

Toon Boom STUDIO

Quick Start Tutorial

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Quick Start Tutorial

The lessons in this tutorial give you the chance to learn Toon Boom Studio using realistic examples.

These self-contained lessons can be completed in any order, this allows you to learn about the features that interest you most.

You can download the material for each lesson as a single package at the same location where you downloaded this PDF (<http://www.toonboom.com/products/toonBoomStudio/eLearning/tutorials/quickStart/>).

Right-click (Windows) or [Ctrl] + click (Mac) on the sample material *.zip file (TBSv5-QuickStart.zip) and chose to extract the files to a folder somewhere on your computer, such as your desktop. You will find seven folders, one for each lesson, with two folders in each lesson folder: the final project and the uncompleted (or rough) project which you will use to follow the lesson.

This tutorial includes the following lessons:

- Lesson 1: Drawing on page 4
- Lesson 2: Painting on page 13
- Lesson 3: Lip-Synching on page 24
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- Lesson 6: Creating Clipping Mask Effects on page 66
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Lesson 1: Drawing

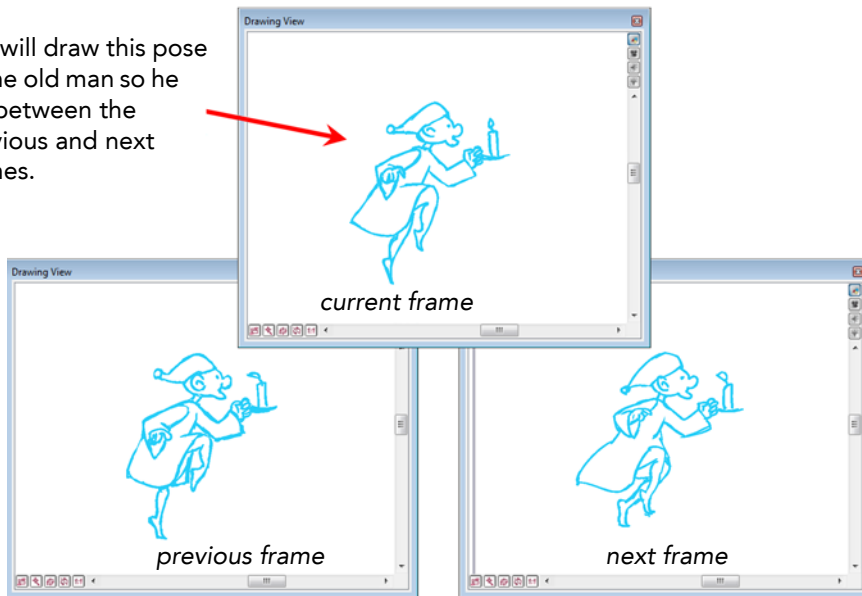
In this lesson, you will work with Toon Boom Studio drawing tools to create frame-by-frame animation.

There are two animation projects for this lesson:

- Drawing_Rough
- Drawing_Final

You'll use the Drawing_Rough animation project to complete a walk cycle. You can refer to the Drawing_Final project as a reference at anytime throughout this lesson. You'll use the onion skin, rotary light table, and the Toon Boom Studio centre vector line drawing tools and pressure-sensitive Brush tool to draw the old man.

You will draw this pose of the old man so he fits between the previous and next frames.



To start the Drawing lesson:

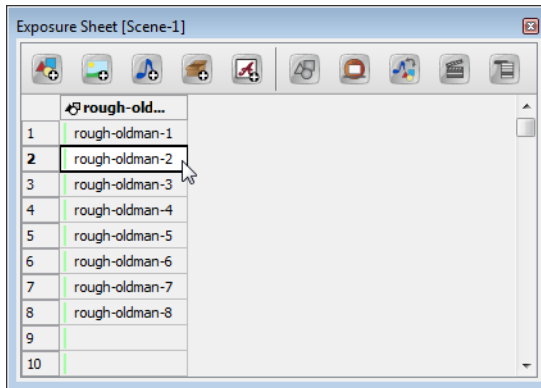
1. In the Quick Start Sample Material folder that you downloaded, go to the folder called **Lesson1_Drawing > Drawing Rough** and open the **Drawing_Rough.tbp** project file inside.
2. Save the animation in a location of your choice using **File > Save As**. Saving this animation project to a new location will ensure that you always have the original to return to and use should you want to.

Step 1: Drawing the Old Man's Head

In this step, you will draw the head of the old man using the Ellipse tool. Because this drawing must fit with the other drawings in the element to create a complete cycle, you will use the onion skin to show the previous and next drawings of an element as a reference while you draw.

To draw the old man's head:



1. In the **Exposure Sheet** window, click the first cell in the **rough-oldman** element and press [S] on your keyboard to move forward (or to the next cell). As you scroll through all of the drawings in the **rough-oldman** element, you'll notice that there is no drawing in the rough-oldman-2 cell. That's because you are going to draw it! To move to the previous cell, use [A].
2. Click in the **Drawing View** and set it up so that you have a clear view of the old man.
 - ▶ To turn the grid off or on, press [G], the default keyboard shortcut.
 - ▶ To zoom in, press [X], and to zoom out press [Z].
 - ▶ To pan the **Drawing View** window, press and hold down the [Spacebar] (this turns the mouse into the Grabber tool) and click and use the mouse to drag a section of the window into view.
3. Select the rough-oldman-2 cell.



4. In the toolbar, click the **Onion Skin** button to turn on the onion skin feature. When the onion skin is active, the button looks like it is pressed in.




If you do not see all the Onion Skin options available, click on the double arrowheads >> to view the rest of the toolbar.

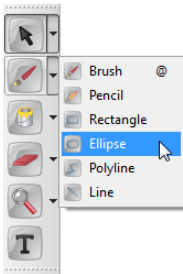
5. When you click on the Onion Skin button, the show **Previous Drawing**  option and show **Next Drawing**  option are selected by default. If you would like to see

more than just the first previous and next, make a different selection from the respective drop-downs now.

In the **Drawing View**, the previous and next drawings that are made visible by the onion skin feature appear pale red for the previous drawing and pale green for the next drawing.

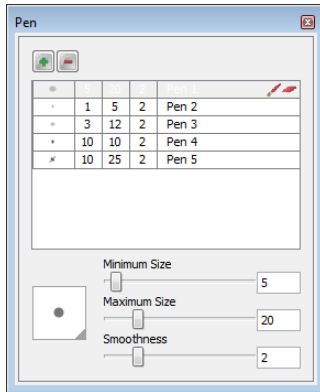


6. Select the **Ellipse**  tool from the **Drawing Tools** toolbar.

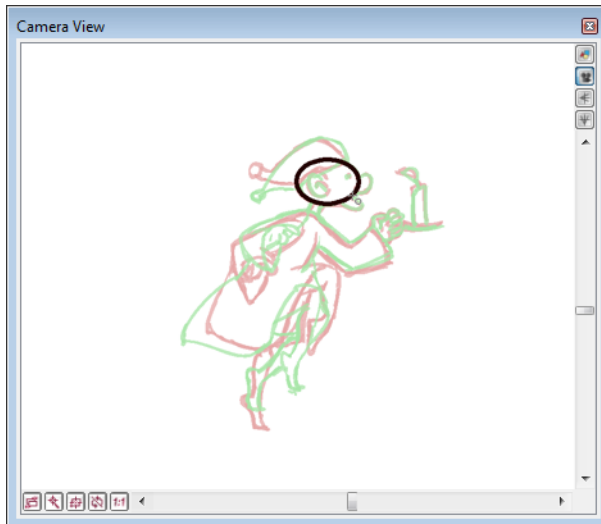


When you draw with the centreline tools (including Pencil, Rectangle, Ellipse, Polyline and Line tools) the **Maximum Size** value is assigned as the width of the line.

In the **Pen** tab, you can see that the **Maximum Size** value is currently set to 20 by default.



7. In the **Drawing View**, draw an ellipse roughly the shape of the old man's head. Don't worry about the actual shape not being the same as the one in the animation. You will reshape it using the **Contour Editor** tool in Step 2: Reshaping the Old Man's Head coming up next.



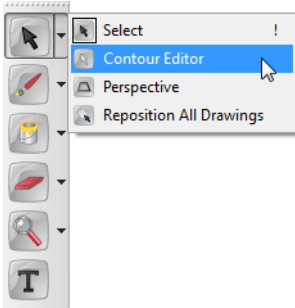
8. Save your animation project using the **File > Save** command.
9. Now move on to Step 2: Reshaping the Old Man's Head.

Step 2: Reshaping the Old Man's Head

In this step, you will use the **Contour Editor**  tool to move the points that make up the ellipse you drew in Step 1 in order to reshape the old man's head.

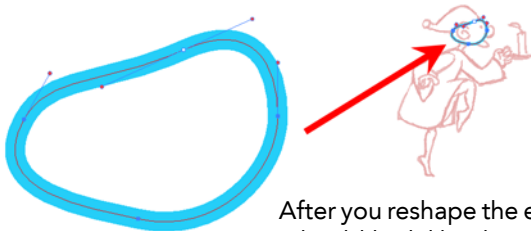
To reshape the old man's head:

1. From the **Drawing Tools** toolbar, select the **Contour Editor**.



2. Click the ellipse you drew in Step 1. You'll notice that a line appears down the center of the shape (a centreline) and that there are points on this line.
3. Use the **Contour Editor** to reshape the ellipse by moving the points and dragging the Bezier handles. (To get the Bezier handles to appear, click a point on the centreline.)

The final shape should be approximately the same shape as the old man's head shown in the previous drawing.



After you reshape the ellipse, it should look like this

4. Save your animation project using the **File > Save** command.
5. Now move on to Step 3: Using the Brush Tool to Draw the Old Man.

Step 3: Using the Brush Tool to Draw the Old Man

In this section, you will use the **Brush**  tool to draw the old man's head and then the rest of his body.

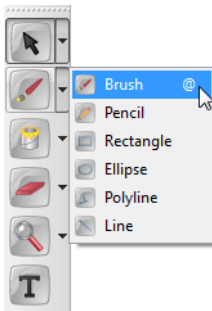
Unlike the Ellipse tool and other centreline tools (Rectangle, Polyline, Line and Pencil), the Brush tool creates variable strokes widths that respond to the pressure you apply with a stylus and graphic tablet.

When you draw with the Brush tool, Toon Boom Studio creates a shape that is formed by lines and points that surround a zone filled with colour. We call these shapes created by the Brush tool "contour shapes".

Drawing with the Brush tool allows you to create distinctive lines that are more natural than the mechanical looking centreline shapes. However, due to these extra points, brush strokes are heavier and make the file size larger. If you are concerned about the file size of your animation, consider this carefully when choosing your drawing tools.

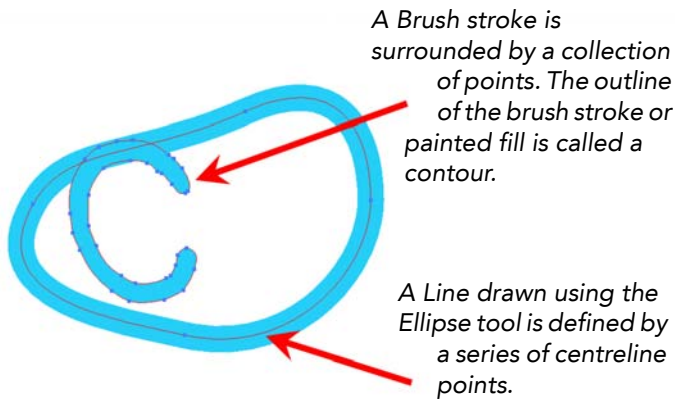
To draw the old man with the Brush tool:

1. Select the Brush  tool from the **Drawing Tools** toolbar.

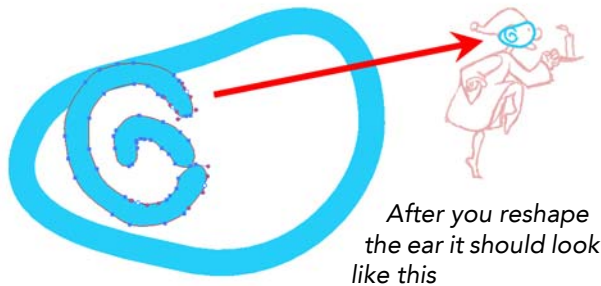


2. In the **Pen** tab, note that 5 is the Minimum Size value and 20 for the maximum size value. When you draw with a graphic tablet and pen, Toon Boom Studio uses the **Minimum Size** and **Maximum Size** values to determine the width of the variable-width line.
3. In the Colour Palette, select Colour 9.
Colour 9, a bright, light blue colour, matches the colour of Col-Erase pencils which are used by traditional animators to sketch out their rough artwork. A darker colour is later used to trace out a clean version.
4. In the **Drawing View**, use the **Brush** tool to draw the old man's ear. The onion skin feature allows you to view the previous drawing which you can use as a reference.
5. Using the **Contour Editor** tool, click the drawing of the old man's ear and then [Shift]-click the old man's head. Notice the difference between the number of points in old man's ear, which was drawn using the Brush tool, and the old man's head, which was drawn using the Ellipse tool.

When you have finished comparing the drawings deselect them by clicking anywhere in the Drawing View window.

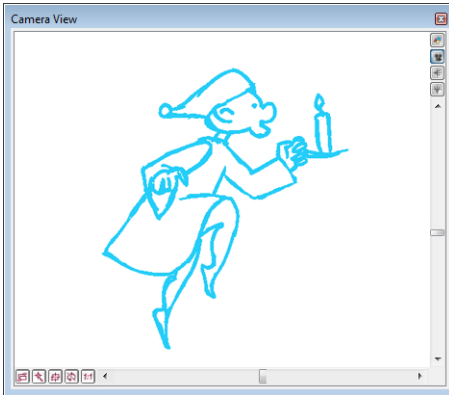


6. Using the **Contour Editor** tool and the curve handles, reshape the old man's ear so that it is approximately the same shape as the old man's ear shown in the previous drawing through the onion skin.



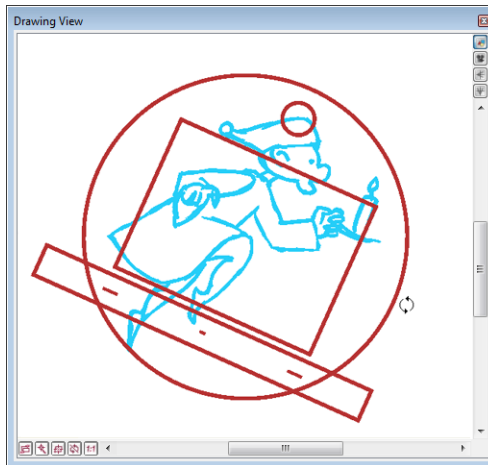
7. Draw the rest of the old man. Because we would like the new drawing to fit in the walk cycle, draw the old man's legs so that his left leg is slightly lower than the previous drawing and his right leg slightly higher.

When you finish drawing, your old man should look something like this.



You can look at the final drawing in the Drawing_Final animation project to see how we did it.

8. Use the **Rotary Light Table** to turn the image and get a better angle to draw from.
 - ▶ To display the **Rotary Light Table**, hold down [Ctrl] + [Alt] when using Windows or [Ctrl] + [Command] when using Mac OS X. The red animation disc outline appears. Continue to hold down these two buttons, then use your mouse or stylus to click anywhere in the Drawing view and use it to freely rotate your drawing space.






- ▶ To return your drawing space to the original angle, select **View > Reset Rotation** or press [Shift] + [C].
9. Save your animation project using the **File > Save** command.
10. Now move on to Step 4: Previewing the Old Man Cycle, where you will learn to playback the animation.

Step 4: Previewing the Old Man Cycle

In this step, you use the Interactive Playback buttons to preview your drawing of the old man and see how it fits into the walk cycle.



To preview the Old Man cycle using Interactive Playback

1. Press the **Play**  button.
All of the selected content plays in sequential order in the **Drawing View** window.
2. If you want the playback to cycle, select the **Loop**  button before you click the **Play**  button.
3. Make corrections to your old man drawing so that the transition between the drawings in the cycle looks logical and smooth.
4. Save your animation project using the **File > Save** command.

Congratulations on completing this lesson.

Lesson 2: Painting

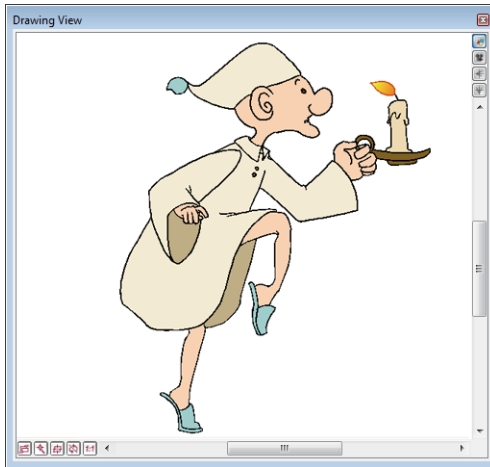
In this lesson, you will paint the old man to give him some colour.

There are two animation projects for this lesson:


- Painting_Rough
- Painting_Final

In the Painting_Rough animation project, you'll build a colour palette for the old man and create a gradient colour swatch. Then you'll paint the old man using Toon Boom Studio's powerful paint features that will speed the painting process.

Refer to the Painting_Final project as a reference at anytime throughout this lesson.



To start the Painting the Old Man lesson:

1. In the Quick Start Sample Material folder that you downloaded, go to the folder called **Lesson2_Drawing > Painting_Rough** and open the **Painting_Rough.tbp** project file inside.
2. Save the animation in a location of your choice using **File > Save As**.
3. Click the **Play**  button and watch the old man walk!

Now it's time to give the old man some colour and the candle a bit of light!

Step 1: Adding a Colour Swatch

In this step, you'll add a colour swatch to the old man's colour palette.

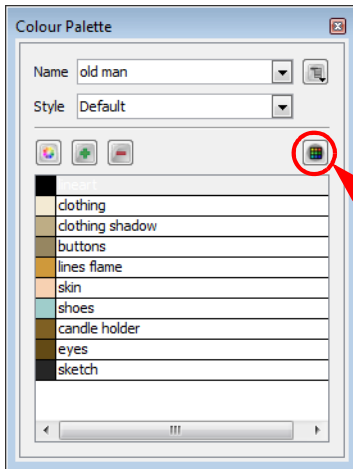
To add a colour swatch:

1. If the **Colour Palette** window is not open, select **Window > Colour Palette**, otherwise click the **Colour Palette** tab.

The **Colour Palette** tab appears with the default set of colours.


2. From the **Name** drop-list, select **old man**. This is the old man colour palette, which you can use to organize all of the colour swatches for this character.
3. You can click the **Show/Hide Colour Name** button on the right side of the dialog box between the Style drop-down and the colour swatches. This changes the display to a column of swatches without names to make room for more immediately visible swatches.

For this exercise, it is recommended to toggle back to the previous setting to view both the name and colour of the swatches.



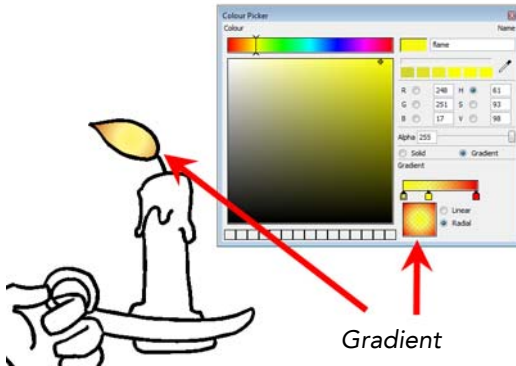
This Colour Palette provides all of the colour swatches you need to paint with.

The Show Colour Names button displays the names of the swatches.

4. Select the **flame lines** colour swatch and click the **Add a Colour**  button. A copy of the lines flame swatch appears in the palette style and it is called **New 1** by default. You will edit the properties of this colour swatch in the next step.
5. Save your animation project using the **File > Save** command.
6. Now move on to Step 2: Creating a Gradient "Flame" Swatch.

Step 2: Creating a Gradient "Flame" Swatch

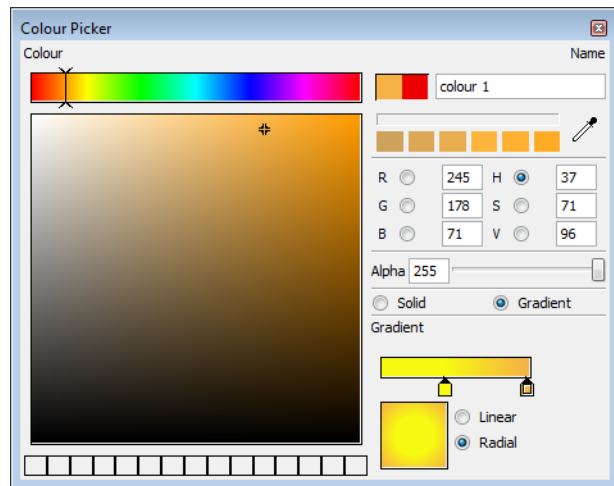
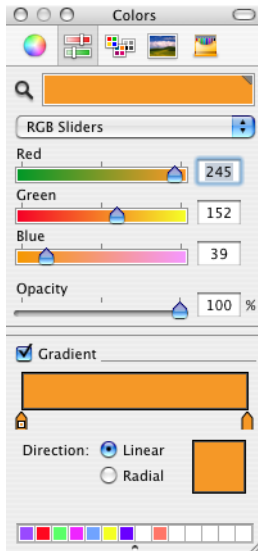
In this step, you will create a gradient for the candle flame.



To create a gradient:

1. Double-click the colour swatch you created from the flame lines swatch. You'll use this swatch as a basis for the gradient so that the flame's outline and gradient fill appear in harmony.

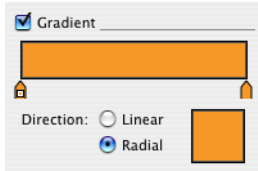
The colour picker opens.



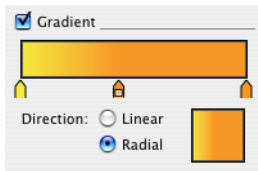
The look of your colour picker is dependent on your operating system.

2. Select the **Gradient** option.
3. In the **Gradient** panel, select **Radial**. The colours in a radial gradient blend in a circular pattern.

4. Click the first marker below the **Gradient** bar. A square appears in the marker to indicate that it is editable.

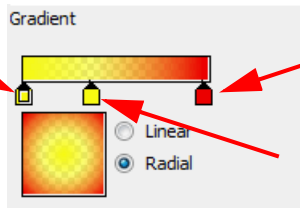


5. Change the colour of the first marker to yellow by dragging your mouse or stylus in the colour picker area. We used these **R, G, B** values: 248, 251, 17. You can use the Colour slider, or enter these values manually.
6. Click below the **Gradient** bar to add a gradient marker. The colour of the new marker is the same colour as the end marker that was currently selected. Gradient markers represent the start or end of a transition between different colours.



7. Do one of the following:
 - ▶ In the **Opacity** field, type 60 (Mac OS X).
 - ▶ In the **Alpha** field, type 150 (Windows).
8. Change the value of the last colour to red. You can use these specific values: 236, 0, 0.

End colour marker



End colour marker

Transition colour

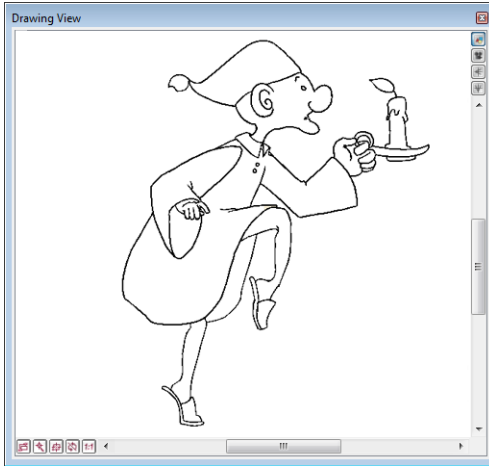
9. Rename your swatch to **Flame**, then close the colour picker window. That's it, you have successfully created a gradient swatch!
10. Save your animation project using the **File > Save** command.
11. Now move on to Step 3: Painting the Flame on the Candle.

Step 3: Painting the Flame on the Candle

Now that you have created a gradient swatch for the flame, you are ready to paint.

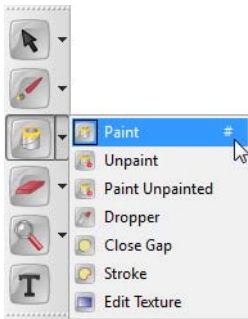
To paint the candle's flame:

1. In the **Exposure Sheet**, select the first drawing in the **ColourMe** element (ColourMe-1). The old man appears in the **Drawing View**.



2. Set up the **Drawing View** window so that you have a clear view of the candle.
 - ▶ To turn off the grid, press [G], the default keyboard shortcut.
 - ▶ To zoom in, press [X], and to zoom out press [Z].
 - ▶ To pan the **Drawing View** window, press and hold down [Spacebar] and use the **Grabber** tool to navigate your location in the Drawing view.

3. Select the **Paint**  tool from the **Drawing Tools** toolbar.



4. From the **Colour Palette** tab, select the gradient swatch you created for the flame.

5. Click the area of the flame inside the lines with the **Paint**  tool.



6. In the Timeline view, scroll through the old man drawings and paint the flame in each drawing.


Press [S] to advance to the next frame and press [A] to return to the previous frame.

You'll notice that after you paint drawing 2, you will come to a drawing that has already been painted. That's because we held drawing 2 for two exposures. Each cell in the Exposure Sheet (or frame in the Timeline) refers to a drawing in the animation project. When a drawing that is repeated is modified, Toon Boom Studio updates all cells and frames that reference that drawing.

7. Save your animation project using the **File > Save** command.
8. Now move on to Step 4: Editing the Direction of the Flame, where you will change the position and length of the flame gradient.

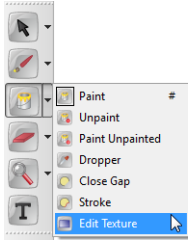
Step 4: Editing the Direction of the Flame

Now that the candle flame has been painted it requires some minor editing to make it look more natural.

Use the **Edit Texture**  tool to change the position and length of the flame gradient.

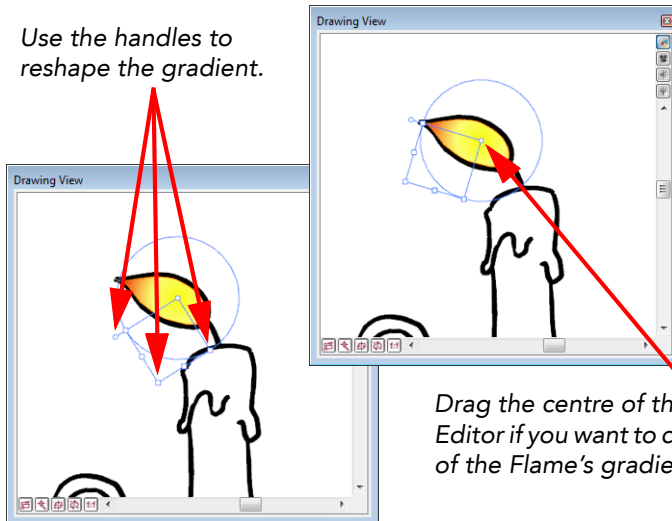
To edit the flame in the painted zone:

1. Select the **Edit Texture** tool from the **Drawing Tools** toolbar.



2. With the **Edit Texture** tool, click the flame gradient in one of the old man drawings. The gradient editor appears.
3. Grab the handles to rotate the gradient or change its length. Since you want to create an effect that looks natural, experiment with the **Edit Texture** tool until you achieve the desired effect.

Use the handles to reshape the gradient.



Drag the centre of the Gradient Editor if you want to change the look of the Flame's gradient colour.

4. Save your animation project using the **File > Save** command.
5. Now move on to Step 5: Painting the Old Man drawings.

Step 5: Painting the Old Man drawings

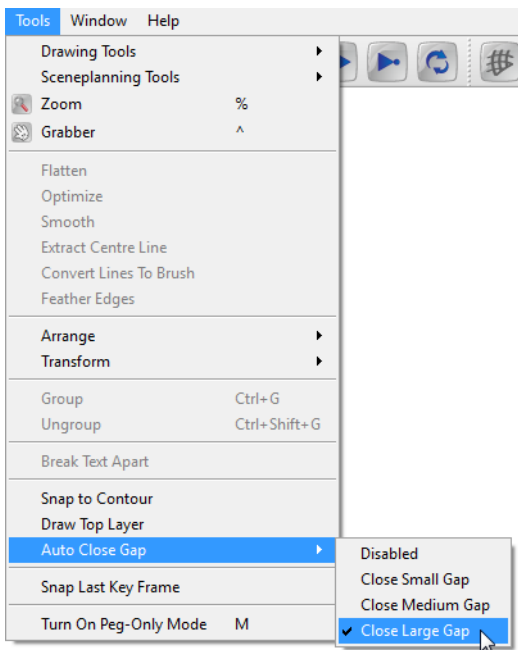
In this step, you are going to use Toon Boom Studio's powerful automatic painting features.

Click in a zone in one drawing and let Toon Boom Studio scroll through the rest of the drawings in the same element to check if there is a closed zone beneath. If there is a closed zone, Toon Boom Studio automatically paints the zone with the same colour.

Another useful feature is the Auto Close Gap. Before you can fill a zone with colour, it has to be completely closed. Sometimes when you draw with the Brush tool, you may not fully close a zone. While you are painting, you can set a threshold for these line gaps so that Toon Boom Studio will paint zones regardless of whether they are completely closed or not.

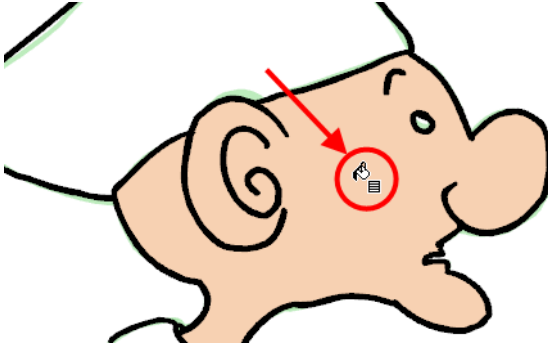
To paint the old man:

1. From the **Tools > Auto Close Gap** menu, select **Close Large Gap**.



2. In the **Exposure Sheet** window, select the **colourMe-1** drawing.
3. Click on the drawing, then press [X] to zoom in on it so that you can see the zones more clearly.
4. Select the **Paint** tool from the **Drawing Tools** toolbar.
5. In the **Colour Palette** tab, click the **skin** colour swatch in the **old man** colour palette.

6. Press [Shift] + [Option] in Mac OS X, or [Shift] + [Alt] in Windows, and click the old man's face. Your pointer changes to indicate that the **Paint All** tool is active.



After it is done, scroll through the drawings to check that the face on all of the drawings have been painted with the same skin colour swatch. You may have to manually correct some drawings because of where you clicked on the drawing (it might overlap other zones, for example).

7. Continue to use the **Paint All** tool to colour all the appropriate zones with the old man's skin colour.



*Click here with the **Paint All** tool and it will paint the same area in all of the drawings in the element.*

8. Continue to use the **Paint All** feature, remembering to select the appropriate colours from the old man colour palette (refer to the name of the colour swatch for reference), until all the areas of your drawings are coloured.

9. Next, paint the smaller zones one at a time. Use the names of the colour swatches to identify which zones they belong to on the old man, then click those zones with the **Paint** tool. Each zone will be filled with colour.



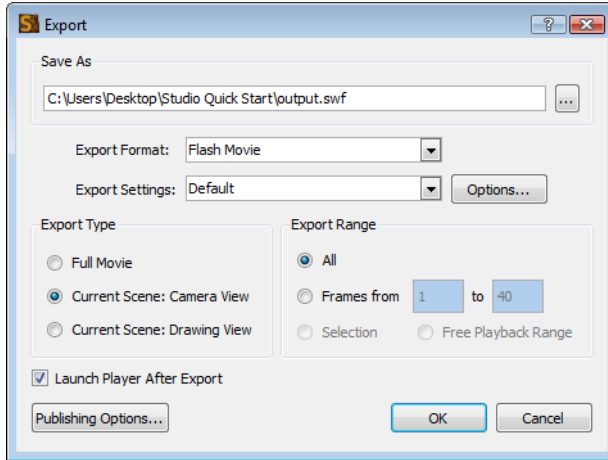
10. Save your animation project using the **File > Save** command.
11. Now move on to Step 6: Export, where you export the animation so that it may be shared with others.

Step 6: Export

Now you are ready to export your creation and share it with your friends and family.

To export your animation:

1. Select **File > Export Movie**. The **Export** dialog box opens.



2. Click the Browse button to the right of the **Save As** field to bring up the browser window and select a location on your computer where you would like to save your movie.
3. Name your movie in the browser and click Save when you are done.
4. From the **Export Format** menu, select the format of your choice. We selected **Flash Movie**.
5. Select **Default** from the **Export Settings** menu.
6. Select **Full Movie** from the **Export Type** panel.
7. Select the **Launch Player After Export** option.
8. Click **OK** to begin the exporting process. A progress bar appears to show you the progress of the export.

When the export process is complete the movie file automatically opens and starts to play.

Congratulations on completing this lesson!

Lesson 3: Lip-Synching

In traditional animation, lip-synching was considered to be the most tedious task in the animation process. Before you can even begin to draw the mouth positions, you have to analyze the voice track to determine what mouth position best matches the sound at each frame.

With Toon Boom Studio, the easy-to-use lip-sync feature analyzes the sounds in a voice track and generates a mouth chart based on the eight animation phonemes. In addition, Toon Boom Studio has a tool that will automatically map drawings in an element based on the sounds they match. These two tools together will save you hours of time and labour!



Just look at Deb Ant! So nervous?

Looks like she's got something to say.

There are two animation projects for this lesson:

- Lip_Sync_Rough
- Lip_Sync_Final

You will be asked to use the Lip_Sync_Rough project to complete this lesson. You may refer to the Lip_Sync_Final project as a reference at anytime throughout this lesson.

To start the Lip-Sync lesson:


1. In the Quick Start Sample Material folder that you downloaded, go to the folder called **Lesson3_Drawing > Lip_Sync_Rough** and open the **Lip_Sync_Rough.tbp** project file inside.
2. Save the animation to a location of your choice using **File > Save As**.

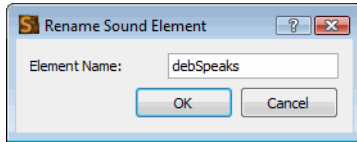
Step 1: Importing Deb Ant's Voice Track

In this step, you will import a speech made by Deb while she's at the Survivor Ant tribal council meeting.

In Toon Boom Studio, you must import sounds into Sound elements so you must add a sound element first.

To import Deb Ant's voice track:

1. Click the **Add Sound Element**  button at the top of the **Exposure Sheet** window. An empty sound element appears in the exposure sheet.
2. Select **Element > Rename Element** and use the **Rename Sound Element** dialog box to name the element *debSpeaks*. When you are finished, click OK.



3. Right-click (Windows) or [Control]-click (Mac OS X) the first cell in the element and select **Import Sound File** from the pop-up menu. The **Open** dialog box opens.
4. Browse the **Lesson3_LipSync** folder and select **please_dont.MP3** and click **Open**. The sound file now appears in the cell you selected.
5. Turn-up your headphones or speakers, [Control]-click (in Mac OS X) or right-click (in Windows) the first cell in the *debSpeaks* element and select **Play** from the pop-up menu. Listen as Deb Ant begs not to be thrown-out of the tribe.
6. Now move on to Step 2: Generating a Mouth Chart for Deb Ant, where you will generate a mouth chart to use as a reference for drawing lip shapes.

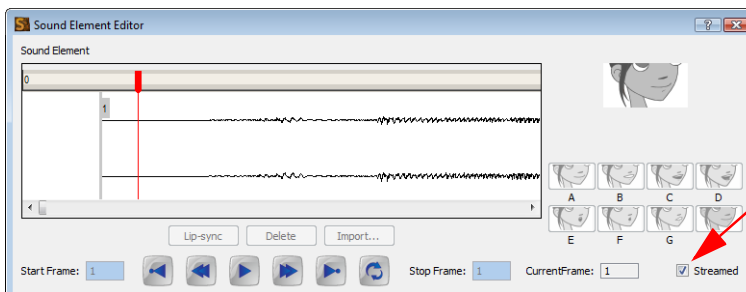
Step 2: Generating a Mouth Chart for Deb Ant

In this step, you will use Toon Boom Studio to generate a mouth chart that matches Deb Ant's speech to a set of animation phonemes. You can use the mouth chart as a reference as you draw the lip-sync images for your characters.

To generate a mouth chart for a Deb Ant's voice track:

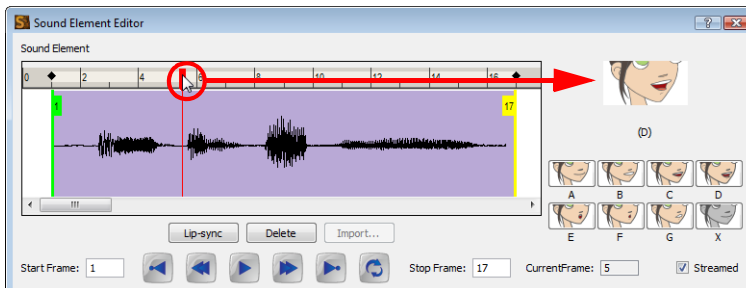
1. Select the **debSpeaks** element and select **Element > Edit Sound**. The **Sound Element Editor** appears.
2. In the **Sound Element** panel, click the wave form of the sound track and click the **Streamed** checkbox to set up this sound for streaming.

Voice tracks are best set as streamed sounds because they begin playing before the entire sound is loaded and will better maintain synchronization with *.swf images.



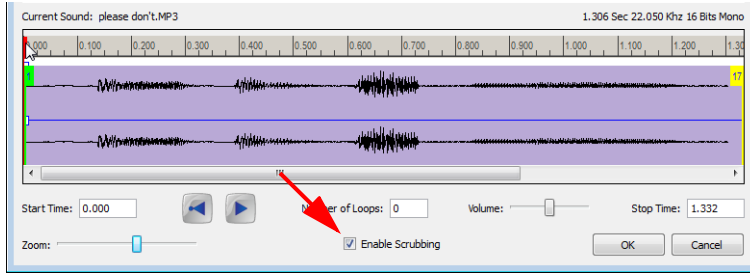
3. Select the waveform in the **Sound Element** panel and click the **Lip-Sync** button. A progress bar appears as Toon Boom Studio analyzes the selected sound clips and assigns a mouth chart letter to each frame.

The lip-sync images on the right side of the window become active. Drag the frame slider in the **Sound Element** panel to see the mouth position for each frame of sound.



4. Select the **Enable Scrubbing** option at the bottom of the **Sound Element Editor**. Scrubbing allows you to slowly play the sound forward and backward.

5. Drag the frame slider at the top of the **Current Sound** panel to “scrub” the sound track and hear for yourself the sound that Deb is making at each frame.



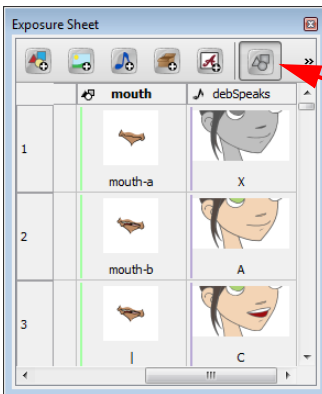
6. Click **OK** to close the **Sound Element Editor** and then save your animation project.
7. Save your animation project using the **File > Save** command.
8. Now move on to Step 3: Drawing Deb Ant’s Missing Mouths.

Step 3: Drawing Deb Ant's Missing Mouths

In the sample Lip-Sync lesson, we drew six out of seven of the mouth positions for Deb Ant. It is up to you to draw Deb's mouth for the "D" position using the lip-sync preview images.

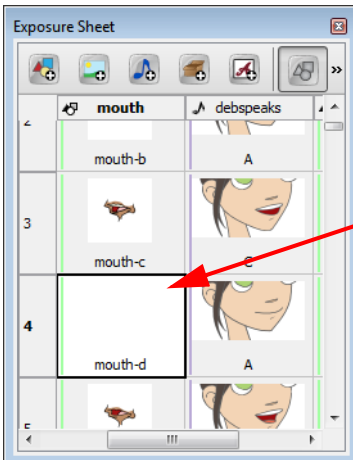
To draw Deb Ant's missing mouth shape:

1. In the **Exposure Sheet** window, press [Ctrl] (Windows) or [Command] (Mac OS X) and drag the **debSpeaks** element so that it is next to the mouth column. This will make it easier for you to see the mouth chart while you are working on Deb's mouth.
2. Right-click (Windows) or [Control]-click (Mac OS X) a cell in the debSpeaks element and select **Show Lip-sync** from the pop-up menu. Toon Boom Studio displays the phoneme assigned to each frame in the sound.
3. Click the **Toggle Thumbnails** button to show the mouth chart.



This is the Toggle Thumbnails button. Click it and you will see preview images for the lip chart you computed.

4. Scroll down the Exposure Sheet window to frame 4 where you will find a blank frame in the **mouth** column labelled mouth-d. Select this frame.







Frame missing a Deb Ant mouth drawing.

5. Now, with the lip-sync preview image as a reference, draw Deb Ant's mouth in the D position. After you have finished drawing her mouth, paint it using the swatches in the Deb Ant colour palette under the **Colour Palette** tab.

This is how Deb Ant's mouth looks in the D position that we drew.



Here are some tips to help you out:

- ▶ Set up the **Drawing View** so that you have a clear view of Deb Ant.
 - ⇒ To turn off the grid, press [G], the default keyboard shortcut.
 - ⇒ To zoom in, press [X], and to zoom out press [Z].
 - ⇒ To pan the **Drawing View** window, press and hold down the [Spacebar] and use the **Grabber** tool to navigate to a different part of the window.
 - ▶ The mouth must fit on Deb Ant's head.
 - ⇒ You can use the **Onion skin**  to display the previous and next mouth drawings and use these drawings as a reference.
 - ⇒ You can use the **Auto Light Table**  to display drawings from other layers in the current frame, including Deb. You will need to hide other elements (using the Element List on the left side of the Timeline view) to display only selected elements.
 - ⇒ You can add a drawing (like the F drawing) to the Static Light Table so that you can use it as a reference.
 - ⇒ You can copy and paste drawings from previous cells (try the F cell) and modify them to suit the mouth position.
 - ▶ Use the **Stroke**  tool to create an invisible line in order to close an otherwise open area.
 - ▶ Use the **Close Gap**  tool to close smaller holes in the line art, such as the zone in the neck, so that you can paint it.
6. Save your animation project using the **File > Save** command.
7. Now move on to Step 4: Auto-Mapping Deb Ant's Mouth to the Voice Track, where you will identify each phoneme drawing and auto-map them to the appropriate cells.

Step 4: Auto-Mapping Deb Ant's Mouth to the Voice Track

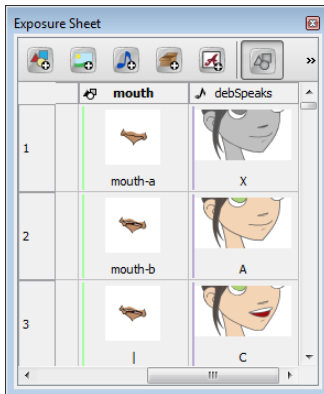
In the Lip-Sync Mapping dialog box, you will be asked to identify each phoneme drawing for a character and then Toon Boom Studio will automatically label all of the cells in the character's element with the appropriate link for each phoneme drawing.

To make this feature really work for you, it is best if you name your drawings with the seven phonemes and the closed mouth position: A, B, C, D, E, F, G, and X.

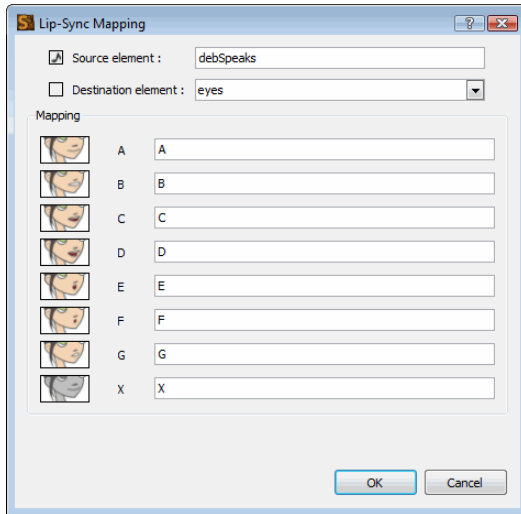
In the mouth element, we have already named all the elements with the letters of the seven plus one phonemes. All you have to do is map the drawings to the phonemes in this element, and Toon Boom Studio will do the rest of the work for you. For Deb's mouth, you are going to use the same drawing for the A position and the X position.

To auto-map Deb Ant's mouth to the voice track:

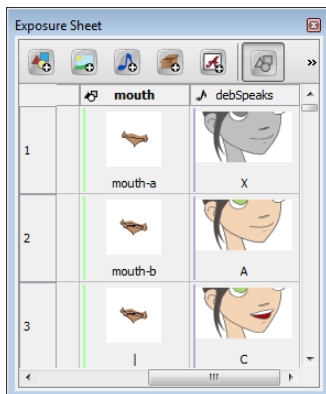
1. Select the first drawing in the mouth element and click on the arrow keys to scroll down the drawings in this element. You'll see that the mouth positions do not reflect the mouth chart that you generated.



- Right-click (Windows) or [Ctrl] + click (Mac) on the title of the debSpeaks element and select **Modify Lip-Sync Mapping** from the pop-up menu. The **Lip-Sync Mapping** dialog box opens.



- From the **Destination element** drop-down list, select **mouth**. This is the element that you are going to apply the auto-map to.
- In the **X** field, type A. For Deb's mouth, you are going to use the same drawing for the A position and the X position.
- Click **OK**. The dialog box closes.
- If you scroll through the mouth element now, you'll see that all of the lip drawings have been mapped to the phonemes in Deb's voice track.



- Save your animation project using the **File > Save** command.
- Now move on to Step 5: Export, where you will learn to export the animation so that you can share it with others.

Step 5: Export

It's time to export your lip-sync scene.

To export your animation:

1. Select **File > Export Movie**. The **Export** dialog box opens.
2. Click the **Browse** button to the right of the **Save As** field to bring up the browser window and select a location on your computer where you would like to save your movie.
3. Name your movie in the browser and click **Save** when you are done.
4. From the **Export Format** menu, select the format of your choice. We selected **Flash Movie**.
5. Select **Default** from the **Export Settings** menu.
6. Select **Full Movie** from the **Export Type** panel.
7. Select the **Launch Player After Export** option.
8. Click **OK** to begin the exporting process. A progress bar appears to show you the progress of the export.

When the export process is complete the movie file automatically opens and starts to play.

Congratulations! You have successfully completed this lesson.

Lesson 4: Building a Multiplane Scene

One of the great attributes of Toon Boom Studio is the 3D scene space and the camera, which allows you to design multiplane moves and cinematic camera effects.

In this lesson, you'll create a multiplane camera move that follows the action, as well as make the old man cross the room. In the process of all this, you will also get to work a bit with templates and smooth moves using the features of your motion paths.



There are two animation projects for this lesson:

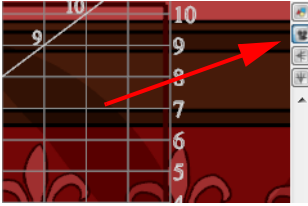
- Sceneplanning_Rough
- Sceneplanning_Final

You will be asked to work with the Sceneplanning_Rough project to complete this tutorial. You may refer to the Sceneplanning_Final project as a reference at anytime throughout this lesson.

To start the Building a Multiplane Scene lesson:

1. Go to the Workspace drop-down menu near the top, right corner of the program's window and select Scene Planning.
The entire workspace changes to display the tabs, panels and views most suited to plan a scene.
2. In the Quick Start Sample Material folder that you downloaded, go to the folder called **Lesson4_Sceneplanning > Sceneplanning_Rough** and open the **Sceneplanning_Rough.tbp** project file inside.
3. Save the animation in a location of your choice using **File > Save As**.

4. Make sure that you are in the Camera and not the default Drawing view.



5. Play back the rough animation by selecting the **Play** command from the **Play** menu. Not really much to see? Nothing moves, nothing happens except for a ghost appearing near the end.
6. Now move on to Step 1: Attaching the Camera to the Peg to create some more interesting visual effects in this scene.

Step 1: Attaching the Camera to the Peg

The first step in this lesson is to create a camera move using a peg.

The idea of the Toon Boom Studio digital peg system was inspired by traditional 2D cel animation. In traditional animation, cycles of animation are typically drawn in-place. To make a character's stationary walk cycle move across the screen, animators will attach the cels onto a sliding peg bar at the top of an animation disk. The cels will then be moved in measured increments while being photographed. When seen together, this incremental photography gives the illusion of a camera pan.

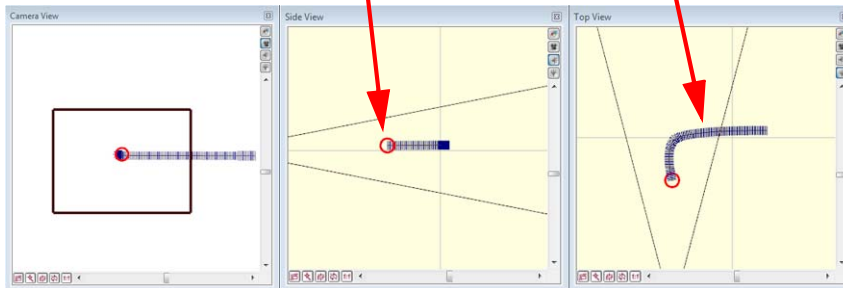
In Toon Boom Studio, you use pegs to create different types of changes over time. In addition to motion, you can also create scaling and rotation effects using pegs.

Toon Boom Studio also features "cameras", which are like traditional cameras that "film" the action in a scene. In Toon Boom Studio, you can combine these two features - cameras and pegs - to create camera moves like trucks and pans.

Use one camera and add up to two pegs in your scene or add an unlimited number of cameras and pegs to create even more sophisticated scenes.

In the View windows, you can see the elements in your scene from the front, side and top:

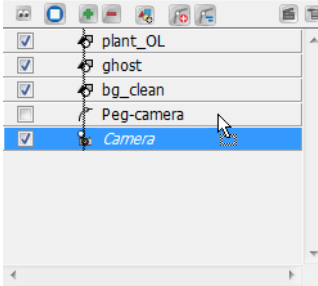
- *Here's the motion path we created with a peg*
- *Here's the camera*



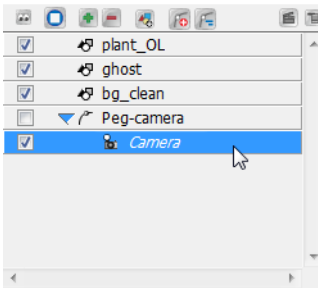
For this step, we've already created the motion path that the camera will follow and keyed these movements onto the peg. All you have to do is attach the camera to the peg. Once you have completed this step and activated (checked the boxes) of the **Peg-camera** and **Camera** layers in the Timeline view, you should see the same motion paths as the ones above in your own Top and Side views.


To attach the camera to the peg:

1. In the Timeline view, drag and drop the Camera element on top of the **Peg-camera** element.



The Camera element appears indented below the Peg-camera element to indicate that it is attached.



2. Select **Play > Play** to play back the scene or simply click on the Play  button. Watch the camera as it follows the motion path of the peg.
3. Save your animation project using the **File > Save** command.
4. Now move on to Step 2: Adding the Old Man Template to the Scene.

Step 2: Adding the Old Man Template to the Scene

Templates are re-usable pieces of animation that you can import multiple times within a scene, between different scenes in the same project or into many different animation projects. Templates help you by reducing your workload through re-use, by keeping the file size of your animations small and facilitate working in a group on the same project.

For example, you can create a template of a walk cycle and send the template file (with the extension *.tbt) to a friend so that they can incorporate it into their animation.

You can create templates out of anything you draw or import into Toon Boom Studio - vector drawings, bitmaps, entire elements, groups of elements, sound or SWF files. With a template, you have a package of all the objects, making it easy to transport and manage. If you create templates from multiple elements, Toon Boom Studio even maintains timing (exposure) and layout information with the templates.

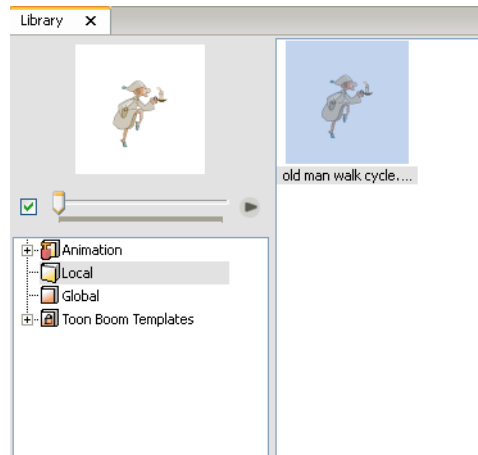
We created a template of the walk cycle of the painted old man. All you have to do is to drag it into the Timeline or Camera view and you will have added it to your scene.

To add the old man template to the scene:

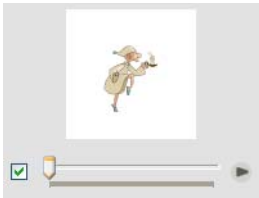
1. If it is not already open, go to the top menu and select **Window > Library** to open the Library window. The Library window is your centre for Toon Boom Studio content management.

From the Library window, you can use:

- The **Animation folder** to access all of the vector drawings in your animation.
- The **Local folder** to manage all of the templates in your current animation project. Local templates are available to the current animation project only.
- The **Global folder** to manage all of the templates on your system. Global templates are available to all animation projects on your system.

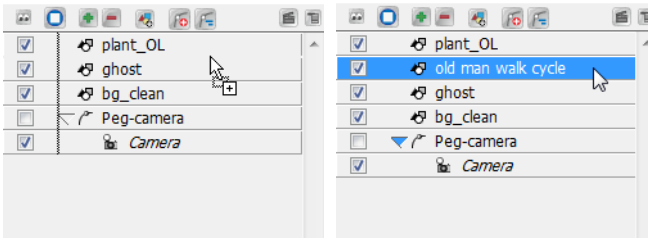


2. Open the **Local** folder, double-click the **old man walk cycle.tbt** file and click the Play ► button in the Library window's preview panel. Now watch as the old man walks in-place.



This is the Library Preview panel.

3. Drag the old man template file, from the Library window to the Timeline view. Drop it just under the **plant_OL** element in the list.



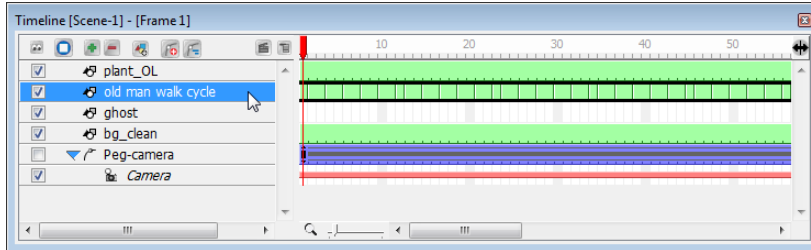
4. Save your animation project using the **File > Save** command.
5. Now move on to Step 3: Adding and Attaching a Peg to the Old Man, where you will start to create a peg for the old man, so that you can give him some motion.


Step 3: Adding and Attaching a Peg to the Old Man

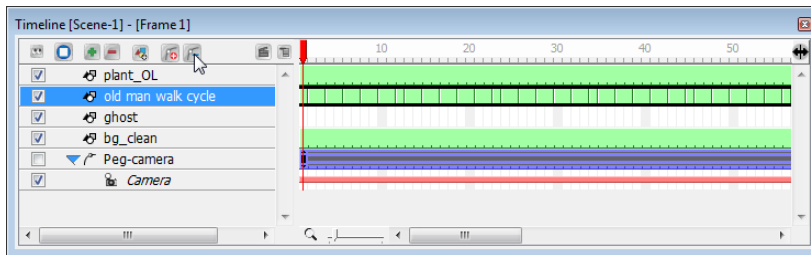
This is the first step to creating a motion path for the old man.

To add a peg and attach the old man to it:

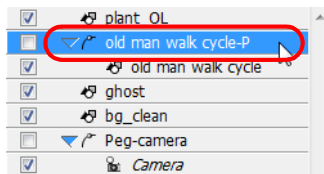
1. In the Timeline view, select the **old man walk cycle** element.



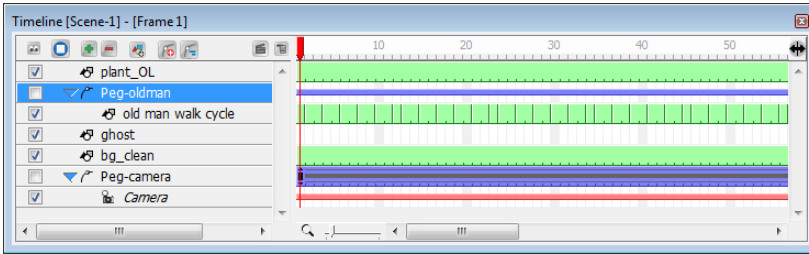
2. Click the **Add Parent Peg**  button at the top of the Timeline view. This will add a Peg element to your animation and attach the old man walk cycle element as its child automatically.



3. With the new Peg selected, from the top menu, select **Element > Rename Element** to open the Rename Peg Element dialog box. Change the name of the peg to **Peg-oldman**.



4. Click OK to confirm the name change.



5. Save your animation project using the **File > Save** command.
6. Now move on to Step 4: Creating a Motion Path for the Old Man, where you will create a motion path so that the old man can walk across the room.

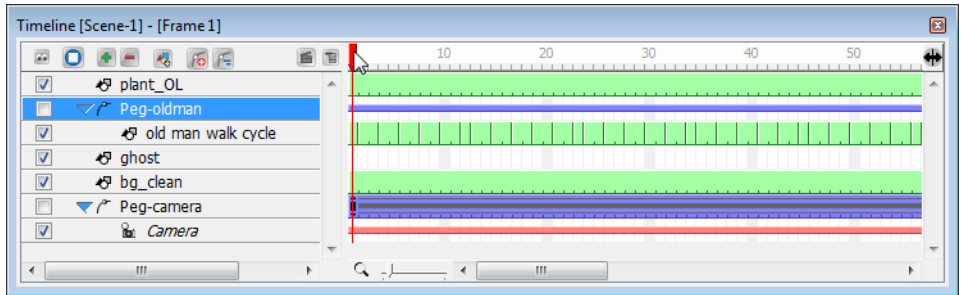
Step 4: Creating a Motion Path for the Old Man


This is the biggest step in this lesson. In this step you will get to do something a bit more challenging - you're going to make a motion path with the peg you just added. This motion path will move the old man from the left to right across the stage.

You will use three Sceneplanning view windows to design and play back your motion effect.

To create a motion path:

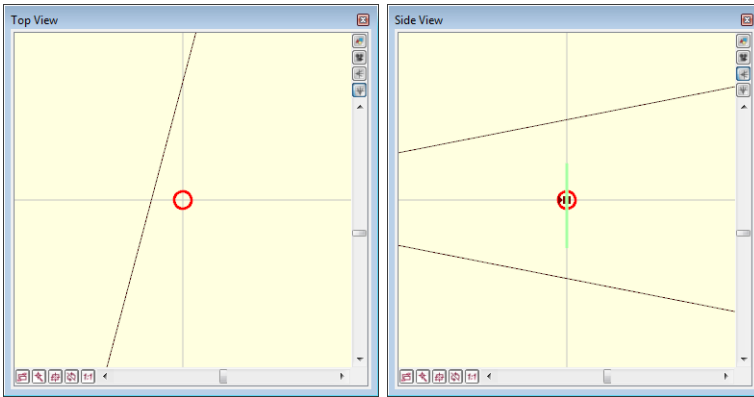
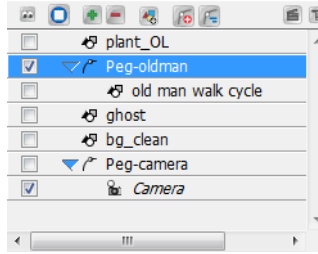
1. Advance the red playhead at the top of the Timeline view to frame 1, where the old man peg will start.




2. In the Timeline view, select the Peg element you just added and the Show/Hide  button at the top of the window so that no elements are showing.
3. Click the checkboxes next to the Peg-oldman and Camera layer so that only they are displayed.

At this point, your peg is just a red circle at the centre of the **Top View** and **Side View** windows.

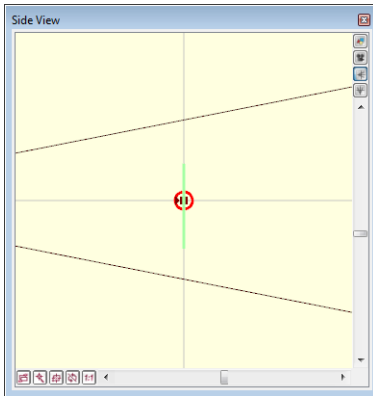
Use the Show/Hide checkboxes to display the elements



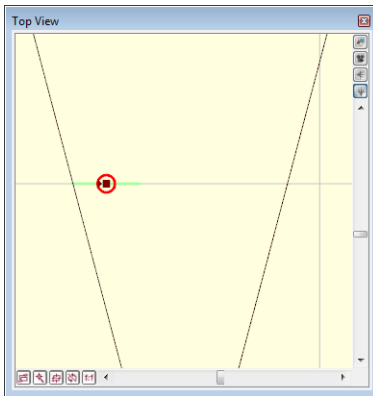
Your Top and Side View windows will look something like this. You may have to zoom and pan your windows to get the same views as seen in these windows.

- To pan a window, press [Spacebar] and use the Grabber tool to move your view of the window.
 - To zoom in, press [X].
 - To zoom out, press [Z].
 - To reset the view, press [Shift] + [V].
4. Make sure you have the Peg-oldman element selected in the Timeline view and select **Tools > Sceneplanning Tools > Motion** to activate the Motion tool or simply click on the Motion tool  button.
 5. In the Timeline view, check the old man walk cycle layer so that he now appears in the Camera view.
 6. With the Motion tool, drag the centre of the peg's red circle around the Camera view and observe the simultaneous movement of the peg in the Top or Side Views. If you move your Old Man in the Top view, you might risk moving him behind the background by accident, therefore it is best for now to work within the Camera view.

7. In the Camera view, click and drag the peg to the left side of the screen, just before the edge of the camera frame.
 - In the **Side View** window, the peg should stay in the middle as shown.

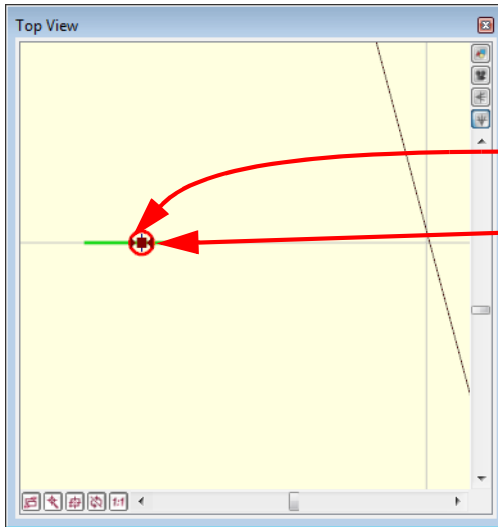


- In the **Top View** window, the peg moves to the inside, west side of the camera cone.




In the Timeline view, a keyframe is automatically created on the first frame of the **Peg-oldman** layer.

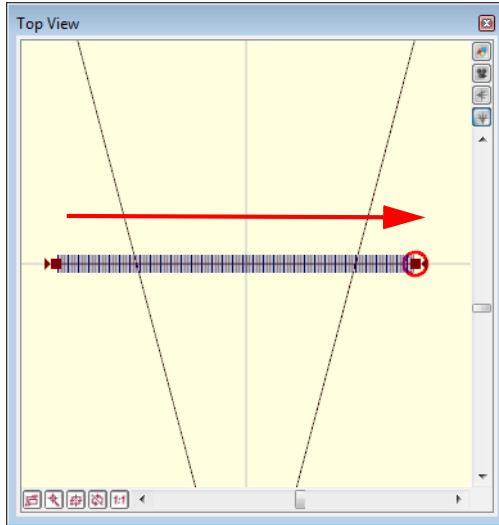
8. In the Timeline view, drag the red playhead to the last frame and use the shortcut [i] to add a keyframe there.





You should now see two keyframes appear on the peg.

- The first keyframe is on the left.
 - The last keyframe is on the right.
9. Your Old Man might have disappeared from your Camera view. Zoom out by using the short-cut [Z] to find him again. He should be hiding on the left side.
 10. With the Motion  tool in the Camera view, drag the Old Man's peg (red circle) towards the right of the camera frame and release it when it is just outside. You could also do the same in the Top view. If you want, drag the last keyframe on the motion path (which is on the right) towards the east side of the camera cone.

Both actions will produce the same result, as long as you keep the path in the Top view straight. If it is dragged diagonally, it may disappear behind the background.



11. Click the **Loop**  button in the Playback toolbar, then click Play  to preview your work in the Camera view.
12. Save your animation project using the **File > Save** command.
13. Now move on to Step 5: Creating a Multi-plane Scene.

Step 5: Creating a Multi-plane Scene


In this step, you will learn how to push drawing elements, such as the plant overlay and the background, either backwards or forwards in space to create the illusion of depth.

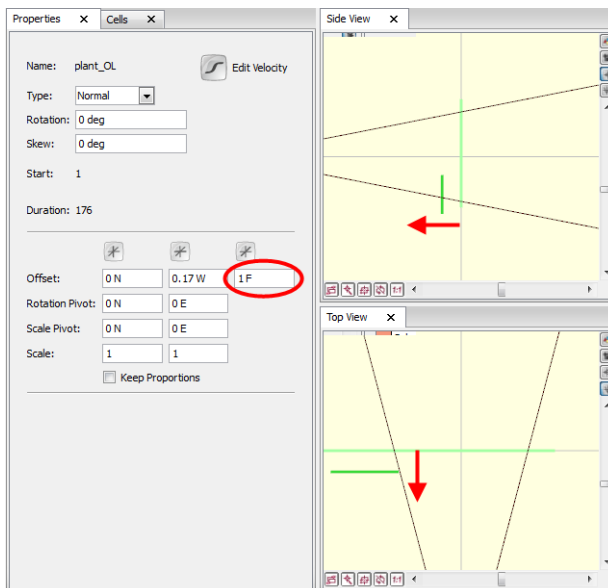
To pull the plant overlay forward in space:

1. In the Timeline view, move the red playhead back to frame 1.
2. In Timeline view, select the plant_OL layer.

In the Camera view, you should see a blue, rectangular bounding box around the plant. In the Top and Side views, the plant should appear as a darker green line.

All drawing elements appear as thin, green lines in the Scene planning views to represent their true 2D appearance in 3D space. Their widths vary, depending on how wide they actually are in the Camera view.

3. In the Top view, use the Reposition All Drawings  tool to select and drag the plant_OL down towards the taper of the camera cone. In the Side view, you will notice the plant_OL moves forward simultaneously. Once it has been moved, the z-depth value should be around 1.5 F (Forward). You can view this in the Properties panel (third field in the Offset section).



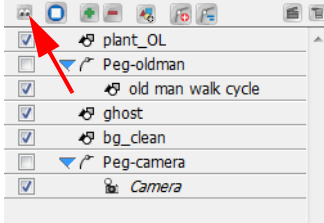
You always have the option to type in a given value directly into this field instead of moving the drawing element manually. 1.5 is actually quite a large increment, especially when dealing with the body parts of a cut-out character. Usually the values are “nudged” (increased or decreased) by 0.01 F, B (backward) or -0.01 F (which equals 0.01 B).

To push the background back in space:

1. In Timeline view, select the `bg_clean` layer.

In the Camera view, you should see a blue, rectangular bounding box around the background. In the Top and Side views, the background should appear as a darker green line. Note how it is both wider in the Top view and taller in the Side view than the `plant_OL`.

2. In the Properties panel, in the last Offset field, type in the value 0.5 B.
3. Click the Show/Hide view button to show all the elements, except the peg elements, in the Camera view.



4. Click the **Loop**  button in the Playback toolbar, then click Play  to preview your work in the Camera view.

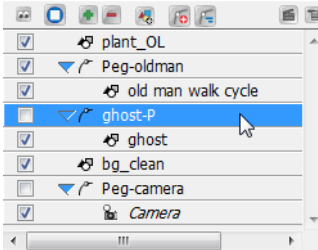
Notice how the camera movement now seems to move forward in depth thanks to the varying distributions of the drawing elements along the scene plane.

5. Save your animation project using the **File > Save** command.
6. Now move on to Step 6: Creating a Motion Path for the Ghost.

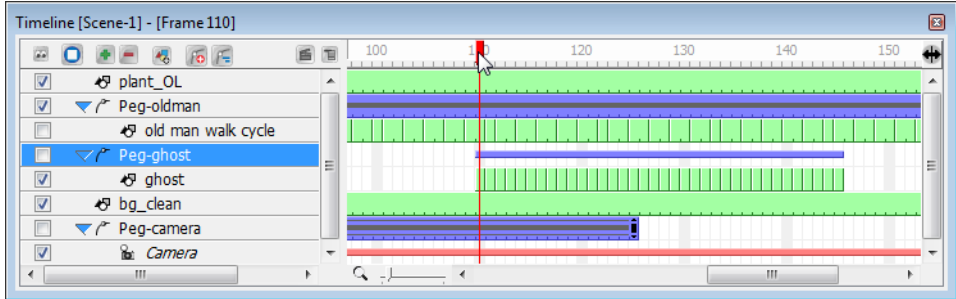
Step 6: Creating a Motion Path for the Ghost


Now is the time to add a little bit of atmosphere to our scene, we will introduce a ghost into the room. This also gives the old man a reason for moving so carefully down the corridor.

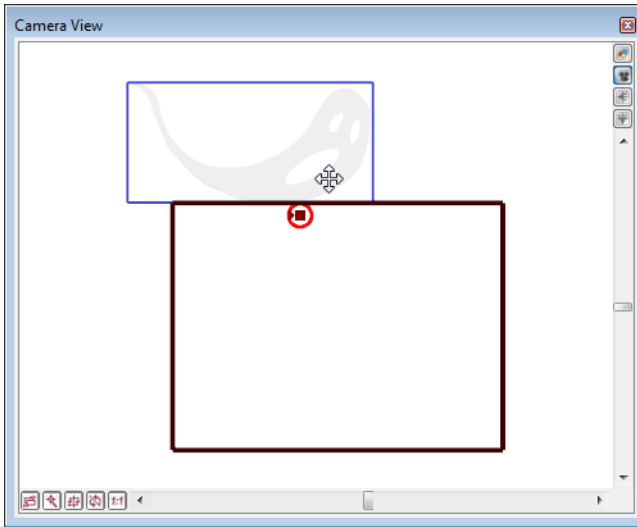
1. Create a new peg for the ghost.



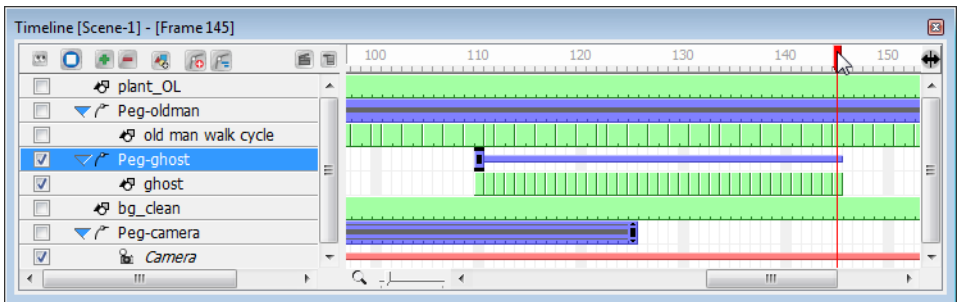
2. Rename the peg by double-clicking on the layer name and typing **Peg-ghost** into the field.
3. Check the show/hide boxes on all but the **Peg-ghost**, **ghost** and **Camera** layers so that they appear again in the Camera view.
4. Make sure that the **Peg-ghost** layer remains selected.
5. Advance the red playhead at the top of the **Timeline** window to frame 110, where the ghost peg will start.



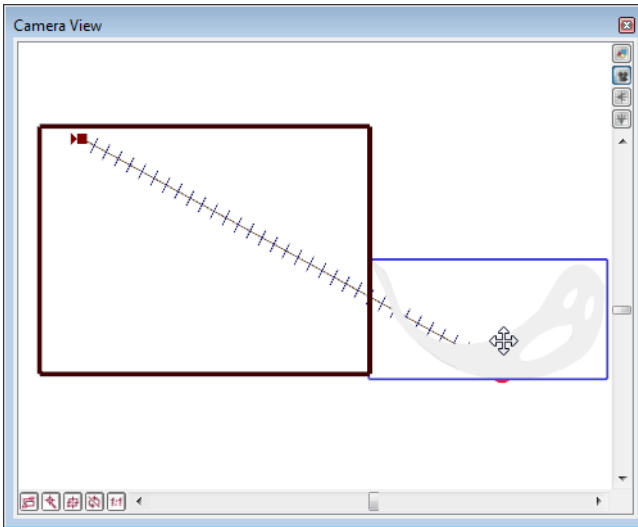
- In the Timeline view, select the first frame of the ghost's peg and then in the Camera view, use the **Motion**  tool to place the ghost outside of the camera frame.



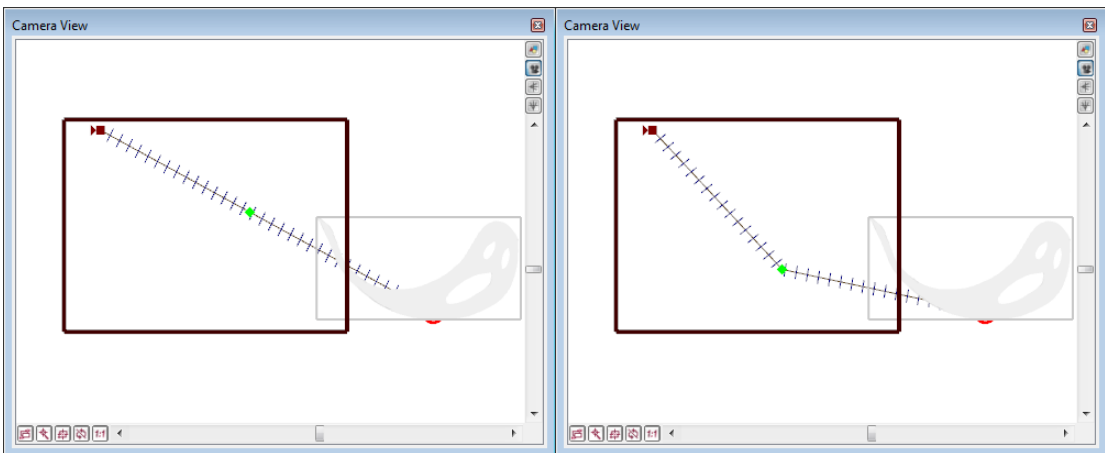
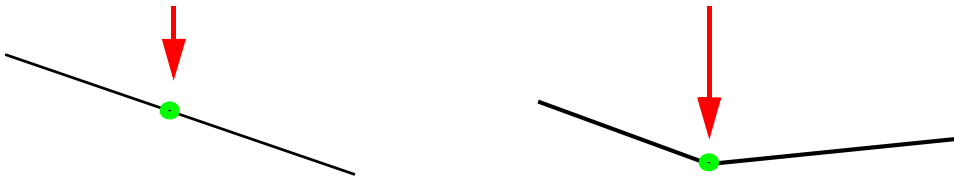
- Advance the red playhead at the top of the **Timeline** view to frame 145, where the ghost peg will end.



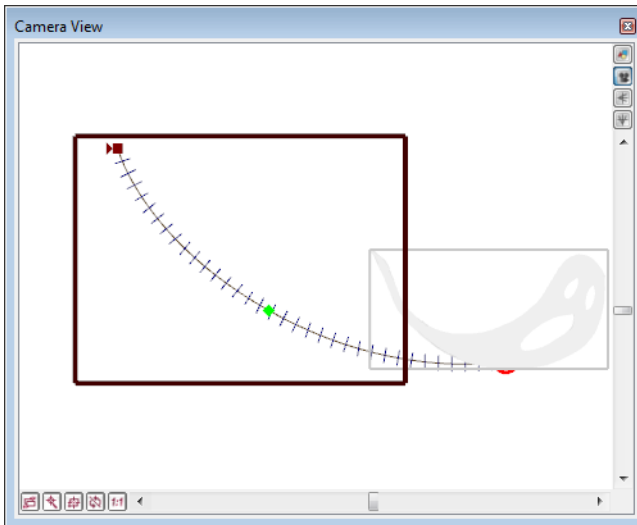
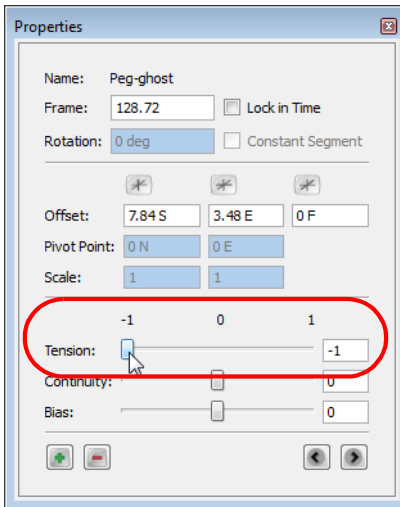
8. Use the motion tool to drag the ghost outside of the scene so that it crosses the screen.



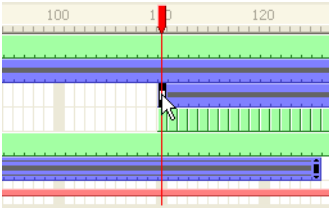
9. Hold [Shift] and click the middle of the motion path for a **motion point** to be added to the path as a **green dot**. Next, click and drag the green motion point to create a V-shaped path.



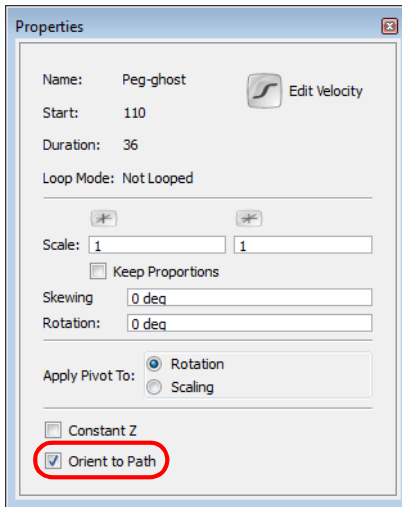
- Click on the green motion point to change the information in the properties window. You can now change the tension to -1 for the V-shaped motion path to be changed to a round-shaped path.




11. Select the first **keyframe** of the ghost's peg in the **Timeline** view by clicking on it. This will cause the information in the Properties window to change.



12. Activate the option **Orient to Path**. The ghost will now follow the path, creating a much smoother animation.



13. Click the **Show/Hide**  button to show all elements in your animation, or just verify that all the appropriate elements are visible. Then select **Play > Quick Preview**. This command renders your final animation so that you can play it back in real-time.

14. Use the Playback window to watch the old man walk across the room as the ghost passes quickly by.



15. After previewing your animation, tweak the elements where necessary, for example if the ghost does not pass low enough or for long enough in the scene.

You can also go a step further with the ghost and not just bend his peg path on a 2D plane, but also on a 3D, so that it appears as if he is coming straight towards the camera. Examine the ghost-P layer in **Sceneplanning_Final.tbp** in the Top and Side views for further details.
16. Save your animation project using the **File > Save** command.
17. Now move on to Step 6: Export, where you will learn to export the animation so that you can share it with others.

Step 6: Export

Well, you have successfully created a multiplane camera move and motion path. Now it's time to package your creation so that you can share it with friends and family!

To export your animation:

1. Select **File > Export Movie**. The **Export** dialog box opens.
2. Click the **Browse** button to the right of the **Save As** field to bring up the browser window and select a location on your computer where you would like to save your movie.
3. Name your movie in the browser and click **Save** when you are done.
4. From the **Export Format** menu, select the format of your choice. We selected **Flash Movie**.
5. Select **Default** from the **Export Settings** menu.
6. Select **Full Movie** from the **Export Type** panel.
7. Select the **Launch Player After Export** option.
8. Click **OK** to begin the exporting process. A progress bar appears to show you the progress of the export.

When the export process is complete the movie file automatically opens and starts to play.

Congratulations! You have successfully completed this lesson.

Lesson 5: Creating Cross-Dissolves with Colour Transform Elements

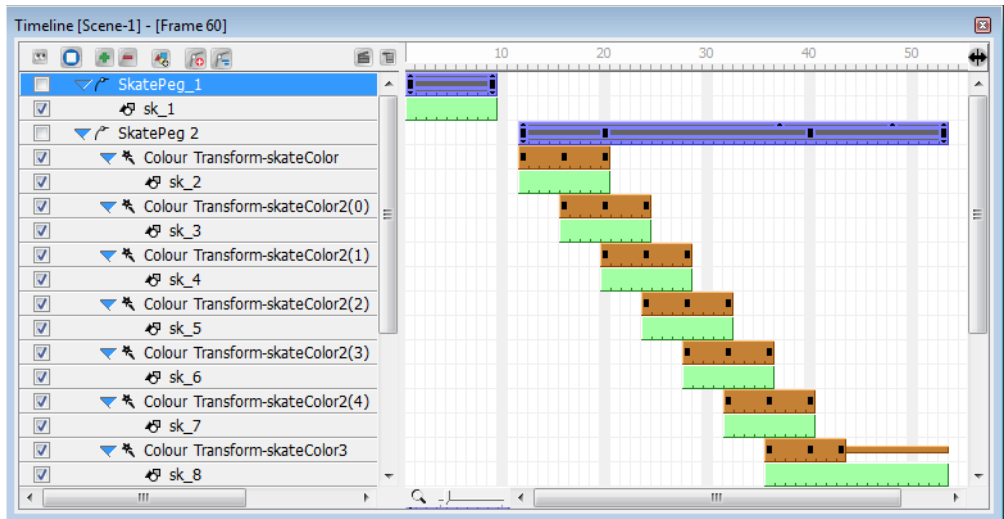
Toon Boom Studio includes a **Colour Transform** element, which you can use to change the colour properties of an element over time.

In this lesson scene, a skater does some fancy tricks on a half-pipe. To accentuate his daring board work, you will use a **Colour Transform** element to create a series of cross-dissolves that change the transparency of the skater at different frames.

There are two animation projects for this lesson:

- ColourFX_rough
- ColourFX_Final

You will use the ColourFX_Rough animation project to follow the steps in the lesson. When you have questions that you are not sure about, you can refer to ColourFX_Final to see how we did it.



You will work mostly in the Timeline window to add and modify Colour Transform elements to create cross-dissolves.



To start the Creating Colour Effects lesson:

1. In the Quick Start Sample Material folder that you downloaded, go to the folder called **Lesson5_ColourFX > ColourFX_Rough** and open the **ColourFX_Rough.tbp** project file inside.
2. Save the animation in a location of your choice using **File > Save As**. Saving this animation project to a new location will ensure that you always have the original to return to should you want to.
3. Select **Play > Play** to play back the rough animation.

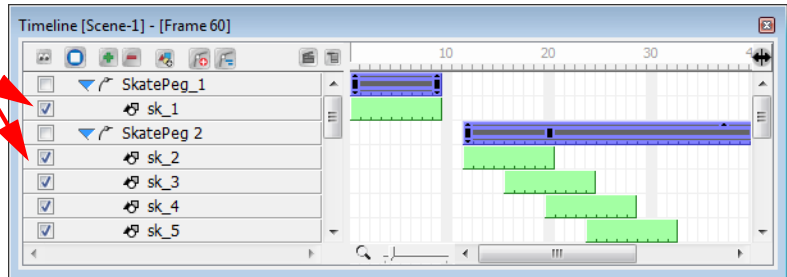
Notice how two images of the skater appear to overlap for several frames? Well, in this lesson, you are going to make the overlapping images fade-in and out to create a series of cross-dissolves.

Step 1: Adding the First Colour Transform Element


To change the colour of a drawing or image over time, attach it to a Colour Transform element and then use this element to specify how the colours in the image or drawing attached will change.

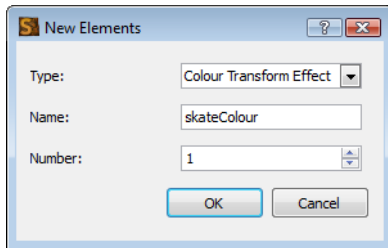
In the cross-dissolve that you will create, two drawings will appear at the same time, one fades in while the other fades out. To achieve this effect, we placed each drawing on a separate layer so that you can control them independently. You'll see as we progress through the lesson how this enables you to create a cross-dissolve.

We have put the drawings for the skater in different elements so that we can create the cross-dissolve effect.

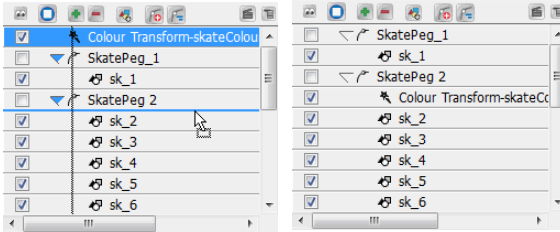


To add the first colour transform element:

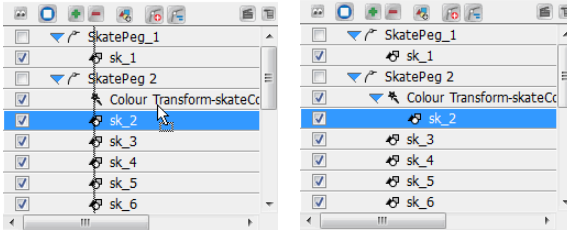
1. Click the **Add**  button at the top of the **Timeline** window. The **New Elements** dialog box opens.



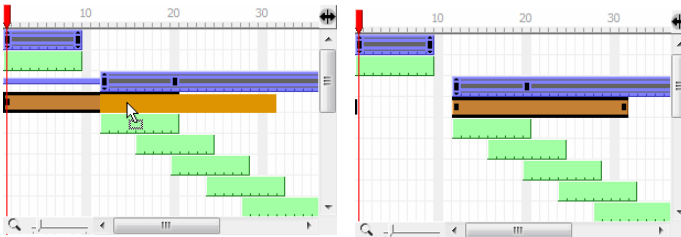
2. From the **Type** menu, select **Colour Transform Effect**.
3. In the **Name** field, type `skateColour` and click **OK**. A new element layer appears in the **Timeline** window.
4. In the layers list on the left-side of the **Timeline** window, attach the **Colour Transform-skateColour** element to the **SkatePeg2** element by dragging and dropping it just below the peg.



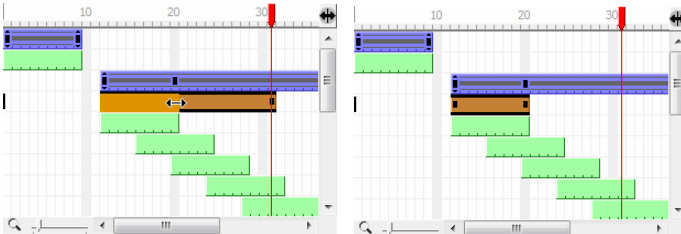
5. Attach the **sk_2** element to the **Colour Transform-skateColour** element by dragging and dropping it on top of the effects element.



6. Change the start and duration of the **Colour Transform-skateColour** element so that it matches the start and duration of the **sk_2** element.
 - ▶ Double-click the trackbar of the **Colour Transform-skateColour** element to select it and drag it to frame 12.



- ▶ Drag the end of the trackbar so that it ends on the same frame as the **sk_2** element (frame 20).



7. Save your animation project using the **File > Save** command.
8. Now move on to Step 2: Adding Keyframes and Setting their Values.

Step 2: Adding Keyframes and Setting their Values

In the first Colour Transform effect, the drawing should fade out from frame 16 to 20.

To achieve this, you must add a keyframe at frame 16. Then, at the keyframe on frame 20, you must make the attached elements completely transparent.

With colour transforms, you can choose to do an additive or a multiplicative colour transform.

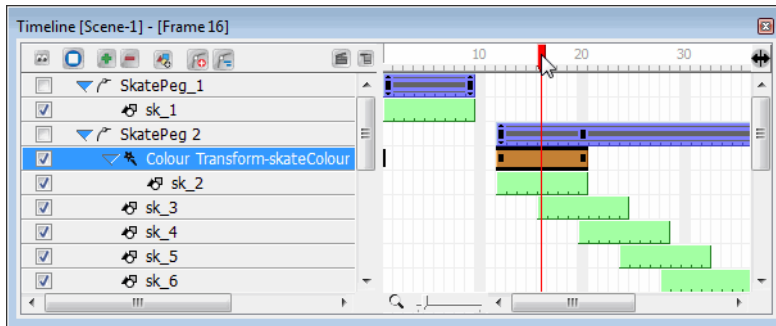
- In additive colour transformations, a selected colour value is added to all of the colours on a layer. For example, you could add a blue-purple to all of your layer elements to create a nighttime transformation.
- In multiplicative colour transformations, a selected value (usually between 0 and 1) is multiplied to all of the colours on a layer. For example, if you wanted a ghost to gradually vanish, you could multiply its colours over time with a value less than zero.

The effect that you want to create in this lesson is an even transformation of the alpha value (transparency), so for your purposes you will choose multiplicative colour options.

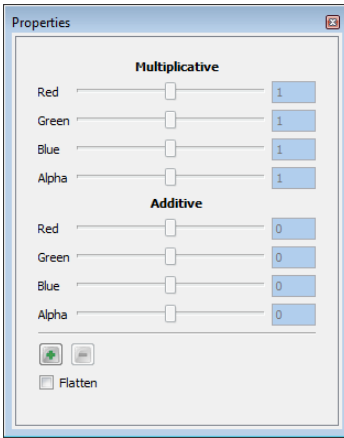
To make an element change from transparent to opaque to transparent, you must multiply the alpha values by 0, 1, and 0. When you multiply an opaque colour (255 alpha) by 0, the result is 0 which makes the colour transparent.

To add a keyframe and set its value:

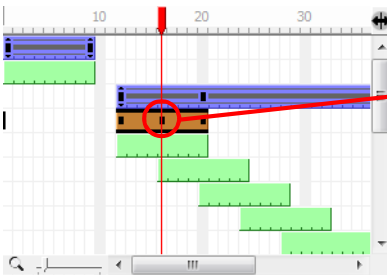
1. Advance the red playhead at the top of the **Timeline** window to frame 16.



- From the element list on the left-side of the **Timeline** window, select the **Colour Transform-skateColour** element. Notice in the Properties window (**Window > Properties**) that the **Colour Transform** tab opens.

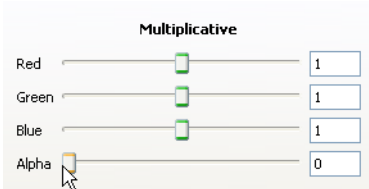


- In the **Colour Transform** tab, click the **Add**  button to add a keyframe to the selected frame on the **Colour Transform-skateColour** element.



A square appears in the Timeline to identify the keyframe on the trackbar.

- Advance the red playhead at the top of the Timeline window to frame 20.
- On the **Colour Transform** tab, drag the **Alpha** slider in the **Multiplicative** section of the tab all the way to the left. The value should appear as 0 in the **Alpha** field.



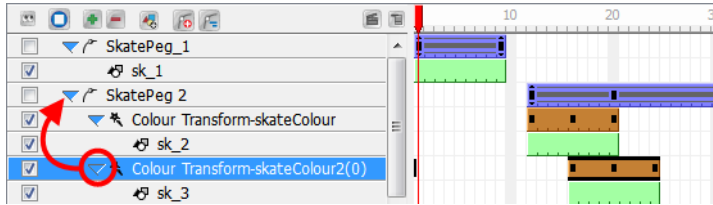
- Drag the red playhead at the top of the window from frame 12 to 20 and watch as the element fades-out.
- Save your animation project using the **File > Save** command.
- Now move on to Step 3: Creating the Next Colour Transform Effect.

Step 3: Creating the Next Colour Transform Effect

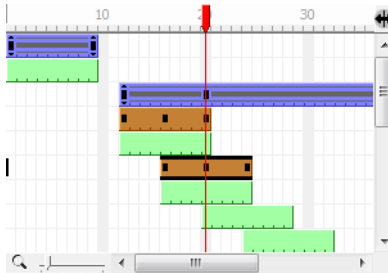
In this step, you are going to create another colour transform effect, for the next element in the series, that will go from transparent to opaque to transparent. To achieve this effect, you will add a Colour Transform element, set three keyframes, and multiply the alpha value at each keyframe by 0, 1, and 0.

To create the next colour transform effect:

1. Add a **Colour Transform** element and name it *skateColour2*.
2. Drag and drop the **Colour Transform-skateColour2** element just before the **sk_3** layer in the layers list. This will also attach it to the SkatePeg 2 element.



3. Attach the **sk_3** element to the **Colour Transform-skateColour2** element.
4. Change the start frame of the **Colour Transform-skateColour2** element so that it matches the **sk_3** element. Start frame: 16; End frame: 24.
5. Add a keyframe to the **Colour Transform-skateColour2** element at frame 20. Your Timeline window should now look something like this:



6. In the **Colour Transform** tab, set the keyframes to these multiplicative alpha values:
 - ▶ Frame 16: 0
 - ▶ Frame 20: 1
 - ▶ Frame 24: 0
7. Drag the red playhead from frame 16 to 24 and watch how the first element fades out as the second one fades in and then out again.

You'll notice how the drawing in the next element appears for the last five frames. In the next step you'll use the exact same colour transform element to fix all of the other layers so that they undergo the same colour transform effect.

8. Save your animation project using the **File > Save** command. Now move on to Step 4: Cloning the Colour Transform Effect.

Step 4: Cloning the Colour Transform Effect

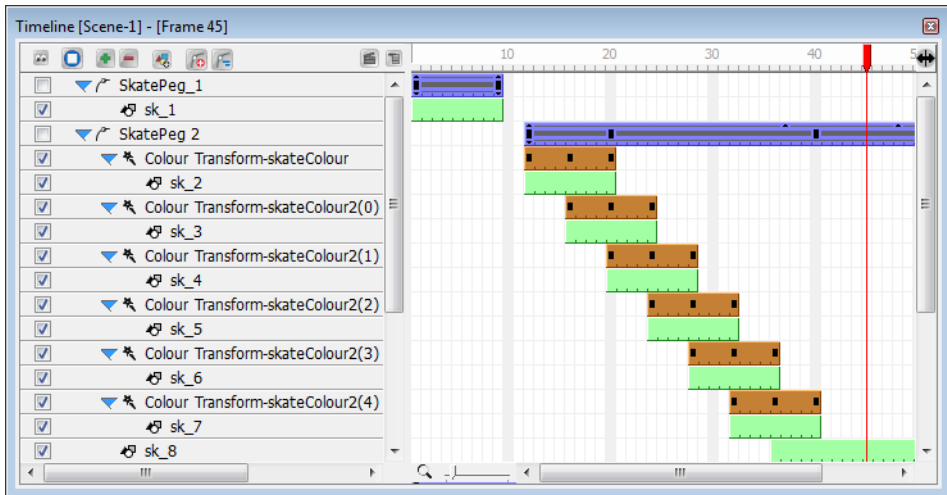
All of the remaining elements, except for the last, must undergo the same colour transform effect as you created in Step 3. Rather than duplicating your efforts, you can just clone the Colour Transform element and attach the other elements to it.


When you clone a Colour Transform element, all of the information stored in the effect are duplicated so that you do not have to re-create keyframes or their values. If you update any one clone with a new value, Toon Boom Studio will update all the other clones with this new value.

To clone the colour transform effect, follow these steps:


1. In the **Timeline** window, select the **Colour Transform-skateColour2** element.
2. Select **Element > Clone Element**. Toon Boom Studio creates a new element and names it **Colour Transform-skateColour2(1)** and renames the original element **Colour Transform-skateColour2(0)**. The new element appears at the top of the element list in the Timeline view.
3. Attach **Colour Transform-skateColour2(1)** to the **SkatePeg2** element and attach the **sk_4** element to **Colour Transform-skateColour2(1)**.
4. Drag the ends of the colour transform element so that its start/end frames match the layer you want it to transform.
5. Repeat the previous steps for the elements **sk_4** to **sk_7**. Make sure that as you attach the skater elements to the Colour Transform elements that you maintain their layer order in the layers list.

When you are done, your **Timeline** window should look like this.



6. Press the Play  button to playback your rough animation.

Now all you have to do is create the effect for the last layer in the series and the effect chain will be complete!

7. Save your animation project using the **File > Save** command or click on the Save  button.
8. Now move on to Step 5: Creating the Last Colour Transform.

Step 5: Creating the Last Colour Transform

Now, all that is left is the colour transform for the last element that makes up the skater.

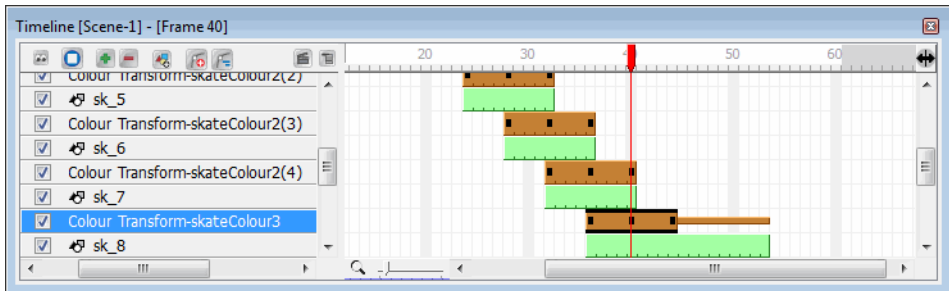
For the last colour transform effect, the skater will start out transparent, become fully opaque and remain opaque for the rest of the scene.

To create this effect, you will add one keyframe to a Colour Transform element, give the first keyframe a multiplicative alpha value of 0 and give the second keyframe a multiplicative alpha value of 1.

This step is basically the reverse of step 2, in which you made the character start opaque and then end transparent.

To create the last colour transform:

1. Add a Colour Transform element and name it *skateColour3*.
2. Attach the **Colour Transform-skateColour3** element to the **SkatePeg2** element and attach the **sk_8** layer to the **Colour Transform-skateColour3** element.
3. Change the duration of the **Colour Transform-skateColour3** element to 9 frames and make the element start on frame 36 by clicking and dragging the bar of orange frames down the Timeline.
4. Add a keyframe to frame 40 of the **Colour Transform-skateColour3** element. Your Timeline view will look something like this:



5. In the **Colour Transform** tab, set the keyframes on the colour transform element to the following multiplicative alpha values:
 - ▶ Frame 36: 0
 - ▶ Frame 40: 1
6. Save your animation project using the **File > Save** command.
7. Now move on to Step 6: Export, where you will learn to export the animation so you can share it with others.

Step 6: Export

That's it! You've created a pretty nifty colour transform effect with one of Toon Boom Studio's latest effects. All that is left to do is to export your animation and watch it play!

To export your animation:

1. Select **File > Export Movie**. The **Export** dialog box opens.
2. Click the Browse button to the right of the **Save As** field to bring up the browser window and select a location on your computer where you would like to save your movie.
3. Name your movie in the browser and click Save when you are done.
4. From the **Export Format** menu, select the format of your choice. We selected **Flash Movie**.
5. Select **Default** from the **Export Settings** menu.
6. Select **Full Movie** from the **Export Type** panel.
7. Select the **Launch Player After Export** option.
8. Click **OK** to begin the exporting process. A progress bar appears to show you the progress of the export.

When the export process is complete the movie file automatically opens and starts to play.

If you had any trouble with this lesson, check out the `Colour_FX_final` animation project to view a completed version of the project.

Congratulations! You have successfully completed this lesson.

Lesson 6: Creating Clipping Mask Effects

Toon Boom Studio comes with the Clipping Effect, an effect which you can use to mask out or reveal part of an image.

In this lesson, you will merge two extreme sports sequences (mountain biking and surfing) using a mask to reveal the second scene. While you work on this effect, we hope you learn some other things too!



See the wave hot on the trail of the biker?

That is created by a mask in the shape of the wave, which reveals the image of a wave beneath it.

There are two animation projects for this lesson:

- MaskFX_Rough
- MaskFX_Final

You will use the MaskFX_Rough animation project to follow the steps in the lesson. You can refer to MaskFX_Final to see how we did it if you are unsure.

To start the Creating Clipping Mask Effects lesson:

1. In the Quick Start Sample Material folder that you downloaded, go to the folder called **Lesson6_MaskFX > MaskFX_Rough** and open the **MaskFX_Rough.tbp** project file inside.
2. Save the animation in a location of your choice using **File > Save As**. Saving this animation project to a new location will ensure that you always have the original to return to should you need to.
3. From the Top menu, select **Play > Play** to play back the rough animation or press the

Play  button.

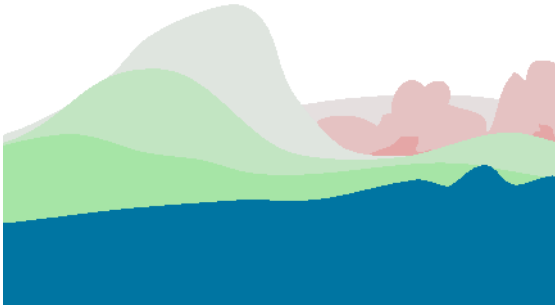
Notice how the two scenes - the one of the biker and the other of the surfer - just run into each other? In this lesson, we'll create a transition between these two scenes using a clipping mask in the shape of a wave. To see a completed version of this project take a look at the final animation project, MaskFX_Final.

Step 1: Drawing the Mask

Like the masks worn by children on Halloween, a Toon Boom Studio mask reveals certain visual elements while hiding others (like a Halloween mask reveals the eyes of the wearer, while covering most of the face).

For the first step in the creation of the mask effect, you must draw the mask that will open a window for image(s) beneath it. You can only create masks from vector drawings.

We have already drawn a mask for you. The mask consists of a cycle of vector drawings of a wave, which will cut out an image of rolling waves beneath it. Take a look at the mask we drew so that you can get a better idea of how it will be used.



With the onion skin on, you can see the cycle of drawings that fit together to make the mask.

To preview the mask animation that we created:

1. Go to the Drawing view, then in the Timeline view, click on the wave_mask layer.
2. From the Top menu, Select **Play > Play** to play back the selection or press the

Play  button.

Notice how the wave cycle is a collection of painted vector drawings. The painted areas of these drawings will be like the holes in the Halloween mask that will let the images below it show through.

3. Now move on to Step 2: Building the Clipping Element.

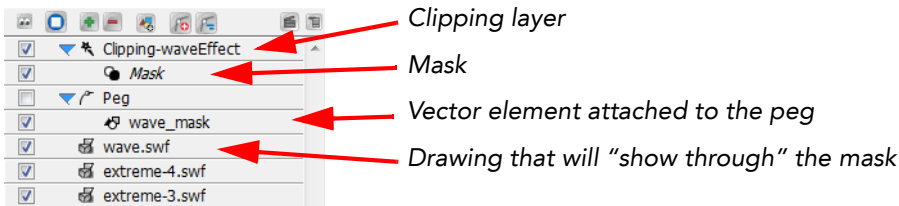
Step 2: Building the Clipping Element

After you have created the vector drawings that will act as your mask, or in this case, have seen the vector drawings that will act as the mask, you are ready to add the Clipping Effect.


A Clipping Effect element consists of two parts: the clipping element and the mask.

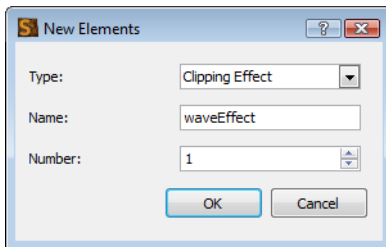
- To the Clipping layer, you attach the elements that you want to show through the mask.
- To the Mask, you attach the vector drawing element that you want to use as a mask.

You will notice in our setup in the MaskFX_Final scene, that we have attached the wave_mask vector element to a peg, that moves the wave in the scene.

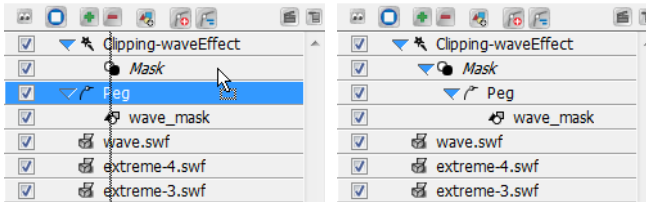


To build the mask element:

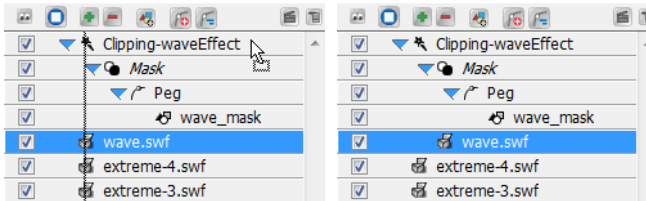
1. If it is not already visible, click the **Show/Hide** checkbox next to the wave_mask element so that you can see it.
2. Click the **Add**  button at the top of the Timeline window. The New Elements dialog box opens.
3. From the **Type** drop-down list, select **Clipping Effect**, then type waveEffect in the name field and click **OK**.



4. Drag and drop the Peg element on top of the Mask layer. When you drag the Peg element, the vector element attached to it will move with it as well. You have now created the mask!



5. Drag the **wave.swf** Media element on top of the **Clipping-waveEffect** layer. The clip layers appear below the mask layers, but are indented out from the mask layers.



6. Save your animation project using the **File > Save** command.
7. Now move on to Step 3: Export, where you will learn how to export the animation so that you can share it with others.

Step 3: Export

Now that you have created a Clipping mask effect, you are ready to export and show the world the fruits of your labour!

To export your animation:

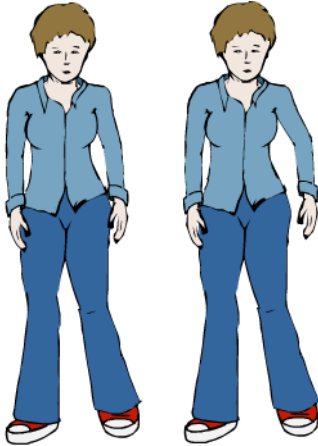
1. Select **File > Export Movie**. The **Export** dialog box opens.
2. Click the **Browse** button to the right of the **Save As** field to bring up the browser window and select a location on your computer where you would like to save your movie.
3. Name your movie in the browser and click **Save** when you are done.
4. From the **Export Format** menu, select the format of your choice. We selected **Flash Movie**.
5. Select **Default** from the **Export Settings** menu.
6. Select **Full Movie** from the **Export Type** panel.
7. Select the **Launch Player After Export** option.
8. Click **OK** to begin the exporting process. A progress bar appears to show you the progress of the export.

When the export process is complete the movie file automatically opens and starts to play.

Congratulations! You have successfully completed this lesson.

Lesson 7: Retouching

Toon Boom Studio makes it possible to retouch drawings accurately and easily by allowing you to see how drawings in different elements work together when animated.



Over the duration of the sample scene, Tania bends her arm. The joints at her shoulder and elbow rotate to create the bending motion.

In this tutorial, you will use “Retouching” to fix gaps that appear at the elbow and shoulder as a result of the bending action.

There are two animation projects for this lesson:

- Retouching_Rough
- Retouching_Final

You will use the Retouching_Rough animation project to follow the steps in this lesson. When you have questions that you are not sure about, you can refer to Retouching_Final to see what we did to put the final scene together.

To start the “Retouching Drawings” lesson:

1. In the Quick Start Sample Material folder that you downloaded, go to the folder called **Lesson7_Retouching > Retouching_Rough** and open the **Retouching_Rough.tbp** project file inside.
2. Save the animation in a location of your choice using **File > Save As**. Saving this animation project to a new location will ensure that you always have the original to return to should you need to.

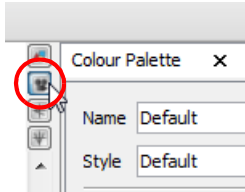
You are now ready to begin working on the sample scene.



Step 1: Playing Back the Scene

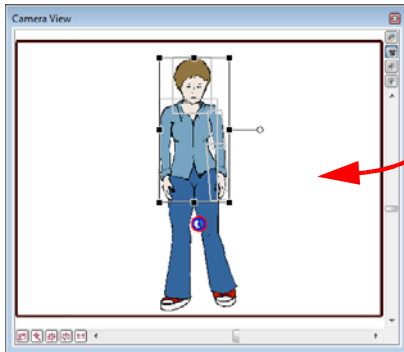
In this step, you will play back the rough scene to identify problems that arise from the rotation of the joints in the shoulder and elbow.

To play back the scene:


1. Check that you are in the Camera view by clicking on the camera view icon on the top right-side of the Drawing view space.



2. Click the **Loop**  button in the toolbar, then click Play .

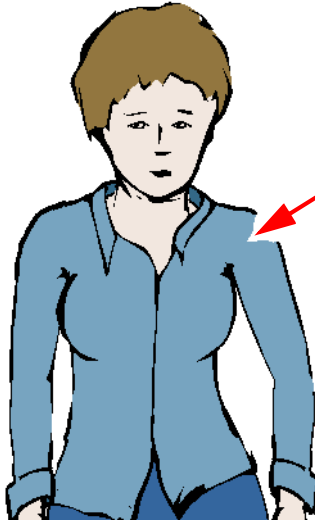


Click the white space to remove the selection frame.

When you have finished studying the character's movement, click Stop 

3. Look closely at the shoulder and elbow as the animation plays back. Press [X] to zoom in to the image. Press [Spacebar] and use the Grabber to pan within the


Camera view in order to bring the left side of Tania's body to the centre of the window.



Note the gap that appears at the shoulder joint.

Note the gap that appears in the line art at the elbow.

You will fix both of these problems in the following steps.

4. Click **Stop**  to stop the playback.
5. Now move on to Step 2: Retouching the Elbow Joint, where you will learn to use the Brush tool to retouch the line art on the elbow joint.

Step 2: Retouching the Elbow Joint

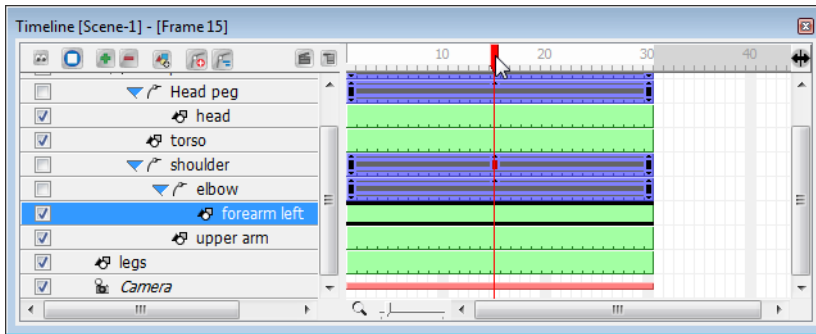
In this step, you will use the Brush tool to retouch the line art on the elbow joint.

You must select the drawing layer, the frame that contains the drawing you want to retouch, and the drawing tool. You can draw directly in the Camera View window.

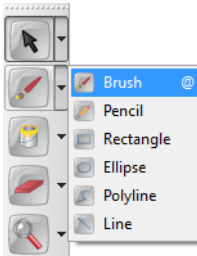
All elements that are shown in the Timeline view will appear in the Camera view.

To retouch the elbow joint:

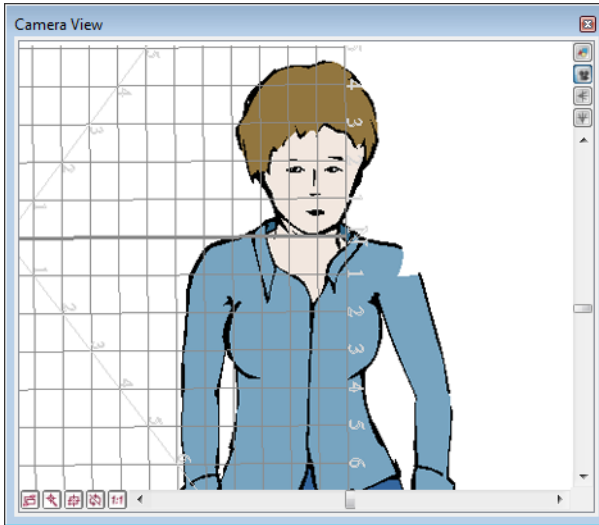
1. In the **Timeline** window, select the "forearm left" layer.
2. Drag the red playhead to frame 15 in the scene. At frame 15, the gap between the upper arm and forearm is the greatest. Correcting the drawing at this frame should fix the error for the duration of the animation.



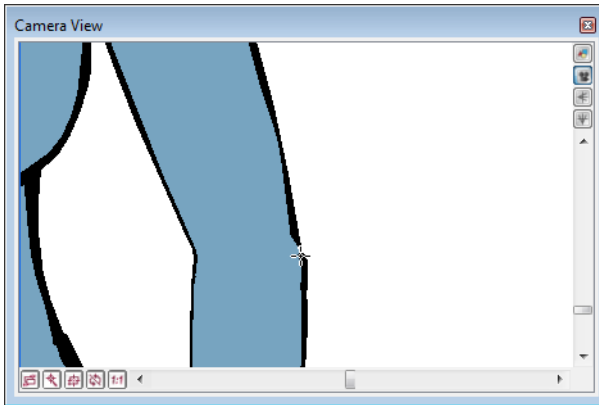
3. From the **Drawing Tools** toolbar, select the **Brush**  tool.



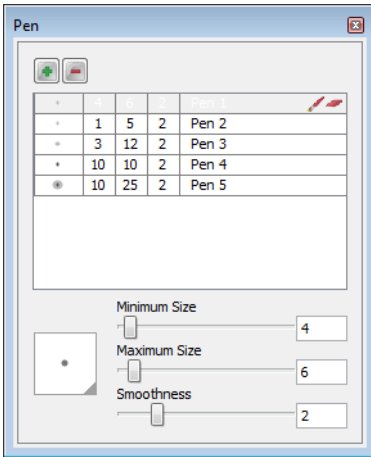
As soon as you activate one of the drawing tools, you enter "Edit Drawing" mode.



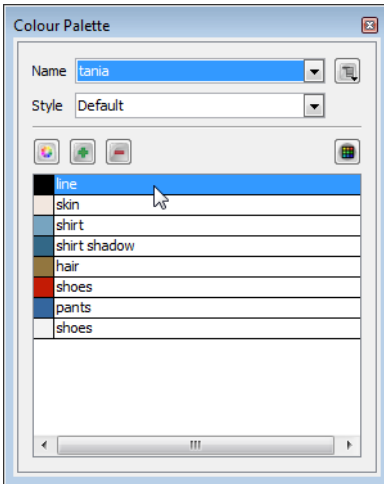
4. Set up your drawing space so that you can work on the elbow.
 - ▶ If you wish to turn off the grid in the **Camera View**, press [G] to turn it off.
 - ▶ To zoom in, press [X].
 - ▶ To pan the window, press [Spacebar] and drag the part of the image that you wish to work on to the centre.



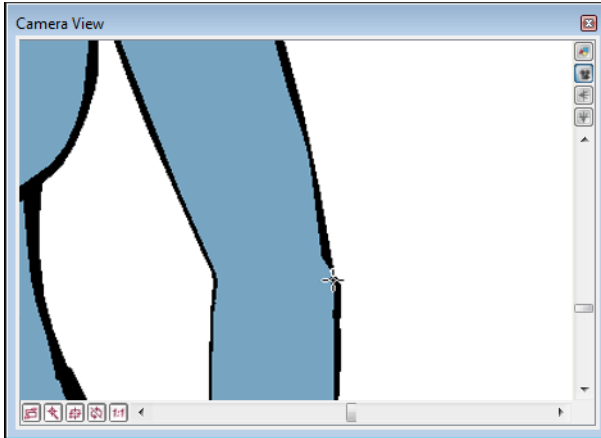
5. In the **Properties** window, click the **Pen** tab, set your **Minimum Size** to 4 and the **Maximum Size** to 6. If the Pen tab is not visible, go to the Top menu and select **Window > Pen**.





6. From the **Colour Palette** tab, select the "line" swatch from the "tania" palette. If the Colour Palette is not visible, go to the Top menu and select **Window > Colour Palette**.



7. Use the **Brush** tool to connect the stroke on the forearm to the stroke on the upper arm.



8. Click **Play**  and watch the elbow as it bends. If there are any problems with your retouches, undo what you did and try again. Click **Stop**  to stop the playback before you try to redo your work.
9. Now move on to Step 3: Creating the Shoulder Joint, where you will learn to make a shoulder joint.


Step 3: Creating the Shoulder Joint

That was a simple retouch example. The next fix is a little bit more challenging.

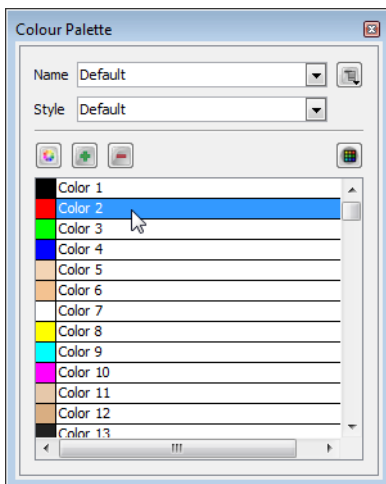
In the shoulder, the gap between the shoulder and the upper arm is large. In this step, you will practice a technique that will help you in animating all future cut-out characters with moveable joints.


To fix the hole between the torso and the upper arm, you will create a perfect circle that will act as the joint on which your upper arm will rotate. The circle will overlap the upper arm and torso so that no gaps will appear while the joint rotates. You can try this technique with other jointed characters you create.

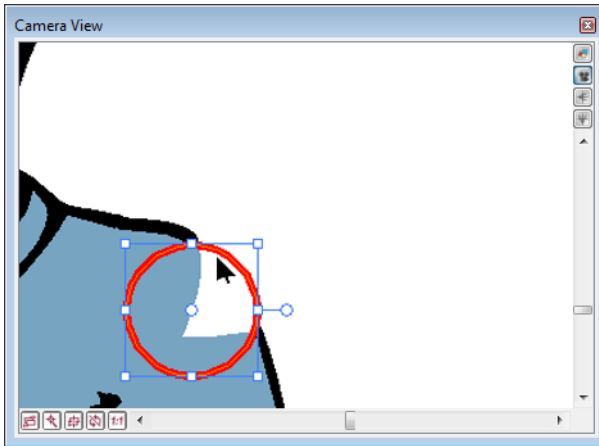
To create the shoulder joint:

1. In the **Timeline** window, select the **upper arm** element and move the red playhead to frame 1.
2. Zoom and pan the **Camera View** window so that you have a close-up view of Tania's left shoulder.
3. From the **Drawing Tools** toolbar, select the **Ellipse**  tool.
4. In the **Properties** window, click on the **Pen** tab and change the **Maximum Size** value to 6.
5. Click on the **Colour Palette** tab, select a red colour swatch from the Default palette.

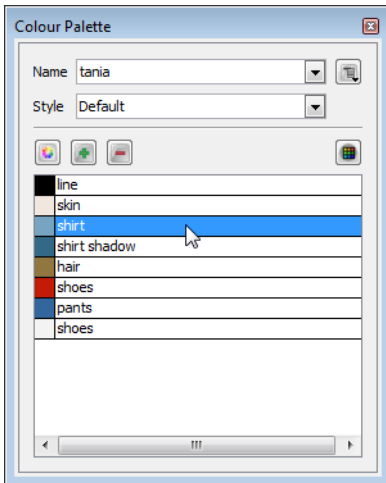
You will draw the circle with red, and not the colour of Tania's shirt, so that you can easily see the edges of the circle, which will help you position it. After you position the circle, you will paint it with the colour of Tania's shirt and delete the red line art of the original circle.




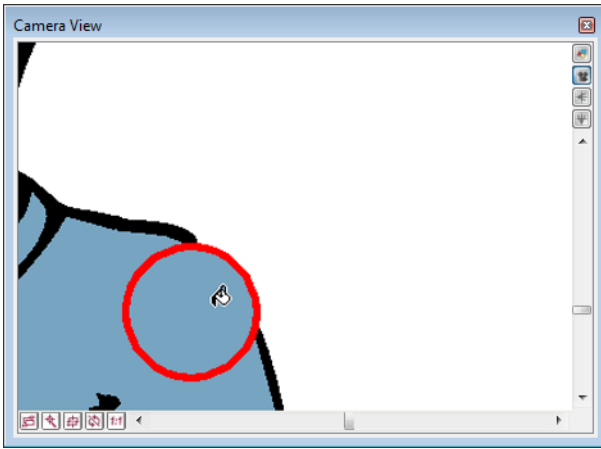
- In the **Camera View** window, press [Shift] to draw a perfect circle and then use the **Select**  tool to click on the red line of the circle and position it in the gap that is the shoulder.




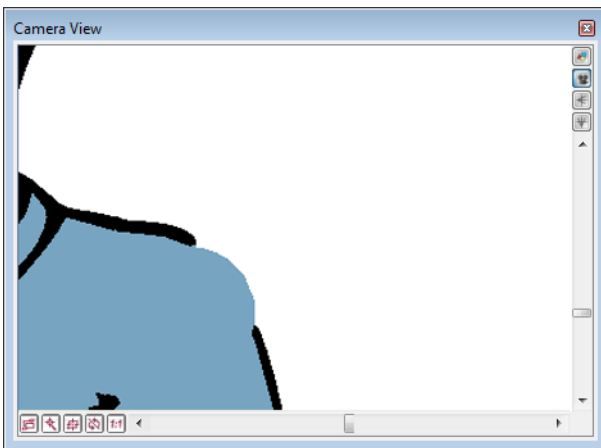
- Press [Esc] to release the selected circle.
- Click on the **Colour Palette** tab and select the "shirt" swatch from the "tania" palette.





9. From the **Drawing Tools** toolbar, select the **Paint**  tool and click inside the red circle to fill it with the "shirt" colour.



10. With the **Select**  tool, select the red line art around the circle and delete it.




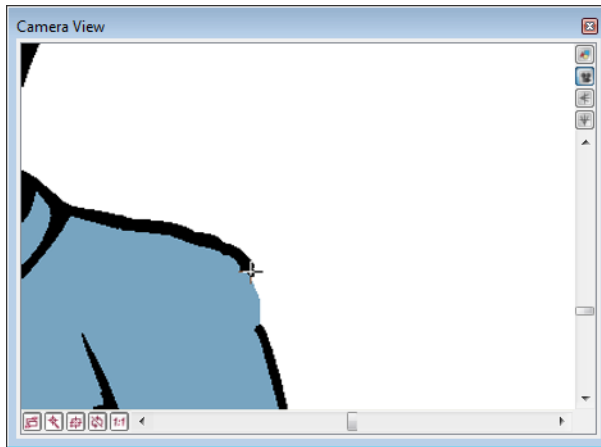
11. Click **Play**  and watch the shoulder as it bends. If there are any problems in your joint, undo what you did and try again. Click **Stop**  to stop the playback before you try to redo your work.
12. Now move on to Step 4: Retouching the Shoulder, where you will learn to add the line art that will cover the joint.


Step 4: Retouching the Shoulder

After you have created the joint that will fill the gap between the torso and the upper arm, you have to add the line art that will cover the joint.

To retouch the shoulder:

1. In the **Timeline** window, select the “upper arm” element.
2. Drag the red playhead to the first frame in the scene. At frame 1, the gap between the torso and the upper arm is at its greatest. Correcting the drawing at this frame should fix the error for the rest of the animation.
3. From the **Drawing Tools** toolbar, select the **Brush**  tool.
4. From the **Properties** window, click the **Colour Palette** tab, select the “line” swatch from the “tania” palette.
5. Use the **Brush** tool to draw the line art over the shoulder.



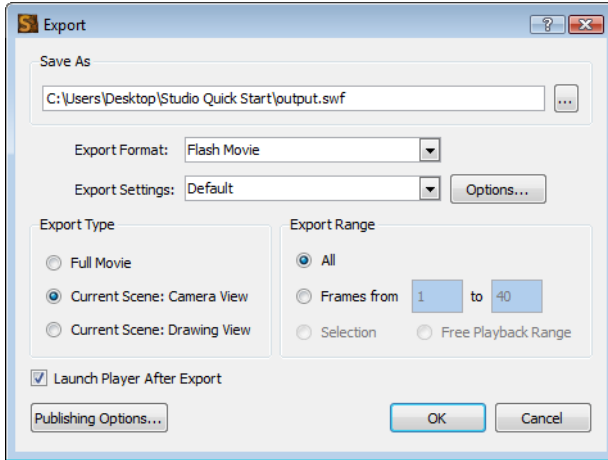
6. Click **Play**  and watch the shoulder. If there are any problems in your line art, undo what you did and try again. Click **Stop**  to stop the playback before you try to redo your work.
7. Save your animation project using the **File > Save** command.
8. Now move on to Step 5: Export, where you will learn to export the animation so that you can share it with others.

Step 5: Export

Export your scene and show others what you can do with the “Retouching” tips.

To export your animation:

1. Select **File > Export Movie**. The **Export** dialog box opens.



2. Click the Browse button to the right of the **Save As** field to bring up the browser window and select a location on your computer where you would like to save your movie.
3. Name your movie in the browser and click Save when you are done.
4. From the **Export Format** menu, select the format of your choice. We selected **Flash Movie**.
5. Select **Default** from the **Export Settings** menu.
6. Select **Full Movie** from the **Export Type** panel.
7. Select the **Launch Player After Export** option.
8. Click **OK** to begin the exporting process. A progress bar appears to show you the progress of the export.

When the export process is complete the movie file automatically opens and starts to play.

Congratulations! You have successfully completed the tutorial.