Design Course

Animation Technicalities (Part 1)

Understanding Aspect Ratios for Film and Video

by
Prof. Phani Tetali and Samidha Gunjal
IDC, IIT Bombay

Source:
https://www.dsource.in/course/animation-technicalities-part-1

1. Introduction
2. 4:3 Aspect Ratio
3. 16:9 Aspect Ratio
4. Recent Scenario
5. Experiments
6. Video
7. Design Tools
8. Contact Details

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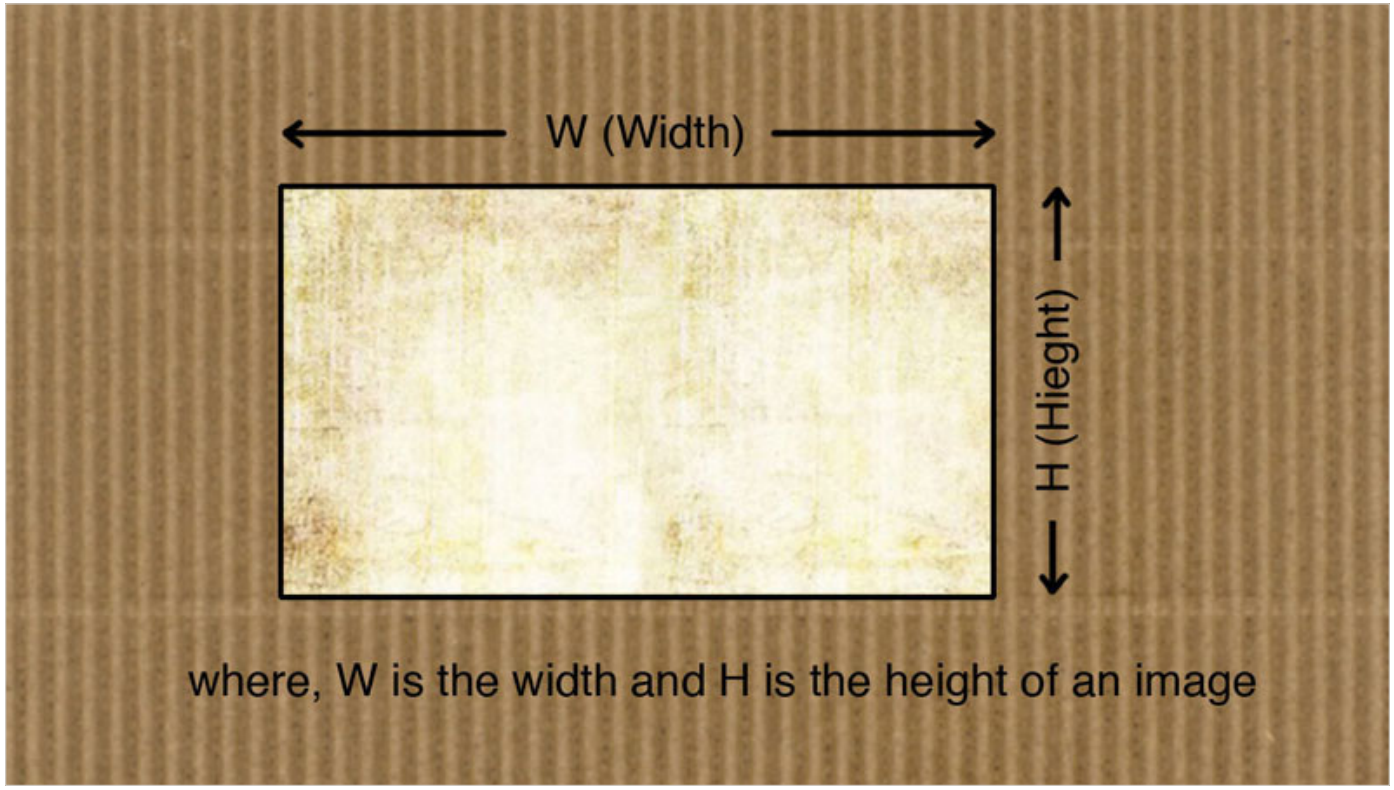
Introduction

In our day today life, we come across many things.
Each one of them has an aspect ratio.

What is an Aspect Ratio?
Aspect ratio is the proportional relationship between width and height of the object. It is an important factor while making films and videos.



Images-aspect ratio 1

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- Different aspect ratio used for film and video are 4:3, 16:9, 3:2, 5:2 and many more.
- The cinematographer must decide which aspect ratio works best for the budget and the overall look of the film.
- Today we will concentrate on two aspect ratios, they are 4:3 and 16:9.

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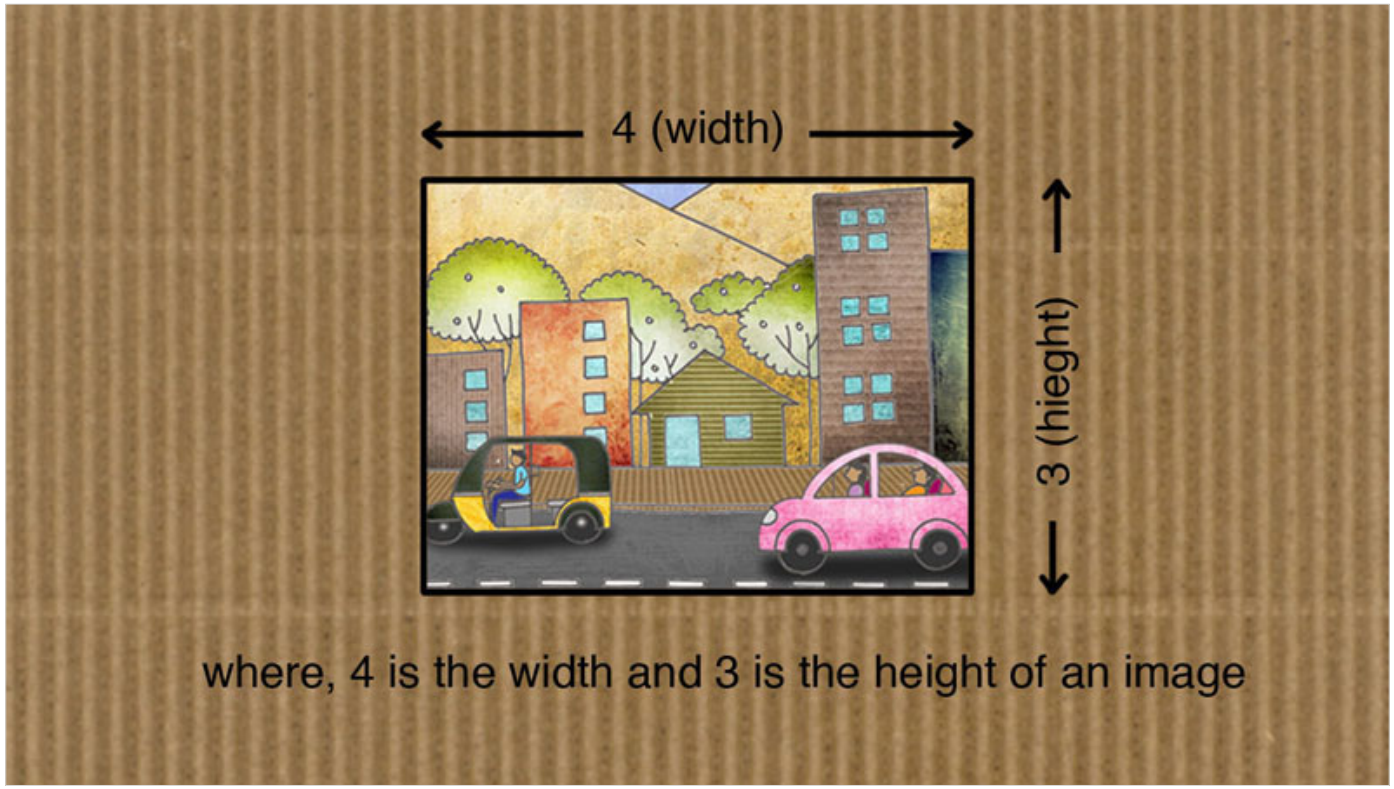
4:3 Aspect Ratio

4:3 is a typical aspect ratio for television and video. Where, 4 refers to the width of screen and 3 is the height.



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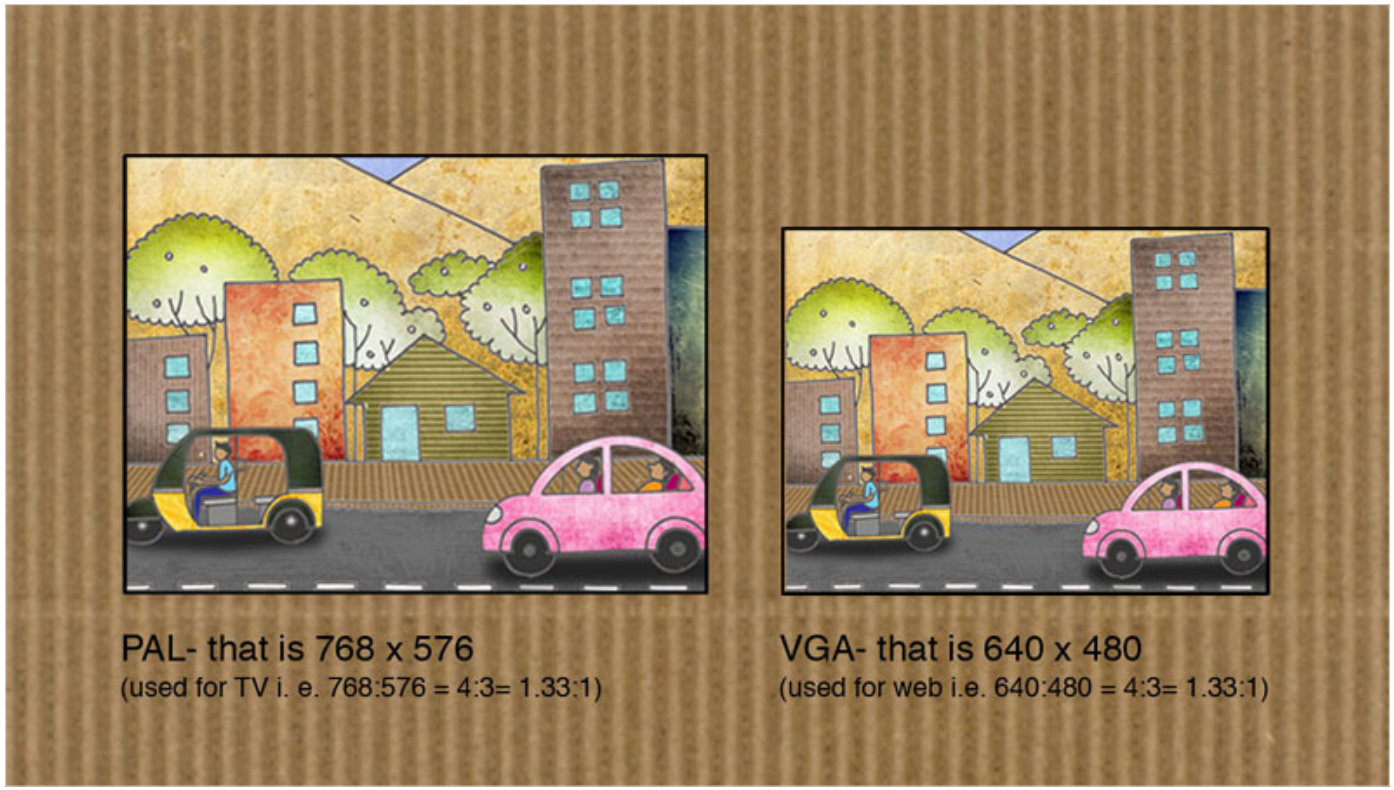
Earlier when moving images were put on film for the first time, the aspect ratio 4:3 was used. And it became an Academy standard. This aspect ratio was used till 1950s.

Frame sizes in 4:3 Aspect Ratios commonly used are:

- **PAL** : That is 768 x 576 (used for TV)
- **VGA** : That is 640 x 480 (used for web)



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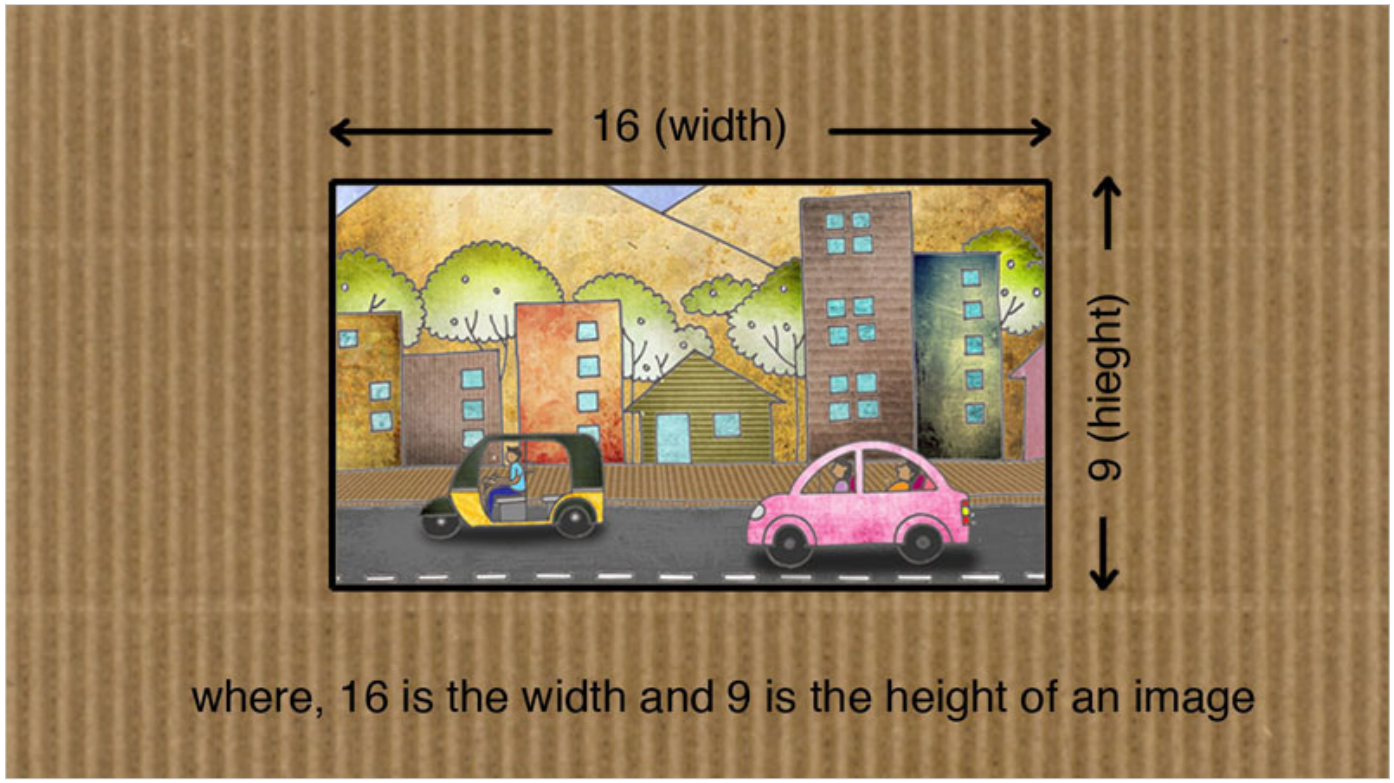
16:9 Aspect Ratio

Since 1950 onwards, a new aspect ratio emerged that is 16:9 also known as wide screen.

In the 50s', TV became immensely popular and filmmakers needed a way to get people back into movie theatres.

By using an aspect ratio where the width is twice the height, they created a new cinematic experience. When an image extends to fill more of your peripheral vision, what you watch is more engaging. That is why this ratio is widely used for film with the view of mountains, ocean, forest, desert etc.

16:9 became an international HDTV format, where, 16 refers to the screen width and 9 is the height. Today, 16:9 or wide screen is the commonly used aspect ratio across computers, TV and Internet videos.



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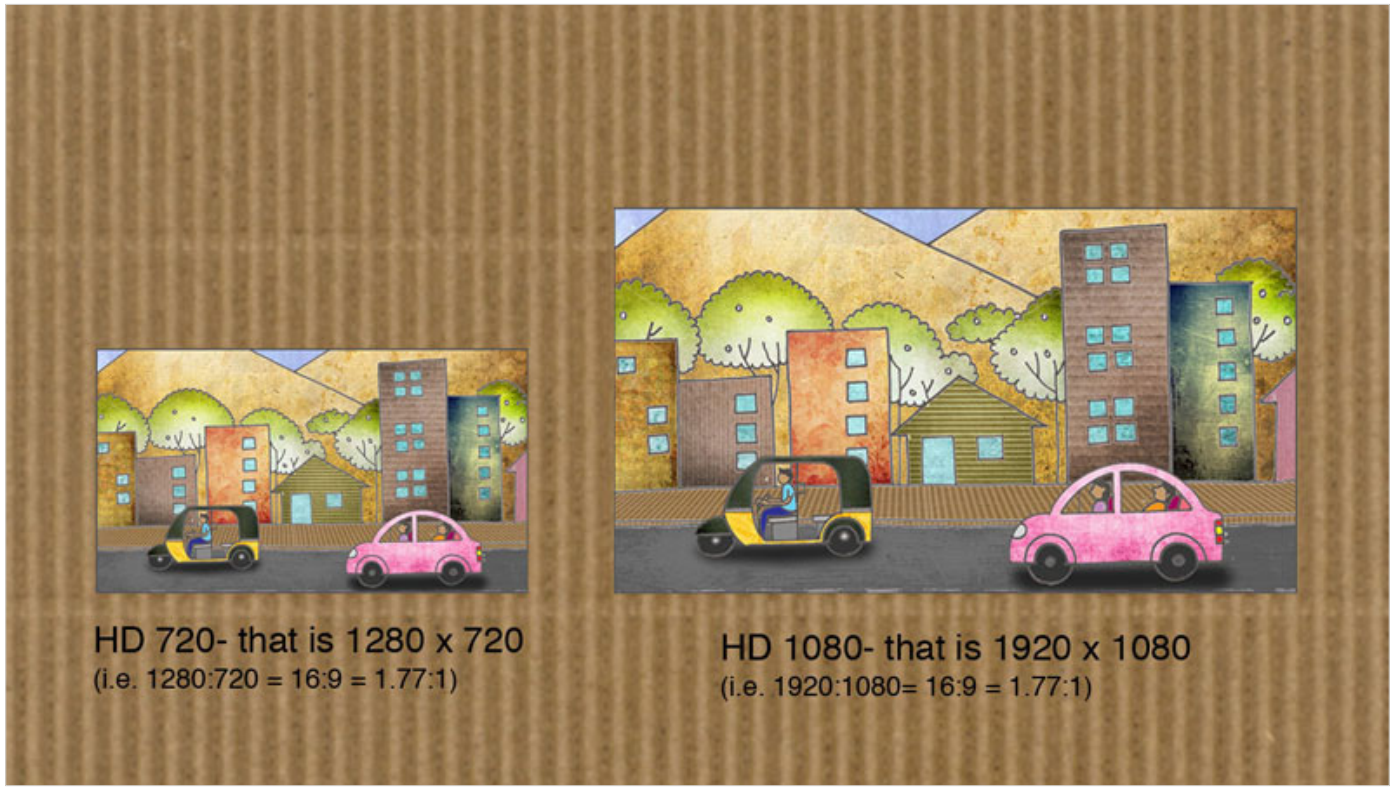
Frame sizes in 16:9 aspect ratio are:

- **HD 720** : That is 1280 x 720
- **HD 1080** : That is 1920 x 1080



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Recent Scenario

If you want to see a 4:3 aspect ratio film- you will have to dig out old black and white video tapes.

For Example:
Charlie Chaplin tapes, we all loved watching as kids. We still enjoy watching them.

The video you are watching now a days is wide screen format.

Q: But what happens if old 4:3 format videos are played on 16:9, widescreen format?

Let's import a 4:3 format video in wide screen and show you.
- The black bars will appear on either sides of the video.

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Similarly,

Q: What happens if a 16:9 video is played on old TV set with 4:3 aspect ratio?

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It will have black bars on top and bottom of the video. Or in some cases the video may cut from both sides and picture information would be lost.

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Experiments

To get better understanding of aspect ratios in general, explore your TV and computer monitor settings, not to forget the camera. They all have aspect ratios!

Open Adobe Photoshop software on your computer.

Q.1 What frame size will you use for 4:3 aspect ratio?

Q.2 What frame size will you use for 16:9 aspect ratio?

Q.3 If you want to make a movie, showing view of the mountains, ocean, desert, jungle etc. Which aspect ratio will enhance the cinematic experience?

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Video

Animation Technicalities - Aspect Ratio

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Design Tools

Animation Design:

Animation is a method of photographing successive drawings, models or even puppets to create an illusion of movement in a sequence. Animation Tool is developed by IDC, IIT Bombay. It is an interactive web space where students can learn about the basics of animation. There are four main types of animation that are commonly used: 2D Traditional Animation, 2D Computer Animation, Stop Motion Animation, and 3D Computer Animation. There's also something called Experimental animation, where you can mix different types of animation together. The Animation Tool teaches things like Straight Ahead, Pose to Pose, Stretch and Squash, and Slow in Slow out, which are all important for making animations look good.

For more information visit: https://dsource.in/tool/animation_tool/

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This documentation for the course was done by Samidha Gunjal, IDC, IIT Bombay.

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