The Twelve Principles of Animation

The Twelve Principles of Animation were introduced by Disney animators Ollie Johnston and Frank Thomas in their 1981 book, *The Illusion of Life: Disney Animation*. These principles are representative of the philosophy of nine Disney animators from the 1930s and reflect their collective efforts to produce more realistic animation. The main purpose of the principles was to produce the *illusion* of animated characters complying with the basic laws of physics. However, they also explore more conceptual issues, such as emotional timing and character appeal. You are encouraged to try to integrate these principles into your animated works when storyboarding and filming characters for your stop-motion animated movie.

Optional Activity

For more information and examples of the Twelve Principles of Animation, view the following videos:

12 Principles of Animation (4 min 37 s):
   youtube.com/watch?v=wECvv4ehm7g&feature=related

12 Principles of Animation (9 min 41 s):
   youtube.com/watch?v=kDIyysAf3O0&feature=related

Class Learning Activity: View Examples by Students

Before proceeding further, explore the NFB's **Stop-Motion Animation playlist** for professional examples of stop-motion films, or view interesting examples from student's workshops found here **nfb.ca/playlist/mediatheque**. These will provide you with ideas about the type of stop-motion animation that you will be creating, or aspire to create. Viewing photos of animation and examples of short animated videos that have been created at NFB workshops and by other students will help you to understand how these clips are made and demonstrate the concepts of fluidity and motion.

Class Learning Activity: Introduction to Equipment Demo

Your instructor will provide you with an introduction to the animation equipment that you will be using in your class and give you the opportunity to perform simple animation experiments (e.g., animate a chair so that it appears to move). If you get the opportunity, practice with the equipment to increase your comfort level before shooting your final movie.

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1. Squash & Stretch

A term used to describe different states of the same character or object. Many cartoons use squash and stretch to give the illusion of gravity, weight and mass. Here is an example of a bouncing ball using squash and stretch. As the ball hits the ground, its mass spreads outwards upon impact (squash). When it is moving up towards its highest position, the ball extends to show speed (stretch). It is important for the ball or character to maintain its original volume as it squashes and stretches.
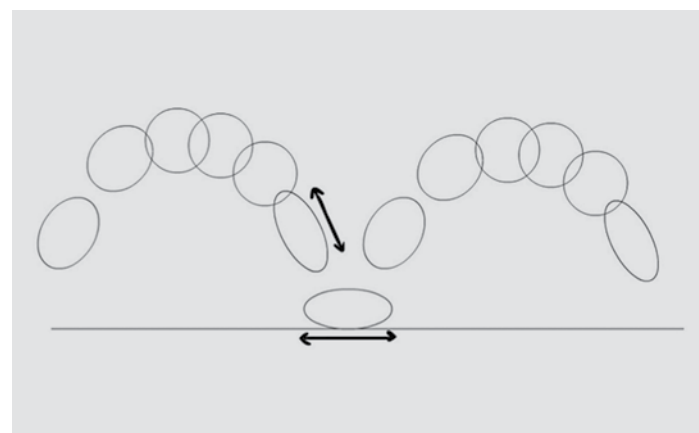

2. Anticipation

Anticipation is a movement of the character to prepare the audience for an upcoming action. An example of this would be a character getting ready to jump into the air by crouching down first before lifting off.
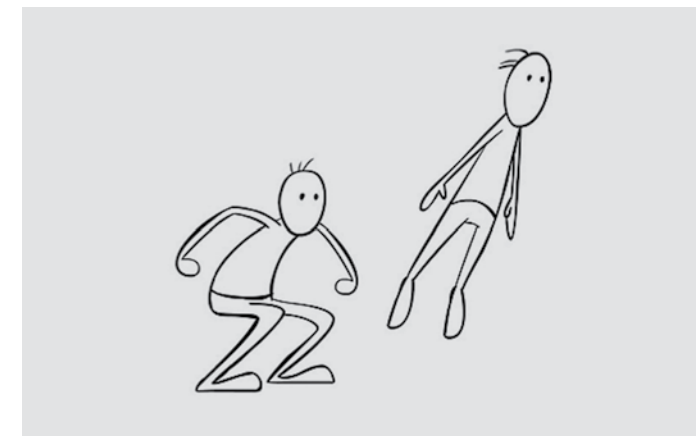
3. Staging

This term describes how you present your animation on screen to the audience. Is the action staged and composed well on screen? Is the action clear? Is there enough room around the character to perform the action? If you are showing a broad action, a wider shot may be best. If a character is showing a specific facial expression, a closer shot would be more appropriate.
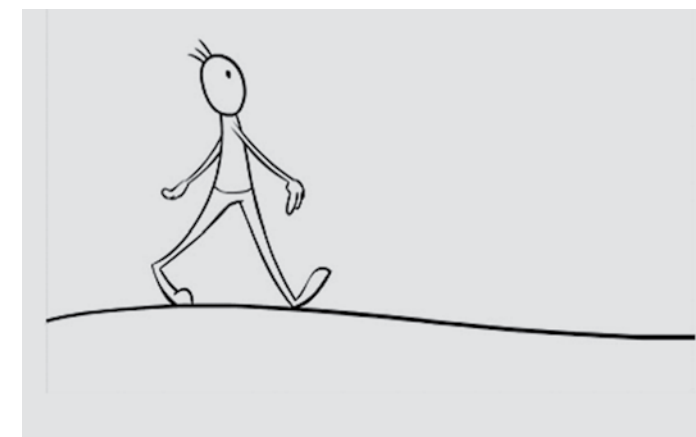
4. Straight Ahead and Pose-to-Pose Animation

There are two approaches to animating. Straight ahead animation is when you put the character through each pose sequentially to create a scene (which is the method to use for stop-motion animation). Pose-to-pose, also known as key animation, is when you plot out the main poses of movement in a scene and add the in-between movement after your key poses are finalized (mostly used in traditional, hand-drawn animation and computer animation).

5. Follow Through and Overlapping Animation

This deals with how certain parts of a character will move in relation to the rest of the character. For example, when a character stops walking her body may stop moving, but her arms stop and settle over the course of a few more frames. If a character were to walk into a room and her entire body stopped moving all at once, it would look unnatural and stiff.

6. Slow-in and Slow-out

These terms refer to the timing of characters' or objects' motion on screen. If you want a character or object to settle in to a pose more naturally, add more frames to slow down the movement before coming to a complete stop (slow-in). If a character is about to move quickly, he would start out a bit slower before reaching full speed (slow-out). An example of this could be a car beginning to drive away. It would slowly accelerate before speeding up.