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MTM230

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Animation Principles

In this document I will explain, with 1-3 sentences each, each of the Animation Principles.

Squash & Stretch

- Likely the most important principle among the twelve, squash & stretch communicates motion, speed, and even the density of the material of an object. This principle is best shown with the Bouncing Ball animation, which replicates how a ball bounces (compresses on impact, stretches on outbound).

Anticipation

- Typically seen as a wind-up in animation, anticipation shows to viewers a sense of power. Like how a baseball pitcher will *wind up* their throw, stopping at the climax for a moment then throwing or how *Wile E. Coyote* winds up to run.

Staging

- Staging is not only an animation principle but one for filming and photography. It involves many factors such as Acting (posing), Timing, Camera (Rule of Thirds), and Setting. With this principle, animators guide the viewers' eyes with how they 'set the stage' so to speak.

Straight Ahead Action & Pose-to-Pose

- The key differences between straight ahead action and pose-to-pose action lies in how they move from one "scene" to the next. Straight Ahead involves filming one frame after the other, this is seen a lot in things like stop-motion. Pose-to-Pose involves choosing **key frames** to go between, then filling in the gaps.

Follow Through & Overlapping Action

- The key point of this principle is the way that parts attached to the body "follow though" with their movements. This is why capes in games follow the movement of a turn, but after the character stops turning, the cape continues. The key point of Overlapping Action is that different parts of the body move at different rates.

Slow in, Slow out

- Like easing, Slow in & Slow out shows difficulty in movement. If you have the object slowly beginning to move, it shows that it is heavy. The more frames at the beginning of an animation, the slower that it will appear. As such, there should be less frames in the middle of the animation, showing a higher speed.

Arc

- Arc is important in showing graceful movement and believability in a movement. Quote, "Due to the moving object's inertia, its path should be smooth unless it's being interrupted by an external force (e.g. impact). A smooth arc, like a dancer's movement, is always eye pleasing. On the other hand, an unintended broken arc can reduce the believability of the movement."[1]

Secondary Action

- Secondary actions are supplementary movements that the character does in addition to the main action. Like when a character begins to wind up their fist for a punch, they might twist their body and hold out their other hand for guidance. Secondary actions add character to these movements and help make them more believable.

Timing

- Mentioned previously in Staging, timing is the speed of an action and the duration of which it occurs. If, after the wind-up stage, the action happens quickly—it shows force. The swing of a sledgehammer for example, the wind-up stage may be long, but the action itself may happen quickly, showing the weight and force in the swing.

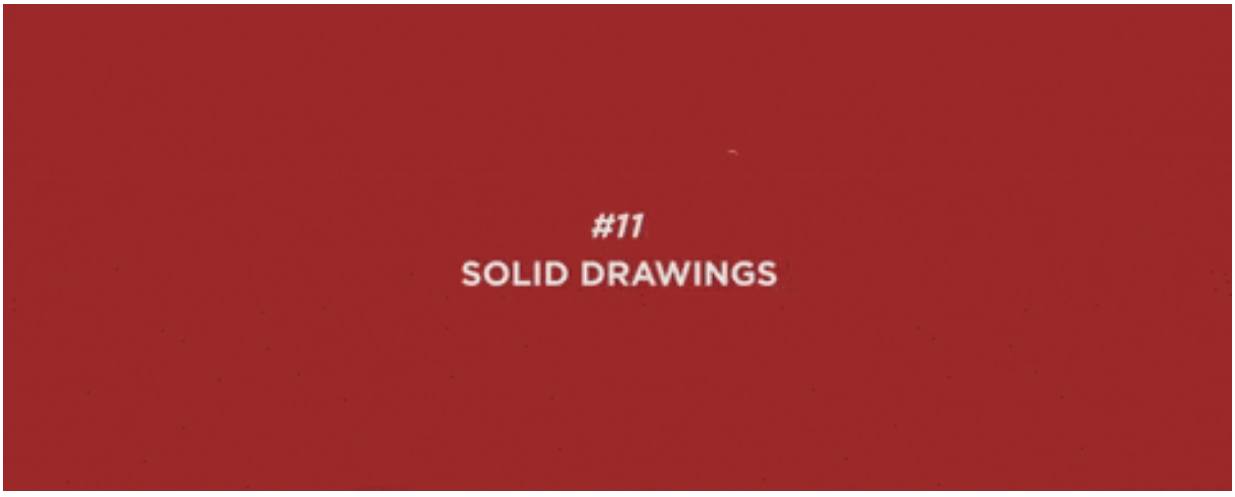
[1] https://www.animationmentor.com/blog/arc-the-12-basic-principles-of-animation/

Exaggeration

- Exaggeration of force is used to make an animation more visually appealing. The same action can be done with less exaggeration, but it looks more powerful and *again* appealing to viewers. [Image]

Solid Drawing

- Solid Drawings are all about how you make a 2D character feel 3D. Whether that be with rotation or something else. [Image]



Appeal

- Appeal is how interesting you make a character to an audience. People remember interesting or appealing characters.

Overall

Using each of these principles properly ensures that animation feels believable and interesting. This ended up becoming a 600 word “essay” so hopefully this’ll do.