Introduction

Profile

David Bunting’s feature film credits include Thunderbirds and Disney’s “The Tigger Movie”. In 2008 David trained in feature film storyboarding at Aardman Animations before storyboarding on Shaun the Sheep. In 2008 he co-produced the multi award winning “The Astronomers Sun.”

David regularly gives talks on animation and is committed to furthering the advancement of animation as a creative educational tool. His education programmes have been acclaimed as models of good practice. Many children's films supervised by David have won international awards and have been screened at the world's largest animation festivals.

Forward by David Bunting

“When I first started animating aged 9, I used a Super8 cine camera and needed to wait about three weeks for the film to be processed before I could see the work of my endeavours. It was costly and if I made a mistake I had to film the shot again. Back then, with hardly any book on the subject, animation seemed, to an inquisitive child like me, shrouded in mystery inside the vaults of the magic studios of Hollywood. How times have changed.
Now, with I Can Animate and a webcam, a bedroom, school or youth group can be transformed into a studio where you can make your own animated films and watch the results instantaneously - and then publish online for the world to see!

I Can Animate opens up the door to animation as a creative tool for learning like never before. Animation really is movie magic at its most spellbinding, unleashing imagination and creativity. In fact it is probably one of the first cultural experiences most children have. My school teachers saw the potential that animation had to engage me with the wider curriculum.

Now as an animator, I’ve visited schools around the country and seen firsthand the transformations it can have on children’s learning. You are never too young or old to have a go at animation. Boy, I’ve even worked with nursery pupils who have created amazing animations by drawing in the sandpit. It is the ultimate creative tool, capable of making lessons unforgetable, blending art and science with cutting edge technology powerful enough for your imagination to know no bounds, yet simple enough for a young child to easily use. I Can Animate lets you get hands on all sorts of animation techniques, using kinaesthetic skills for learning. Be it a time-lapse capturing the opening of a daffodil or a movie masterpiece to celebrate at school or a young people’s film festival, I Can Animate lets everyone discover one of the great modern art forms of the world.”

David Bunting

Animator, educator, & filmmaker

I Can Animate has become one of the most widely used stop frame animation programs in education and now has a huge and growing following amongst amateur enthusiasts in the home.

I Can Animate V2 has a wealth new features that allow animators of all ages and levels of expertise to create professional looking films.

Thanks also to Greg David, Sean Harris and all I Can Animate users for their contributions and suggestions during the development.

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System Requirements

A PC running Windows XP Service Pack 3 or later, .NET 3.5 framework, Windows Vista Service Pack 1 or Windows 7

15MB of free hard disc space, a minimum of 1GB of memory.

Installation

• Insert the CD ROM into the CD/DVD ROM drive.

• The CD should auto run, follow the on screen instructions to install.

• Once installation is complete, run the I Can Animate application from the Start/All Programs menu

• I Can Animate will run for a trial period of 14 days after which you will need to enter a valid serial number to continue to use it.

• Enter your details and the serial number which can be found on the licence card included in the software pack or that has been eMailed to you.

• If you have correctly entered your serial number then the Register Now button should become enabled. Click on the Register Now button, you should only need to do this once.

• In order to keep you up to date with developments and to help with technical support, please register your product online at;

  http://www.kudlian.net/register/
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I Want to Create...

Don’t Run Before You Can Walk

When you start to animate it is very easy to get carried away, trying to do too much. Professional animation studios such as the world famous Aardman Animation™, work on the premise that a day’s shooting might result in a second and a half of screen time! Fortunately you probably won’t have all the constraints that they do, but you do need to remember that for each second of animation you wish to shoot, you are going to need to capture 12 frames at the default settings (15 for NTSC).

Careful planning and preparation will result in much more professional looking films, more enjoyment and ultimately cut down on the time it takes to create your animated movie.

Step 1 - The Story

Having a great story is one thing, having a great story that you can animate is another. Be realistic about what you can create in the time you have available. TV adverts last twenty or thirty seconds, but in that time can tell a life story, if they are planned correctly.

Write down the basic details about your story and then expand it into a script that you will work to. You can include additional information such as how many characters it contains but don’t have cast of thousands. Detail where the action will take place, etc.

Step 2 - Creating the characters

You can have great fun getting into the personality of your characters, professional animators do it all the time! Don’t just think about what your characters are going to look like, but consider where they live, who their families are, do they have any friends, what do they like doing, what don’t they like, what are their favourite foods, hobbies and so on.

A character sheet is a good idea. We’ve supplied one at the end of this manual that you can print out and use. This sheet is only a guide, you can make your own and ask different questions if you like. Now you are ready to make your characters from whatever materials you have decided. Modelling clay and building bricks are not the only materials you can use! You can animate almost anything.
Step 3 - Storyboard

This is a sequence of sketches. It doesn’t need to be a work of art, stick figures and line drawings will suffice. It can be annotated with explanations of what is going on and the resources, sounds, and type of shots that are required. Storyboard templates and other resources sheets can be found in the Appendix at the end of this guide and downloaded from the I Can Animate website.

Step 4 - Be Prepared

Get everything ready before you start capturing frames. Build your set, download or create your sound files, and if you are using them, make sure you have lights and that you have ironed and secured the chroma key screen!

Make sure everyone knows what they are doing.

Step 5 - Camera

I Can Animate 2 requires a camera that is plugged into either the USB or Firewire port on your computer. If you are using an older firewire camera then you may need to purchase additional hardware for your computer. It is also worth noting that camcorders connecting through the USB port are unlikely to work as they do not support a live feed, unless they are webcam enabled. Please check with your camera supplier for specifications.
If drivers are included with your camera you will need to ensure that they are installed to your computer and are up to date.

Webcams are relatively inexpensive but be aware that the quality of the images produced by cameras can vary. There are a number of high definition (HD) webcams now available and these are ideal for use with I Can Animate as they produce very high quality images. It is also a good idea to think about how you will mount your camera as many webcams are supplied with only a monitor/screen clip and have no tripod mounting point.

You’ll need to position the camera so that it is not easily moved. This is really important when capturing a series of frames as you do not want to have to keep resetting the camera. We would advise that you use a tripod to mount the camera. A small table tripod will be quite adequate and a tripod will also give you more flexibility when positioning the camera.

**Step 6 - Lights, camera action...**

We know you are itching to make an animation so without further ado, here is a guide to creating your first, potentially award winning, animation.

[A Quick Start Guide](#) can be found in the Appendix, you may print this sheet out.
Getting Started

It’s easy to get started creating a short stop frame animated movie without immediately getting too involved with all the great features of the software. This quick start tutorial will guide you step by step through the process.

Let’s begin by showing you just how easy it is to animate with I Can Animate.

HINT - Where you see this symbol, hints and tips will be offered.

Once you have installed the I Can Animate 2 software to your computer and plugged in a suitable camera, you are nearly ready. The only other thing that you will need is an object to animate.

HINT - It is a good idea that before running I Can Animate you plug your camera into the computer and, if necessary, switch the camera on.

1) Launch the I Can Animate software from the Start button or shortcut in the normal way for your computer.

2) The first time you run I Can Animate it will automatically default to the Capture screen.

The preview window shows exactly what your camera is pointing at.
The I Can Animate Capture window is split into a number of areas:

**The Preview Area** - displays your animation. If you are in Capture mode, it will display what your camera is currently pointing at.

**The Timeline** - is at the bottom of the window. Each time you capture an image it will appear in the timeline as a thumbnail picture. This allows you to quickly ensure that you have not inadvertently captured your hand in a shot in your eagerness to create your masterpiece and if you have, you can delete the frame by clicking on it in the timeline and pressing the delete or backspace key on the keyboard. Then just take the picture again. The timeline can contain different types of tracks but to start with there is only a capture track and an audio track.

![Capture track, denoted by a camera symbol.](image)

![Audio track, denoted by a speaker symbol.](image)

**Tool Panel** - Down the left hand side of the window is the tool panel. The tools available will vary depending on which mode you are in but in the Capture window they are;

- the name of the camera or cameras plugged into the computer
- the orientation of the image e.g. No rotation, Flip Horizontal, Flip Vertical or Rotate 180 degrees.

**Advanced** - If you select the disclosure arrow next to Advanced, more options will appear. We will look at these in more detail later.

**Toolbar** - At the top of the window is the toolbar. You can select from a number of different Tabs. By default they are Capture, Timeline and Audio. These are all dealt with individually later in this guide.
**Home** - this gives you access to a number features through a drop down menu for example, access to the projects you have created and exporting your projects, amongst others.

Each of these menu items will be dealt with later in this guide.

---

**Back to the animating....**

3) Click on the *Capture button* to capture a frame. You will hear the sound of a camera shutter closing as the picture is captured. This sound can be turned off using the volume control of your computer.

**Hint** - We would suggest you take a twelve identical shots to start your opening sequence. You can use the number keys on the keyboard to quickly take multiples of shots, you’ve already taken one shot so pressing 9 followed by 2 will give you your total of twelve frames. These will all appear in the timeline.

4) Next you need to move the character you are animating. Only a very small movement is required. The amount you need to move to create a realistic action comes with practice. To get this correct, animators use a technique called *onion skinning* to ensure that they get just the right amount of movement in between each frame. Click the link for more information on *onion skinning*. Once you have moved your character take another frame using either the capture button or the number key 1 on the keyboard.

5) Move the character again, taking care not to knock either the camera or your character, and take another frame. Repeat this procedure until you have captured about thirty frames captured.

6) You can now review your animation;

   🎥 Click on the *Skip to start* button to take you to the first of your captured frames.

   🎥 Click the *Play* button. The sequence will playback
Your animation will be played in the preview area.

At the default settings you need to capture at least 12 frames (15 for NTSC) to have one second of animation. With thirty frames, you have less than three seconds of playback so don’t blink, it is going to be quick!

- **HINT** - If you look at the tab that is selected you will see it is now set to Frame. To capture more frames you will need to reselect the Capture tab. The capture button will then be visible again and you can continue to capture more frames.

7) You can now continue and capture the rest of your frames.

- **HINT** - At the end of a sequence of movement add in a ‘pause’ of 6 or 8 frames before continuing with the next movement. Your animation will then look more realistic when you play it back. To finish your animated sequence take 12 identical frames.

**Well done, you have now created your first animation, share it with us...**

**Saving**

You do not need to worry about saving your project as I Can Animate has automatically saved it whilst you have been animating. This means that you should never lose any of your animations again. The animations are stored in your ‘I Can Animate 2 Projects’ folder located by default, in your My Documents folder on your computer.
My Projects

To access your projects click on the Home button and then My Projects from the menu.

The projects are listed in the main window.

Each project will be given a ‘default name’ when it is created i.e. Project1, Project 2 and so on.

You can change the project name to be more meaningful by selecting the project, and then click on its name and type in the new one or once the project is selected click on the Rename option in the tool panel on the left hand side of the window and again enter your new project name.

Information about the project is listed below the project title. This is currently the number of frames in your animation and the date that it was last modified.
New Project
To create a new project;

Select *New Project* in the tool panel on the left hand side of the window.

A new project is automatically created and you will be taken straight to the capture screen to begin animating. Should you wish to change the name of your project, just return to the Projects window.

The new project will be the last in the list and you might need to scroll down to see it.

- **HINT** - When naming your projects, try to make the name you use meaningful. No two projects are allowed to have the same name.

Importing and Sharing Projects

You can import and share projects with other I Can Animate users.

**Importing** - If you wish to import an I Can Animate project, then select the Import option from the tool panel. An explorer window will open allowing you to navigate to the project you wish to import. You will only be allowed to select I Can Animate projects, including projects created using previous versions of I Can Animate.

**Sharing** - Click on the project to be shared in the Projects window and then on the Share option in the tool panel. An explorer window will open allowing you to navigate to the where you wish to save the project. You can also enter a name for the shared project before clicking on the Save button.

Open a Project

Any project that appears in the list of projects can be opened and edited.

Select the project you wish to open and then click on the Open option in the tool panel or you can double click on the project itself.

- **If** the project contains only one clip, then you will be taken straight to the Capture window.

- **If** the project contains more than one clip then you will go to the Clips window where you can then choose which of the clips you wish to edit.
Export a Project

Once you have finished your animation you can export it.

Select the project you wish to export and then click on the Export option from the tool panel.

The Export preferences panel will appear allowing you choose the Format, Size and Output of your movie.

Format:

- Windows Media Video - File loads in to Movie Maker and Live Movie Maker allowing you to undertake additional editing.
- DV format
- Uncompressed AVI - File will load into most video post production tools, Note that files you export may be quite large.

Size:

- Small
- Standard
- Large
Output:

- Single video - exports the whole animation as a single movie file
- Separate clips - exports all of the clips individually.

Once you have made your selections and selected the Export button, you then need to browse to the location on your computer where you want the file to be saved. You can choose to make a new folder and then click on Save.

Exporting may take a while depending on your choices, how long your animation is and the performance of your computer, please be patient.

e.g. A project exported as a Windows Media Video, standard size and as a single movie was 5.5 MB. The same project exported as uncompressed AVI, standard size took up 4,116 MB of space

Once the animation has been exported you can choose to open the folder where it is saved or to close the export panel.

Rename

To rename a project select the project from the list and then either select the project title and enter a new name or select Rename from the tool panel and you can then rename it.

Delete

To delete a project, select the project from the list and then the Delete option from the tool panel. You will be asked to confirm your choice and the project will be deleted.
Clips

Animations and films are not generally filmed in one long single session. They are normally shot as separate clips, edited and the clips then ‘spliced’ together.

I Can Animate supports the concept of clips and you are encouraged to plan to shoot your animations as a series of separate clips. Shooting your animation in this way is advantageous. Not only can you shoot your scenes in any order but it also means that you can use different background pictures in different clips or scenes if using the chroma key features.

The Clips window is easily accessed through the Help button.

The example above shows an animation comprising of seven clips. Each clip can be given a name, this might be a scene name or refer to an action on your storyboard. It also shows how many frames each clip contains.

A single clip is automatically created when you create a new project.
Clip Tool Panel

New Clip

Creates a new empty clip in your project and automatically names it with the name Clip and a value, e.g Clip 002.

Edit clip

To add to or edit you clip select it and then choose Edit clip from the tools panel. Alternatively you can double click on the clip you wish to edit. You will then go directly to the capture window where you can begin to capture more frames or choose to add sound, backgrounds, titles and so on.

Rename clip

To rename a clip, select it and then either select the clip title and enter a new name or select Rename clip from the tool panel and you can then rename it.

Delete clip

Select the clip you wish to delete then the Delete clip option from the tool panel. You will be asked to confirm your choice and the clip will be deleted.

Transition

Transitions can be added between clips. Currently you can add a crossfade, or dissolve as it is also known, to the beginning of a clip. This is a gradual transition from one image to another. In your animation this will be transitioning from the end of one clip to the beginning of the next.

Adding the transition

Select the clip to add the transition.

A tool panel item, Intro transition will appear and from the list choose Crossfade. The transition symbol will now appear in front of the clip.

To remove the transition, select the clip and choose None from the transition options, the transition will be removed.
More transition options will be added to this feature.

The Clips window also has a preview screen where you can playback your animation.

**Using the Scrub slider**

Above the playback buttons, you can scrub to any point in your animation, and play from that timeframe or step though it if you wish.
Project Settings

Project based preferences can be applied to individual projects and are chosen in the Project settings option.

This is accessed through the Home button and will be applied to the project you are currently working on. To apply them to a different project then you will need to first open that project.

Base frame rate

This is determined by the number of frames per second and can be set to 24fps, 25fps or 30fps

- 24fps - This rate is used mainly by filmmakers.
- 25fps - This is the predominant video system used in the UK and Europe, and a great many other countries, and refers to 25 frames being transmitted every second. This is known as PAL (Phase Alternating Line)
- 30fps - The transmission speed used in North America and some Pacific areas. This system is known as NTSC (National Television System Committee).

More information on frame rates can be found later in this guide.

Aspect ratio

The aspect ratio of an image is the ratio of the width of the image to its height, expressed as two numbers separated by a colon. Two common aspect ratios are 4:3, the universal video format of the 20th century, and 16:9, universal for high-definition television and European digital television.

I Can Animate can use both formats but you will need a widescreen camera to take advantage of the 16:9 format.
Capture

Advanced settings

The Capture window, by default, has a restricted tool panel. Selecting the disclosure arrow next to the Advanced option gives access to additional menu options.

Undo and Redo

I Can Animate supports multiple undo and redo.

This means that you can undo and redo any actions that you undertake for example, if you inadvertently delete a frame, you can undo the action and the frame will reappear.

Undo and redo are accessed through the keyboard shortcuts of;

CTRL X for undo or this button

CTRL Y for redo or this button.

Onion Skinning

What is it?

Onion skinning is a technique with roots that go back to the early 1920s when Disney™ animators would create each frame of their animations on different transparent sheets, or gels. These early animators came up with onion skinning as a way to ensure that these individual gels lined up properly to create a seamless animation.

The process starts with the first frame of the animation where the animator draws an outline of the animated character, to which no colour is added. A second gel is laid over the first. In the second gel, the animator re-draws the animation, but moves the character slightly into the position necessary for frame two of the animated sequence. The advantage of this process is that
you can see the previous position of the animation you are drawing through the transparent gels.

The process is repeated by adding additional gels, one on top of the other. Each gel is a frame of the animation. By holding the gels to the light they could see all the positions of the animated character in one view.

When you create a flick book you are doing something very similar.

I Can Animate uses this technique allowing you to view the progressive movement of an object, essential when trying to gauge the distance to move objects from one frame to another.

Each time you capture a new frame it is added to the end of the clip and the frame selection will advance so that the new frame will become part of the selection. The preview will now show the feed from the camera. If you choose to use the onion skin it will then show the selected frame and the feed through the camera overlaid. Until you move the objects being animated you might not see the onion skinning effect.

A maximum of five frames and the feed from the camera may be onion skinned.

You may also find this feature useful if you inadvertently move your model or camera, allowing you to reposition either with accuracy.

**Selecting the Onion skin**

Onion skinning can be used in the Capture window.

Select the disclosure arrow next to Mode and from the menu choose how many frames you wish to use in your onion skin. You can choose from one to five frames.

You can change the relative opacity of the camera to the selected frames by using the Balance slider control. This slider is only enabled when the view is set to onion skinning.
Live Chroma Key

Please refer to the section on Using the Chroma Key for more details on using the chroma key mask.

The live chroma key feature allows you to replace a colour in your preview window with a background picture or movie. If no picture or movie are loaded as a background track, a white and grey chequer board can be seen in the preview windows where the selected colour has been replaced.

**HINT** - Using the chroma key feature can sometimes cause the performance of the computer to slow down, especially on lower specification machines.

The live chroma key is activated by selecting the **On** button and deactivated by selecting the **Off** button.

The colour to be replaced by the chroma key mask can be seen in the colour well. By default it will be green.

To change the colour:

 раствочок Click on the pipette tool.

 растворочок Move the mouse pointer into the preview screen. As the pipette tool moves in this part of the screen, the colour in the colour well changes to the colour below the tip of the tool.

 растворочок To confirm the colour, click the mouse.

**Tolerance**

This slider enables you to set a tolerance for chroma key colour. Ideally you will want to set this as low as possible so that all the background is shown. If you set it too high you may find that some of your foreground subjects start to disappear too. If you need to set it very high it is because your chroma key background is not evenly lit. Please refer to the section Chroma Key Backdrops for tips on using a chroma key background.
Smoothing

The Smoothing slider enables you to smooth off the edges of your foreground so eliminating some of the jagged edges around the foreground subject.

Camera Settings

This allows you to change the resolution of the captured image. Only resolutions supported by your chosen camera will be displayed. The higher the resolution the better the image will generally be but, the images you capture will be larger and therefore take up more space and may slow your computer down, especially lower specification machines.

Import Stills

You might wish to add still images to your capture track. These might be images from the internet or you might wish to import images from an animation you have taken on a digital still camera and then edit them in I Can Animate.

Select Import Stills... from the Advanced options. An explorer window will open allowing you to navigate to the folder containing the pictures.

Select all the pictures you wish to import and confirm with the Open button. The pictures will then appear in the capture track.

Don’t worry if there are some in the wrong place as you can click and drag frames from one place to another in the timeline. If you need to delete a picture, select it and then press either the Delete or Backspace keys on the keyboard

Hint - If you make a mistake use Undo and Redo.

Time Lapse

Time lapse means you can capture a frame automatically after a preset time interval has elapsed. It is especially effective for observing objects that change very slowly over long periods of time, for example plants growing, fruit decaying, clouds forming.

Please refer to the section on Time Lapse for further details.
Timeline

The timeline is located at the bottom of the window when you are in any of the editing modes.

The timeline contains tracks, and by default a new project timeline will contain a capture track and an audio track.

The timeline has a frame number scale so that you can see exactly which frame you are working on at any time and a playhead is visible during playback and editing.
The playhead can also be used, with a click and drag, to scrub through your animation, left and right.
Double clicking at any point in the timeline will cause the playhead to immediately jump to that location.

The timeline can also be zoomed using the zoom control this allows you to quickly navigate to captured frames as well as making copying and extending tracks easier.

![No Zoom](image1.png) ![Zoomed out](image2.png)

Additional tracks can be added to the timeline:

- **Drawing track** - Sits in front of the captured track and you can draw objects using the drawing tools and import images.

- **Background Image Track** - Sits behind the captured image track. Used for importing backgrounds that can be used with the chroma key feature.

- **Audio Track** - Add audio tracks and import sound files to your animation.

- **Video** - Similar to a background track except that you can import video to be used in the background when using the chroma key features in I Can Animate.

- **Titles Track** - Sits in front of all other tracks and allows you to overlay text onto tracks. Can be used for titling and crediting your animations.

There is no limit on the number of tracks that you can add to a single animation but you should be aware that the more tracks that are added the slower the response of your computer might be as resources are used up.
Adding New Tracks

Click on the Timeline tab in the tool bar at the top of the window.

You will see the list of types of tracks that can be added to the timeline in the tool panel on the left hand side of the window.

The timeline tracks can be visualised as separate film tracks that can be layered one on top of the other. Conceptually, some tracks are ‘in front’ of the captured image track, others will ‘be behind’ the captured image track. The diagram below visualises this and shows the hierarchy.
Deleting Tracks

Tracks can be deleted from the timeline by right clicking on them and confirming the Delete track with a left mouse button click.

The capture track cannot be deleted from the timeline.

Clip Settings

The effective frames per second can be controlled for each individual clip.

The slider that controls the number of frames you are able to capture automatically snaps to presets. If you are capturing to the UK digital video standard of 25 frames per second, the slider will allow;

- 25 fps (working in ones)
- 12.5 fps (working in twos)
- 8.33 fps working in threes)
- 6.25 fps (working in fours)
on the other hand if you are shooting to the NTSC standard of 30 fps, then the presets are;

30 fps (working in ones)

15 fps (working in twos)

10 fps working in threes)

7.5 fps (working in fours)

Ordinarily we would suggest that you use the ‘working in twos’ value unless you have reason to do otherwise. This is the default choice.
Chroma Key Introduction

Using the chroma key composition tool within I Can Animate allows you to combine a background image with your animation in the foreground. This can either be a still digital image or a movie file. Use of the chroma key can add real depth to your animation and helps to bring it to life.

Traditionally in films and television chroma keying is done against either a green or blue background as these colours are most least like human skin tones.

In digital animation green has become the preferred colour to use. This is because digital cameras retain more detail in the green channel and it requires less light than blue. Green also has a higher luminance value than blue and in early digital formats the green channel was sampled twice as often as the blue, making it easier to work with.

Animation chroma screens can be purchased from Kudlian Software. Visit http://www.kudlian.net for more details.

In reality the choice of chroma colour is dependent on the colours used in the characters in your animation. For example if you are animating green characters, using a green screen would mean that they too would disappear when the chroma key filter is applied.

I Can Animate has been designed to allow you to choose any colour as a chroma key background, though we highly recommend using either green or blue wherever possible. This manual will use the term ‘green screen’ when referring to using the chroma key feature.
The chroma key mask, which will also be referred to in this manual, is the area which will be replaced with a background picture or movie in your finished animation. It is shown in the software with a grey checkerboard if no background has been loaded, this is the matte.

**Lighting**

The most important challenge when working with chroma key is ensuring that the screen is evenly lit and avoiding:

- Shadows or cold spots which are darker areas on the chroma key screen.
- Hot Spots areas which are brighter than the rest of the screen.

An evenly lit screen gives a smaller colour range to be replaced which will in turn give far better results. Natural night from a window gives some of the best light possible though you may lose some of this if you are animating late into the day and don’t forget the sun moves round.

Try to choose a material for your chroma cloth which is not shiny as it tends to reflect the lighting, a matt surface is much better, and is thick enough not to let light through from the back and so give different coloured areas. Attaching your chroma key screen to a board is a good way of avoiding this.

If you are using artificial lighting then try to get lamps that give soft diffuse light rather than a strong direct beam. Getting lighting correct can be a lot of trial and error, but the diagram below might help when you are creating your set and trying to light it.

The graphic below shows an ideal lighting solution, and ordinarily we would not need to go to this sort of configuration to get the lighting correct for animating. Just make sure that your lighting is uniform and try to avoid shadows.
The two Soft boxes are set at an angle of about 70 degrees from the screen.

Using Chroma Key

In I Can Animate the chroma key can be applied in two ways:

✈️ Live - Which will apply the chroma key effect whilst you are capturing frames.

✈️ Post Filming - Which will apply the chroma key effect to frames you select in the timeline.

There is no difference in how you chose to apply the chroma key layer, though working in the live mode will allow you to see the chroma key mask being applied to each frame as you capture it. This makes it easier to ensure that your characters are in the right place during filming.
Using Live Capture Mode

The chroma key function can be found in the Advanced settings of the Capture menu.

Ensure that I Can Animate is in Capture Mode.

Click on ‘Advanced’ to reveal the extended menu options.

The orange highlight shows the currently selected option (so here chroma key is shown to be off).

Click on ‘On’ to enable live chroma.

Using the pipette tool, select the colour you wish to use as your chroma key from the image preview on the capture screen. (This is the image coming in from your live camera)

This will now apply the chroma mask or matte to the area you have chosen on each new frame you capture or on frames where the chroma key has been switched on.

Chroma key is switched on on the first seven frames. The preview shows the first frame with the background replacing the green screen.
Tolerance

You may find that not all the colour you have chosen is being used in the chroma key mask. This may be down to poor lighting and shadows. I Can Animate has a very clever tolerance slider that will allow you to attempt to remove this ‘noise’ to get a better key for your background image to replace. Ideally the Tolerance slider should be as far to the left as possible, as the higher you take the slider there is more chance that some of your foreground characters may also start to disappear. This is especially so the nearer the colour is to green or grey.

Smoothing

You can also use the Smoothing slider to make the blend of ‘live action’ and chroma key background smoother around the edges of objects you are filming. Much of this is down to trial and error, so spend some time getting the settings right before you continue filming.

You are now ready to begin capturing frames for your animation using the chroma key except, don’t we need a background?

As we have already mentioned, you can add the background in after you have finished capturing frames, but you might want to see the background during filming to use reference points, the Live Chroma Key is ideal for this.

Chroma Key Tips

Make sure the chroma key screen is flat with no wrinkles and is uniformly lit. Shadows on the screen will cause poor results. This is one of the most important areas to consider.

Don’t have the subject to close to the screen as this can cause shadows on the screen.

Make sure the subject is well lit but not directly from the front as this may also cause shadows to appear on the screen.

Ensure that the subject is does not have any of the colour of the screen or that area will have part of the background appearing on it.

Experiment with having the subject slightly out of focus as this can help blend the edges of the subject with the background.
Background Tracks

When you are going to use a background, whether it be a still image or movie, try to get as good a quality resource as you can, it will look much better.

Backgrounds should be seen as a per clip resource. If you wish to use different backgrounds in your animation then shoot a different clip for each background you intend to use.

If you are using a movie as a background then it is preferable that it lasts for as close to the duration of your animated clip as possible, as this will speed up the process and save space.

Inserting a Background Picture

To insert a background into your animation;

1. Select the Timeline tab from the tool bar along the top of the screen.

2. Select ‘Background Image’ from the tool panel. An explorer window will then open for you to choose an image that you have stored on your computer.

3. Choose an appropriate image for your background and select OK.
Once you have selected an image you will see a new track appear in the timeline showing your image. Twelve frames will automatically appear in the background track to begin with but if you have already captured more than twelve frames then an equal number of background frames will be added into the background track in the timeline.

**Editing a Background Image**

Once you have placed your image onto the timeline you can alter it to create various effects:

**Resize**

If the background image is too small or you wish to only show part of it then you can alter its position and size as you would a normal graphic frame.

Select the first frame in the Background track. The image should now appear in preview. If you have already captured a few frames against a green screen then the background picture will be displayed behind your characters.

Click on the background picture in the preview window and hold down the mouse button. When you now move the mouse, the picture moves as well. If you move it across to the right hand side you will eventually see the edge of your picture. In each of the corners of the picture are handles.
These allow you to resize the picture, and a rotation handle that allows you to rotate the picture.

Try it out to see the effect.

- If your mouse pointer hovers over the resizing handle or the rotation handle, it changes to a double headed arrow showing the direction in which you can expand, minimise or rotate the picture.

While you are doing this watch what happens in the background track, to the other frames. You will see them change as well.

Try making the picture larger in the preview window using the resizing handles and then position the picture so that it shows only the area you wish to appear in your animation.

**Zooming and Panning**

You can create the illusion of movement by using pans and zooms on the background picture.

Download the demonstration project Hillside from our website. This file contains an I Can Animate project and a background picture.

The effect that we are going to create is of the aircraft flying towards the hill.
You will see we have taken a single frame looking along the wing of the aircraft.

The clip needs to last for around 4 seconds and working at the standard frame rate of 12.5 frames per seconds, we are going to require a further 50 frames. (PAL)

- Import the project as described on page 15.
- Select the project from the Projects window and then Edit from the tool panel. The project will load.
- Click on the first frame in the timeline. Note a Frame tab has now appeared in the tool bar at the top of the window.
- Select the Duplicate option from the tool panel. A second frame will now appear in the timeline. This is a copy of frame 1
- Repeat until you have 5 frames in the timeline.
- Click on frame 1 in the capture track again and then press and hold the Shift key on your keyboard, then select frame 5. You will now see that all 5 frames are selected.
- Select Duplicate from the tool panel. This time five frames are duplicated, you now have ten frames.
- Repeat this procedure until you have around fifty frames in total.
- Select the Timeline tab and the then Background image. An explorer window will open allowing you to navigate to the location on your computer where you have stored the downloaded project picture. Select it and click OK.

An equal number of background image frames will now appear in a new background track in your timeline.

- HINT- Deleting the background track, right click the mouse over the track in the timeline, a Delete track option will appear, confirm deletion
with a right mouse click. If you change your mind again, the keyboard shortcut of Ctrl and Z (Ctrl Z) will undo the last action.

**Applying the Chroma Key**

Unless you have already switched the chroma key feature on, then your animation will still have the green backdrop showing behind your characters.

To apply the chroma key to captured frames you first need to select the frames. This can be done in several ways:

- Double click on the first frame that you wish to apply the chroma key effect.

- To apply to all frames in the current clip, click on any captured frame in the timeline so that a yellow line appears around it, this show that the frame is selected.

- Then use CTRL + A to select all frames. All frames should then have a yellow highlighter line around them.

To apply to a few frames click on the first frame in the capture timeline so that it becomes selected then either:

  Hold down the Shift key and use the right hand arrow to select more frames,

  or

  Hold down the Shift key, use the scroll bar at the bottom to find your last frame, and with Shift still held click on the last frame you wish to select. All the frames should then have a yellow highlight around them to show they have been selected.
Click on the On button in the Frames tool panel to turn the chroma key on for all frames. If you have captured a large number of frames, then it might take a little while to composite the images, please be patient, it’s worth it.

The preview will then show both the captured image and the background picture with the matte replaced by the background picture.

So from this, to this.
Adding Objects to the background track

In the example below we can see that there is no captured track, only a Background track with picture and an Audio track.

We have also introduced a spacecraft in the bottom right of the screen. This is a picture downloaded from the internet.

The finished ‘short’ can be previewed on our website;

**Alien invasion**
The spacecraft takes off and moves off into the distance, if somewhat a little ‘wobbly’ on its journey towards Earth.

To recreate that movement is very easy in I Can Animate.

First we need to create a [new project] and then add a background track to it.

Create a [new project]

Select the Timeline tab from the tool bar

Select Background image from the tool panel, an explorer window will appear allowing you to browse to the picture file you wish to use for the background.
Twelve frames will be added to the background track. Click and drag on the ‘thumb’ positioned at the end of the last frame, to extend this track. It will help if you also zoom the timeline down so that you can add around 120 frames. On older machines this may take a few moments to redraw.

Zoom the timeline back to its original position, to expand your frames again.

Double click on frame 1 in the timeline. If you cannot see frame 1 then either use the scroll bar at the bottom of the window or click on the skip to start button. This will now give you access to the Drawing tools. Note that the Drawing tab is now selected in the toolbar at the top of the screen.

From the Drawing tool panel select Import image...

An Explorer window will open allowing you to navigate to the image you wish to add to your background, in our animation this was the space craft.

The Select tool is automatically chosen in the tools panel, denoted by the orange highlight.

Move your mouse pointer into the preview area and select the object you just imported. It will become selected and resizing and rotation handles will become visible. The handles allow you to increase and decrease the size of the image and rotate it. You can also reposition the object by clicking and dragging on it.

Move the object to the starting position you require.

Select Start tween from
the tools panel, and watch what happens to the thumbnails in the timeline, the object now appears on each frame.

HINT: What’s Tweening?

ANSWER: Tweening is the process of generating intermediate frames between two images (key frames) to give the appearance that the first image evolves smoothly into the second image. The frames between the two key frames are known as inbetweens. Tweening is a key process in all types of animation, including computer animation.

We can demonstrate tweening in this in the example.

Click on the last frame that you can see in the timeline to select it. You are now modifying this frame.

Click on the object you imported and move it to a new position in the preview window. Watch what happens to all the frames in between. I Can Animate automatically fills in all the movements on the frames in between.

Use the scroll bar to scroll to another frame and move the object to another location. Again the in between frames will be updated.

Finally go to the last frame in your clip and double click on it.

Select the object and change its size, rotate it.

Select End tween from the tool panel. This finishes the tweening.

You do not have to use imported pictures, you can draw your own shapes using the basic drawing tools supported in the tool panel. Tweening works in exactly the same way using objects you have drawn, including the text.
Duplicating Frames

One of the powerful features of I Can Animate is its ability to allow you to duplicate frames in a number of ways. Firstly, you can just duplicate a single frame which will be inserted after the selected frame, but you can also duplicate a selection of frames and reverse them. This is particularly useful if, for example, you have animated an eye closing and then just want to use the same frames again to show it opening, but obviously, we need the frames to be inserted in reverse order.

Duplicate Frame:

To duplicate a single frame you must have only one frame selected.

Double click on the frame you wish to duplicate. Note the Frame tab is now automatically selected in the tool bar.

Choose Duplicate from the tool panel. The frame is inserted next to the original frame and the duplicated frame then becomes selected itself. If you wish you can drag the duplicated frame to a new position.

Duplicating a Selection of Frames:

To duplicate multiple frames you must have more than one frame selected.

Select the frames you wish to duplicate.

Choose Duplicate from the tool panel. The frames are inserted after the last selected frame and the duplicated frames then become selected. If you wish you can drag the duplicated frame to a new position.

You can choose to reverse the order of the frames you have just copied. This is particularly useful if you have animated an eye which has gone from open to closed and you want to duplicate the frames of the eye opening again, but you need the order of frames reversing.

The easiest way to explain how each of the options work is by looking at the result of duplicating the frames shown below of a falling ball, the duplicated frames are the ones that are then selected.
Insert after selected frames produces:

This is useful if you have a complete cycle of animation which you wish to reproduce.

Insert after selected frames, with Reverse order of duplicates produces:

Here you can see that the ball is now appearing to bounce back again. This is useful where you have animated the first cycle of an animation and wish to reproduce it in reverse.

Remember that after you have duplicated the frames, if you don’t get the result you were hoping for, you can always delete frames, duplicate single frames again and move any of the frames around.

I Can Animate is very flexible in what it allows you to do with each frame in a sequence.
I Can Animate also features path based drawing tools. This means that any shapes created in a frame can be easily manipulated in duplicated frames.

Drawing tools can only be used in a drawing track.

There are two types of drawing track in I Can Animate and they each have their own hierarchy in the compositing.

- **Drawing track** - this sits in front of the captured track
- **Background image track** - this sits behind the captured image track

You do not have to have any captured images to use the drawing features.

There are a couple of rules to remember when you are using the drawing tools.

1. You can only draw into a frame.

   This may seem fairly obvious, but it does mean that when you are starting with a new I Can Animate project there are no frames.

2. You must select a shape, (or a number of shapes), in order to change their Fill Colour, Line Colour, Line Width or any of their other properties. You use the Select tool to select objects you have created.

Drawing Tools

The Drawing panel has a number of tools which you use depending on whether you want to select, edit, create a new shape or add text.

The currently selected drawing tool is shown by the orange highlight.
Select Tool:

The select tool is used to select, move, resize and delete shapes. To select a shape you must click on the shape or the line of the shape. By holding down the Shift key you can add more than one shape to the selection. Any changes you make will then apply to all the selected shapes. You can also group multiple shapes together. When a shape is selected it’s bounds are displayed with a black rectangle around them. The rectangle always encompasses all selected shapes. The small rectangles in each corner can be used to resize the shapes and the rotation handles allow you to rotate your selection.

Edit Path Tool:

The edit path tool allows you to move the individual points that make up a path. You use it in a similar manner to the select tool to select a shape, except you cannot select multiple objects when using this tool. When the shape is selected, each path point has a small rectangle over it. You can click and drag these points to adjust the shape.

Draw Rectangle:

The draw rectangle tool lets you drag out a rectangle. Select this tool, then click and drag to create a rectangle.

Draw ellipse:

The draw ellipse tool lets you drag out an ellipse. Select this tool, then click and drag to create an oval.
Draw Polygon:

This tool allows you to create many sided shapes, it is especially useful for tracing around objects on the captured layer. Click the mouse at the point where you wish to start drawing and then move to the second point and click again. A line will automatically be drawn to connect these two points. Continue moving and clicking until you have the desired shape. If you position the last point very close to the starting point the tool will automatically close the shape.

Freehand Tool:

The freehand tool allows you to create an arbitrary shaped path. Select this tool, then click and drag to draw a path.

Text Tool:

This text tool allows you to add text as objects. Select the Text tool and then click on the screen where you want the text to appear. A cursor will appear and flash and you can then start typing. Once you click away from the text the text window is closed. You can however now click elsewhere and start typing again but each piece of text will become a separate object.

Fill Colour and Line Colour

You need to select the shape you intend to change by either using the Select or Edit path tool.

The Fill and Line colour controls will now be enabled. You may have to scroll down using the scroll bar on the tool panel to see them depending on your window size.

The fill and line colour of an object can be changed independently.

To change the colour:

- Click in the colour well to select it and as you do this the colour picker will appear.
- Choose the colour you wish to use in the colour picker.
- Alternatively if you click on the pipette tool and then move the tool across into the preview the colour will change in the colour well. To select the colour click the left mouse button.
Line Width
Select the shape whose line width you wish to change.
Type a value into the text field. The value is in points and is limited between 0 and 20.

Arrange the Order of Objects
As you create and add new objects or images to your drawing you will notice that each new object or image appears on top of any previous one. I Can Animate allows arranging the order in which the objects are drawn. To do this:
Select the objects(s) whose order you wish to change.
Select the Object order button from the Drawing tool panel.
Choose one of the re-ordering options from the drawing tool panel on the menu bar. The re-ordering options are:

  - Bring to Front
  - Bring Forward
  - Send Backward
  - Send to Back.

Depending on where the objects(s) are positioned in the layering order will affect which of these options is available.

Grouping Objects
I Can Animate allows you to group objects and images together. This is very convenient if you have drawn an object which is made up of other objects which you then want to copy or move together.

To group shapes together:
Select at least two objects or images that you wish to group. To select multiple shapes hold down the Shift key while clicking to select the shapes.

Once two objects are selected the Group option becomes available in the Tool panel. Having made your selection, select Group.

HINT: Remember if you have added text to your drawing track this can also be selected and treated like any other drawn object.

When objects are grouped, if you select any one within the group, then all objects in that group are also selected. This means any changes you now make to one object will apply to all objects in the group as they are all selected. If you want to just make a change to one object in the group then you will need to ungroup them first.

Ungrouping Objects
To ungroup a group of objects:

Select the group of objects you wish to ungroup.

Select Ungroup from the Tool panel.

Deleting Objects
To delete a shape;

Select the object you wish to delete

Press either the Backspace or Delete key on the keyboard.

HINT: Remember if you make a mistake there is always the undo and redo options.

Copy and Pasting Objects
All of the drawn objects can be copied and pasted, but there is also a very quick way to copy and then make objects appear to move within a clip.

Simple copy and paste;

Click on a frame in a drawing track, the Drawing tab should now be selected and you have access to the drawing panel.

Select the objects you wish to draw.

Click and in the preview window and draw.
Click on the Select tool and then on the object you wish to copy in the preview screen. It will become selected.

CTRL and C copies the selected object to the clipboard

Select the frame that you are going to copy to

Click on the preview screen

CTRL and V will paste the object to that frame.

**Copying over Multiples of Frames**

We can best show this feature by recreate the classic ball bouncing animation...

Create a new project

Select Timeline from the Tool bar and then a new Drawing track. This appears in the timeline above the Capture and Audio tracks which are there by default.

Using the Zoom timeline slider and the thumb at the end of the frames, extend the number of frames in the timeline to around 60.

Double click on frame 1 in the drawing track in the timeline to activate the Drawing tools.

Use the ellipse tool and the rectangle tool to draw a ball and floor, you can colour them if you wish.
Select both objects (Shift and click), note the Start tween option is now active in the tool panel.

Select start tween and watch what happens in the timeline.

Scroll through to the slide about half way through your sequence, in this example frame 30, and then click on it to select it.

Using the Select tool click on the red ball in the preview area and give it a slightly compressed/squashed appearance and then drag it to the floor. Watch what happens in the rest of the frames in the timeline.

Scroll through to the last frame and again, using the Select tool, select the ball and change its shape back to a circle and then move it back up the screen to its starting position.

Click on the Skip to Start button and then replay your animation.
Time Lapse

Time Lapse is a technique whereby the frequency at which frames are captured is much lower than that which will be used to play the sequence back. When replayed at normal speed, time appears to be moving faster and thus lapsing. I Can Animate has a built in Time Lapse facility. This has many useful applications across the curriculum, from watching seeds grow to fruit decaying and filming a sunrise or sunset.

You can only set a time lapse on a single open project.

To use this feature:

雹️ Create a new project.
雹️ On the capture screen click on the Advanced menu.
雹️ Using the slider, scroll down and under the Acquire menu, click on Time Lapse.

This will open the Time lapse screen where you can enter the time interval in the text field and then choose an appropriate time unit to capture over.

雹️ Capture times between frames can be as little as 0.1 seconds.
Click on the Start button to start the time lapse. You will be locked out of the other features of I Can Animate during time lapse and the time lapse screen will remain visible until you select the Stop button.

If you do not wish to take any more time lapse then click on the Close button.

The captured frames will be displayed in the timeline. Using the playback buttons you can now review your time lapse.

**Increasing or Decreasing the Playback Speed**

If you wish to slow or speed up your time lapse clip you can alter the effective frames per second of the clip through the *Timeline panel*. 
Audio

Audio Introduction

One of the most exciting new features in I Can Animate 2 is the ability to add sound directly to an animation. Adding sound opens up some exciting opportunities but in doing so you may well find that your animation takes longer to create.

I Can Animate now allows you to either;

• Importing a sound file from your computer.

• Record directly into I can Animate using a microphone.

You can have as many different audio tracks as you like within your animation. To keep the timeline as clutter free as possible, the program defaults to opening with just one track open. Adding many audio tracks might also cause confusion, and very large files.

Adding additional Audio Tracks

🔍 Select the Timeline tab from the tool bar along the top of the screen.

🎵 From the ‘New Track’ options choose Audio.

This will place a new audio track into your timeline. Repeat this as many times as you need to.
Importing Audio files into the Audio Library

Each animation that you create can have its own audio library. The audio files can then be used with any clip within the project.

To import an audio file:

Select the *Import into library...* option from the Audio tool panel.

This will then open an explorer window which will allow you to navigate to the audio file you wish to import.

Select the file, then click on OK and the file will appear in your library.

Hint - It is a good idea to make sure the audio files you are importing have meaningful names so that they are easily recognisable.

Adding Audio to the Timeline

Sound files can be added anywhere along the Audio track in the timeline.
Make sure there is an Audio track in the timeline, you will see this symbol next to it. If there is not then you will need to add one.

Click and hold the left mouse button over the soundtrack in the library you wish to add to the audio track.

Drag to the audio file to the position you require it in the timeline and release.

You do not have to be accurate with where you drop them to begin with as the sound files can be moved in the timeline.

![Timeline with sound file imported](image)

**Moving the Audio File**

If you need to move your sound file click and drag on it in the timeline, you can move it to the left or right, or even down to another Audio track if you have created one.

**Deleting an Audio File**

Audio files can be deleted from the timeline by right clicking on them and deleting the track or alternatively clicking and dragging them form the track and then releasing the mouse button. The Audio files are not deleted from the Audio Library as they may be used in another clip.

**Changing the Duration of the Audio Clip**

To save space and keep file sizes small, you should always only import the sound files you are going to use and they should only be as long as is needed. There are a number of audio software titles that you can edit sound files in.

I Can Animate however does allow you to change the duration of a sound file by allowing you shorten the file from its beginning or end. The file is not altered in any way only the time it plays for and the part of the file it then plays are used in playback.
At the beginning and end of each Audio clip is a Thumb. If you move your mouse pointer over it a symbol will appear as shown below;

The audio clip can be shortened or extended.

The audio clip can only be shortened, you are at the beginning of the clip.

The audio clip can only be shortened, you are at the end of the clip.

Clicking and dragging on the audio clip in the direction o the arrow will change the duration of the audio clip.

**Recording Audio**

As well as being able to import audio files directly into I Can Animate, you can also use a microphone to record files that go directly into your animation.

1. Select the audio tab in the tool bar at the top of the window.
2. Choose the microphone you wish to use by clicking on the drop down box underneath Microphone.

A list of available microphones will be displayed

1. Select the one you wish to use.
2. Test the microphone. As you speak you should see the bar in the sound meter underneath the Microphone start to fluctuate up and down depending on how loudly you are speaking.
Select where in your animation you would like your recording to begin by clicking on the appropriate frame in the timeline. The Playhead should appear at that point.

Click on the Start recording button to begin your recording.

When you have finished, click on the Stop recording button.

You will see that this will be added to your animation as a new track. You do not have to create an audio track before recording it will automatically be created as you begin recording.

A copy is also placed into the Audio Library.

HINT: It is a good idea to script what you want to record if it is a voice over. Don’t make the sound clips too long and rambling.
Video Backgrounds

I Can Animate now supports adding videos into the background as well as a still image.

If you are intending to use a video as a background you should be aware that this might have repercussions on the performance of your computer. Your animation files and those that you export may be quite large.

- **HINT** - If you are using a video trim it to the required length before importing it into I Can Animate. This will help keep files small.

I Can Animate will import Windows Media Video (wmv) files and this will be used to replace the chroma key mask in your animation.

I Can Animate does not display the imported video file frame by frame in the timeline. A key frame is shown at frame 1 and the rest of the video is represented as coloured track.

**Importing a Video**

- Select the Timeline tab from the toolbar at the top of the window.

- Choose Video from the list of New track options. An explorer window will open allowing you to browse to the location of your video file. Only wmv files will appear in the list.

- Select the file you wish to use and then Open.

The Video track will appear in the timeline.

In order to see the movie behind your subject you will need to have captured your animation in front of a chroma key screen.

- Double click in the timeline on frame 1.

- Select the Frame tab from the tool bar.

- Select all the frames in the timeline and **apply the chroma key**.
Once the chroma key has been applied the movie will appear in the background of your preview. When you playback your animation the movie will play in the background. You can also use the playhead to scrub through your movie to determine if any of the captured frames require the chroma key tolerance modifying.

On lower specification machines you may find playback is slightly jerky, but your exported movie should play smoothly.
Frame Rates

All types of moving image have what is called a frame rate, this is the number of frames that are displayed each second. In cinema films this is 24 frames per second (fps), but television in the UK and many other countries uses 25 fps. America, Canada, Mexico and Japan have a format called NTSC and this uses 29.97 (nearly 30) fps.

When you are making a movie you need to think about time and how long you want each clip to last. This means, whether you are working with PAL (25 fps) or NTSC (effectively 30 fps), you will need to think about how many frames are required to produce a clip of a given length in time.

If for example, you want 10 seconds of animation and are working in PAL, that means you would need to capture 25 x 10 = 250 frames, (or 300 for NTSC). That’s quite a lot of frames for just 10 seconds.

Professional animators have a technique whereby they are able to cut down the number of movements they need to set up by capturing two frames at once, they then make the movements of the characters twice what they would be normally. If they really want to cut down their workload they can even capture three or four frames at a time, but then the action would appear quite jerky. This is part of a technique called limited animation.

When using a computer, you don’t actually need to keep capturing two, three or four frames, (unless you deliberately want to freeze the image for a moment), instead you only need to capture one frame.

I Can Animate will automatically duplicate your captured frames for you when it exports them, in effect slowing down the action. The number of frames which it duplicates is what is sometimes called the limiting factor. The higher the limiting factor, the slower your action will appear when played back.

So returning to the mathematics of the number of frames you need to capture; for 10 seconds we need 10 x 25 = 250 frames when exported, by setting the effective frame rate to 12.5 (using PAL) we only need to capture half as many frames, 250 / 2 = 125 frames. The 125 frames you capture and I Can Animate plays back and eventually exports, is automatically doubled to recreate the 250, saving you time. This can be especially useful when working with younger or inexperienced children.

If that is still too many then you can set the effective frames per second using the slider in the Timeline tools panel to only capture 250 / 3 = 83 frames (8 per second approximately).

I Can Animate will always capture at half full frame rate by default.
Appendix 1

Training on Animation in Schools
Kudlian Software can advise and organise specialist animation training for schools and other groups. Please visit the Training Academy for more details.

Suppliers of Animation Accessories – UK
Aardman Animations use a clay called Newplast which is available from Kudlian Software Ltd. – http://www.kudlian.net

Tel: +44 (0)1926 842544   Fax: +44 (0)1926 843537

Armatures - We can recommend and supply high quality armatures manufactured by Animation Supplies. Check out... http://www.kudlian.net/products/armatures/

Reference Books
Stop Motion, Craft Skills for Model Animation – Susannah Shaw (Publ. Focal Press)

The Complete Animation Course – Chris Patmore (Publ. Thames & Hudson)

The Animation Bible! – Maureen Furniss, (Publ. Laurence King)

Making an Animated Film a practical guide - Matt West (Publ. Crowood Press)

Digital Compositing for Film and Video – Steve Wright (Publ. Focal Press)
Appendix

**PAL**
PAL is the predominant video system used in a number of countries as listed below. In PAL, 25 frames are transmitted each second.

Argentina (N) Bangladesh China Germany India

Ireland Jordan Liberia Nigeria Pakistan South W. Africa Switzerland Uganda Yugoslavia

Austria Belgium Denmark Hong Kong Indonesia Israel Kenya Malaysia Norway Singapore Sudan Thailand United Kingdom Zambia

Australia Brazil (M) Finland Iceland Iraq

Italy Kuwait Netherlands New Guinea South Africa Sweden Turkey United Arab Emirates

**NTSC**
NTSC is the video system used in North America, Japan, most of South America and in the countries listed below. In NTSC, 30 frames are transmitted each second.

Canada Cuba Japan Panama Puerto Rico U.S.A.

Chile Dominican Republic Mexico Peru South Korea

Costa Rica Ecuador Nicaragua Philippines Taiwan
“Quite Please...

Lights, Camera, Action...”

A Quickstep guide to your first animation.

 lcm  Plug in Your Camera. (You’ll need a USB webcam or firewire camcorder)
 lcm  Launch I Can Animate from the Start>All Programs menu.
 lcm  Position the character you are going to animate in a starting pose, you can check this is correct in the preview window.
 lcm  Click on the Capture button to take your first frame.
 lcm  Use the number keys at the top of the keyboard to capture a further identical eleven frames, you’ll now have twelve identical frames. This will give you a 1 second pause.
 lcm  Move your character very slightly and take another single frame.
 lcm  Move your character again, and take another single frame, keep repeating this process until you are happy with your animation.
 lcm  When you have finished animating, click on the Home button and choose Export. You can then choose what format you would like to export in, and where to export it to.

HINTS:
Remember you are going to need twelve frames for every second of animation.
Add a six frame ‘pause’ at the end of a sequence of movement.
You can review your animation at any time using the play button.
To continue animating ensure that you have the Capture tab selected.
At the end of your animation finish with 12 identical frames.
Your animation has been automatically saved to your Project folder.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is your character’s name?</td>
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<tr>
<td>Where does your character live?</td>
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<tr>
<td>Who are your character’s friends?</td>
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<tr>
<td>What is your character’s personality like?</td>
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<tr>
<td>What does your character like to eat and drink?</td>
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<tr>
<td>What does your character like to do?</td>
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<tr>
<td>Is your character afraid of anything?</td>
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<tr>
<td>What is your character wearing?</td>
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<tr>
<td>Does your character have a job and if so what is it?</td>
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<td>Does your character have any pets?</td>
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<tr>
<td>Now turn over and draw a picture of your character.</td>
<td></td>
</tr>
<tr>
<td>Frame Number</td>
<td>Time increment Min:Sec:Frame</td>
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## Storyboard 1

<table>
<thead>
<tr>
<th>Clip Number</th>
<th>Film Title</th>
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<tbody>
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</table>

**Group Name:**

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© 2011 Kudlian Software Limited
Lip Syncing - Mouth Shapes

So you want your characters to talk?

Some of the best loved and most watched children’s stop frame animations rely on sounds and suggestion instead of actual speech, Morph, Shaun the Sheep and Timmy Time from world famous animation studios Aardman Animation and of course the Ooglies from BBC Scotland. These animations have world wide appeal not only for their characters and story lines, but also because they do not have to have voice overs.

Any sort of sound syncing can be time consuming and especially so in the case of speech.

The mouth shapes below are those most commonly used when forming words. You can visualise how a phrase is going to look by standing in front of a mirror and speak the words you are animating. Pronounce the words distinctly, over emphasising them so that the mouth shapes become clear.

Use the ‘dope sheet’ to plan which frame needs to show which shape.

<table>
<thead>
<tr>
<th>Frame Number</th>
<th>Time Increment Min:Sec:Frame</th>
<th>Action/Comment</th>
<th>Sound/Resources</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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Network Installations

I Can Animate automatically saves projects to the users My Documents folder in a projects folder called I Can Animate 2 Projects.

It is possible for network administrators to redirect this should they wish.

There is a per-machine configuration file that determines where the documents are located for all users logged on to that machine.

The configuration is located at:

    {CommonApplicationData}\Kudlian\settings.xml

The path of {CommonApplicationData} depends on the operating system.

On windows XP, by default the path is;

    "C:\Documents and Settings\All Users\Application Data"

and on Windows Vista and 7 the path is

    "C:\ProgramData".

To get the default behaviour

    <settings>
      <documentsFolder>$(MyDocuments)\I Can Animate 2 Projects</documentsFolder>
    </settings>

Any of the following special values can be used in the path:

$(MyDocuments) is the full path to the current user's documents folder

$(UserName) is substituted for the current user's username

For example, to configure the documents folders to be in a network share mapped to P:\ set the path to:

    P:\$(UserName)\