

2d Animation Fundamentals

Tips

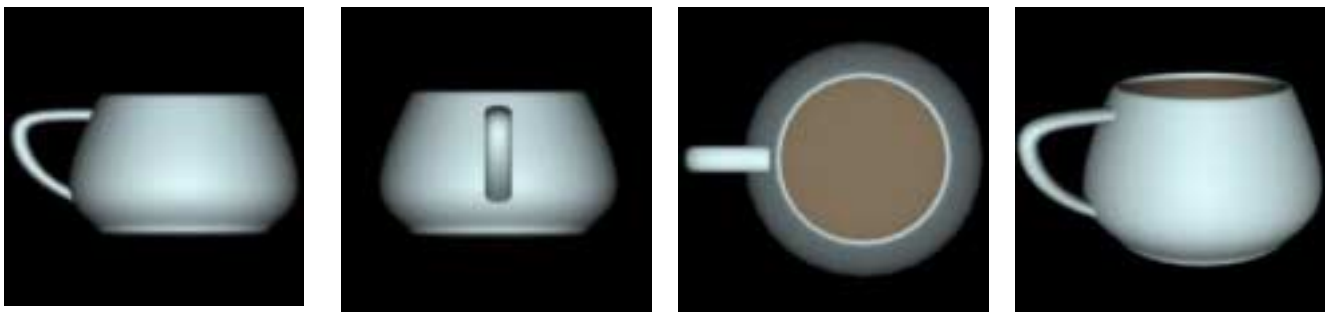
1. Study Frames from Film to understand motion and how animation is broken down into frames. Rotoscoping digital video clips is also a good way to break down frame by frame animation.
2. Carry a watch with a second hand on it and time events – take notes on certain motions such as walk cycles or expressions on faces; break those events down into keyframes.
3. As always be more determined to capture the motion and not the detail at first. Selective detail is important.

Cell Animation versus Keyframe Animation

Keyframe Animation (tweening): Scale, Position, Opacity, Rotation, Color; computer can calculate the inbetweens (tweening).

Setting a keyframe effectively freezes that motion in that moment of time. Key frames come in sets of two usually - one at the start of the sequence and one at the end of the sequence of action. Timing adjustments are made by dragging keyframes on the timeline to new positions.

Cel Animation (frame by frame): change in perspective, change in shape of line; each drawing must be hand drawn individually for animated effect to work. Timing adjustments are made by adding or deleting inbetween frames.



(in 3d applications the modeler creates an object that can be rendered from all points of view so that images do not have to be calculated at a later date or time)

Methods for Drawing Frames

Pose to Pose Method: Draw the Extremes (keyframes) and then the inbetweens.

Straight Ahead Method: more spontaneous; draw each frame one after another in the order that it is shot

Simplicity = Simple Scenes

Keep your scene as simple as possible so that nothing detracts from the central animation.

Backgrounds tend to be static... or contain conscious or specific movement that adds life rather than detracts from the central theme.

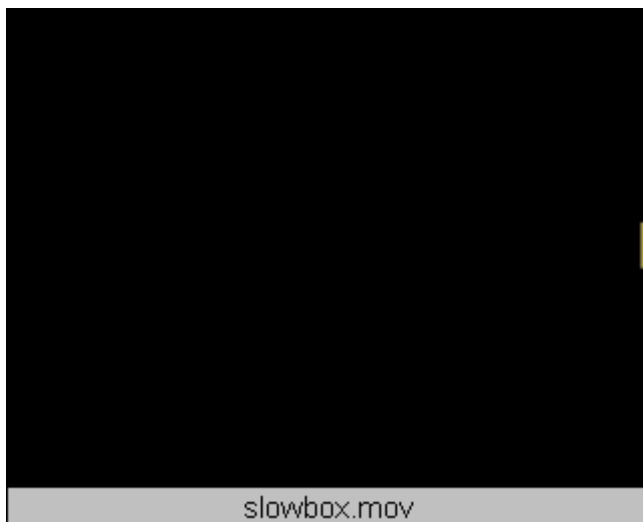
Animation - Breaking it down

Motion

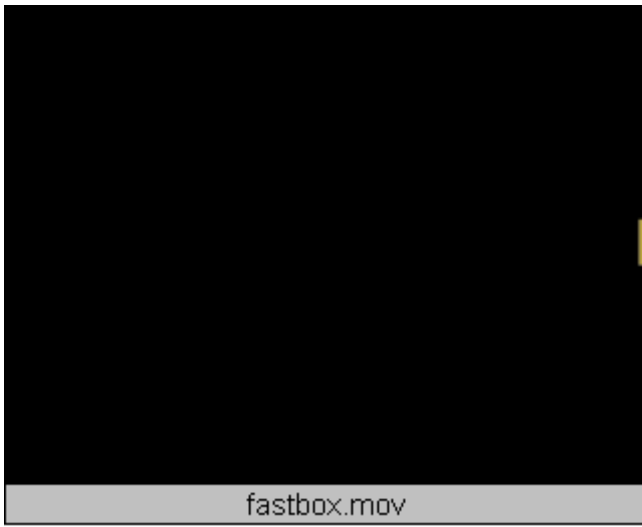
Greater Distance between frames = Faster and Jerkier Movement
(Visual Stuttering and - if Desired - High Energy)

Shorter Distance between frames = Slower and Smoother Movement

(if there are not enough inbetweens to describe motion then eye can not create continuity between frames)



more frames (60 total) - same distance and camera location

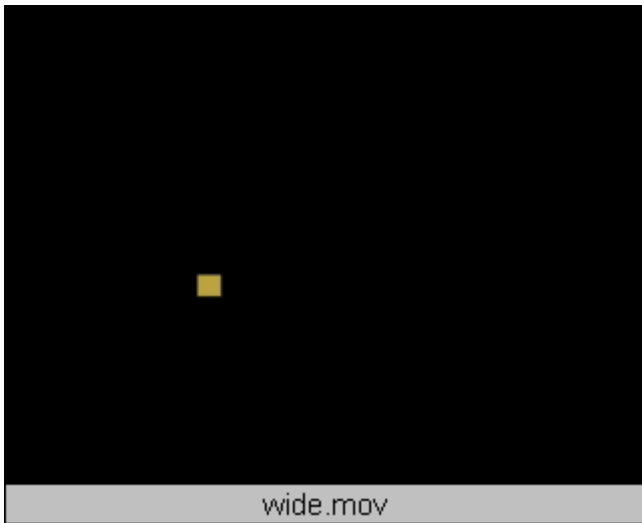


less frames (30 total) - same distance and camera location

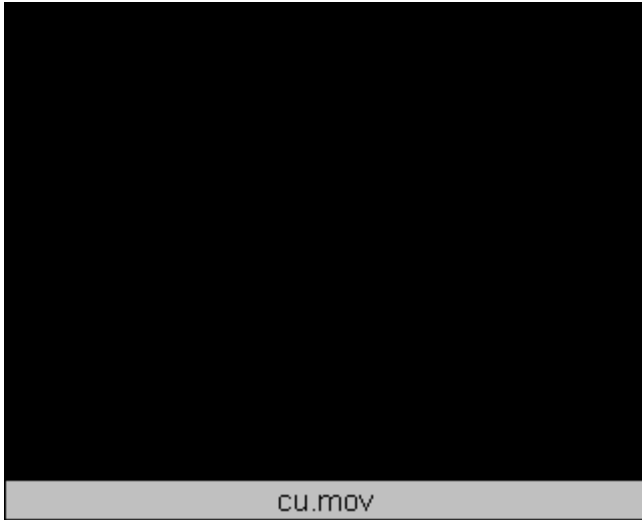
Distance

Wide: The further away the object is from the camera the slower the object looks.

CloseUp: The closer the object is to the camera the faster the object looks



same speed but further away from virtual camera



same speed but closer to the virtual camera

Line

the line itself establishes the mood for the subject matter. thin or thick, angular or smooth - they have different meanings...



Smooth Lines = Relaxation, Calmness, tranquility, etc.

Jagged Lines= Agitation, Anger, dynamicism, etc.

Motion Blur

When an object crosses your field of vision quickly a trail of that object is left behind; with camera work the literal blur is captured by the film. To make an animated object more realistic soften the edges of the object as it picks up speed or lengthen the object as it accelerates.

Setting the Scene

Establishing Shots

Use an establishing shot

Typically there is a long shot at the beginning of a scene designed to inform viewers of a change in location and to orient them to the general mood and relative placement of subjects in the scene.

Camera remains still on the first scene allowing the eye to take it all in before action happens.

Consider the camera's position in the establishing shot as very important; ask yourself: would this shot also work as a still photographic image compositionally?

Point of View (POV)

Graphic Control or Narrative Control

Storyboards help pin down the most appropriate POV.

Consider your viewer's identification with the subject matter. Use Sight Line to establish identification with subject matter.

Graphic Control = Staging and Composition

Narrative Control = Editing shots considering content

Camera Movement

Think of your audience's observation point as your camera lens pointing towards the scene.

Pan: camera moves parallel to scene and subject matter (horizontal movement). (*illusion: object changes position*)

Tilting: otherwise known as a vertical pan.

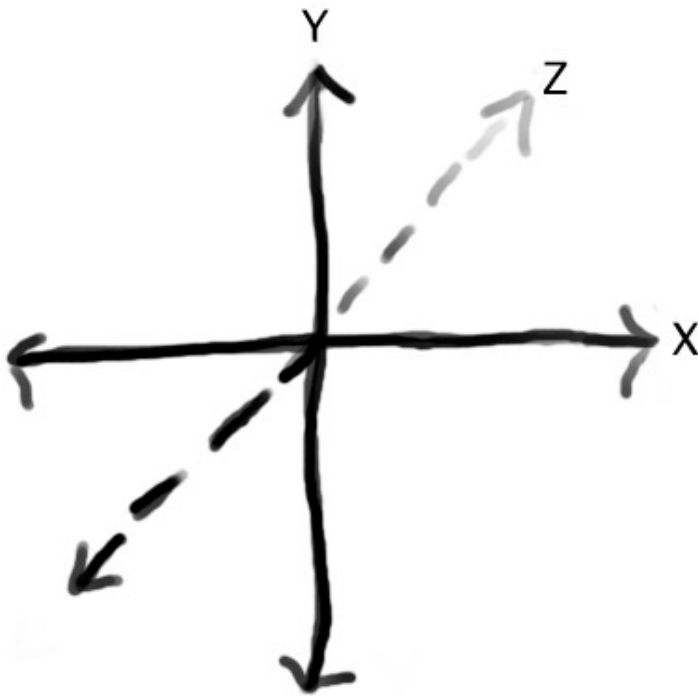
Zoom Shots: lens moves closer or further away from the scene's subject matter. (*illusion: object changes scale*)

Dolly (traveling shot): camera moves along with moving subject matter.
(*illusion: object remains still and background changes position*)

Camera Angle: choose an interesting but easy to draw angle for your animated piece. If you are creating an animation cell by cell try and choose a simple angle where the camera is perpendicular to the ground.

Depth of Field: the amount of space in front of and in back of the focus plane of the camera that appears acceptably sharp through the lens (to create an effect of objects within a larger and deeper scene blur the background so that the foreground objects are sharp)

Axis



Panning and zooming in or out on a scene is easier to draw cells for than rotation of the x or y axis'. Rotation of the z axis is simple to recreate too.

x-camera moving horizontally or panning the scene.

y-camera moving vertically or tilting/panning the scene.

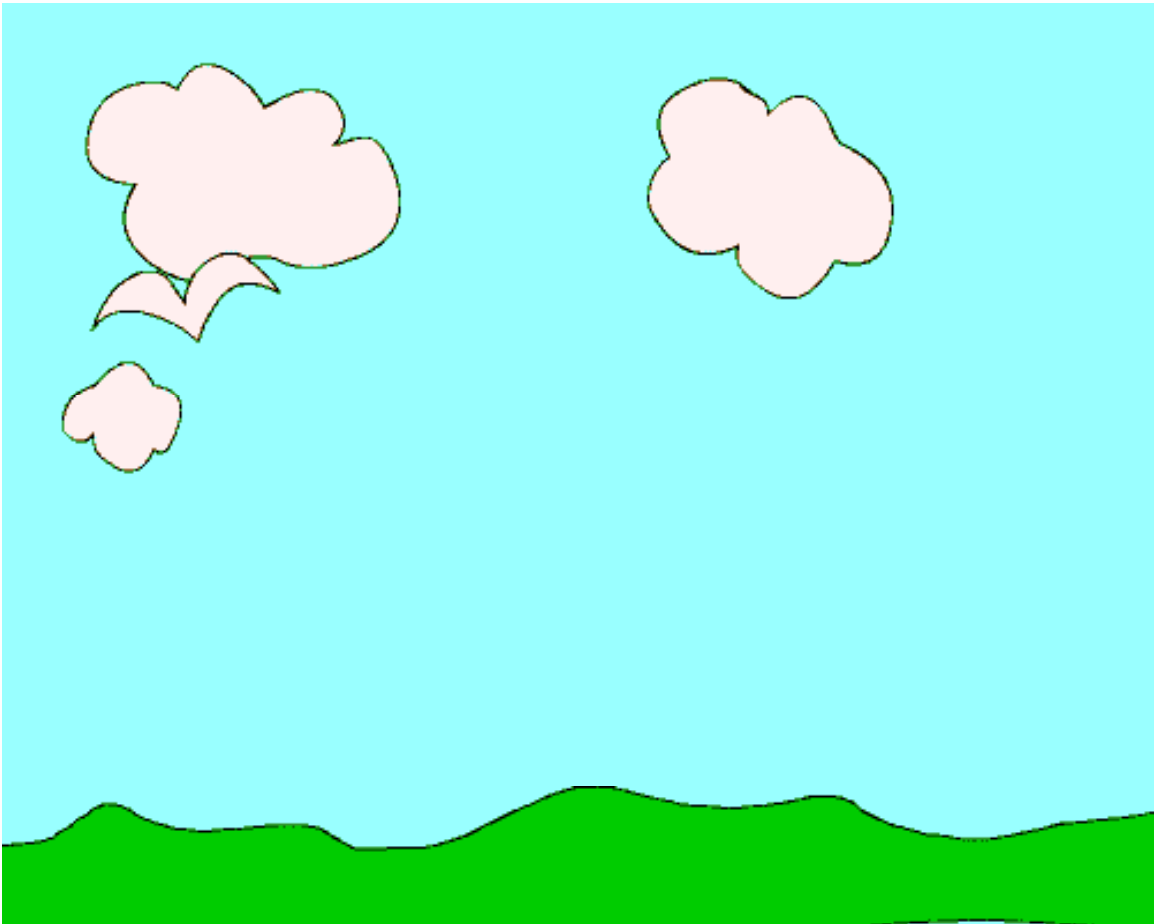
z-camera zooming in or out on scene.

Planes of Action

Consider your planes of action:

- Foreground
- Middle Ground
- Background

All planes of action have a relationship with each other. For example, in 2d animation, a character that is tracked perfectly by the camera will be walking but not moving from their spot in the frame. The background, on the other hand will be moving the opposite direction. This gives the illusion of forward motion.



HINT: panning background; the character must move the same distance as the background from one frame to the next otherwise it will appear as if it is slipping and sliding across the background.

The Background, Middleground and Foreground are distinguished by separate layers; pre-plan your drawings to make sure that each of these planes is sitting on a separate layer that way it is easier to animate separately.

Background: painting of flat projection of 'landscape' of some sort. Do not try and rotate the virtual camera unless you want to repaint the background from a different perspective. Also, if the camera is supposed to pan across the background then you must accommodate this action by painting a background that is long enough.

Middleground and/or Foreground: here is where all the action takes place. Choose the foreground for action right up in front - action that is supposed to be prominent and middle ground action for action seen at somewhat of a distance. This choice will affect POV of overall animation.

Transitions

The Cut: Mostly representing a present tense segue.

The Dissolve: Mostly representing a passage of time. Usually thought of as a band-aid for badly structured events, the dissolve forms a bridge between disparate times and places and eases the shaky connection.

The Match Shot: two adjacent shots that share a graphic element that is registered identically in each (ex. background shift from day to night but the house remains the same in the scene)

The Wipe: rarely seen unless an artist deliberately wants to emulate the filmmakers of the 30s and 40s.

The Fade Out/The Fade In: setting off episodes from each other like chapter headers. The fade separates scenes while dissolve/cut connect.

The White-in/The White-out: fade to white until the frame is completely bleached out; no specific conventions for this other than being dramatic.

The Freeze Frame: used most recently to reveal the POV of the photographer taking the picture.

Split-Screen Effects: used to join images otherwise to be seen in separate shots. Both shots run simultaneously.