TVET CERTIFICATE V in GRAPHIC ART

CREATION OF 2D DIGITAL ANIMATION

GRA2D501

Create 2D Digital Animation

Competence

Credits: 6

Learning hours: 60

Sector: Art and Craft

Sub-sector: Graphic Art

Module Note Issue date: June, 2020

Purpose statement

This module describes the skills, knowledge and attitudes required to characterize, assess and grade of digital 2D animation creation. At the end of this module, participants must be able to produce 2D animation for film and video in both production and post-production stages.

Table of Contents

Elements of competence and performance criteria		Page No.
Learning Unit	Performance Criteria	
1. Describe animation principles	1.1.Adequate description of computer animation history	3
	1.2.Proper studying of principles and types of animation	
	1.3.Adequate description of the production process of animation	
2. Build 2D character and environment for animation	2.1 Suitable description of illustration design software in accordance with project requirements	19
	2.2 Careful tracing and editing of character and environment base project requirements	
	2.3 Proper exportation of character and environment in dependence of project requirements	
3. Create 2D digital animation	3.1 Suitable description of animation software based on the project requirements	38
	3.2 Proper creation of 2D digital animation project based on given requirements	
	3.3.Appropriate exportation of 2D animation based on project requirement	

Total Number of Pages: 74

Learning Unit 1: Describe Animation Principles

Learning outcome 1.1: Describe Computer Animation History

- **History of animation**

  History of early animation

- **Pioneers of animation**

-J. Stuart Blackton (1875-1941)

British filmmaker J. Stuart Blackton is credited with creating the first animation in America and was among the first in the world to use stop-motion as a storytelling technique. In 1896, Blackton, a reporter for the *New York Evening World*, was sent to interview Thomas Edison about his brand new Vitascope invention. In an age where wooing reporters was critical to success, Edison took Blackton to Black Maria, his studio-cabin, and created an impromptu film of Blackton doing a lightning sketch of Edison himself. Blackton became so infatuated with the technology that he soon founded the American Vitagraph Company and began producing films, debuting with *The Enchanted Drawing* in 1900.

In the film, previously featured here, Blackton sketches a face, cigars, and a bottle of wine, then "removes" these last drawings as real objects so that the face appears to react.
Although the stop-motion sequence isn't considered "true" animation in technical terms the way *Little Nemo*, which Blackman co-directed with McCay, is, the technique offered an early glimpse of what animation could become.

- Winsor McCay (1869-1964)

Cartoonist and artist Winsor McCay (1869-1964) is often considered one of the fathers of "true" animation.
His 1911 film, *Winsor McCay, the Famous Cartoonist of the N.Y. Herald and His Moving Comics*, also referred to simply as *Little Nemo* and featured here last week, contains two minutes of pure animation at around 8:11, using sequential hand-illustration in a novel way not seen in previous films.

- John Bray (1874-1978)

Founder of the first animation studio/factory. 1914 Earl Hurd patented the use of clear cels over background. Hurd and Bray formed the Hurd and Bray Processing Company 1914. With additional patent obtained by Bray, the company monopolized the animation process. The patents expired in 1932. Much of what Bray claimed to have invented have been credited to McCay and others.

- RMax& David Fleischer (1883- 1972, 1884-1979) (Fleischer Brother)

Max Fleischer invented the rotoscope technique. Fleischer Studios, headed by Dave and Max Fleischer, were responsible for Betty Boop, Popeye and Superman.Betty was the first featured female character in American animation. In 1934, the Hays Code (censorship for film) was enacted in Hollywood and Betty lost most of her charm

- **Walt Disney (1901-1966)**

Walt Disney is a famous business, an American business man design famous characters. He was an animator and cartoonist; a major figure knows as the co-founder of the Walt Disney Company. Film producer and showman but the main skill was he was an innovator of animation designs. In 1923 he created a short film which is very well known. It was called Alice in wonderland which had actress interacting with animated characters.

- **Key frame animation**

In media production, a **key frame** or **keyframe** is a location on a timeline which marks the beginning or end of a transition. It holds special information that defines where a transition should start or stop. The intermediate frames are interpolated over time between those definitions to create the illusion of motion.

- **What does In-Betweening (Tweening) mean?**

Inbetweening is the process of creating transitional frames between two separate objects in order to show the appearance of movement and evolution of the first object into the second object. It is a common technique used in many types of animation. The frames

between the key frames (the first and last frames of the animation) are called “in-betweens” and they help make the illusion of fluid motion.

- **Clean-Up**

Clean-up animation is the process of creating the final drawings you see in the finished film. It does not necessarily mean a "**clean**" fine line. The artist, usually a team of artists, uses key drawings and **animation** charts from the animator, making it appear as though one artist has created the whole film.

Pen

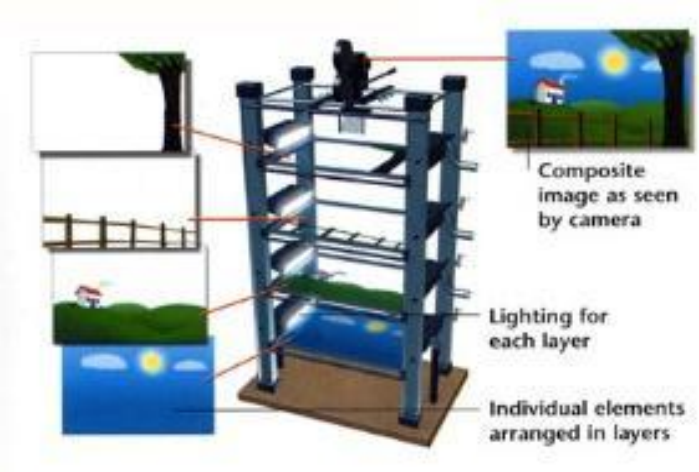
The Pen tool provides feedback about its current drawing state by displaying different pointers, The Pen Tool is used to draw a line, a path, or a series of lines. It is also used to manipulate existing lines. ... You can use the Pen tool to draw one line, many lines, or a shape. You can draw a line that stands by itself. You can draw a series of lines attached to each other

- **Ink**

The Ink animation is entirely a Chinese-style animation, the ancient art of Oriental ink was used in animation creation, in order to achieve the novel prospect of indifferent and quiet. It can be described as a great creation by the Chinese animation artists. As time went on, the three-dimensional ink animation has become a product of the digital age, which was based on the tradition of bold ink painting and formed a strong artistic trends.

- **Multi-layer camera stand**

The **multiplane camera** is a motion-picture **camera** used in the traditional animation process that moves a number of pieces of artwork past the **camera** at various speeds and at various distances from one another. This creates a sense of parallax or depth. The **camera** created the illusion of depth, which helped make **animated** films look more interesting and realistic



- **History of computer animation**

✓ **Early computers**

The category of **early computers** contains the computer systems made in the early era (i.e., the era in modern computer history defined as the period from the late 1930s to the early 1960s) utilizing mechanical, vacuum tube, discrete transistor, or other pre-integrated circuit technology.

✓ **Pioneers of computer Graphics**

- **John Whitney, Sr.(1918-1996)**

Pioneer computer animator John Whitney Sr. in 1959, operating one of the first computer-graphics engines, a mechanical analogy computer built largely from surplus World War II anti-aircraft guidance hardware. The camera is in the upper left, aiming down through the apparatus that "paints" the film with light. Photo by Charles Eames

- **Charles Csuri (1922-)**

Charles A. Csuri is an artist and computer graphics pioneer and Professor Emeritus, at The Ohio State University. ... Chrysler, movie actor Jose Ferrer, pop artist Roy Lichtenstein and sculptor George Segal. In 1964, he experimented with computer graphics technology and in 1965 he began creating computer animated films. He was described by the Smithsonian magazine as the father of digital art and computer animation.

✓ **Perfecting photorealism**

In the short history of computer graphics, a number of techniques have been developed to create photo-realistic images of computer generated 3D objects.

Example of Photorealism

✓ **Seeking non-photorealism**

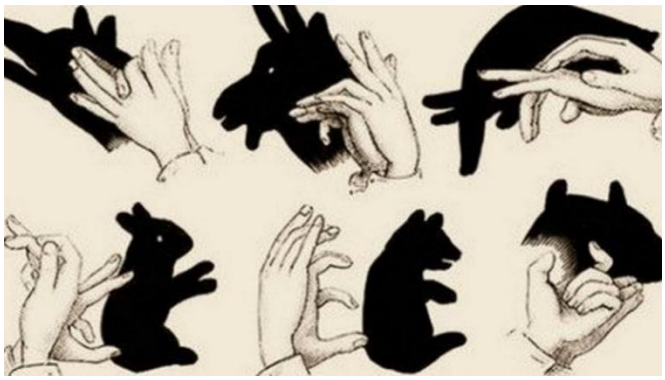
Techniques to generate non-photorealistic images started showing up in the 90s, giving artists a wider range of styles to select

- **Ancient Animation tools**

✓ **Shadow puppets**

Shadow puppets are figures that **are** placed between a light and a screen. Moving them creates the illusion of moving images on the screen. An experienced puppeteer can make

figures appear to walk, talk, fight and dance. **Shadow puppetry** is a popular form of entertainment in countries all over the world. **Shadow puppets** can be **made from** a wide variety of materials, though. Today, you might see **shadow puppets made** out of paper, plastic, wood or cloth.

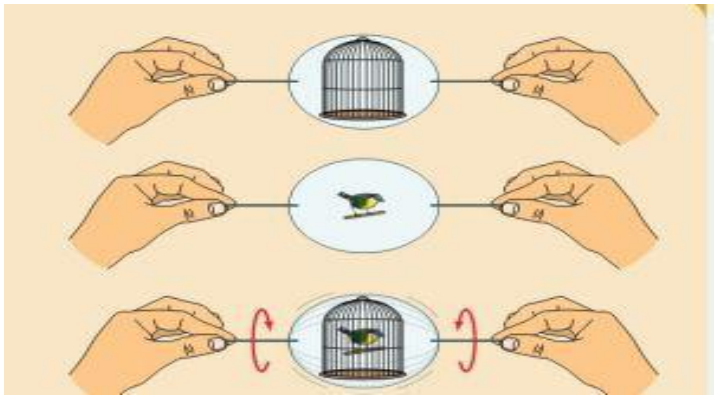


✓ **Flipbook**

A **flip book** or **flick book** is a book with a series of pictures that very gradually change from one page to the next, so that when the pages are turned rapidly, the pictures appear to animate by simulating motion or some other change. Flip books are often illustrated books for children, but may also be geared towards adults and employ a series of photographs rather than drawings. Flip books are not always separate books but may appear as an added feature in ordinary books or magazines, often in the page corners. Software packages and Websites are also available that convert digital video files into custom-made flip books

✓ **Thaumotrope**

A **thaumatrope** is an optical toy that was popular in the 19th century. A disk with a picture on each side is attached to two pieces of string. When the strings are twirled quickly between the fingers the two pictures appear to blend into one due to the persistence of vision.



✓ **Phenakistiscope**

The phénakisticope (better known as **phenakistiscope** or the later misspelling phenakistoscope) was the first widespread animation device that created a fluid illusion of motion. Like a GIF animation, it can only show a short continuous loop

✓ **Zoetrope**

A **zoetrope** is one of several pre-film animation devices that produce the illusion of motion by displaying a sequence of drawings or photographs showing progressive phases of that motion.

✓ **Photograph**

The word **photography** derives from the Greek photos ("light") and grapher ("drawing"). The term was coined by Hercules Florence, a French painter and inventor, who used it in his diary to describe the process. Photos is also the root of words such as photon or photophobia (fear of light)

Learning Outcome 1.2: Apply Principles and Types of Animation

- **The 12 Basic Principles of Animation**

1) Squash and Stretch

Squash and stretch is debatably the most fundamental principle. Look at what happens when a ball hits the ground. The force of the motion squashes the ball flat, but because an object needs to maintain its volume, it also widens on impact. This what's called squash and stretch. This effect gives animation an elastic life-like quality because although it may not seem like it, squash and stretch is all around you. All shapes are distorted in some way or another when acted upon by an outside force; it's just harder to see in real-life. Squash and stretch imitates that and exaggerates it to create some fun.

2) Anticipation

Imagine you're about to kick a soccer ball. What's the first thing you do? Do you swing your foot back to wind up? Steady yourself with your arms? That's anticipation.
Anticipation is the preparation for the main action. The player striking the soccer ball would be the main action, and the follow-through of the leg is well… the follow through.

3) Staging

When filming a scene, where do you put the camera? Where do the actors go? What do you have them do? The combination of all these choices is what we call staging.
Staging is one of the most overlooked principles. It directs the audience's attention toward the most important elements in a scene in a way that effectively advances the story.

4) Straight Ahead Action and Pose-to-Pose

These are two ways of drawing animation. Straight ahead action is where you draw each frame of an action one after another as you go along. With pose-to-pose, you draw the extremes – that is, the beginning and end drawings of action – then you go on to the middle frame, and start to fill in the frames in-between.

Pose-to-pose gives you more control over the action. You can see early on where your character is going to be at the beginning and end instead of hoping you're getting the timing right. By doing the main poses first, it allows you to catch any major mistakes early. The problem with it is that sometimes it's too neat and perfect

Straight ahead action is less planned, and therefore more fresh and surprising. The problem with it is that it's like running blindfolded… you can't figure out where you're supposed to be at any one time.

Mastering both techniques and combining them is the best approach to being a successful animator because then you can get both structure and spontaneity. And incidentally, this distinction is just as important in computer animation, where molding a pose at each key frame is the equivalent of making a drawing.

5) Follow-Through and Overlapping Action

When a moving object such as a person comes to a stop, parts might continue to move in the same direction because of the force of forward momentum. These parts might be hair, clothing, jowls, or jiggling flesh of an overweight person. This is where you can see follow-through and overlapping action. The secondary elements (hair, clothing, fat) are following-through on the primary element, and overlapping its action.

Follow-through can also describe the movement of the primary element though. If you land in a crouch after a jump, before standing up straight, that's follow-through.
Take a look at an example from a video we did for View Boost. Watch the sleeves of the "Cheese Jedi's" cloak when he swings his lightsaber. They move with the momentum of the action, but when it's over, the sleeves continue to go before settling to a stop.

6) Ease in, Ease Out

When you start your car, you don't get up to 60 mph right away. It takes a little while to accelerate and reach a steady speed. In animation speak, we would call this an Ease Out.

Likewise, if you brake, you're not going to come to a full stop right away. (Unless you crash into a tree or something.) You step on the pedal and decelerate over a few seconds until you are at a stand-still. Animators call this an Ease In.

Carefully controlling the changing speeds of objects creates an animation that has a superior believability.

7) Arcs

Life doesn't move in straight lines, and neither should animation. Most living beings – including humans – move in circular paths called arcs.

Arcs operate along a curved trajectory that adds the illusion of life to an animated object in action. Without arcs, your animation would be stiff and mechanical.

8) Secondary Action

Secondary actions are gestures that support the main action to add more dimension to character animation. They can give more personality and insight to what the character is doing or thinking.

9) Timing

Timing is about where on a timeline you put each frame of action. To see what this means in action, let's look at the classic animator's exercise: the bouncing ball that we saw earlier when we were talking about squash and stretch. (The reason this is a popular assignment is that there is a lot of wisdom to be gained from it!)

10) Exaggeration

Sometimes more is more. Exaggeration presents a character's features and actions in an extreme form for comedic or dramatic effect. This can include distortions in facial features, body types, and expressions, but also the character's movement. Exaggeration is a great way for an animator to increase the appeal of a character, and enhance the storytelling.

11) Solid Drawing

Solid drawing is all about making sure that animated forms feel like they're in three-dimensional space.

12) Appeal

People remember real, interesting, and engaging characters. Animated characters should be pleasing to look at and have a charismatic aspect to them; this even applies to the antagonists of the story.Appeal can be hard to quantify because everyone has a different standard. That said, you can give your character a better chance of being appealing by making them attractive to look at.

Play around with different shapes and proportions of characters to keep things fresh. Enlarging the most defining feature of a character can go a long way to giving the character personality. Strive for a good balance between detail and simplicity.

- **Animation types**

Traditional animation (2D, Cel, Hand Drawn)

Traditional animation usually refers to **animation** hand-drawn on paper. It was the process used for most of the productions throughout the 20th century. An animator draws the characters, layout and backgrounds on paper.An animator draws the characters, layout and backgrounds on paper. Each drawing in the animation would be slightly different than the one before it and the one following it, creating the illusion of movement when everything is put onto film. Examples Traditional Animation Software: Toon Boom Harmony, TVPaint

2D vector based animation

Nowadays there are new ways to create 2D animation using a 2D **digital puppets**. These are 2D characters which are built with a system of bones and controls that can be manipulated in a way similar to a 3D character rig. The difference between 2D rigged characters and hand-drawn characters can get a bit blurry. Programs like Toon Boom Harmony and Adobe Animate CC let you seamlessly mix and match hand-drawn animation with 2D puppet techniques, sometimes even within the same character.

3D computer animation (CGI, Computer animation)

3D, also referred to as **CGI** (computer generated imagery), is the most popular type of animation for **feature films** currently, and it's become common in TV and short films as well. This is also the same type of animation used to create digital characters for **live-action** films and animation for **video games**. Instead of drawn or constructed with clay, characters in 3D animation are **digitally modelled** in the program, and then fitted with a 'skeleton' that allows animators to move the models. Animation is done by posing the models on certain key frames, after which the computer will calculate and perform an interpolation between those frames to create **movement.** When the modelling and/or animation is complete, the computer will render each frame individually, which can be very time-consuming, depending on the quality of the images needed. A 3D animator will spend most of their time looking at curves that represent the movement of different body parts over time. Another big difference with 3D animation is that unlike traditional animation, the character's body parts are always present and should be taken to consideration. Example of 3D animation software: Autodesk Maya; Blender: Cinema 4D.

Motion graphics (Typography, Animated Logos)

Motion graphics focuses on making **dynamic and interesting presentations of moving text logos and basic illustrations.** Motion graphics can be both **2D** and **3D**, and you'll find them everywhere in commercials, explainer videos, sporting events, the news and other TV productions. Proper character animation is generally outside the scope of motion graphics, but many of the core animation principles apply to motion graphics too. The process of creating Motion Graphics depends on the programs used, since video editing softwares often have different UI or settings, but the idea is the same. Motion Graphics usually involves animating images, texts or video clips using key framing that are tweened to make a smooth motion between frames. Example of Motion graphics software: Adobe After Effects, Cinema 4D.

Stop motion (Claymation, Cut-Outs)

Stop motion is an animated filmmaking technique in which objects are physically manipulated in small increments between individually photographed frames so that they

will appear to exhibit independent motion or change when the series of frames is played back. Any kind of object can thus be animated, but puppets with movable joints (puppet animation) or plasticine figures (clay animation or Claymation) are most commonly used. Puppets, models or clay figures built around an armature are used in model animation. Stop motion has several variants, but they all involve **manipulating real world objects**. These objects are moved slightly, and photographed one frame at a time. When shown in sequence, these frames create the **illusion of movement. Example of stop animation software: Dragon frame, Stop Motion Studios**

Learning Outcome 1.3: Describe the production process of animation

- **2D animation production process:**

✓ **Creative development:**

Scripting

Script Writing. **Script** writing, sometimes called Screenwriting, involves creating an outline of all of the events taking place in an **animation**. This **means** detailing all of the audio such as dialogue, sound effects and music score

Storyboarding

A **storyboard** is a graphic organizer that consists of illustrations or images displayed in sequence for the purpose of pre-visualizing a motion picture, **animation**, motion graphic or interactive media sequence.

Animatic

An **animatic** is defined as series of images played in sequence, often with a soundtrack. In essence, it's an **animated storyboard**. **Animatic** are created by playing a series of images in order and changing the timing on each frame. Timings changes are used to create a sense of pace.

- **Production:**

Voice over recording

Voice-over (also known as off-camera or off-stage commentary) is a production technique where a **voice**—that is not part of the narrative (non-diegetic)—is used in a radio, television production, filmmaking, theatre, or other presentations. On most cases though, **voice** over will be recorded **first** by reading a script, then the **animation** will be **done** to follow the **animation**. Some producers, like Disney, also asks the actor to actually perform the action so they can **do** a better **voice** take, and record more than just a couple of takes of it.

Character creation

Character creation (also character generation or character design) is the process of defining a game character or other character. Typically, a character's individual strengths and weaknesses are represented by a set of statistics. Games with a largely fictional setting may include traits such as race and class. Games with a more contemporary or narrower setting may limit customization to physical and personality traits

Key animation

A **key animation is an act of** producing the principal **key** frames of an **animation**. Basically **key animation are** the essential frames that mark a distinct position or expression of a character in a particular scene. In other words, it is the structure of an animated scene.

lighting

Cinematic lighting is a film lighting technique that goes beyond the standard three-point lighting setup to add drama, depth, and atmosphere to the story. Cinematic lighting utilizes lighting tricks like bouncing light, diffusing light, and adjusting color temperatures.

Background painting

Background is called the matrix of a painting. Something that holds the foreground or main subject to our focus. Background painting is the process of animation by establishing the color, style, and mood of a scene drawn by an animation layout artist. The methods used can either be through traditional painting or by digital media such as Adobe Photoshop. Traditional methods involved painting entire production scenes for a television program or film. Current methods may involve painting primarily background keys or the establishing shot while production background artists paint the corresponding background paintings

Rendering

3D Character Animation renders may include photorealistic effects or non-photorealistic rendering. Rendering is the final process of creating the actual 2D image or animation from the prepared scene. This is the procedure where the computer compiles the animation work in video format which takes some time.

- **Post-Production**

✓ **Special effects**

Special effects (often abbreviated as SFX, SPFX, F/X or simply FX) are illusions or visual tricks used in the theatre, film, television, video game and simulator industries to simulate the imagined events in a story or virtual world.

✓ **Editing Sounding**

We describe sound editing as an art of producing great quality sounds for mixing, implementation and processing. In simpler words, sound editing is a laborious task of making noisy and lousy recordings sound good. It is one of the processes that make the project whole

According to Michael Geisler, “Sound effects play an important role in conveying action. Music helps express emotion.” This goes to show that adding sound effects to our animation gives life and meaning to the characters as it move, talk, cry, shout, scream and the like. ... It in 2D or 3D animation.

✓ **Color styling**

A **color styling is a process of** chooses the **colors** for characters, props, and effects in a **cartoon or animation**. It's a full time job because you have to do that for every single character, prop, or effect in every single lighting situation that happens in a show

✓ **Final rendering**

While rendering stills will allow you to view and save the image from the render buffer when it is complete, animations are a series of images, or frames, and are automatically saved directly out to a drive after being rendered. After rendering the frames, you may need to edit the clips, or first use the Compositor to do green-screen masking, matting, color correction, DOF, and so on to the images. That result is then fed to the Sequencer where the strips are cut and mixed and a final overlay is done. Finally, you can render out from the Sequencer and compress the frames into a playable movie clip.

✓ **Product delivery**

This the platforms by which you can save your animation. We can include the following:CD, DVD, Film, Games console, Internet, Kiosk, Mobile phone, PDA (personal digital assistant)

Learning Unit 2: Build 2D Character and Environment for Animation

Learning Outcome 2.1: Describe illustration design software

- **Categories of Illustration design software:**

✓ **Vector based software:**

Vector based programs are applications that allow its user to create and manipulate digital images through commands, both geometric and mathematical, resulting in a different type of design creation than a drawing that is made with clicks and strokes

Ex: - Adobe illustrator

- Inkscape

✓ **Pixel based software**

Raster images are created with **pixel-based programs** or captured with a camera or scanner. They are more common in general such as jpg, gif, png, and are widely used on the web. Vector graphics are created with vector **software** and are common for images that will be applied onto a physical product.
Ex: - Adobe Photoshop

- **Compatibilities of illustration design software with hardware:**

✓ **Installation of illustration design software**

✓ **Adobe illustrator**

The following are the minimum requirement to install Adobe Illustrator on Windows Operating System:

- RAM of the System needs to be minimum 2GB for 32 Bits and 4GB for 64 bits
- The processor recommended is Multicore Intel Processor with 32bit or 64-bit support. An AMD Athlon 64 processor will also work for installing Adobe Illustrator.
- An Operating System with Windows 7 with Service pack 1 installed.
- The resolution of the monitor must be 1024 X 768 minimum.
- Minimum 2GB of Hard disk is required for the program installation. A Graphics Card is also recommended before installation
- An OpenGL 4.x is also recommended for the smooth working of the program.

The following are the minimum requirement to install Adobe Illustrator on MAC Operating System

- 4GB of RAM is required
- MAC OS version 10.13, 10.12. 1014 is the minimum required for smooth workings of the software
- A Multicore Intel Processor of 64 bit is also a minimum requirement for Adobe Illustrator to work on Mac OS
- A 2GB of RAM is minimum required for installation of the product, while an extra space is required after installation
- An OpenGL 4.0 or Greater is required, while it is also recommended to have a minimum of 1GB VRAM Space to use GPU Actively
- A resolution of 1024 X 768 is also required.
- A running Internet Connection for licensing and registration is also recommended.

- ✓ **Adobe Photoshop**

  Adobe Photoshop CS6 - Windows Install

  1. Open the **Photoshop Installer**. Double-click Photoshop_13_LS16.
  2. Choose Location for Download. Click Next. ...
  3. Allow the **Installer** to Load. This may take several minutes.
  4. Open the "**Adobe** CS6" Folder. ...
  5. Open the **Photoshop** folder. ...
  6. Open the **Adobe** CS6 folder. ...
  7. Open the Set Up Wizard. ...
  8. Allow Initializer to Load.

- ✓ **Inkscape**

  1. Using a Web browser, go to the Inkscape website's download page for Windows and select the best download for your system. If you are unsure if you need the 32-bit or 64-bit version, read the section about Identifying Your System Architecture first.
  2. Select an installation method from the available choices (exe, msi, portable) and wait for it to download. You should either see a window giving you the option to save the file or a pop-up will appear at the bottom of your web browser with the file's name and a timer stating how long until the download is complete.
  3. Once the download is complete, either click on the file in the lower left corner of your screen to start the installation process or, if need be, go to your file explorer and open your downloads folder and select the file from there. It should be the first file at the top of the folder.
  4. If you get a User Account Control pop-up from Windows similar to the following one click "OK" and wait for the Inkscape installation program to start.
  5. Select what language you want to use during the installation and click OK. Then click next on both the following welcome screen and license agreement screen.
  6. On the Choose Components screen you can select which features you want to install or not install. In most cases the default options should provide all that the user needs, so click next.

7. On the Choose Install Location window leave the destination folder as C:\Program Files\Inkscape and click Install unless you want Inkscape to be installed in a specific location on your computer.
8. Once you click Install, a progress bar will appear showing how long it will take for your program to install.
9. After the installation is complete, click Finish and the installer will automatically open Inkscape for you and you are ready to begin working with Inkscape.

- **Description of Size and interface's resolution**

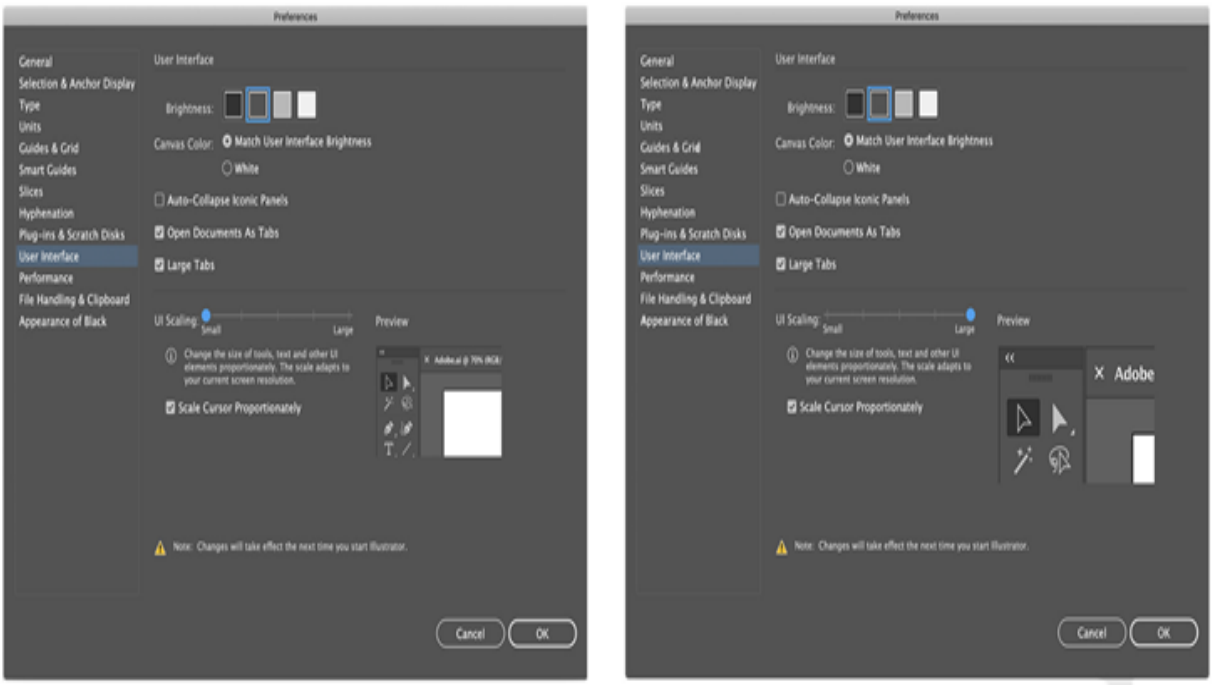
In order to handle an increase in data flow, we need wider interfaces, higher resolution interfaces, higher bandwidth interfaces, with those not in our community.

To survive, interfaces must quickly flow from spaces of high-resistance and poor usability to spaces that reduce the number of interface changes needed to get to relevant data.

1) Environments are becoming aware of relevant information, and are able to pull context-aware data into play when necessary.

- (Windows) Choose Edit > Preferences > User Interface.

- (macros) Choose Illustrator > Preferences > User Interface.



2) Adjust the UI Scaling slider. A preview of the scaled UI is displayed in the Preferences dialog box.

3) Select the Scale Cursor Proportionately option to scale the cursor icons in proportion to the UI.

4) To apply this setting, relaunch Illustrator. If you do not relaunch Illustrator, the changes will take effect the next time you launch Illustrator.

- **Install software utilities**

✓ **DirectX**

Microsoft *DirectX* is a collection of application programming interfaces (APIs) for handling tasks related to multimedia, especially game programming and video, on Microsoft platforms. ... *Direct3D* is also used by other software applications for visualization and *graphics* tasks such as CAD/CAM engineering

To identify your graphics driver in a DirectX* Diagnostic (DxDiag) report:

1. Start > Run (or Flag + R) Note: Flag is the key with the Windows* logo on it.
2. Type DxDiag in the Run Window.
3. Press Enter.
4. Navigate to the tab listed as Display 1.
5. The driver version is listed under the Driver section as Version.

✓ **Drivers**

Before the GPU can be used for intensive workloads like gaming, and graphics, you need to get new drivers installed so Windows and software can effectively communicate with the card

Graphics device drivers are written for specific hardware to work within a specific operating system kernel and to support a range of APIs used by applications to access the graphics hardware. ... The driver is made up of a compiler, a rendering API, and software which manages access to the graphics hardware.

Intel HD Graphics Driver is responsible for running your graphics, your display. Without it, your screen would be black and you would never be able to see anything. If you did uninstall it, it might use the standard VGA adapter driver, which would still take up some space but your resolution would be terrible.

✓ **Antivirus**

Antivirus softwares are programs that help protect your computer against most viruses, worms, Trojan horses, and other unwanted invaders that can make your computer "sick." Viruses, worms, and the like often perform malicious acts, such as deleting files, accessing personal data, or using your computer to attack other

If you're running Windows, macOS/OS X or Android, you absolutely do need the best antivirus software. ... There's no good reason not to have it: Many AV programs have little system-performance impact, and many good ones are free.

Example of best antivirus: Bitdefender, McAfee, BullGuard, Norton Lifelook, Kaspersky, Avasta

Learning Outcome 2.2: Trace and edit character and environment

- **Character design details**

✓ **Attributes and proportions**

Apart from the story aspect of a character, the design aspect plays a very important role. The shapes & volumes used while designing the character and the poses & expressions of a character; all this information helps us to create the right attitude for the character design.

An attribute of a character refers to its characteristics. One has to keep in mind how the character is going to perform in the film and its behavior in the story. Drawing a character, keeping the above things in mind; will add more life to the character.

Some of the basic things that one needs to know about the characters are:

- **Age**
- **Moods** and
- **Behaviors**patterns (whether the character is happy, excited, sad or evil).

  Once we know about this information we can make the audience connect with our character.Few reminders:

- While drawing a character one of the most important aspects is its **proportions**. What is the proportion of your character in comparison to the world that he belongs to?
- The silhouette of a character and the **shapes** used to draw the character defines the volumes of our character.
- Also the **volumetric study** of a character is very important from the animation point of view as well as it becomes a reference for the animator to keep the consistency in his drawings while designing the character several times.

✓ **Expressions**

A character's face is an index of his personality. Facial expressions are the key to express emotions apart from body language. Technically, the face has many numbers of muscles and combinations of these muscles make an expression.

When a character is happy, sad, cheerful, angry, scared or shocked the face literally morphs and creates those emotions using the combination of eyes and mouth shapes. In our face the three major elements that helps express an emotion effectively are eyes, eyebrows and mouth.

• While trying to draw a characters face we can accentuate the emotions by exaggerating the proportions and going to the extremes of one's face.

• Having a reference or a mirror by your side is always helpful for drawing the expressions correctly.

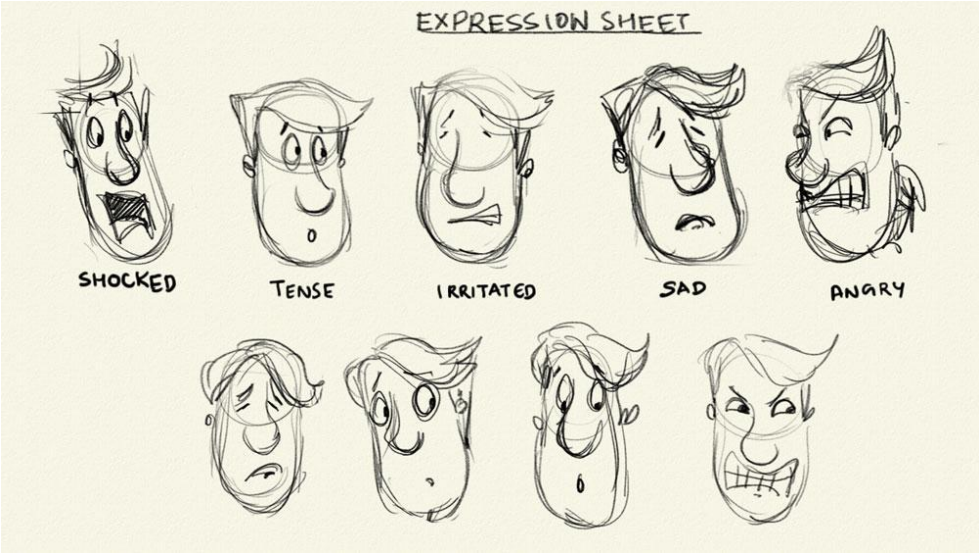


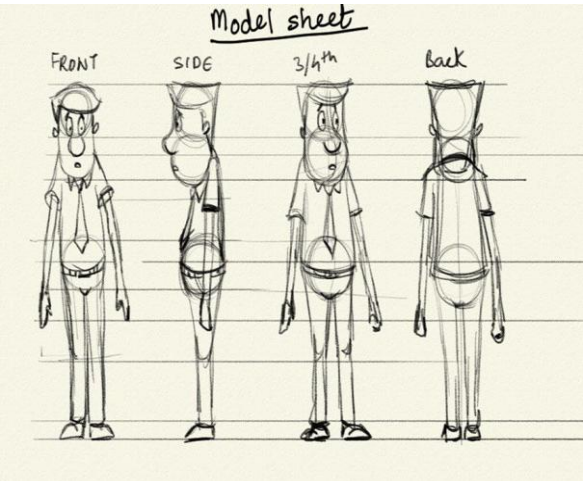
Image for Expression

✓ **Model sheet**

A ‘Model Sheet’ is a reference sheet of a character in which we draw a front profile, side profile, 3/4th view and a back view of the character. This chart helps us know the proportions, gestures, appearances and the way our character looks from various angles.

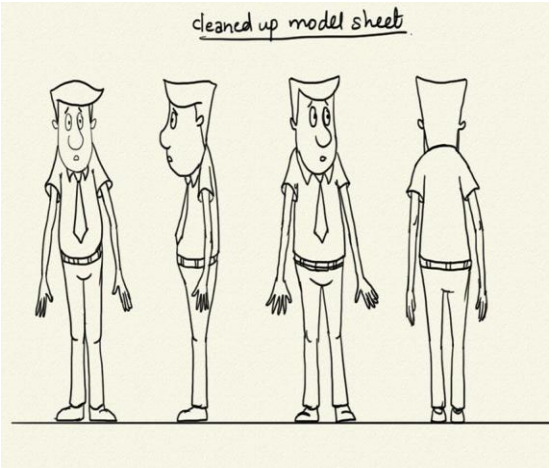
• It’s a character designer’s job to make a ‘cleaned up’ model sheet before it is given to the animator.

• This character chart will help the animator draw his character several times keeping the size, form and the volume of the character consistent throughout the film.



Images for Model sheet

✓ **Poses and gestures**



To draw a character and make it act is the most important and exciting part of the animation process. Before animating a character, one should know about the character’s behaviour which generally comprises of:

• How the character responds to various situations,

• How he poses himself and

• what are the gestures he makes to convey an action.

While drawing the poses and gestures keeping the following things in mind will help:

1. The line of action that follows his body.

2. The arcs while he is doing an action.

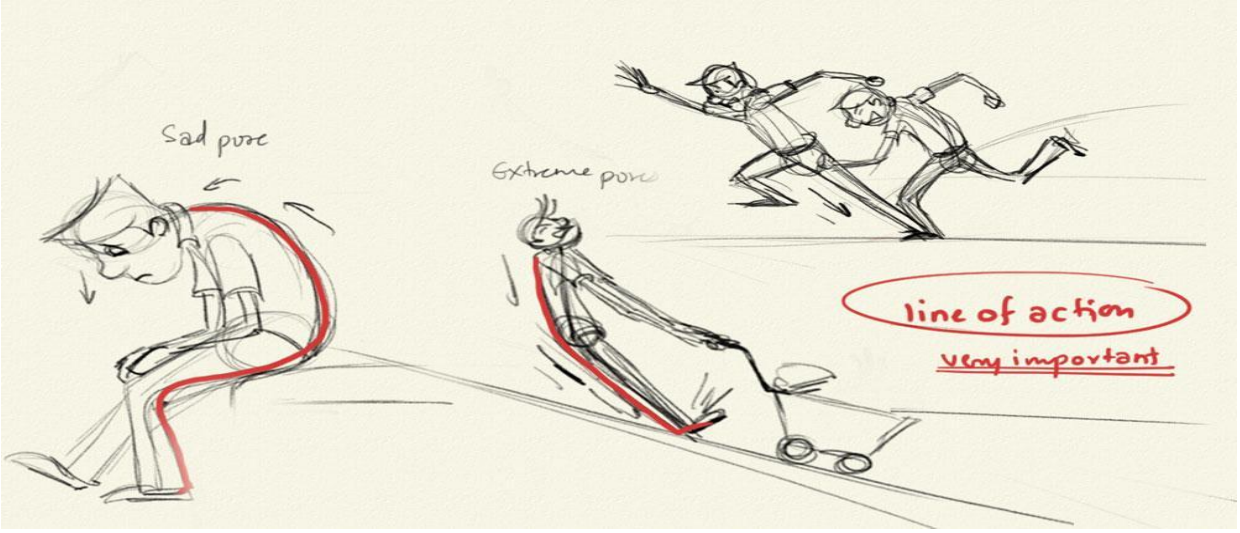
3. The balance and weight shift that happens while he pauses or does a small change in his gestures.

It's advisable always to act out the performance as it becomes a good reference for the posing.

• Knowing every detail of your character will help you spot small nuances while animating the character.

• A small change in gesture will speak a lot about the character's actions.

• Keeping an action pose in mind while drawing will help in knowing the body dynamics and then it becomes easier for the animator to know how the body of the characters behaves.



✓ **Colors**

Colors add life to a visual and deciding upon a color scheme for a character will indirectly decide the mood of the character and the scene.

So when we start with coloring a character we need to keep the following things in mind:

- **Our character's skin tone:**

  Which will be derived from the place he belongs to.

- **Color for clothes and accessories:**

  Situation dependent and also use reference for choosing the colors.

- **Swatches:**

  Once the colors for each element of the character are finalized a color swatch is made which is a palette of colors of the character.

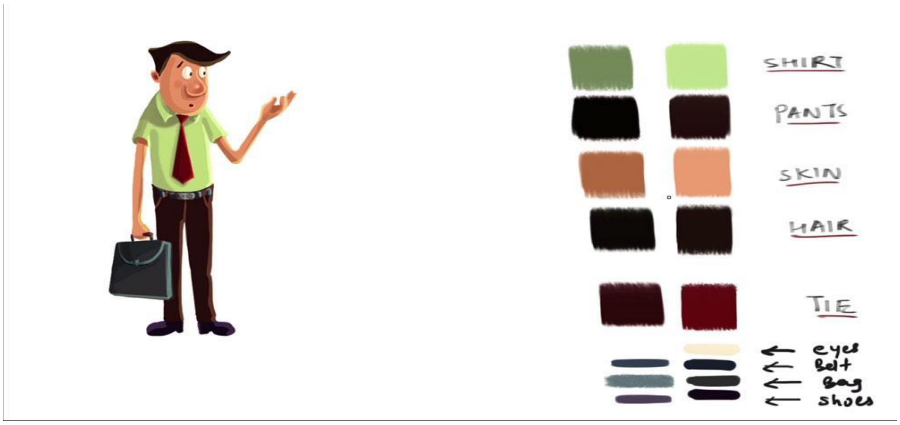
- **Time of the Day (shadow):**

  The color palette will vary according to the time of the day or lighting of the scene. Hence, separate color swatches should be made according to the time and space of the shot. Once this is done a color reference model is made which is basically a character completely filled with flat color tones. Also, there are three aspects in tonal values:

  • Midtones,
  • Shadows and
  • Highlights.

  So while deciding the color reference model, the colors for the highlights (lighter areas) and shadows (darker areas) are defined. Usually for cartoon animation two shades (Midtones and Highlights) are easier to work on while coloring.

  The more detailed the coloring is, the tedious the process of ink and paint becomes. Once the color model is ready it is sent to the ink and paint department for coloring the cleaned up shots.



- **Creation of Project**

✓ **Naming of project files**

Before you start creating your project you need give your Project a name which will identify it from others

✓ **Selection of location**

After naming the project it is also important to choose the location to which you will save your animation project

✓ **Set artboard**

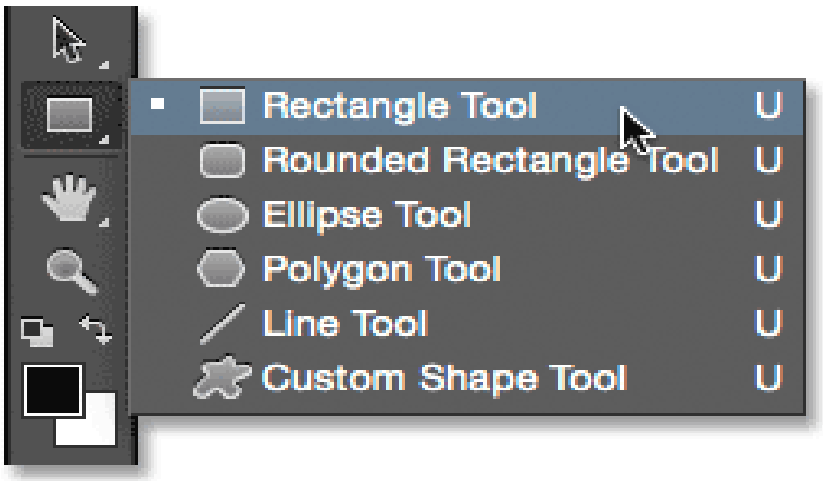
The artboard is the “canvas” that you create your artwork on in Adobe Illustrator. You can make it any size you like, and can create multiple artboards. Illustrator is a very fluid program, meaning that you can move art on or off artboards. In the Tools panel is a dedicated tool called the Artboard tool (Shift-O). Activating the Artboard tool puts Illustrator into artboard editing mode. Once activated, the artboard has a bounding box, grab handles, crop marks, and a nameplate appearing with it in the workspace.

- **Creation of shape Vectors**

✓ **The rectangle tool**

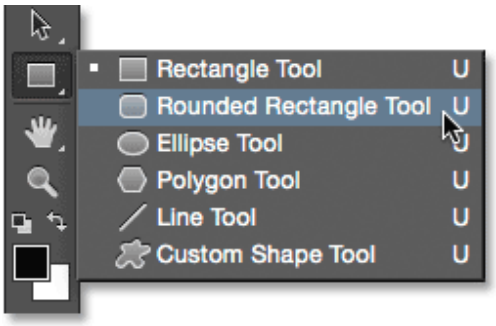
How to choose a fill and stroke color and how to change the appearance of the stroke, let's learn how to actually draw vector shapes! We'll start with the first tool in the list, the **Rectangle Tool**. I'll select it from the Tools panel:

The Rectangle Tool lets us draw simple four-sided rectangular shapes. To draw one, start by clicking in the document to set a starting point for the shape. Then, keep your mouse button held down and drag diagonally to draw the rest of the shape. As you drag, you'll see only a thin outline (known as the *path*) of what the shape will look like:

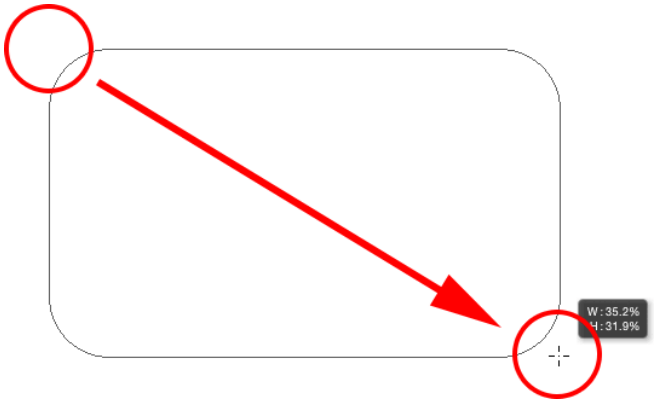


✓ **The Rounded Rectangle tool**

The Rounded Rectangle Tool is very similar to the standard Rectangle Tool except that it lets us draw rectangles with rounded corners. We control the roundness of the corners using the **Radius** option in the Options Bar. The higher the value, the more rounded the corners will appear

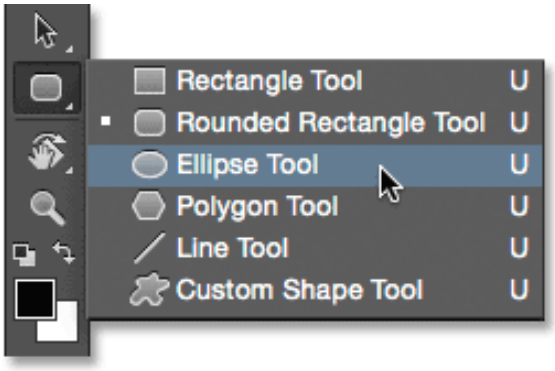


Once you've set your radius, drawing a rounded rectangle is exactly the same as drawing a normal rectangle. Start by clicking inside the document to set a starting point for the shape, then keep your mouse button held down and drag diagonally to draw the rest of it. Just as we saw with the Rectangle Tool, Photoshop will display only the path outline of the shape as you're dragging

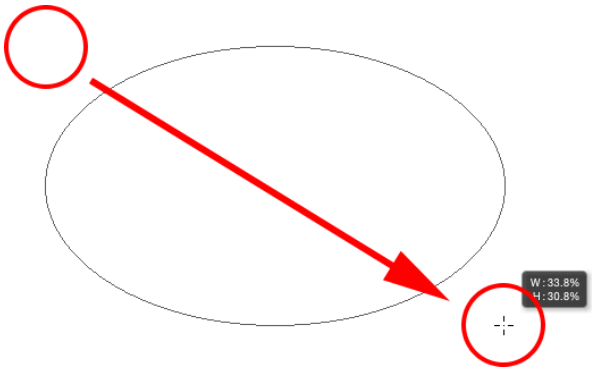


✓ **The Ellipse Tool**

Photoshop's **Ellipse Tool** lets us draw elliptical or circular shapes. I'll select it from the Tools panel:

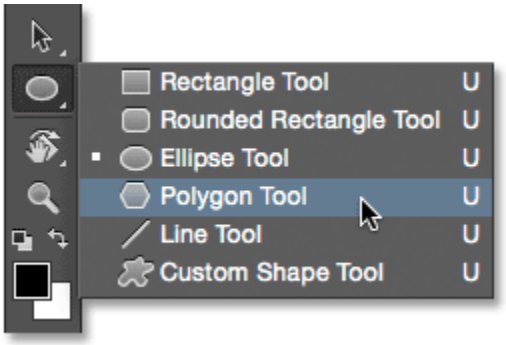


Just as with the other shape tools we've looked at, to draw an elliptical shape, click inside the document to set a starting point, then keep your mouse button held down and drag diagonally to draw the rest of it:



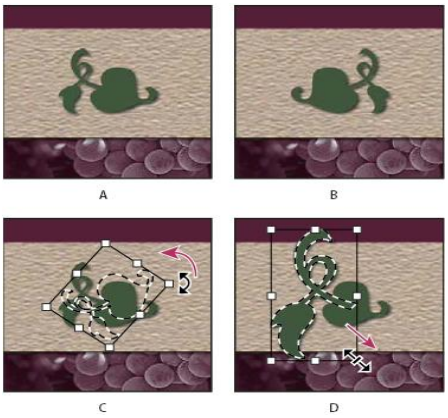
✓ **The Polygon Tool**

The **Polygon Tool** is where things start to get interesting. I'll select it from the Tools panel: While Photoshop's Rectangle Tool is limited to drawing four-sided polygons, the Polygon Tool lets us draw polygonal shapes with as many sides as we like! It even lets us draw stars, as we'll see in a moment



✓ **Free transform tool**

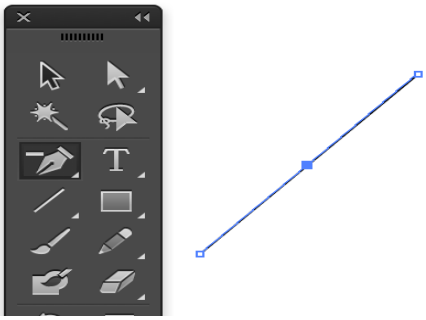
Transforming scales, rotates, skews, stretches, or warps an image. You can apply transformations to a selection, an entire layer, multiple layers, or a layer mask. You can also apply transformations to a path, a vector shape, a vector mask, a selection border, or an alpha channel. Transforming affects image quality when you manipulate the pixels. To apply non-destructive transformations to raster images, use Smart Objects. (See Work with Smart Objects.) Transforming a vector shape or path is always non-destructive because you're only changing the mathematical calculations producing the object.



✓ **Deleting Anchor points**

To delete an anchor point:

- Select the Pen tool or the Delete Anchor Point tool and click over the anchor point.
  Note: The Pen tool changes to Delete Anchor Point tool as you position it over an anchor point.
- Select the point with the Direct Selection tool and click Remove Selected Anchor Points in the Control panel.



- **Tracing of imported sketches with tool**

Pen tool

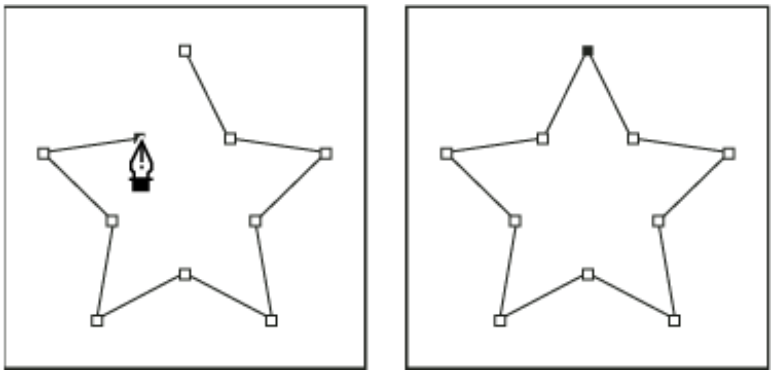
1. Select the Pen tool ().
2. Position the Pen tool where you want the straight segment to begin, and click to define the first anchor point (do not drag)

Notes:

- The first segment you draw will not be visible until you click a second anchor point.
- If direction lines appear, you've accidentally dragged the Pen tool; choose Edit > Undo, and click again.

3. Click again where you want the segment to end (Shift-click to constrain the angle of the segment to a multiple of 45°).
4. Continue clicking to set anchor points for additional straight segments.The last anchor point you add always appears as a solid square, indicating that it is selected. Previously defined anchor points become hollow, and deselected, as you add more anchor points.
5. Complete the path by doing one of the following:
    - To close the path, position the Pen tool over the first (hollow) anchor point. A small circle appears next to the Pen tool pointer when it is positioned correctly. Click or drag to close the path.
    - To leave the path open, Ctrl-click (Windows) or Command-click (macOS) anywhere away from all objects.

- To leave the path open, you can also select a different tool, or choose Select > Deselect. You can also simply press Enter or Return to leave the path open.

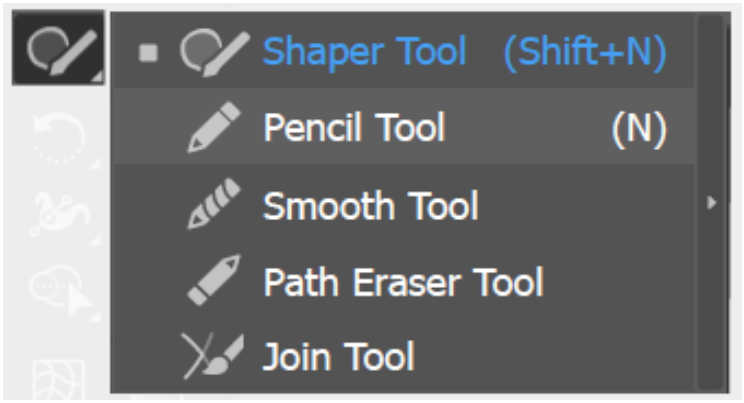


Pencil tool

The Pencil tool lets you draw open and closed paths as if you were drawing with a pencil on paper. It is most useful for fast sketching or creating a hand-drawn look. Once you draw a path, you can immediately change it if needed.

Anchor points are set down as you draw with the Pencil tool; you do not determine where they are positioned. However, you can adjust them once the path is complete. The number of anchor points set down is determined by the length and complexity of the path and by tolerance settings in the Pencil Tool Preferences dialog box. These settings control how sensitive the Pencil tool is to the movement of your mouse or graphics-tablet stylus.

- **Brush tool**



1. Click and hold the Shaper tool ( ). Select the Pencil tool

2. Position the tool where you want the path to begin, and drag to draw a path. The Pencil tool ( ) displays a small x to indicate drawing a freeform path.

   As you drag, a dotted line follows the pointer. Anchor points appear at both ends of the path and at various points along it. The path takes on the current stroke and fill attributes, and remains selected by default.

- **Click and drag technique**

First, **press** V to get the Move tool, then in the Options Bar turn on the checkbox for Auto Select Layer. Now, **click-and-drag** within your image and any layer that falls within your selection becomes active. Now you can move them as one unit.

- **Click and convert technique**

Move the Direct Selection tool over the **anchor point** until the pointer displays a hollow square for unselected and filled square for selected **paths** in a magnified state, and then click the **anchor point**. Shift-click additional **anchor points** to select them. Select the Lasso tool and drag around the **anchor points**. This will convert tool line

Learning Outcome 2.3: Export the character and the environment

- **Output file format determination**

✓ **Raster Image format**

When you talk about **pixels**, you really are talking about raster images. Raster images can be low to high quality images containing pixels. What we save as a bitmap are all photographic images and, for instance, files displayed on web pages (with the exception of Flash animations, which may combine both raster and vector elements).

- **JPG/JPEG** (acronym for Joint Photographic Experts Group which created the format)
  JPG/JPEG is the most popular raster graphic file format using effective compression algorithms which enable you to achieve a small file size without quality loss (or with acceptable quality loss). When you save a JPG file you can select a compression level by adjusting the file quality to file size ratio.
  JPG is most commonly used on web pages (along with GIF and PNG).

- **GIF** (Graphics Interchange Format)
  A very well-known format is also GIF. As opposed to JPG, it is rather not used to save photos but graphics/illustrations. The reason for that is the limited number of colours, i.e. 256, whereas JPG supports a full 24-bit palette (16.7 m colours).
  One of the colours in the palette of a GIF file can be transparent, which is why it is possible to see the background in selected places of the rectangular graphic area.

- **PNG** (Portable Network Graphics)
  The third of the "Internet" bitmap image formats, which is still relatively not much popular. From historical perspective, it is a successor of the GIF format. Most liked by the creators of web pages because of its intelligent transparency handling: you can round off the edges meeting the background and use such effects as shadows.

- **TIF/TIFF** (Tagged Image File Format)

  A format used basically only for printing. As opposed to JPG, only lossless compression is used in TIF files, which means their sizes are usually much larger. Instead, they contain much more additional information (paths, alpha channels, comments) that is used by printing devices.

- **BMP** (BitMaP)

  The basic raster format, which is now rarely used. In practice, it is a pure bitmap, i.e. a list of pixels with their colours being defined and with minimum compression. BMP files are unnecessarily large and additionally, they are not displayed by all Internet browsers.

- **Vector Image format**

  ***Vector* graphics** contains shapes composed of curves (vectors) and fillings. That is why projects delivered in a vector form can be freely scaled (also up) with no harm to their quality. Vector formats are the best for logos: such a file may be used both on a business card and on a billboard.

  - **EPS** (Encapsulated PostScript)

    A universal format supported by most vector graphics programs. Visual identification elements, such as logos, are best to be saved in this format.

  - **AI** and **CDR**

    Frequent vector files created by two most popular vector graphics programs, Adobe Illustrator and Corel Draw respectively. The most recent versions of the programs can import files of their “competitor”.

  - **SVG** (Scalable Vector Graphics)

    A vector file format created with the Internet in mind and supported by Internet browsers (some require that an add-on be installed). Despite that it is still not much popular.

A specific format is **PDF** (Portable Document Format); on the one hand, it is rather a document than graphic format but on the other hand, it may include both vector and raster elements and additionally, it is very versatile. That is why it is often used for printing and especially digital printing.

Learning Unit 3: Create 2d Digital Animation

Learning Outcome 3.1: Describe animation software

- **Types of 2D animation software**

✓ **Facial animation software**

Facial animation software is a technology that scans the face and detects facial expressions to recreate them as a computer graphic. Facial animation software uses the device's camera to scan the shape of a person's face, eyes, and mouth, and projects expressions and emotions onto a digital cartoon character. The following are Examples

CrazyTalk

CrazyTalk is an easy-to-use facial animation software with which you can make great talking animations – with 3D characters or 2D characters. The program allows you to upload a pre-recorded audio or even text and then, the character lip-syncs the words accordingly. You can play with the characters' look and apply mouth, head, and eye movement.

Toom Boom animation

Toon Boom is an innovative piece of software that allows you to create animation and storyboarding. **Toon Boom's** software lets you design and create professional, industry-grade graphics. The Canadian-based company has been **used** by many well-known animation producers such as Disney, Nickelodeon, and Warner Bros.

✓ **Video animation software**

Adobe After Effect

Adobe After Effects is a digital visual **effects**, motion graphics, and compositing application developed by **Adobe** Systems and used in the post-production process of film making, video games and television production. Among other things, **After Effects** can be used for keying, tracking, compositing, and animation

- **OpenToonz**

Software for the production of 2D animation. Based on the software "Toonz", developed by Digital Video S.p.A. in Italy, **OpenToonz** has been customized by Studio Ghibli, and used for the creation of its works for many years. **OpenToonz** can be used free of charge for both commercial and non-commercial projects

- **Tvpaint Animation**

TVPaint Animation is a 2D software based on bitmap technology. ... Feel free to mix **animation** on paper and digital **animation**, do rotoscopy, use different software or simply make your project with **TVPaint Animation** entirely.

✓ **Web animation Software**

- **Adobe Animate**

Adobe Animate (formerly Adobe Flash Professional, Macromedia Flash, and FutureSplash Animator) is a multimedia authoring and computer animation program developed by Adobe Systems. ... The program also offers support for raster graphics, rich text, audio and video embedding, and ActionScript scripting.

- **Adobe Fireworks**

Adobe Fireworks (formerly Macromedia **Fireworks**) is a discontinued bitmap and vector graphics editor, which **Adobe** acquired in 2005. **Fireworks** is made for web designers for rapidly creating website prototypes and application interfaces.

✓ **Hand drawn animation software**

- **Pencil 2D**

Pencil2D is an **animation**/drawing software for macOS, Windows, and Linux. It lets you create traditional hand-drawn **animation** (cartoon) using both bitmap and vector graphics. **Pencil2D** is free and open source.

- **Animation paper**

When animating, you often find that you are working with four or more layers of **paper**. A level of translucency is necessary to see all the drawings. Professional **animation paper** is made with this in mind. It also comes in different sizes. Most professional **animation paper** comes with 3 punched holes.

- ✓ **Vector Based 2D animation**
- **Adobe Edge Animate**

Adobe Edge Animate CC is a brand new software tool that allows everyone from beginners to expert web designers to create animated web content.

- **Adobe Character Animator**

Adobe Character Animator is an Emmy-award-winning desktop application software product that combines live motion-capture with a multi-track recording system to control layered 2D puppets drawn in Photoshop or Illustrator.

- **Moho anime studio**

Moho (previously marketed as **Anime Studio**) is a proprietary vector-based 2D **animation** application distributed by Smith Micro Software. **Moho** is available for Windows and macOS in English, German, Japanese, and Spanish. (A Linux Version is no longer available).

- **Synfig studio**

Synfig is a powerful, industrial-strength vector-based 2D animation software package, designed from the ground-up for producing feature-film quality animation with fewer people and resources. Open-source 2D vector graphics solution that provides vector tweening, various layers and filters to create any **animation** and artwork.

• Compatibilities of animation software with hardware

✓ System requirements

Minimum Requirements

In a lot of ways, an animation battle station is a lot like a gaming computer. You need fast graphics rendering and a lot of processing power. To that end, the things you'll want to focus on:

RAM - You'll want at least 8 GBs. I'm running 4 right now and it is slow. Optimally, you'll run 16 GBs or more. More is always better when it comes to RAM. You can never have too much RAM.content

Processor - i5/i7 or AMD FX. Animation is one of the few areas where the i7 really gets to shine. The multithreading helps divide rendering tasks into smaller, more manageable chunks. They're still much more expensive, though, so gaming-level processors should do you fine.

Graphics card - Does a lot of the animation heavy lifting so your processor doesn't have to. If you're working with Maya for example;" Most other programs shouldn't run into major issues. I'd suggest something in the GTX-1060+ range. The bigger it is the better graphics you get.

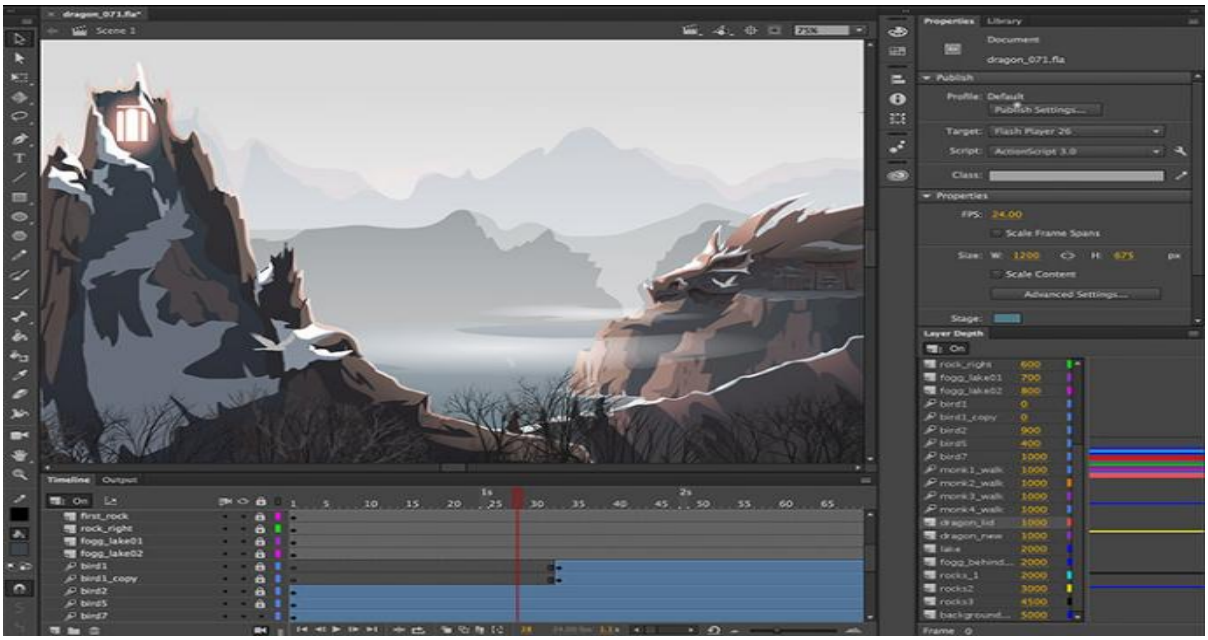
✓ Installation of animation software

Installation of Adobe animate

Adobe Animate CC Features

- Adobe Animate CC Simple & Fast Download!
- Works with All Windows (64/32 bit) versions!
- Adobe Animate CC Latest Version!
- Fully compatible with Windows 10

Adobe Animate CC App Preview



How to Install Adobe Animate CC on Windows 10

There are so many ways that we can do to have this app running into our Windows OS. So, please choose one of the easy method on below

Method 1: Installing App Manually

Please note: you should download and install programs only from trusted publishers and retail websites.

1. First, open your favourite Web browser, you can use Brave Browser or any other Browser that you have
2. Download the Adobe Animate CC installation file from the trusted link on above of this page
3. Or you can download via this link: Download Adobe Animate CC
4. Select **Save** or **Save as** to download the program. Most antivirus programs like Windows Defender will scan the program for viruses during download.

- If you select **Save**, the program file is saved in your Downloads folder.
- Or, if you select **Save as**, you can choose where to save it, like your desktop.

5. After the downloading Adobe Animate CC completed, click the .exe file twice to running the Installation process
6. Then follow the windows installation instruction that appear until finished
7. Now, the Adobe Animate CC icon will appear on your Desktop
8. Click on the icon to running the Application into your windows 10 pc/laptop.

Installation of Adobe after effect

Installing the software

Before installing Adobe After Effects software, review the complete system requirements.
In addition to the full version of Adobe After Effects, you can also install additional copies on additional computers to use as After Effects render engines to assist with network rendering.

Installing a render-only instance of Adobe After Effects CC

Before you start:

If you have installed Creative Cloud applications on two computers, sign out of one of them by opening any of the applications and choosing Sign Out from the Help menu.

You can sign back into Creative Cloud on this computer after the render-only instances of After Effects are installed.

To install a render-only instance of After Effects CC, do the following:

1. Go to the product page to download and install After Effects CC.
2. When the installation is complete, start After Effects.
3. Choose Sign Out from the Help menu.
4. Quit After Effects.
5. Create and place the ae_render_only_node.txt file as described in this blog post.

Limitations of the trial version

The trial version of After Effects includes all of the codecs that are included with the full version of After Effects. This means that you can import and export to all of the supported file formats using the trial version.

The trial version of After Effects also includes the Key light plug-in, mocha-AE, mocha shape, Cycore (CC) effects, and Color Finesse.

If your installation of After Effects is missing some third-party components, contact your system administrator to ensure that all licensed components have been installed correctly.

Activate the software

A single-user retail license activation supports two computers. For example, you can install the software on a desktop computer at work and on a laptop computer at home.

For more information on product licensing and activation, see the Read Me file or go to the Adobe website

Learning Outcome 3.2: Create 2D digital animation project

- **Adobe animate new project creation**

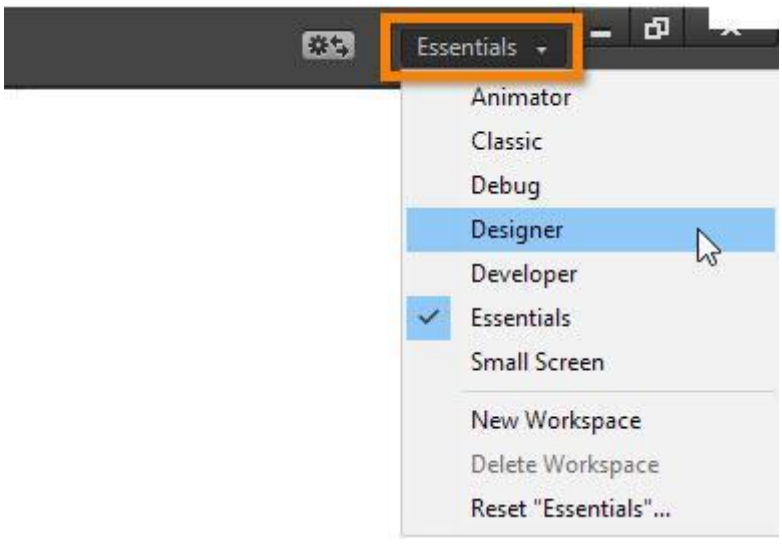
Setup

Workspace

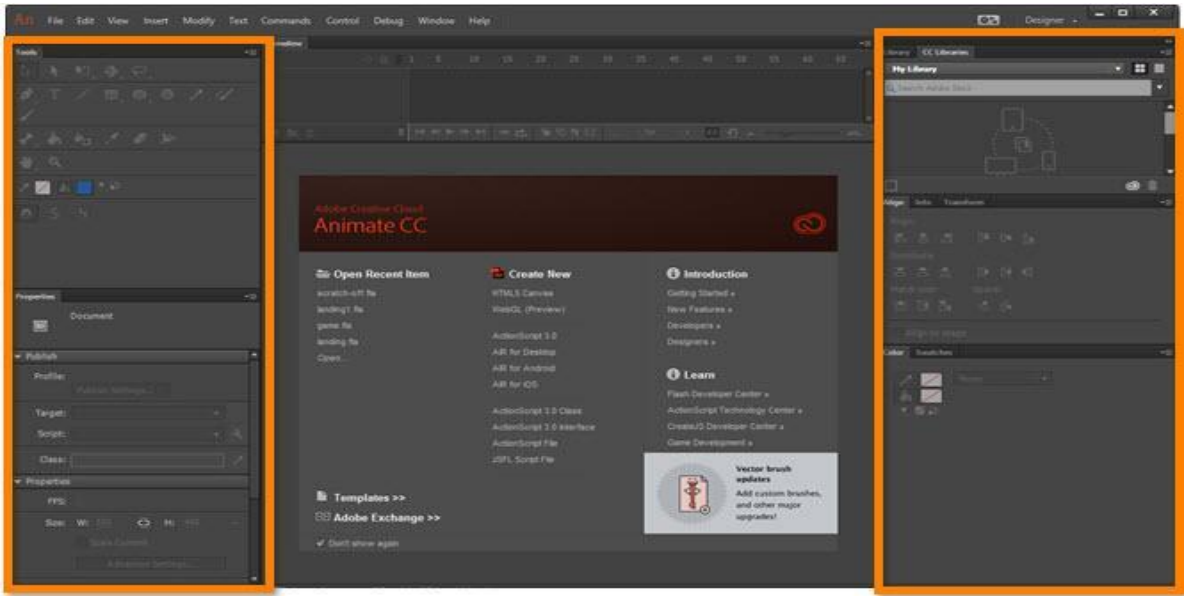
You create and manipulate your documents and files using various elements, such as panels, bars, and windows. Any arrangement of these elements is called a *workspace*. The workspaces of the different applications in **Adobe Creative Suite 5** share the same appearance so that you can move between the applications easily. You can also adapt each application to the way you work by selecting from several preset workspaces or by creating one of your own.

1. The default setting shows panels appearing on a "dock" at the right of the Animate window. The panels are arranged into three columns. At the far right is the Tool Panel. Next to it is an expanded column of panels. To the left is a column showing only panel icons

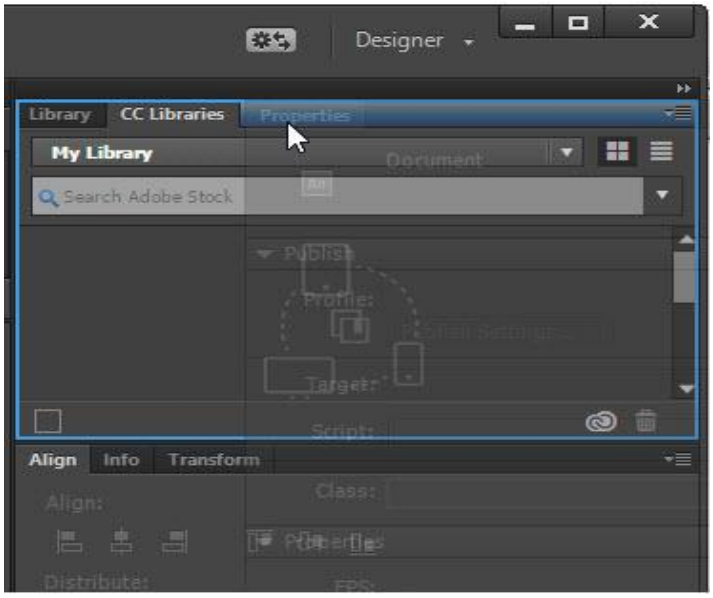
2. Animate has a lot of panels, so like many Adobe design programs, there are built-in "workspaces" that activate different configurations of panels based on task. The Workspace menu can be accessed in the menu bar above the panel dock. For this tutorial, I'll choose Designer.



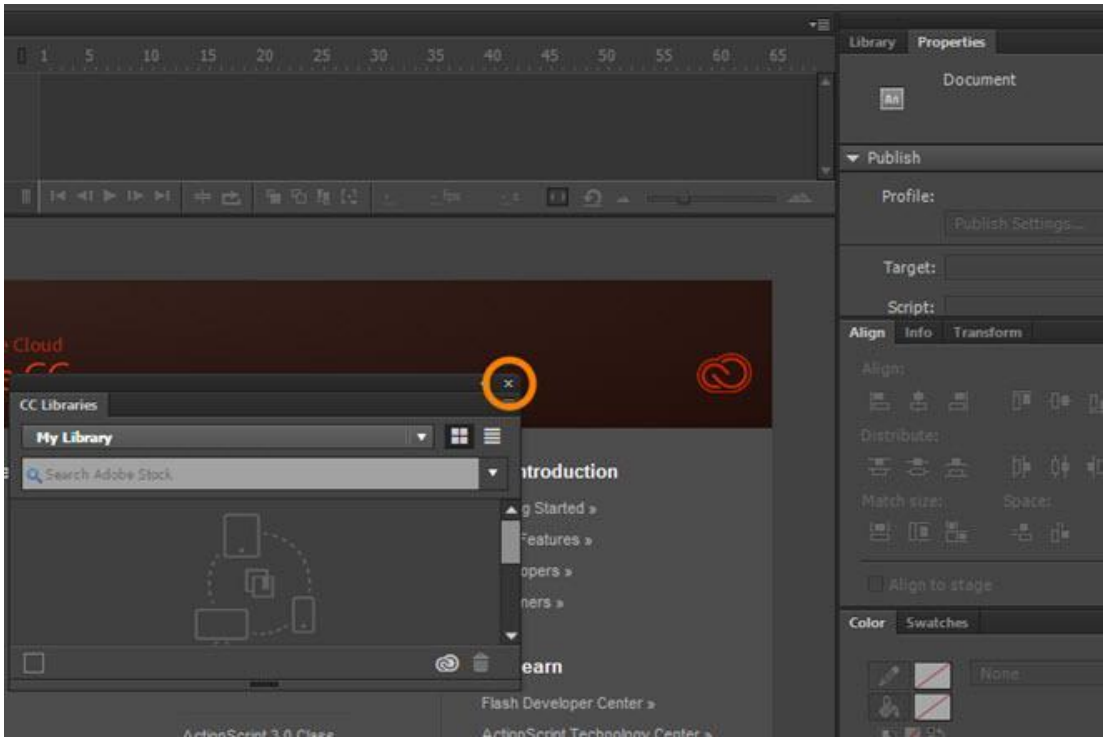
3. The Designer Workspace arranges panels on both the left and right of the stage



4. Custom workspaces can be created by first rearranging the panels to the desired configuration. In this example I want just the Tool Panel on the left, with all other panels arranged in two columns to the right. First, I'll click and hold on the panel name, Properties, and drag it over to the right of the CC Libraries Panel. A blue highlight appears, indicating that the Properties Panel is being grouped with the Library and CC Libraries Panels.



5. I also want to close a panel, so first I'll detach it by clicking and holding on the panel name, CC Libraries, and dragging it away from the panel dock so it's free-floating. Now I can click the **Close** button.



In Animate, you can work with a variety of file types, each of which has a separate purpose:

- **FLA files**, the primary files you work with in Animate, contain the basic media, timeline, and script information for a Animate document. *Media objects* are the graphic, text, sound, and video objects that comprise the content of your Animate document. The *Timeline* is where you tell Animate when specific media objects should appear on the Stage. You can add *ActionScript* code to Animate documents to more finely control their behaviour and to make them respond to user interactions.
- **Uncompressed XFL** files are similar to FLA files. An XFL file, and the other associated files inside the same folder, are simply the uncompressed equivalent of a FLA file. This format makes it easier for groups of users to work on different elements of an Animate project at the same time. For more information, see working with uncompressed XFL files.
- **SWF files**, the compiled versions of FLA files, are the files you display in a web page. When you publish your FLA file, animate creates a SWF file.
- The Animate SWF file format is an open standard that other applications support. For more information about Animate file formats, see www.adobe.com/go/flashplayer.
- **AS files** are ActionScript files—you can use these to keep some or all of your ActionScript code outside of your FLA files, which is helpful for code organization and for projects that have multiple people working on different parts of the Animate content.
- **SWC files** contain the reusable Animate components. Each SWC file contains a compiled movie clip, ActionScript code, and any other assets that the component requires. **Note***: SWC files cannot be imported into Animate.*
- **ASC files** are files used to store ActionScript that will be executed on a computer running Adobe Media Server. These files provide the ability to implement server-side logic that

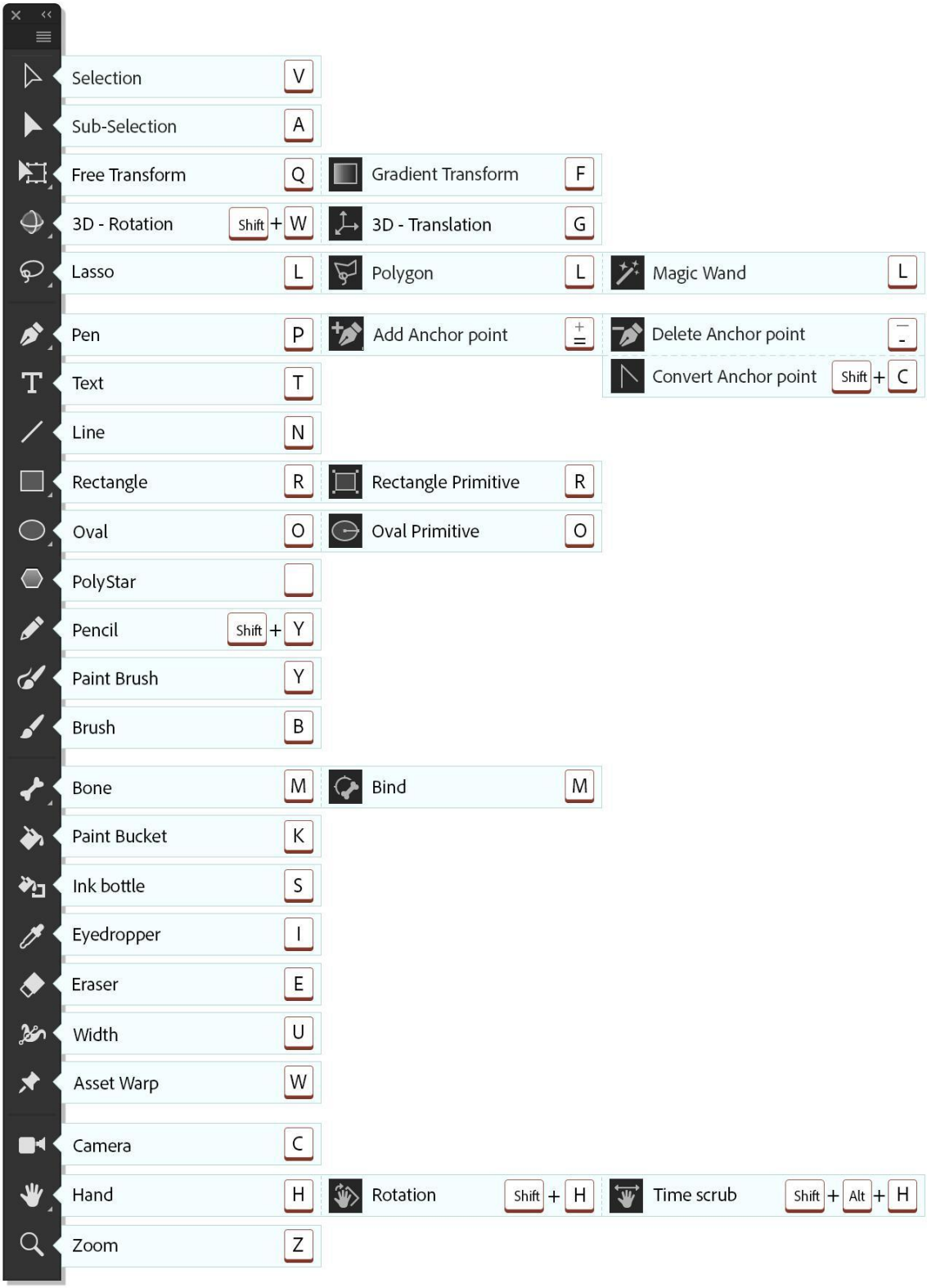
works in conjunction with ActionScript in a SWF file. **Note***: ASC files are not supported with Animate.*

- **JSFL files** are JavaScript files that you can use to add new functionality to the Animate authoring tool.
- **APR files** lets you bundle the canvas publish template along with it's publish profile settings. Going forward, any new asset linked to a publish profile is bundled and shared as well. For more information, see Publish settings.

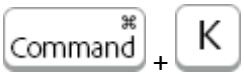
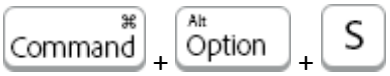
Size setting for adobe animate

To have your Stage fill the entire browser window, set the Stage width and height to 100%, as shown in this figure. To have your Stage fill half the browser window, set the Stage to 50%; and so on, depending on how much of the browser window you want your animation to occupy.

- ✓ **Keyboard shortcut for adobe animate**


Selection V
Sub-Selection A
Free Transform Q
Gradient Transform F
3D - Rotation Shift + W
3D - Translation G
Lasso L
Polygon L
Magic Wand L
Pen P
Add Anchor point +
Delete Anchor point -
Convert Anchor point Shift + C
Text T
Line N
Rectangle R
Rectangle Primitive R
Oval O
Oval Primitive O
PolyStar
Pencil Shift + Y
Paint Brush Y
Brush B
Bone M
Bind M
Paint Bucket K
Ink bottle S
Eyedropper I
Eraser E
Width U
Asset Warp W
Camera C
Hand H
Rotation Shift + H
Time scrub Shift + Alt + H
Zoom Z

Edit and modify

Action	Mac	Windows
Group		
Ungroup		
Break Apart		
Paste in Place		
Duplicate		
Select All		
Deselect All		
Import Library		
Align Window		
Save As		
Scale and Rotate		
Remove Transform		
Move Ahead		

Move Behind	Command + ▼	Ctrl + ▼
Bring to Front	Command + Shift + ▲	Ctrl + Shift + ▲
Send to Back	Command + Shift + ▼	Ctrl + Shift + ▼
Show or hide Transform Panel	Command + T	Ctrl + T
Narrower letterspacing (kerning)	Command + Option + ◄	Ctrl + Alt + ◄
Wider letterspacing (kerning)	Command + Option + ►	Ctrl + Alt + ►

File

Action	Mac	Windows
Import Image/Sound/etc...	Command + R	Ctrl + R
Export Movie	Command + Shift + Option + S	Ctrl + Shift + Alt + S
Open as Library	Command + Shift + O	Ctrl + Shift + O

Windows

Action	Mac	Windows
Show/Hide Library	Command + L	Ctrl + L
Comment selection	Command + M	Ctrl + M

Toggle between Edit Movie and Edit Symbol Mode	Command + E	Ctrl + E
Show/Hide Timeline	Command + Option + T	Ctrl + Alt + T

✓ **Setting of the scene**

New layer creation

1. Click the **new layer** button at the bottom of the timeline.
2. Select Insert > Timeline > **Layer**.
3. Right-click (Windows) or control+click (Macintosh) a **layer** name in the timeline and select Insert **Layer** from the context menu.

Background creation

Working with Layers for Background Content

The next step is to introduce layers to the animation. As I mentioned earlier, you can use layers to animate content, but right now we're going to create a layer to hold background content in the animation. That is, we'll create content that will show throughout the animation–without changing.

1. In the Layers panel, double-click the first layer (Layer 1) and change its name to **curtain**.
2. Create a new layer named **background** beneath the curtain layer.
3. Add content that won't move and will be present in all frames of the animation.

- **Character and environment files importation from illustration design software**

✓ **Selection of supported file format**

Vector graphics

A **vector graphic** consists of shapes, curves, lines, and text which together make a picture. **Examples** of **vector graphic** formats are PICT, EPS, and WMF as well as PostScript and TrueType fonts.

Bitmaps

A bit map (often spelled "**bitmap**") defines a display space and the color for each pixel or "bit" in the display space. A **Graphics** Interchange Format and a JPEG are examples of **graphic** image file types that contain bit maps.

Sequences

An **Animation Sequence** is a single **animation** asset that can be played on a Skeletal Mesh. ... By playing these keyframes back in **sequence**, with blending between them, the bones of a Skeletal Mesh can be smoothly **animated**. Each **Animation Sequence** asset targets a specific Skeleton and can only be played on that Skeleton

Images

The **Animated** Portable Network Graphics (APNG) **file format** is an extension to the Portable Network Graphics (**PNG**) specification. It allows for **animated PNG files** that work similarly to **animated** GIF **files**, while **supporting** 24-bit images and 8-bit transparency not available for GIFs

✓ **Import Options**

Import to stage

Animate lets you import artwork in various file formats either directly to the Stage, or to the library.

Import a file into Animate

1. Do one of the following:

   - To import a file directly into the current Animate document, select File > Import > Import to Stage.
   - To import a file into the library for the current Animate document, select File > Import > Import to Library. (To use a library item in a document, drag it onto the Stage.)

2. Select a file format from the Files of Type (Windows) or Show (Macintosh) pop-up menu.
3. Navigate to the desired file and select it. If an imported file has multiple layers, Animate might create new layers (depending on the import file type). Any new layers appear in the Timeline.
4. Click Open.
5. If the name of the file you are importing ends with a number and additional sequentially numbered files are in the same folder, do one of the following.

   Note: (Windows 8 only) if a PSD file containing text is imported with the Vector Outline option selected, you cannot edit the anchor points for the vector object. This is observed with PSD files that were created using fonts unavailable in Windows 8.

- ❖ To import all the sequential files, click Yes.
- ❖ To import only the specified file, click No.

The following are examples of filenames that can be used as a sequence:

Frame001.gif, Frame002.gif, Frame003.gif

Bird 1, Bird 2, Bird 3

Walk-001.ai, Walk-002.ai, Walk-003.ai

Import to library

The **library** in an **Animate** document stores media assets that you create in the **Animate** authoring environment or import to use in the document. You can create vector artwork or text directly in **Animate**; import vector artwork, bitmaps, video, and sound; and create symbols

Open external library

From the current document,
Select File > **Import** > Open External **Library**. Navigate to the **Animate** file whose **library** you want to open and click Open.

The selected file's **library** opens in the current document, with the filename at the top of the **Library** panel

Import video

a) Select **File > Import > Import Video** to import the video clip into the current Animate document.

b) Select the video clip to import. You can select either a video clip located on your local computer, or enter the URL of a video already uploaded to a web server or Adobe Media Server

c) Select a skin for your video clip.

d) The Video Import Wizard creates an FLVPlayback video component on the Stage that you can use to test video playback locally. When you finish creating your Animate document and want to deploy the SWF file and video clip, upload the following assets to the web server or Adobe Media Server hosting your video:

- If you are using a local copy of the video clip, upload the video clip (which is located in the same folder as the source video clip you selected with a .flv extension).

• Animation Techniques

✓ Working with motion Tweens

Motion Tween. A motion tween is a feature available in Adobe Flash (formerly Macromedia Flash) that allows you to easily animate the motion of an object. ... Then select the number of frames in the timeline you would to use for the duration of the animation.

Animate allows you to work with Motion Tweens as XML files. Natively, animate allows you to apply the following commands on any Motion Tween:

- Copy Motion as XML
- Export Motion as XML
- Import Motion as XML

Copy Motion as XML

Allows you to copy Motion properties applied to any object on the Stage at a said frame.

1. Create a Motion Tween.
2. Select any keyframe on the Timeline.
3. Go to Commands > Copy Motion as XML.

The Motion property is copied to the clipboard as XML data, you can then use any text editor to work on the XML file.

Export Motion as XML

Allows you to export Motion properties applied to any object on the stage to an XML file that can be saved.

1. Create a Motion Tween.
2. Go to Commands > Export Motion as XML.
3. Browse to a suitable location where you want to save the file.
4. Provide a name for the XML file, and click Save.

The Motion tween is exported as an XML file at the specified location.

Import Motion as XML

Allows you to import an existing XML file that has Motion properties defined.

1. Select an Object any object on the Stage.
2. Go to Commands > Import Motion as XML.
3. Browse to the location, and select the XML file. Click Ok.
4. On the Paste Motion Special dialog, select the properties that you want to apply on the selected object.
5. Click Ok.

✓ Shape tweening

In shape tweening, you draw a vector shape at one specific frame in the Timeline, and change that shape or draw another shape at another specific frame. Animate then interpolates the intermediate shapes for the frames in between, creating the animation of one shape morphing into another

Creating a shape tween

The following steps show how to create a shape tween from frame 1 to frame 30 of the timeline. However, you can create tweens in any part of the timeline that you choose.

1. In frame 1, draw a square with the Rectangle tool.
2. Select frame 30 of the same layer and add a blank keyframe by choosing Insert > Timeline > Blank Keyframe or pressing F7.
3. On the stage, draw a circle with the oval tool in frame 30.
   Now, you have a keyframe in frame 1 with a square and a keyframe in frame 30 with a circle.
4. In the Timeline, select one of the frames in between the two keyframes in the layer containing the two shapes.
5. Choose Insert > Shape Tween.
   Animate interpolates the shapes in all the frames between the two keyframes.
6. To preview the tween, scrub the play head across the frames in the Timeline, or press the Enter key.
7. To tween motion in addition to shape, move the shape in frame 30 to different location from frame 1.
   Preview the animation by pressing the Enter key.
8. To tween the color of the shape, make the shape in frame 1 a different color from the shape in frame 30.
9. To add easing to the tween, select one of the frames and enter a value in the Ease field of the Property inspector.

To ease the beginning of the tween, enter a negative value. To ease the end of the tween, enter a positive value.

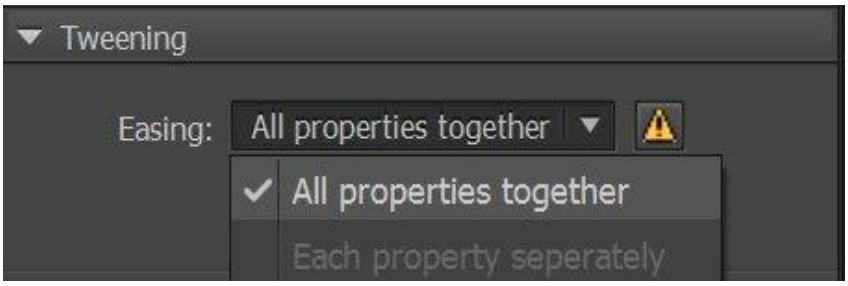
Create ease presets or custom eases

Ease presets are pre-configured eases that can be applied to an object on the stage.

A set of commonly used ease presets are available for shape tween. You can select the preset from a list of ease presets and apply it to the selected property. You can also apply a custom ease to a shape tween.

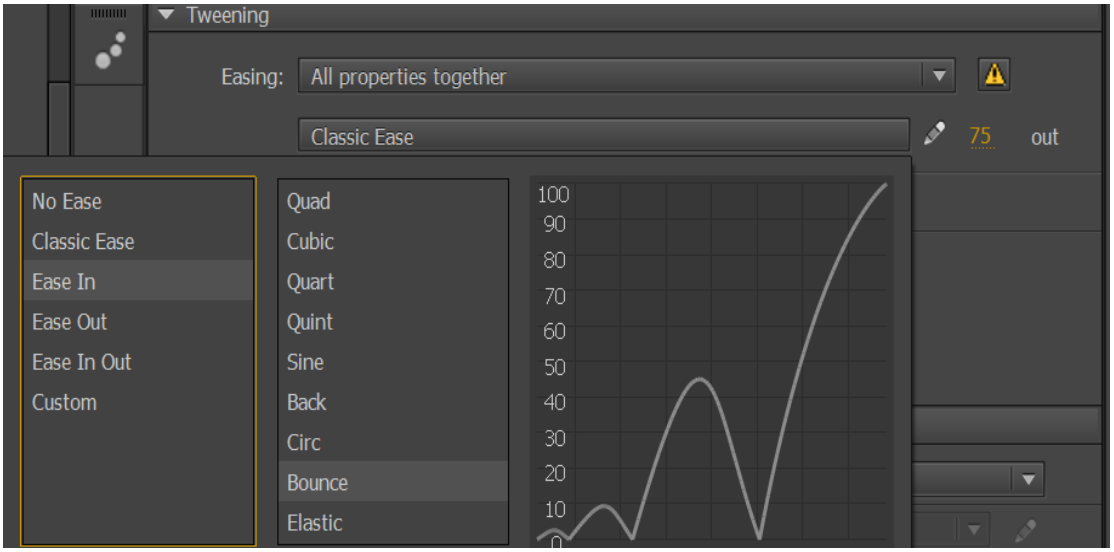
1. Click the layer that contains a shape tween in the timeline of Animate.

2. To open the tweening properties, click the Tweening category in the property panel.



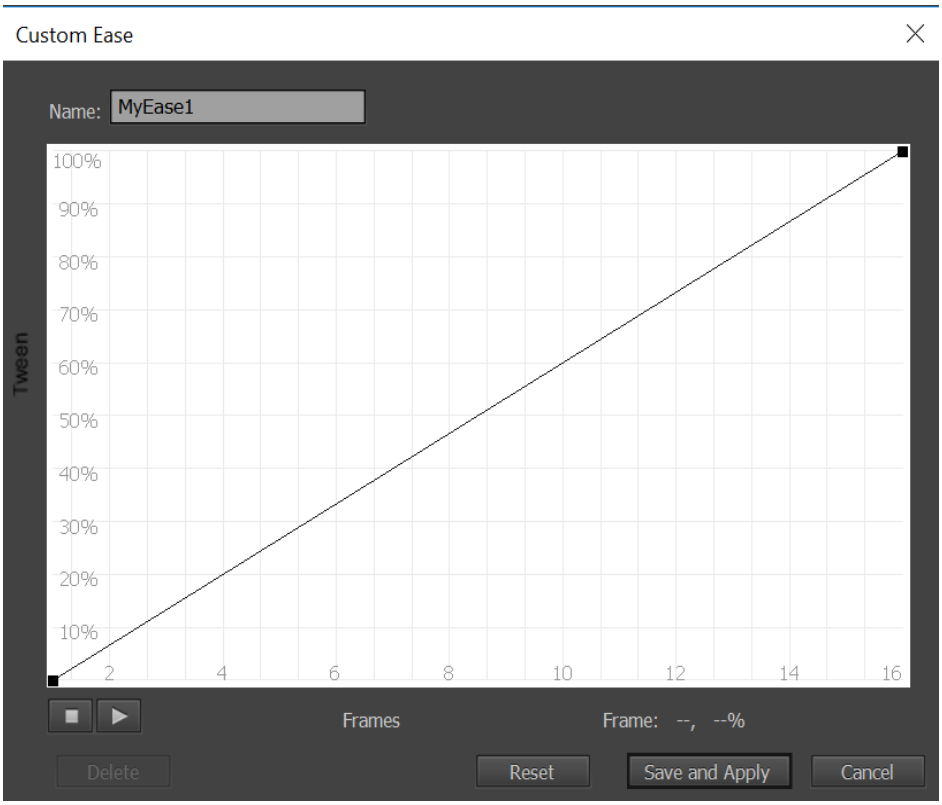
3. Select the ease preset of your choice from the ease type pop-up dialog. Double-click the preset type to apply.

   If you choose to apply classic ease, you can also increase or decrease the intensity of ease by moving the slider.

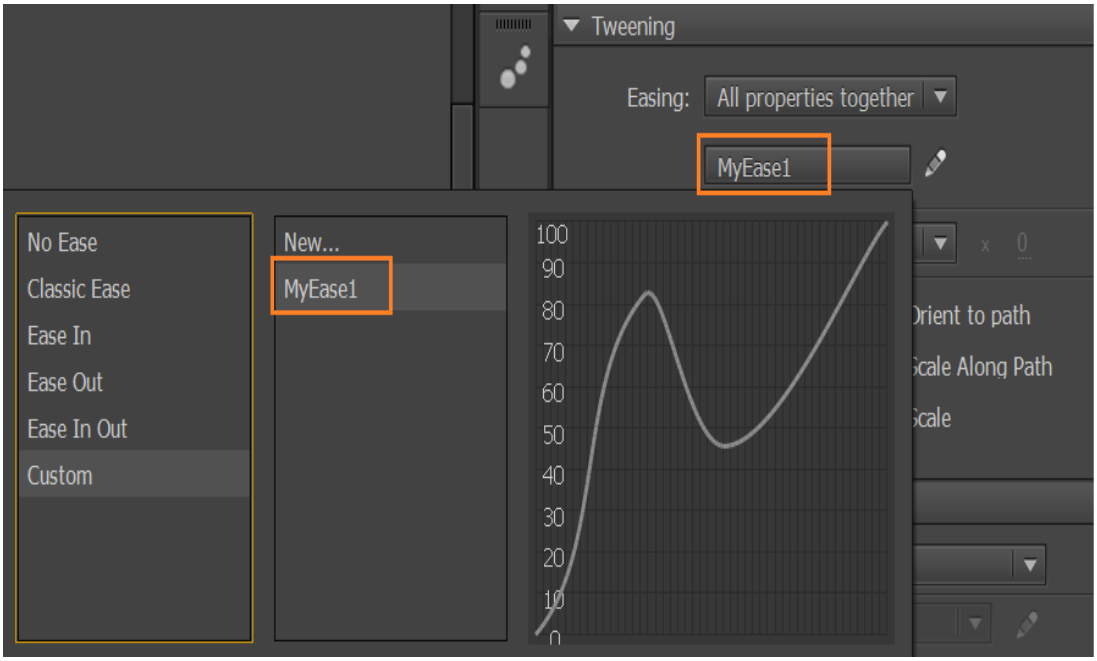


4. Click the edit icon next to **Ease** to apply a custom ease.

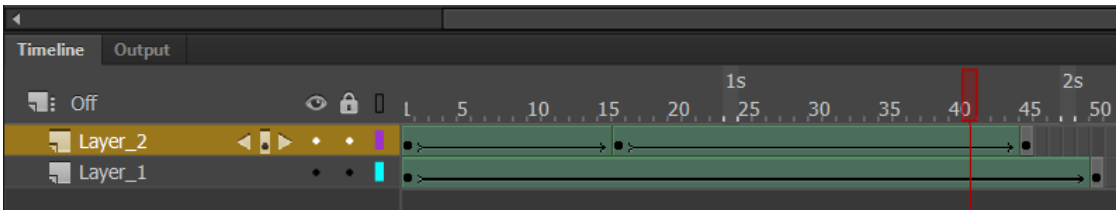
   The **Custom Ease** dialog displays a graph representing the degree of motion over time. The horizontal axis represents frames, and the vertical axis represents percentage of change. The first keyframe is represented as 0%, and the last keyframe is represented as 100%.
   The slope of the graph's curve represents the rate of change of the object. When the curve is horizontal (no slope), the velocity is zero; when the curve is vertical, an instantaneous rate of change occurs.



You can save a custom ease and reuse it by choosing your customized ease from the **Custom** list. Click the **Save and Apply** button in edit mode after making the changes. In the following screenshot, you can find the customized ease preset with the name **MyEase1.**



You can use the preset eases across multiple spans in the timeline by selecting the corresponding spans and applying the ease.



Apply easing preset for multiple span

Controlling shape changes with shapes hint

1. Select the first keyframe in a shape-tweened sequence.
2. Select Modify > Shape > Add Shape Hint. The beginning shape hint appears as a red circle with the letter a somewhere on the shape.
3. Move the shape hint to a point to mark.
4. Select the last keyframe in the tweening sequence. The ending shape hint appears as a green circle with the letter a somewhere on the shape.
5. Move the shape hint to the point in the ending shape that corresponds to the first point you marked.
6. To view how the shape hints, change the shape tweening, play the animation again. To fine-tune the tweening, move the shape hints.
7. To add more shape hints, repeat this process. New hints appear with the letters that follow (b, c, and so on).

View all shape hints

-Select View > Show Shape Hints. The layer and keyframe that contain shape hints must be active for Show Shape Hints to be available.

Remove a shape hint

-Drag it off the stage.

Remove all shape hints

-Select Modify > Shape > Remove All Hints.

Adding shape tween to strokes with variable width

Animate allows you to add shape-tween to strokes with variable width. Earlier, animate only supported creating shape tweens for solid uniform strokes and shapes. This limited designer from creating shape tweens for non-uniform strokes, such as strokes enhanced using the variable width tool. Tweening strokes with variable width greatly expands the design possibilities within Animate.

Adding shape tweens to fancy strokes is not different from tweening a shape or a solid uniform stroke. The workflow needs that you define the start and final shape of the tween, and Animate creates the transitional frames of the tween.

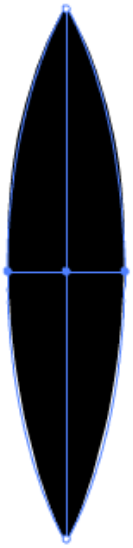
About variable width tool

Variable width tool allows you to enhance uniform solid strokes to create beautiful and fancy strokes. For information on how to enhance strokes using the variable width tool, see Enhancing strokes and shapes using the Variable Width tool.

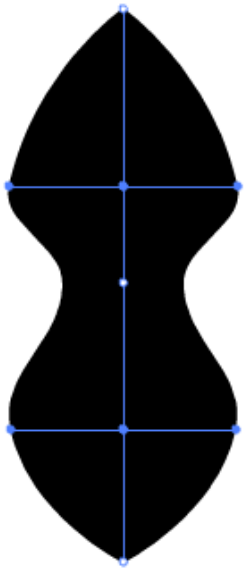
Adding shape tween to variable width strokes

1. **In Animate CC, draw a line using the Line tool.**

2. Use the **Variable Width** tool to add width at the middle of the stroke (see below figure). For information on using variable width tool, see Enhancing strokes using Variable Width Tool.



3. Select another frame on the timeline, for example frame 30, and create the final shape of the stroke for your tween.



4. Right-click any frame between 1 to 30, and select **Create Shape Tween**.

✓ **Frames and keyframes**

Overview

Adobe Animate documents divide lengths of time into frames similar to films. Frames are at the core of any animation, dictating each segment of time and movement. The total number of frames in your movie, and the speed at which they are played back, together determine your movie's overall length. A brief description of some of the concepts on frames is explained below for your reference.

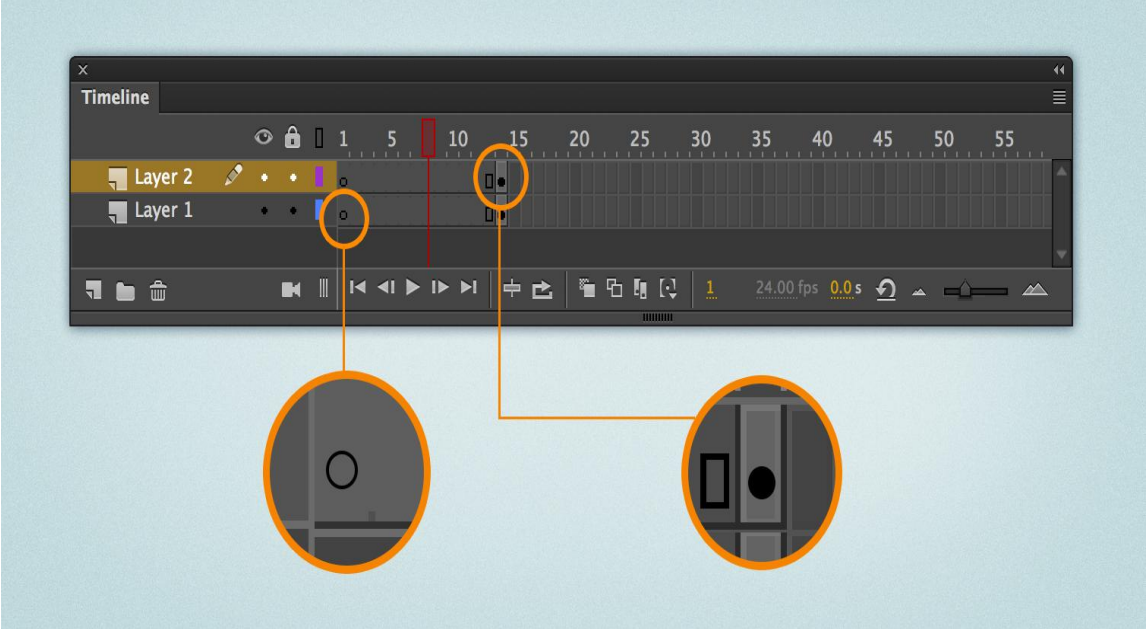
Frames

In the timeline, you work with the frames to organize and control the content of your document. You place frames in the timeline in the order you want the objects in the frames to appear in your finished content.

Keyframe

A keyframe is a frame where a new symbol instance appears in the timeline. A keyframe can also be a frame that includes ActionScript® code to control some aspect of your document. You can also add a blank keyframe to the timeline as a placeholder for symbols you plan to add later or to explicitly leave the frame blank.

Using keyframe you can set a position, add anchor points, actions, comments and so on.



Span

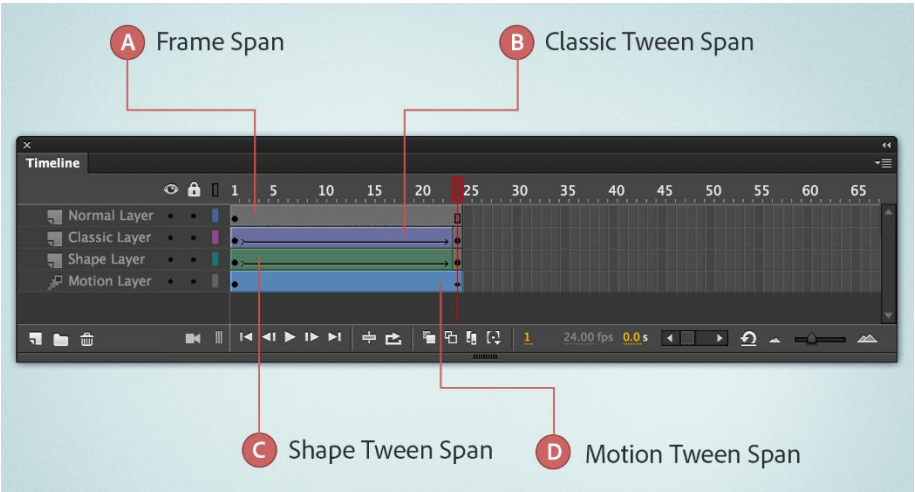
Span-based frame selection allows you to select a range of frames between two keyframes with a single click.

Static frame span

In static frame span, same content is available for entire duration of span. You can use this type of span whenever you need to display graphics for fixed amount of time.

Tweened frame span

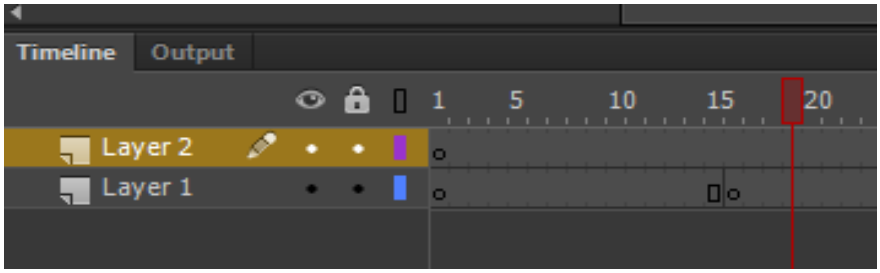
In tweened frame span, the content changes within the span for each frame. You can use this type of span for animations.



Add or insert frames in the timeline

To insert a new frame, select Insert > Timeline > Frame (F5).

To create a keyframe, select Insert > Timeline > Keyframe (F6), or right-click (Windows) or Control-click (Macintosh) the frame where you want to place a keyframe, and select Insert Keyframe from the context menu.



To create a blank keyframe, select **Insert > Timeline > Blank Keyframe**, or right-click (Windows) or Control-click (Macintosh) the frame where you want to place the keyframe, and select **Insert Blank Keyframe** from the context menu.

• Image and sounds incorporation

✓ Supported sound file formats

Animate stores sounds in the library along with bitmaps and symbols. You need only one copy of a sound file to use that sound multiple ways in your document.
If you want to share sounds among Animate documents, you can include the sounds in shared libraries.
Animate includes a Sounds library containing many useful sounds that can be used for effects. To open the Sounds library, choose Window > Common Libraries > Sounds. To import a sound from the Sounds library to your Animate file, drag the sound from the Sounds library to the Library panel of your Animate file. You can also drag sounds from the Sounds library to other shared libraries.

Supported sound file formats

You can import the following sound file formats into Animate:

- Adobe Sound (.asnd). This is the native sound format of Adobe® Soundbooth™.
- Wave (.wav)
- AIFF (.aif, .aifc)
- mp3

You can import these additional sound file formats:

- Sound Designer® II (.sd2)
- Sun AU (.au, .snd)
- FLAC (.flac)
- Ogg Vorbis (.ogg, .oga)

Sounds can use large amounts of disk space and RAM. However, mp3 sound data is compressed and smaller than WAV or AIFF sound data. Generally, when using WAV or AIFF files, it's best to use 16-22 kHz mono sounds (stereo uses twice as much data as mono), but Animate can import either 8- or 16-bit sounds at sample rates of 11, 22, or 44 kHz. Sounds recorded in formats that are not multiples of 11 kHz (such as 8, 32, or 96 kHz) are resampled when imported into Animate. Animate can convert sounds to lower sample rates on export.

✓ **Import and synchronize sounds in Animate**

Adobe Animate offers several ways to use sound. Make sounds that play continuously, independent of the Timeline, or use the Timeline to synchronize animation to a sound track. Add sounds to buttons to make them more interactive, and make sounds fade in and out for a more polished sound track.

There are two types of sounds in Animate: event sounds and stream sounds. An event sound must download completely before it begins playing, and it continues playing until explicitly stopped. Stream sounds begin playing as soon as enough data for the first few frames has been downloaded; stream sounds are synchronized to the Timeline for playing on a website.

Importing sounds

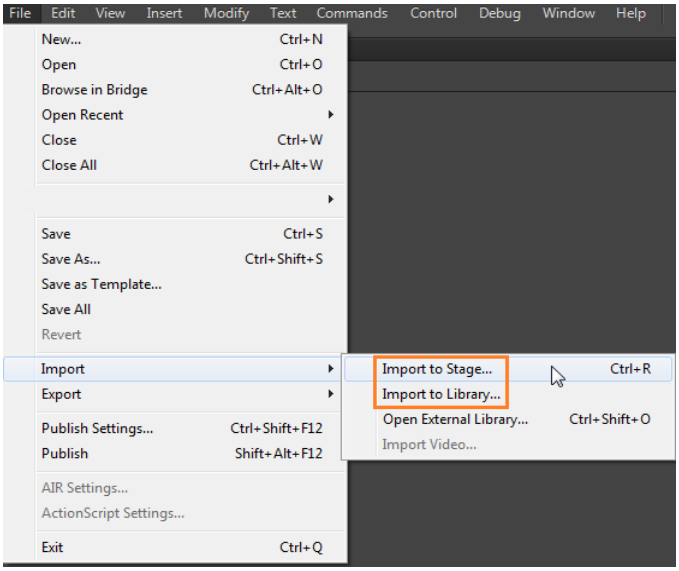
You place sound files into Animate by importing them into the library or directly importing them to stage.

The File > Import > Import to Library menu option places the audio only in the library, and not on the timeline.

When you import an audio file using File > Import > Import to Stage menu option or by dragging and dropping the audio file directly to the timeline, the audio will be placed on active frame of the active layer. If you drag and drop multiple audio files, only one audio file will be imported because one frame can contain only one audio.

To import audio, use one of the following methods:

- To import an audio file to library, select File > Import > Import To Library and select the audio file that you want to import.
- To import an audio file to stage, select File > Import > Import To Stage and select the audio file that you want to import.
- Drag-and-drop the audio file directly to the stage.



✓ **Synchronize a sound with animation**

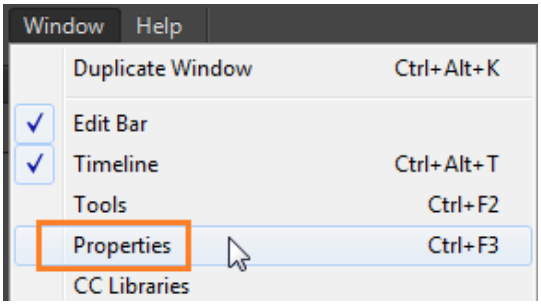
To synchronize a sound with animation, you start and stop the sound at keyframes.

1. Add a sound to the Timeline in its own layer (see above for instructions).
2. To synchronize this sound with an event in the scene, create a beginning keyframe for the sound that corresponds to the keyframe of the event in the scene that you want to trigger the sound. You can select any of the synchronization options described above (see Add a sound to the Timeline).
3. Create a keyframe in the sound layer's Timeline at the frame where you want the sound to end. A representation of the sound file appears in the Timeline.
4. Select Window > Properties, and click the arrow in the upper-right corner to expand the Property inspector
5. In the Property inspector, select the same sound from the Sound pop-up menu.
6. Still in the Property inspector, select Stop from the Sync pop-up menu.
   When you play the SWF file, the sound stops playing when it reaches the ending keyframe.
7. To play back the sound, drag the playhead in the Timeline.

Editing sounds
Editing a sound in Animate

In Animate, you can define the starting point of a sound or control the volume of the sound as it plays. You can also change the point at which a sound starts and stops playing. This is useful for making sound files smaller by removing unused sections.

1. Add a sound to a frame, or select a frame that already contains a sound.
2. Select Window > Properties.



3. Click the Edit button on the right side of the Property inspector.
4. Do any of the following:
   - ❖ To change the start and end points of a sound, drag the Time In and Time Out controls in the Edit Envelope.
   - ❖ To change the sound envelope, drag the envelope handles to change levels at different points in the sound. Envelope lines show the volume of the sound as it plays. To create additional envelope handles (up to eight total), click the envelope lines. To remove an envelope handle, drag it out of the window.
   - ❖ To display more or less of the sound in the window, click the Zoom In or Out buttons.
   - ❖ To switch the time units between seconds and frames, click the Seconds and Frames buttons.
   - ❖ To hear the edited sound, click the Play button.

• Application of effects and colors

✓ Visual effects

VFX or Visual Effects are a way of mixing real film shooting with false or animated images. For instance, a movie that shows the hero jumping off the ground and flying into the air, is created using VFX. Almost every single movie these days uses VFX.

Explosion

Explosion Effects. Explosion effects generally include those of overpressure, thermal effects, energized projectiles (fragments, debris, and missiles), ground shock, and cratering. Ground shock and cratering will not be discussed further in this paper

Water splashing

In fluid mechanics, a **splash** is a sudden disturbance to the otherwise quiescent free surface of a liquid (usually **water**). The disturbance is typically caused by a solid object suddenly hitting the surface, although **splashes** can occur in which moving liquid supplies the energy.

- **Smoking**

Smoke VFX is a 4K Motion Graphic clip that comes with an alpha channel, ready to use in your hottest projects. Composite on to your footage to create stunning titles and transitional **effect**, or to give your viewers the impression of an actual fire

✓ **Sound effects**

- **Timbre**

In music, ***timbre*** also known as ***tone*** color or ***tone*** quality (from psychoacoustics), is the perceived ***sound*** quality of a musical note, ***sound*** or ***tone***. ***Timbre*** distinguishes different types of ***sound*** production, such as choir voices ... and electric piano, performers can change the ***timbre*** using ***effects*** units and graphic equalizers

- **Pitch**

The quality of a sound governed by the rate of vibrations producing it; the degree of highness or lowness of a tone.

- **Volume**

When talking about **sound** waves, the **volume** is the perception of loudness from the intensity of a **sound** wave. The higher the intensity of a **sound**, the louder it is perceived in our ears, and the higher **volume** it has.

- **Rhythm**

Rhythm is one of the most complex features of **sound**. **Rhythm** involves a beat or pulse a pace or tempo and a pattern of accents or stronger or weaker beats.

- **Tempo**

Tempo is how fast or slow a piece of music is performed, Tempo generally is measured as the number of beats per minute, where the beat is the basic measure of time in music.

- **Echo**

Echo. In audio signal processing and acoustics, **echo** is a reflection of **sound** that arrives at the listener with a delay after the direct **sound**. The delay is directly proportional to the distance of the reflecting surface from the source and the listener.

✓ **Coloring**

- **Color panel**

The Color panel lets you modify the color palette of a FLA and change the color of strokes and fills, including the following:

- Import, export, delete, and otherwise modify the color palette for a FLA file by using the Swatches panel.
- Select colors in hexadecimal mode.
- Create multicolor gradients.

- ❖ Use gradients to produce a wide range of effects, such as giving an illusion of depth to a two-dimensional object.

The Color panel contains the following controls:

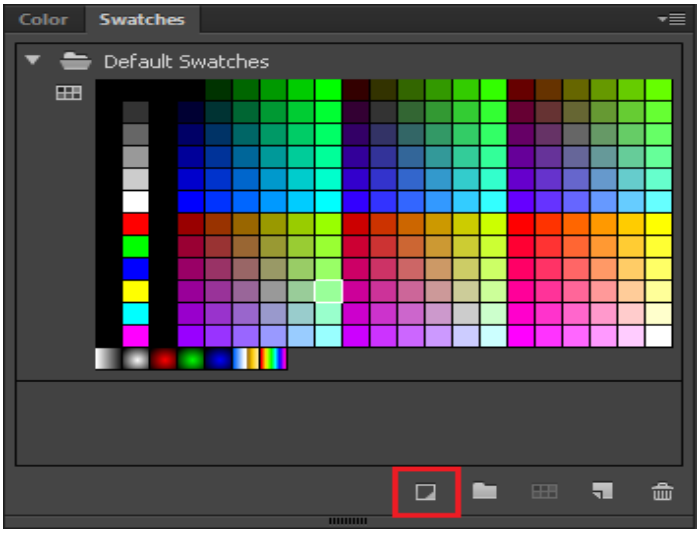
Stroke Color
Changes the color of the stroke, or the border, of a graphic object.

Fill Color
Changes the color of the fill. The fill is the area of color that fills up the shape.

Swatches panel

Swatches enable easy reuse and update of colors across documents. You can now create tagged swatches by selecting a color from your swatches. Once you create a tagged swatch and apply it to shapes and paths in your Animate content, changing the color in the tagged swatch will automatically update all the content that is using it.

1. Click Window > Color.
2. On the Swatches tab of the Colors panel, select the color that you want to convert to a tagged swatch and click the Convert to Tagged Swatch button on the bottom part of the panel



3. On the **Tagged Color Definition** dialog box, specify the following:

   - ❖ A name for the new swatch.
   - ❖ Choice of solid color, linear gradient, or radial gradient.
   - ❖ A Color by specifying either the HSB values (Hue, Saturation and Brightness) or RGB (Red, Green, and Blue)

4. When you open the Color panel after selecting the object that uses the tagged swatch, you will see options to edit the color properties. If you make changes to the color

properties, the changes are automatically reflected on all the elements on stage that use the tagged swatch.

5. You can double-click on a swatch or select a swatch and click **Edit** to open the **Tagged Color Definition** dialog box and make changes to the color in the swatch.
6. To unlink a shape that uses a swatch from the swatch color, select the shape and then click the **Unlink** button. You can select a new color from the colors panel for the shape.

Color palettes

Each Animate CC file contains its own color palette, stored in the Animate document. Animate CC displays a file's palette as swatches in the Fill Color and Stroke Color controls and in the Swatches panel. The default color palette is the web-safe palette of 216 colors. To add colors to the current color palette, use the Color panel. You can import and export both solid and gradient color palettes between Animate files, as well as between Animate CC and other applications.

The default palette and the web-safe palette

Save the current palette as the default palette, replace the current palette with the default palette defined for the file, or load the web-safe palette to replace the current palette.

- To load or save the default palette, in the Swatches panel, select one of the following commands from the menu in the upper-right corner:

Load Default Colors:
Replaces the current palette with the default palette.

Save As Default:
Saves the current color palette as the default palette. The new default palette is used when you create new files.

- To load the web-safe 216-color palette, in the Swatches panel, select Web 216 from the menu in the upper-right corner.

In the Swatches panel, select Sort by Color from the menu in the upper-right corner.

Organizing and reusing colors

Swatches panel allows you to organize colors and color palettes in a hierarchical structure using Folders and Color Palettes.

CREATING A FOLDER

By default, all colors are arranged within the Default Swatches folder. You can arrange existing colors within folders using the Swatches panel. To create a new folder, do the following:

1. In Animate CC, select Window > Swatches
2. On the Swatches panel, click the button.

3. Provide a meaningful name for the swatches folder.

You can also create a folder by selecting a folder, color palette, or swatch and selecting the Duplicate as Folder option from the fly-out menu.

CREATING A COLOR PALETTE (SWATCH GROUP)

Color Palette is a group of swatches (colors) that signifies a color theme for your content. You can create color palettes within folders and add swatches to them. To create a Color Palette, do the following:

1. In Animate CC, select Window > Swatches.

2. On the Swatches panel, select any folder and click the button to create an empty palette.

3. You can drag an existing color or click the button to add swatches to the color palette.

You can also create a color palette by selecting a folder, color palette, or swatch and selecting the Duplicate as Palette option from the fly-out menu.

CREATING OR ADDING COLORS TO A COLOR PALETTE

You can create swatches or add existing ones to color palettes. To create a swatch, do the following:

1. In Animate CC, select Window > Swatches.

2. On the Swatches panel, select any color palette within a folder, and click the button to create a swatch. A new swatch is created using the current selected fill color in the Colors panel. You may also select an existing swatch and click the button to duplicate the swatch within the palette.

You can also create a swatch by selecting a folder, color palette, or swatch and selecting the Duplicate as Swatch option from the fly-out menu.

1. In the Swatches panel, select one of the following commands from the menu in the upper-right corner:

- To append the imported colors to the current palette, select Add Colors.

- To replace the current palette with the imported colors, select Replace Colors.

2. Navigate to the desired file, select it, and click OK.

3. In the Swatches panel, select Save Colors from the menu in the upper-right corner and enter a name for the color palette.

4. For Save As Type (Windows) or Format (Macintosh), select Animate Color Set or Color Table. Click Save.

Learning Outcome 3.3: Export 2D animation project

- **Export Adobe Animate project**

✓ **Working with multiple types of file format**

FLA File (Adobe Flash Application)

FLA files, the primary files you work with in Animate, contain the basic media, timeline, and script information for a Animate document. Media objects are the graphic, text, sound, and video objects that comprise the content of your Animate document. The Timeline is where you tell Animate when specific media objects should appear on the Stage. You can add ActionScript code to Animate documents to more finely control their behaviour and to make them respond to user interactions.

Uncompressed XFL file (Adobe flash exchange format)

Uncompressed XFL files are similar to FLA files. An XFL file, and the other associated files inside the same folder, are simply the uncompressed equivalent of a FLA file. This format makes it easier for groups of users to work on different elements of an Animate project at the same time. For more information, see working with uncompressed XFL files.

SWF file (small web format)

SWF files, the compiled versions of FLA files, are the files you display in a web page. When you publish your FLA file, Animate creates a SWF file.
The Animate SWF file format is an open standard that other applications support. For more information about Animate file formats.

AS file (Action Script)

AS files are ActionScript files—you can use these to keep some or all of your ActionScript code outside of your FLA files, which is helpful for code organization and for projects that have multiple people working on different parts of the Animate content.

SWC file (Shockwave component)

WC files contain the reusable Animate components. Each SWC file contains a compiled movie clip, ActionScript code, and any other assets that the component requires. **Note***: SWC files cannot be imported into Animate.*

JSFL file (JavaScript file)

JSFL files are JavaScript files that you can use to add new functionality to the Animate authoring tool.JSFL files are used to automate events and workflows in the Adobe Animate authoring environment.

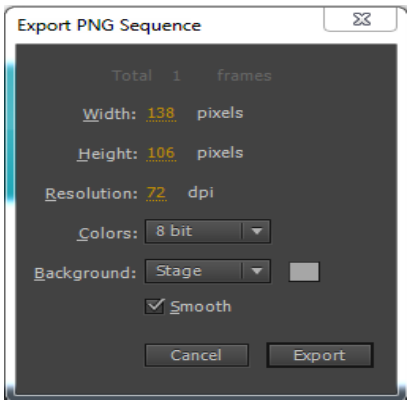
✓ Export graphic and Video

PNG Sequence

You can export a series of image files from an individual movie clip, button, or graphic symbol in the Library or on the Stage. During export, Animate (formerly Flash Professional) creates a separate image file for each frame in the symbol. If you export from the Stage, any transformations (for example, scaling) you have applied to the symbol instance are preserved in the image output.

To export a PNG sequence:

1. Select a single movie clip, button, or graphic symbol in the Library or the Stage.
2. Right click it and choose Export PNG Sequence.
3. In the Save As dialog, choose a location for the output and click OK.
4. In the Export PNG Sequence dialog, set your desired options.



Width - The width of the image output. You can scale the output by changing this value. The default is the width of the symbol content.
Height - The height of the image output. You can scale the output by changing this value. The default is the height of the symbol content.
Resolution - The resolution of the image output. The default is 72 dpi.
Colors - The bit depth of the image output. You can select 8, 24, or 32 bit. The default is 32 bit, which supports transparency. If you select 24 bit or 8 bit, which do not support transparency, the Background setting changes to Stage. See below.
Background - The color to use as the background color for the image output. This setting is only available when the Colors option is set to 8 bit or 24 bit. When Colors is set to 32 bit, the image background is always transparent. When the Colors option is set to 8 bit or 24 bit, the Background option defaults to the Stage color. With 8 bit or 24 bit images, you can change the setting to Opaque and then select a background color from the color picker. Alternatively, choose an alpha value for the background to create transparency.
Smooth - Toggles whether to apply smoothing to the edges of the image output. Turn off this option if you are not using a transparent background and images placed on a background color are different from the current color of the Stage.

5. Click Export to export the PNG sequence

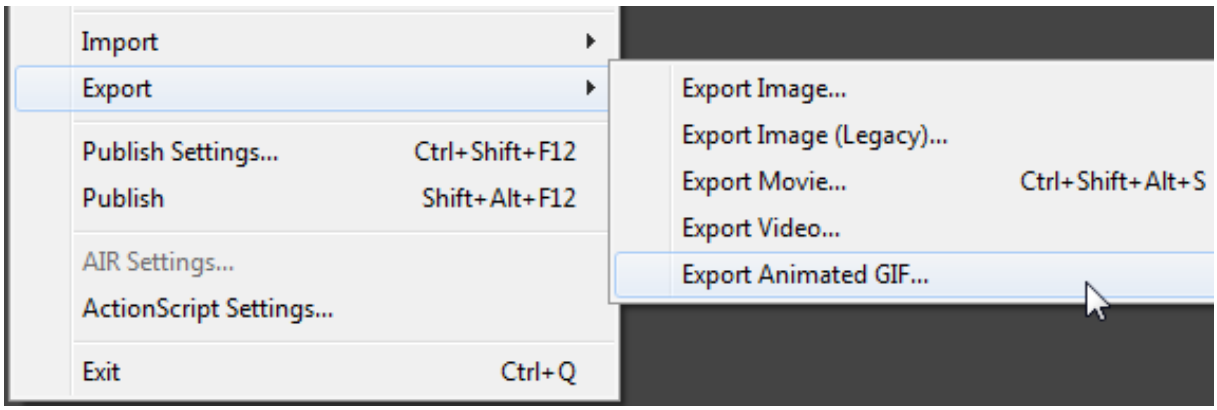
JPEG Sequence

These options match the JPEG **Publish Settings** options. However, the **Match Screen** matches the exported image to the size of the Animate content as it appears on your screen. **Match Movie** matches the JPEG image to the Animate content and maintains the aspect ratio of the original image.

Animated GIF

You can export animated GIF files in Animate by performing the following steps:

1. Go to **File > Export > Export Animated GIF**
A dialog appears.



2. Choose your desired options in the dialog and click **Done** to export your animation as animated GIF file.

SVG File

Exporting artwork in SVG format

1. In Animate, scrub or move the play head to the appropriate frame.
2. Select File > Export > Export Image. Or select File > Publish Settings (select the SVG Image option in the Other Formats section.)
3. Enter or browse to the location where you want to save the SVG file. Ensure that you select SVG as the Save As type.
4. Click Ok.
5. On the Export SVG dialog, choose to Embed or Link to your SVG file.

- Include Hidden Layers Exports all hidden layers in the Animate document. Deselecting Export Hidden Layers prevents all layers (including layers nested inside movie clips) marked as hidden from being exported in the resulting SVG. This lets you easily test different versions of Animate documents by making layers invisible.
- Embed: Embeds a bitmap in the SVG file. Use this option to if you want to directly embed bitmaps within the SVG file.
- Link: Provides a link to the path of bitmap files. Use this option when you do not want to embed, but provide link to the bitmaps from the SVG file. If you select Copy Images to Folder option, the bitmaps will be saved inside the images folder created at the location where the SVG file is exported. When Copy Images to Folder option is not selected, the bitmaps will be referenced in the SVG file from their original source location. In case the bitmap source location is unavailable then they will be embedded inside the svg file.
- Copy Images to /Images folder: Allows you to copy the bitmap to the /Images. The /Images folder, if it does not already exist, is created in the export location of the SVG. Optimize for Character Animator: Allows you to export SVG that works well with Character Animator.

6. Click Ok

References book

1. Russell Chun, Adobe Animate CC Classroom in a book, United of America: Peachpit, 2017

2. Prof. PhaniTetali and VajraPancharia, Character Design for Animation, India: IIT Bombay, Accessed on 04/01/2019

3. Media Technology, History of Animation, USA: Texas Trade and Industrial Education, 2006

4. CAIG Lab, History and principles of Animation, Taiwan: National Chiao Tung University, Accessed on 04/01/2019 5.

5. Save and export video and animations, https://helpx.adobe.com/photoshop/using/saving-exportingvideo-animations.html, Accessed on 21/12/2018

6. Types of illustrator – Styles and Techniques, https://graphicmama.com/blog/types-of-illustration/, Accessed on 20/12/2018

7. Image files formats, https://99designs.com/blog/tips/image-file-types/, Accessed on 20/12/2018

8. History of Computer Graphics and Animation, https://www.utdallas.edu/atec/midori/Handouts/history.htm#animation_history, Accessed on 20/12/2018

9. Motion tweens vs Classic tween, https://helpx.adobe.com/animate/using/differences-betweenmotion-and-classic-tweens.html, Accessed on 03/01/2019

10. Create a 2D character animation, https://helpx.adobe.com/animate/how-to/create-2danimation.html, Accessed on 03/01/2019