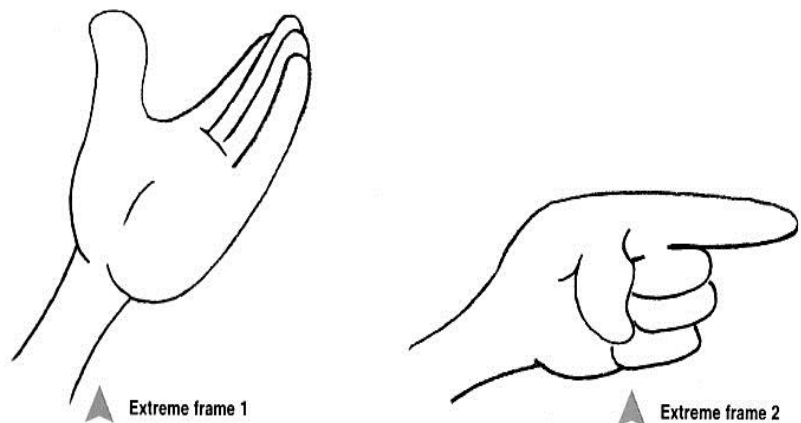


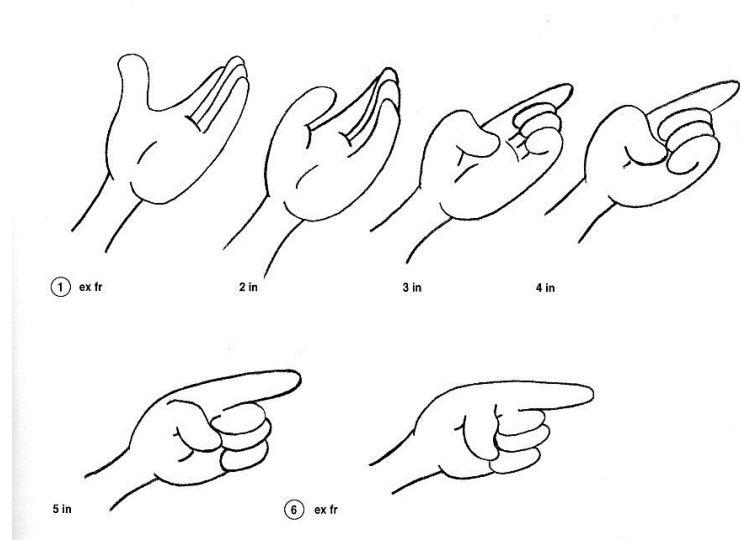
the basics of the cartoon

Keyframes (extreme frames)

- Keyframes define the MOVE.
- These are the beginning and the end of every movement.
- Usually they stay constantly in the movie over 2 pictures to give the rythm in the animation.

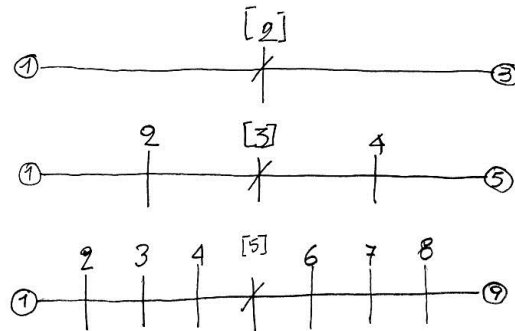


Keyframes (in-between)

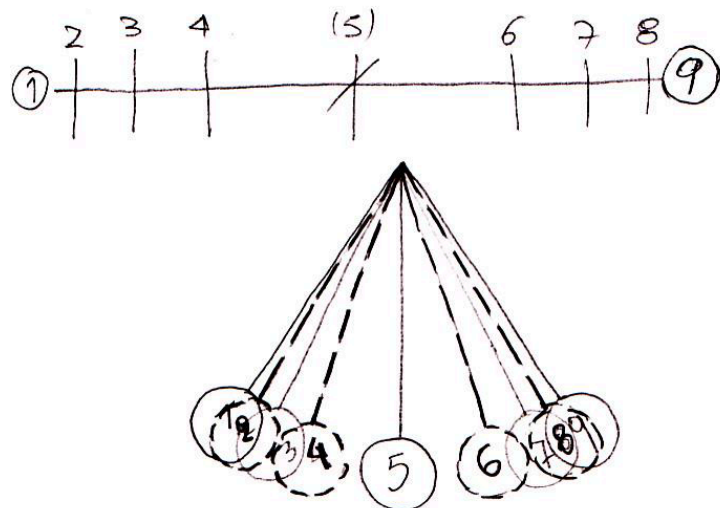


The in-between steps

- Determine the exact number of intermediates, thus the length of time between two key frames.



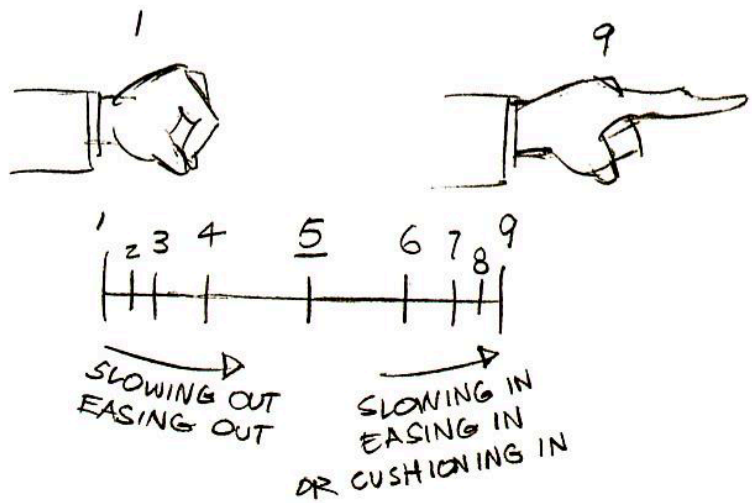
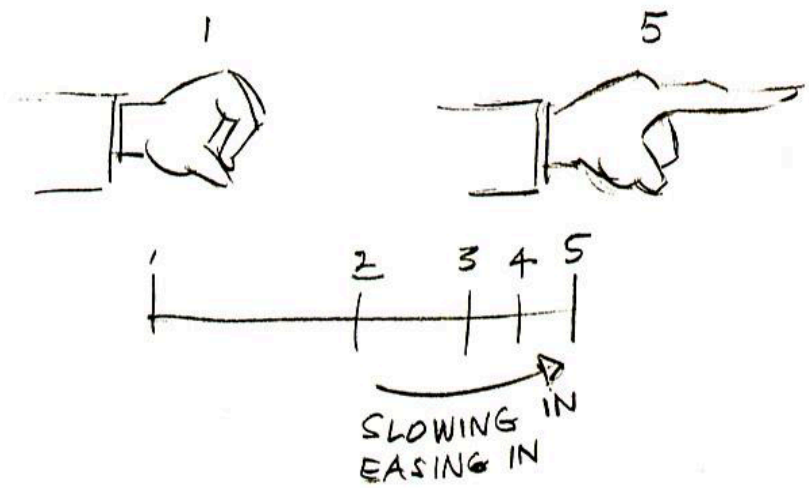
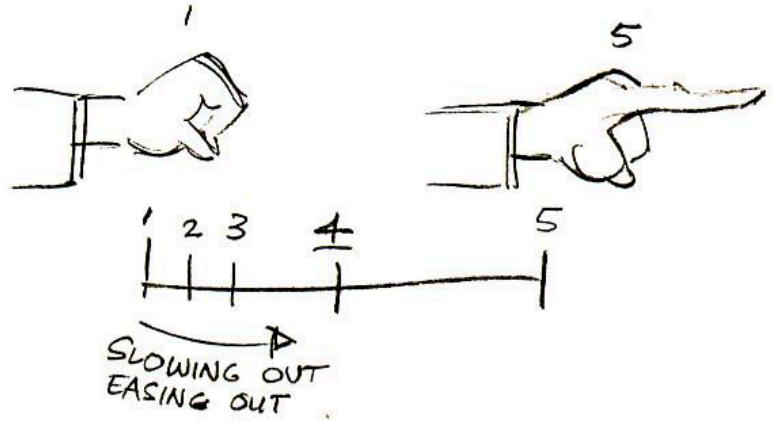
- Determine how the time is allocated between key-frames.
- Determine where acceleration and deceleration are in motion (1-5 acceleration, 5-9 deceleration)



So we make...

- ... tensions in motion
- ... soft off
- ... natural flow
- ... timing

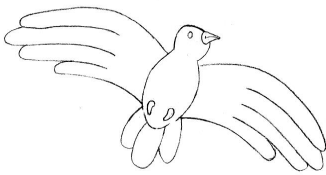
Examples



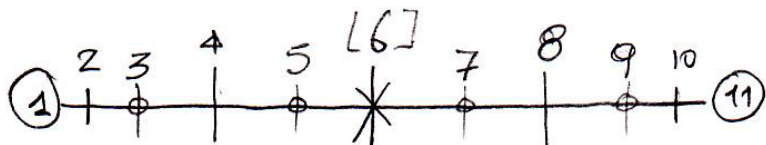
The transformation

- The first animation exercise for ...
- Understanding the creation of intermediaries.
- the use of intermediate stairs.
- with a simple staircase ...
- ... so that all intermediaries are created in the middle, middle, and middle, and there is no difficulty of third parties.

The steps



- We punch 20 cards.
- We organize the screen area.
- Peg-bars outside the frame.
- The design of the ladder as well.
- We design two key frames on different cards in the save area.
- We start designing the intermediates in the following order 1 - 11 at 6, 1 - 6 at 4, 1 - 4 at 3, 4 - 6 at 5 and 1 - 3 at 2.
- Respectively the rest.



- Intermediate drawings are based on volumes.
- The motion is generated by the gradual deformation of each area on key 1 to a corresponding one on key 2.
- Whatever area is disappearing, it is progressively drawn from drawing to drawing, correspondingly, and whatever area is displayed.
- Colors also pass gradually from drawing to drawing, e.g. if an area on key 1 is red and correspondingly on key 2 yellow, intermediate 6 is orange.