12 Basic principles of Animation

Disney's 12 basic principles of animation were presented by two Disney animators "Ollie Johnston" and "Frank Thomas" in 1981 in their book "The Illusion of Life". The main aim of these principles of animation was to produce more realistic animation by adhering the basic laws of physics, such as emotions, timing and Character's outlook.

The book "The Illusion of Life" referred as a "Bible of animation" in 1999 and voted as a number one "best book of animation of all the time" in an online poll.

To become master to the Twelve Principles as an Animation artist, you're basically figuring out how to consider your character holding fast to the guidelines of physics while likewise considering similarly essential points like the character's Outer look and the planning of your shot.

The 12 Basic Principles of Animation are as follows :-

1. Squash and Stretch
2. Anticipation
3. Staging
4. Straight ahead and pose to pose animation
5. Follow through and Overlapping Action
6. Slow in and Slow out
7. Arcs
8. Secondary Action
9. Timing
10. Exaggeration
11. Solid drawing
12. Appeal

1. Squash and Stretch :- It is very important principle of animation. The main purpose of "Squash and Stretch" is to add weight and flexibility to the hand drawn objects. It can be applied to the simple objects ,such as Bouncing ball; to the more complex structures, such

as Human face as well.

*** Rigidity :-** The movement of an object indicates rigidity of the object. There are so many objects that have little amount of rigidity eg:- Furniture, Wood etc. Let us take an example of a bouncing ball and a hard cork ball. When a rubber ball falls from a certain height, It squashes more than a hard cork ball.

*** Volume :-** This property indicates that the volume of the object remains the same. Take an example of an human being, When a person gives a smile, head appears to increase its size due to wide opening of mouth but actually it doesn't. Actually, all of this happens because the face displaces its mass into the stretched head.

2. Anticipation :- "Anticipation" is most important and second principle of animation which is used to prepare the audience for the coming action of the object. It contains three parts :- Preparation of action, action itself and termination. For example , A man is jumping ; firstly he bends his knees then jump and jumps at floor.

*** Indicating Speed :-** Anticipation also helps the audience to indicate the speed. If we hit a ball with a bat with the player's hand far back, the audience expects the ball to go far and jump the boundary. Thats why, Anticipation helps the person to figure out speed of the action.

3. Staging :- Staging is proper presentation of animation i.e Sequencing the action that comes first. Note : Not make multiple animations together as it distracts the audience's attention.Staging tells the audience about the action which is happening. You must take care of the background that it should not be complex so that it is not covering the whole animation. For Example, a man slips on the floor and people laughs. First the person comes and slips then people come to laugh at him.

*** Readability :-** To represent the idea clearly to the audience, the action is staged so that the audience's attention is at the main action at the right time which is to be represented.

*** Personality :-** An identity of a character is also staged so that the main character with its action is recognizable by the audience in the scene. You can define the character's personality by defining it's characteristics.

4. Straight ahead and pose to pose animation :- Straight ahead animation is used for simple objects that doesn't have definite shape and size. This kind of animation is not planned and you can randomly draw the frames in a sequence. For Example, Crawling of a snake
Pose to pose animation is planned and occurs in three parts :- The beginning frame, end frame and middle frame and then you draw the rest of the animation frames. For Example, Walk cycle of man.
*** Relevance in CGI :-** In Straight ahead animation, the main problem that occurs is the proportion of the object but computer animation removes the problem. In Pose to pose animation, the main advantage is that it is made frame by frame that means the layers with each movement of character is placed sequentially. It is used in computer animation and also shows better results.

5. Follow through and Overlapping Action :- In follow through animation, the child object follows the parent object animation. For Example, Hair of a person follows the same movement as a head movement.
Overlapping is opposite to Follow Through action because in overlapping action the child object doesn't follow parents object's action of motion. For Example, a girl wears a frock; when wind blows the clothes of the girl follows new direction different to clothes.
Follow through and Overlapping action is generally same techniques like the 2 sides of a coin to represent the action more realistic. Both follows the laws of physics "The principle of Inertia". In follow through action, you can take it as a loose object tied to your body and the tied object still moves after your body action was stopped.
Overlapping action is like that part of the body that actually don't

move but takes some time to catch the action like, Arms and hair.

6. Slow in and Slow out :- Slow in and Slow out Principle of animation is related to time and speed hence, it depends upon the number if frames used in a particular animation. For Example, If there is a more number of frames then the animation becomes slow and if there is a less number of frames then the animation becomes fast.
*** Speed :-** Slow in and Slow out is used to create Ease in and Ease out in an animation. For example, When a ball falls from a certain height to the ground, the speed of the ball increases and then after bounces speed is going to decrease.
*** Tangency :-** In computer animation, we can create a graph of a ball animation and also by using this graph we can handle the curves of animation of the ball to handle the speed at various frames to make the animation more realistic.

7. Arcs :- This principle of animation shows that if a movement of an object follows the circular path of animation than it makes the animation more realistic and attractive. For Example, A man throws a ball. If the arm movement of man is in circular path than it looks more realistic than follow a straight path.
8. Secondary Action :- Secondary actions are body gestures and face expressions that supports the main action in an animation. For Example, If a person is sad, His low eyebrows acts as a secondary action to support the main action of his sadness.
Example2, A character is furiously walking towards the another character. His walk is mighty, forceful and the forward inclining. The optional activity is the couple of solid motions of the arms working with the walk.

9. Timing :- Timing in animation refers to the time and speed of an animation. The basics to be understand are: More drawings in the shots represents slow and smooth the action. Likewise, Less drawings

make the object move faster and fresher. It also defines the weight of an object. If an object is highly weighted, it takes more time to reach the floor when it throws from a certain height. Also, if an object is light weighted then it takes less time to reach the floor when it throws from a certain height.

10. Exaggeration :- Exaggeration is used in animation to highlight some of the main features of a character to make it more broad , highlighted and dramatic. For example, Shocking face of a lady, By drawing her eyes bigger and mouth highly opened.
*** Essence :-** To correctly use the principle of Exaggeration, first explore the action of the character then make the character's facial expressions accordingly. If a character is angry, make it furious.

11. Solid drawing :- Solid drawing is used to create a character in three dimentional to create its depth in two dimensional space. It reflects the character's Volume and weight. In solid drawing, we can create the Illusion of three dimensional and four dimensional life by giving it color and movement where three dimentional movement is in space and four dimensional movement is in time.

12. Appeal :- Appeal of a character in an animation reflects position and status of a character. The appeal of a character doesn't mean to make the character cute but to decide its appeal according to the nature of the character whether it is hero, villain , old and young. For example, If a man is rich or poor; It's clothes and physical appearance shows its status and personality. To make the character more appealing in an animation, do less use of detailing and keep it Simple.

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