Click to Arrows to move the selected Layer in the Stack

Observe that the Head is tucked down inside (behind) the Body and the Legs are outside ( in front) of the Body.

To put the components in the correct order you simply rearrange the Layers.

In the Grease pencil layers tab, Head is at the bottom of the Layer stack even though it is at the top of the panel.

Select a Layer (highlight blue). Click on the up and down arrows to rearrange the Layer Stack order.

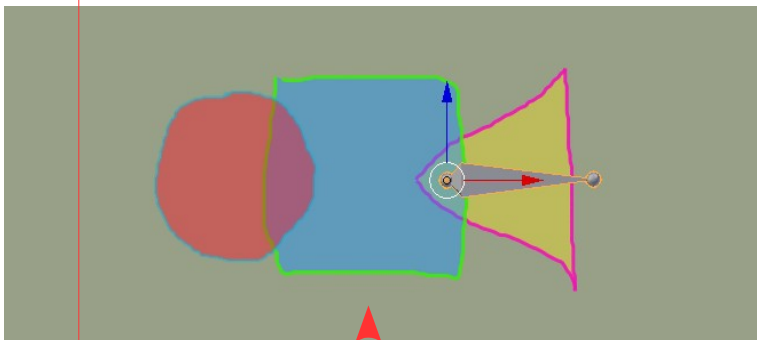


Figure 8.11

Head in front of Body – Legs behind Body

## Animating Layers

### Animate the Legs (Yellow Triangle)

Remember the 3D window is in Camera View. Stroke Placement has been Type: Cursor and in drawing Strokes the 3D window Cursor has not been moved. It should be located in the center of the Scene just out of Camera view at the bottom of the window.

To animate the Legs, in the Grease Pencil Layers tab have the layer named **Legs** selected (highlighted blue).

Add a **single Bone Armature** to the Scene, scale and position as shown in Figure 8.12.

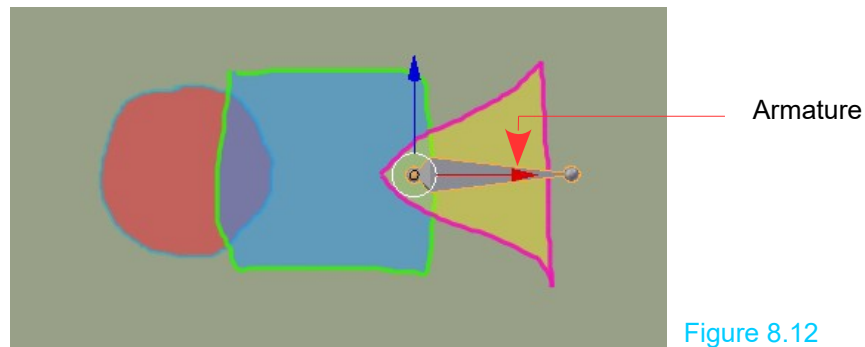
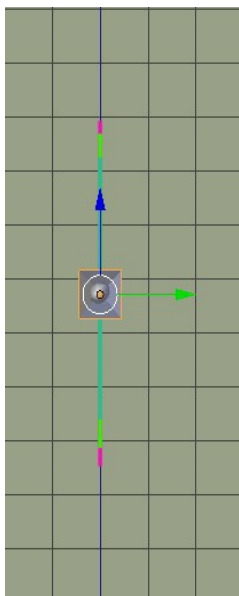


Figure 8.12

Grab the edge of the Properties window which has been parked at the RH side of the Screen and open the window. In the **Data buttons**, with the **Armature** selected, go to the Display tab and check (tick) **X-Ray** which allows you to see the Armature if it is hidden behind a shape (Figure 8.13).



**A point of significance:** Since the Stroke Placement in the Tool Panel, Grease pencil tab is selected as Type: Cursor all Strokes and Layers have been drawn in the same plane as the Cursor. When an Armature is added to the Scene it is located at the position of the 3D window cursor, therefore, in the same plane as the Strokes/ Layers (Figure 8.15).

**Figure 8.15** shows the Strokes/Layers and the Armature in the same plane in Right Orthographic View.

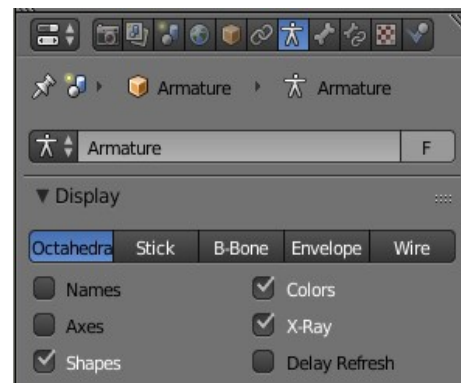


Figure 8.13

To animate the Legs – Yellow Triangle – Layer named Legs.

Select the Layer named Legs.

**Note:** The Armature consists of a single Bone named **Bone** (Figure 8.14).

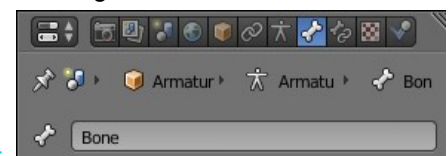
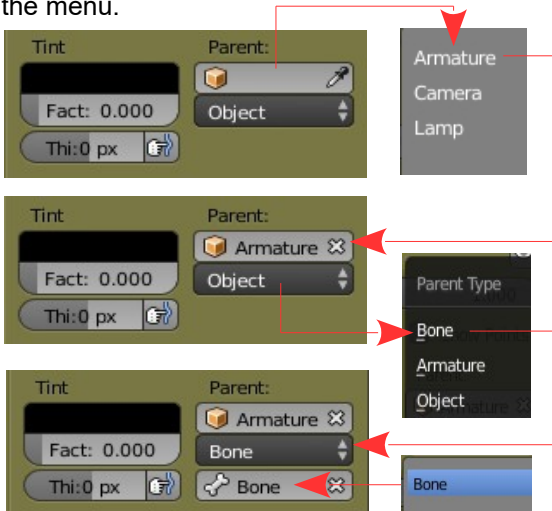


Figure 8.14

Figure 8.15

With the Legs Layer selected, in the Properties Panel, Grease Pencil Layers tab LMB click where you see the little **cube icon** under **Parent**. Select **Armature** in the menu that displays. Click LMB on Object and select **Parent Type: Bone**. A little panel displays with a Bone icon. Click on the panel and select **Bone** from the menu.



This procedure Parents the Layer containing the Yellow Triangle Stroke to the Armature Bone.

Select the Armature Bone in the 3D window. Place the 3D window in Pose Mode.

In Pose Mode reselect the Bone (outline turns blue).

Insert a Keyframe (I key select LocRot)

In the Timeline window move to another Frame.

Press R key – Rotate the Bone- Insert a second Keyframe.

Repeat, inserting a third Keyframe.

Play the Animation in the Timeline.

Figure 8.16

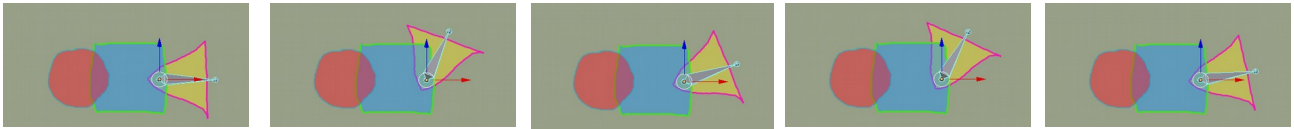
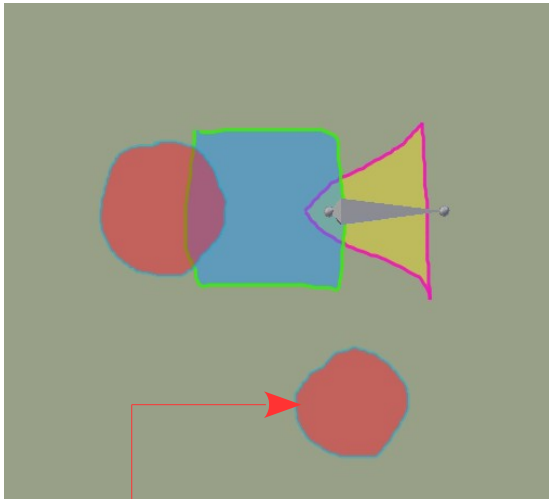


Figure 8.17

**Another point of significance:** In this example, when the Armature is rotated, it rotates about the Base.

The Armature is Parented to the Layer on which the Stroke is drawn, therefore, when the Armature is rotated the Layer is rotated about the Base of the Armature.

To prove the point draw a new Stroke on the Legs Layer.



Circle Stroke drawn on Legs Layer using the color named Color (same as the Head).

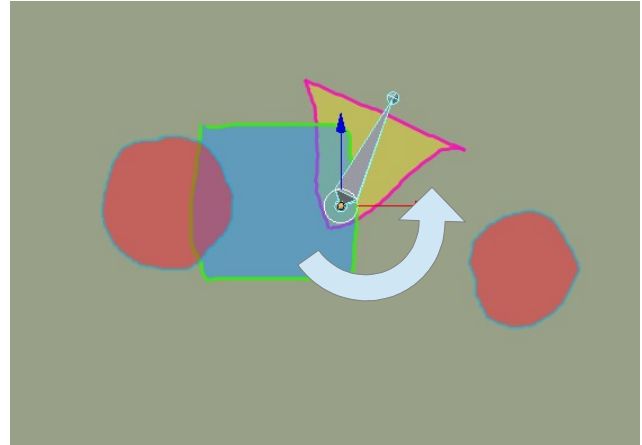


Figure 8.19

Figure 8.18

With the Armature selected and rotated in Pose Mode, the new Strokes on the Layer rotate about the Base of the Armature Bone.

With the foregoing information under the belt, you are fully equipped to understand Animation using Armatures in Supplement 10.