12 Animation Principles

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Timing and spacing

24fps is the standard frame rate for movies.

**Drawing on Ones** - 1 drawing per 24fps, this is good for very fast actions, as it is easier for the viewer to understand the actions.

**Drawing on Twos** - 1 drawing for every two frames, this is faster to draw and can make some actions look smoother.

More drawings between the main point of the animation mean the animation will be more slow. Less drawings between the point will make the animation faster.

An action can have different meaning depending on the number of frame are within the main points.
Anticipation is the preparation the character takes before an action. This helps the viewer anticipate the next sequence of actions.

Anticipation also helps to create a more realistic action, as it shows the character building their energy in preparation for their next move.
Straight ahead/ Pose to pose

**Straight Ahead** is animating a sequence as you go. This is a good method to use to animate something that's movement is hard to predict.

**Pose to pose** is drawing the main points of the animation, the beginning, middle and end. After the main points are positioned, the animator would go back and draw the parts between each frame. This gives the animator more control.

Within **pose to pose** there are:

**Keys** = the main poses,

**Extremes** = how far the character will with their movement,

**Breakdowns** = how the extremes connect.
**ArCS**

The Principle of **ArCS** in animation is based on the fact that most actions in real life occur in arches as gravity causes objects in motion to arc between the start and end points.

The shallower the arc the faster the object’s movement will appear. The more pronounced the arc, the slower the object will appear to move.
Follow through and overlapping action are often seen as two separate principles.

Follow Through refers to motion causing a reaction which continues even after the main action’s stopping point.

Overlapping Action is the idea that separate parts of a character or object will begin or stop moving at different times.

For example, in these gifs of the kittens from Disney’s The Aristocats, the top and bottom of the tails move at separate times as well as at a separate time from the body.
**Staging**

*Staging* in animation refers to setting the scene in a way that makes the idea completely clear to the viewer and how the animator controls where the viewer is looking and can apply to acting, timing, setting and the angle/position of the camera, providing context for objects within the animation.

There are three main aspects of staging used in this scene from *Steven Universe* created by Rebecca Sugar.

Characters and objects should have strong silhouettes to more quickly understand them, the environment should be interesting, without drawing attention away from the characters, objects, and actions and major actions should be presented one at a time or it could lead to confusion.
Slow ins and outs (eases)

Slow ins and outs are the spacing of the drawings between the extreme poses.

- This scene is from Snow White and the Seven Dwarfs made in 1937.

Within this scene the dwarfs' tools start off slow gain speed on the way down and then become slow again on the way back up. Which gives an authentic feel to the weight and use of the tools.
Secondary action

Secondary action describes gestures that support the main action to add more dimension to the character animation.

- Walk cycle from Bee and Puppycat, created by Natasha Allegri

The top scene shows secondary action as her arms move while she walks. The one below is using the same principle as her hair bounces as she jumps, showing how her movements affect the rest of her body.
Exaggeration

Basically every action, pose and expression can be taken to the next level to increase the amount of impact it has on the viewer.

- These scenes are from Bugs Bunny created 1940-2008

The actions within each of these gifs are exaggerated. The top showing the farmer’s head getting massaged, the process is exaggerated by the extreme folds of the skin to create a more visually impacting process of the movement. The bottom showing Bugs Bunny’s heart pulsating right out of his chest, this bit has been exaggerated to show the emotions of Bugs.
Squash and stretch provides the illusion of life to the animation. It is when the character’s body is extending and compressing to give the body volume and weight.

It is important that the volume of the character is kept constant. For example, stretching rubber band will cause it to thin outwards but the volume is still the same.

These scenes are from 1994 “The Lion King”
Solid drawing

This is the ability to draw your character from any angle in a believable manner. Basic ideas that relate to traditional drawing apply to the animation space also.

You should take into account various poses conveyed by the character and how it will behave in a 3-D space.

“Bug’s Bunny” Studies by Bob McKimson
APPEAL

Appeal is what makes the character interesting to the audience. There should be a connection between the two. This doesn’t mean it has to be cute; it should have personality!

Memorable characters have a pleasing simple design, the viewer should actually want to see that character, it must be charismatic.

Cricket scenes are from 1998 “Mulan”
Bibliography

https://www.evl.uic.edu/ralph/508S99/eases.html
https://www.howdesign.com/web-design-resources-technology/12-basic-principles-animation-motion-design/
https://www.digitalartsonline.co.uk/features/illustration/12-rules-of-animation/
https://www.youtube.com/playlist?list=PL-bOh8beCkp2yaINmXpt92U0l67d
http://25.media.tumblr.com/tumblr_lrkyzeVtcc1qm6oc3o1_500.gif
https://www.youtube.com/playlist?list=PL-bOh8beCkp2yaINmXpt92U0l67d
https://www.youtube.com/watch?v=HfFj-VQKiAM
https://49.media.tumblr.com/tumblr_mcmjmxkXt01s8lk9fo1_500.gif
https://www.pinterest.com/pin/4317262893612705/
https://49.MEDIA.TUMBLR.COM/TUMBLRÖMAcYJKREV1RCDP6M01O500.GIF
https://31.MEDIA.TUMBLR.COM/TUMBLRÖMAcYJKREV1RCDP6M01O500.GIF
https://www.michaelspornanimation.com/sblog/wp-content/2/8H5A.jpg
https://www.michaelspornanimation.com/sblog/wp-content/2/8GU1.jpg
https://www.hulu.com/tags/squash-and-stretch/
http://75-MEDIA-CACHE-AK0-PINIMG.COM/ORIGINALS/28/B5/FE/ABBEFE833E487A03A684C3DC0D2713.jpg
https://danterinaldidesign.com/appeal/
https://en.wikipedia.org/wiki/Bee_and_PuppyCat
https://www.imdb.com/title/tt0029583/combined
https://en.wikipedia.org/wiki/Bee_and_PuppyCat
https://www.evl.uic.edu/ralph/508S99/eases.html
https://www.youtube.com/watch?v=HfFj-VQKiAM
https://31.MEDIA.TUMBLR.COM/TUMBLRÖMAcYJKREV1RCDP6M01O500.GIF
http://www.imdb.com/title/tt0029583/combined
https://en.wikipedia.org/wiki/Bee_and_PuppyCat
https://www.evl.uic.edu/ralph/508S99/eases.html
https://www.youtube.com/watch?v=HfFj-VQKiAM
https://31.MEDIA.TUMBLR.COM/TUMBLRÖMAcYJKREV1RCDP6M01O500.GIF
http://www.imdb.com/title/tt0029583/combined
https://en.wikipedia.org/wiki/Bee_and_PuppyCat
https://www.evl.uic.edu/ralph/508S99/eases.html
https://www.youtube.com/watch?v=HfFj-VQKiAM
https://31.MEDIA.TUMBLR.COM/TUMBLRÖMAcYJKREV1RCDP6M01O500.GIF
http://www.imdb.com/title/tt0029583/combined
https://en.wikipedia.org/wiki/Bee_and_PuppyCat
https://www.evl.uic.edu/ralph/508S99/eases.html
https://www.youtube.com/watch?v=HfFj-VQKiAM
https://31.MEDIA.TUMBLR.COM/TUMBLRÖMAcYJKREV1RCDP6M01O500.GIF
http://www.imdb.com/title/tt0029583/combined
https://en.wikipedia.org/wiki/Bee_and_PuppyCat
https://www.evl.uic.edu/ralph/508S99/eases.html
https://www.youtube.com/watch?v=HfFj-VQKiAM
https://31.MEDIA.TUMBLR.COM/TUMBLRÖMAcYJKREV1RCDP6M01O500.GIF
http://www.imdb.com/title/tt0029583/combined