

# **Introduction to Multimedia Applications CT801-4-0-OIMA**



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## **Animation in Multimedia**

# Topic & Structure of the lesson



Introduction to Animation



Animation Characteristics



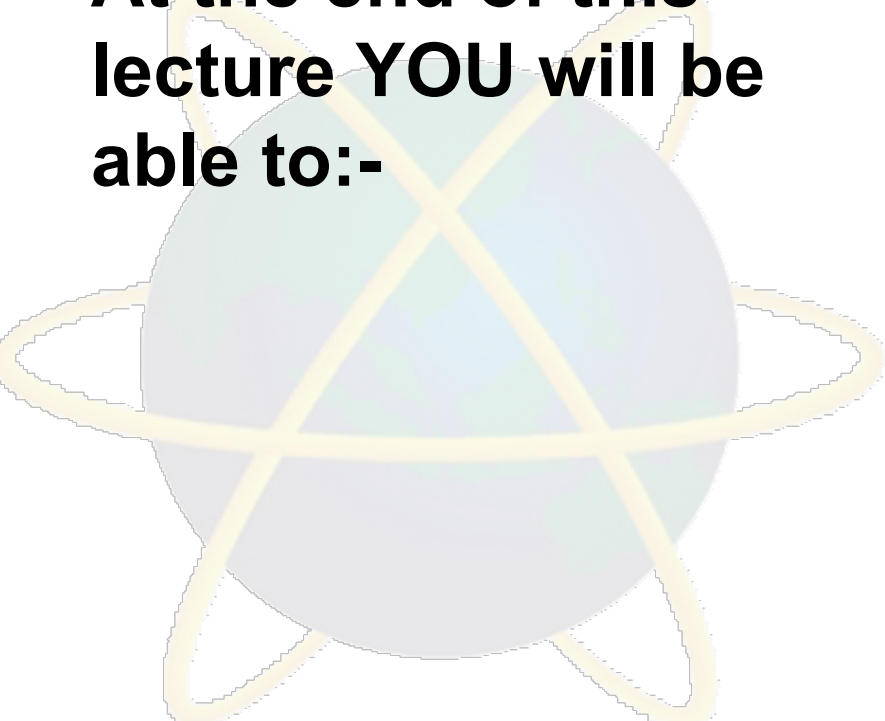
Types of Animation



Animation Authoring Tools

# Learning Outcomes

**At the end of this  
lecture YOU will be  
able to:-**



Define what is animation in multimedia



Differentiate between 2D and 3D concepts



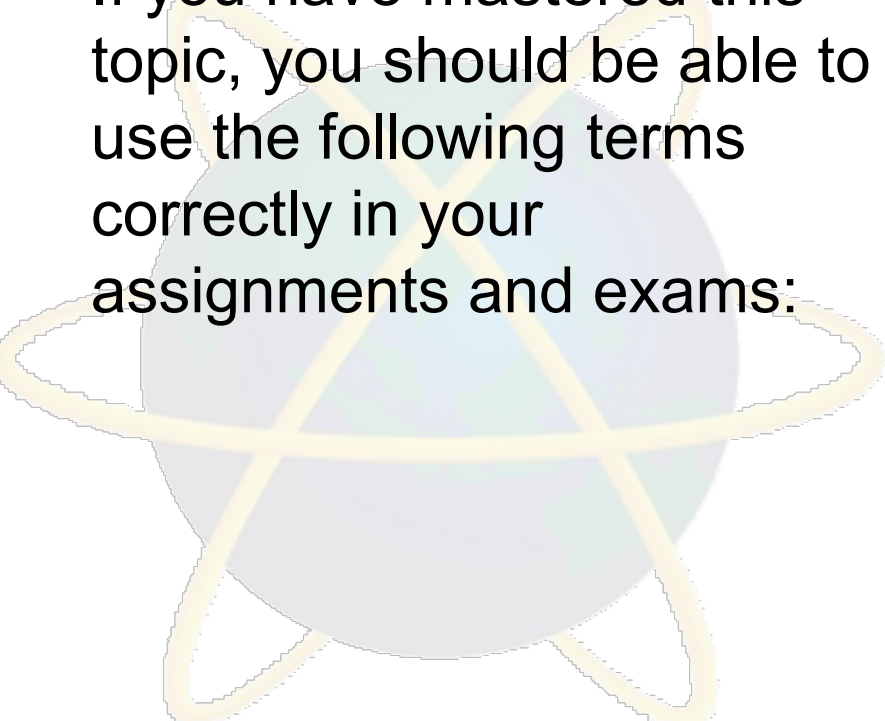
Develop vector animation



Develop custom animation using multimedia authoring tools.

# Key Terms you must be able to use

If you have mastered this topic, you should be able to use the following terms correctly in your assignments and exams:



Animation

Frames

2D objects

3D Objects

# Introduction to Animation

A sequence of frames or still graphics that, when played in order at sufficient speed, presents a smoothly moving image like a film or video. An animation can be digitized video, computer-generated graphics, or a combination.

The perception of motion in an animation is an illusion



# Introduction to Animation



Movies on film are run at 24 frames per second.



Television uses 30 frames per second



Computer animations can be effective at 12 to 15 frames per second



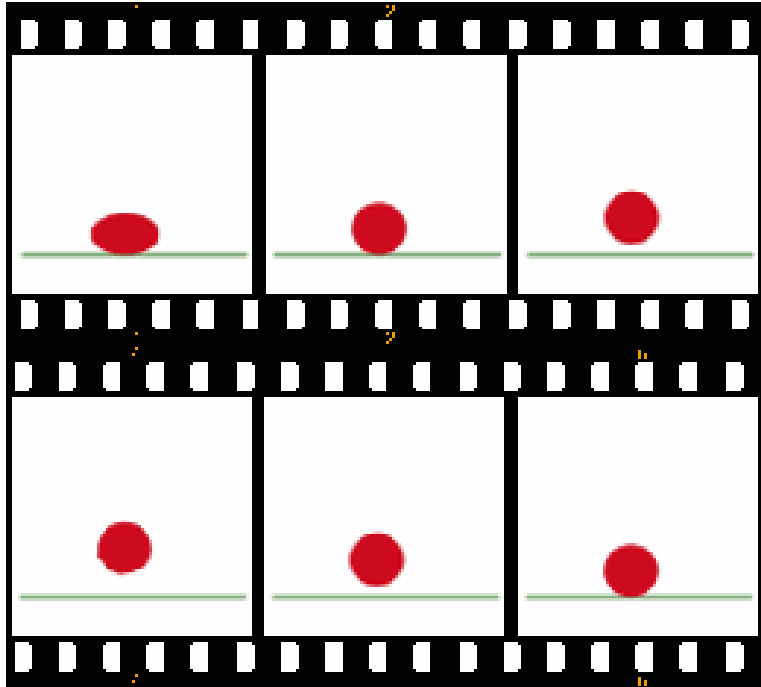
Anything less than 12 frames per second creates a jerky motion as our eye detects the changes from one frame to the next



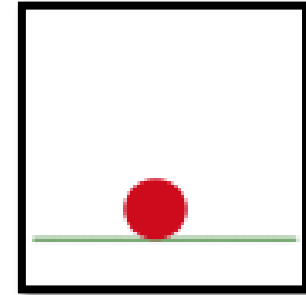
Animation that does not require seamlessly smooth movement can be shot 'on 2s', which means that two frames of each drawing

# Example : 2000 frames per second





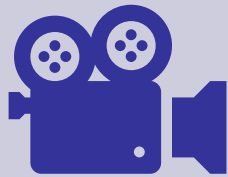
The bouncing ball animation consists of six frames.



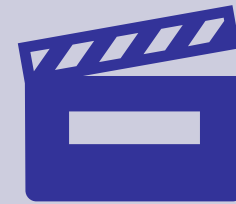
This animation moves at 10 frames per second.



# Categories of Animation



**2D ANIMATION**

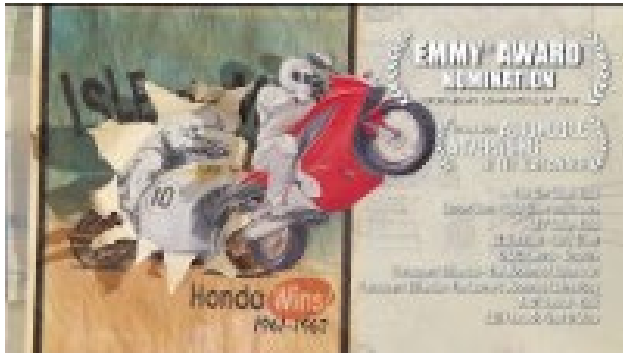


**3D ANIMATION**

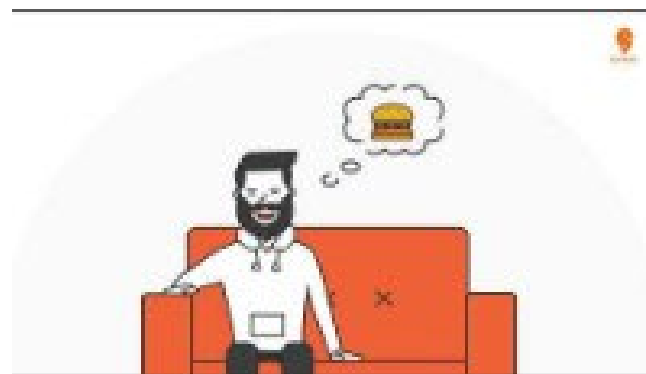
# Example of 2D animation



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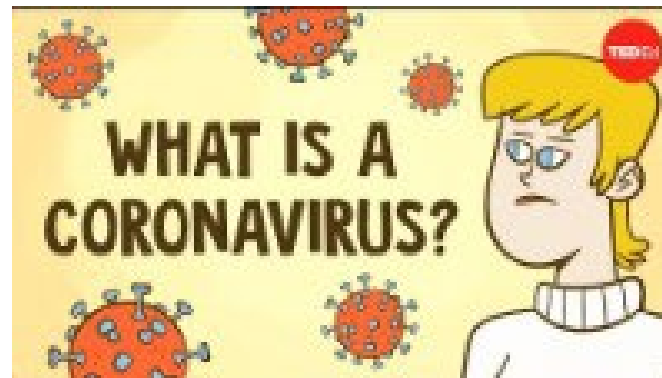
1. Honda "Paper"



2. The "Swiggy Commercial"



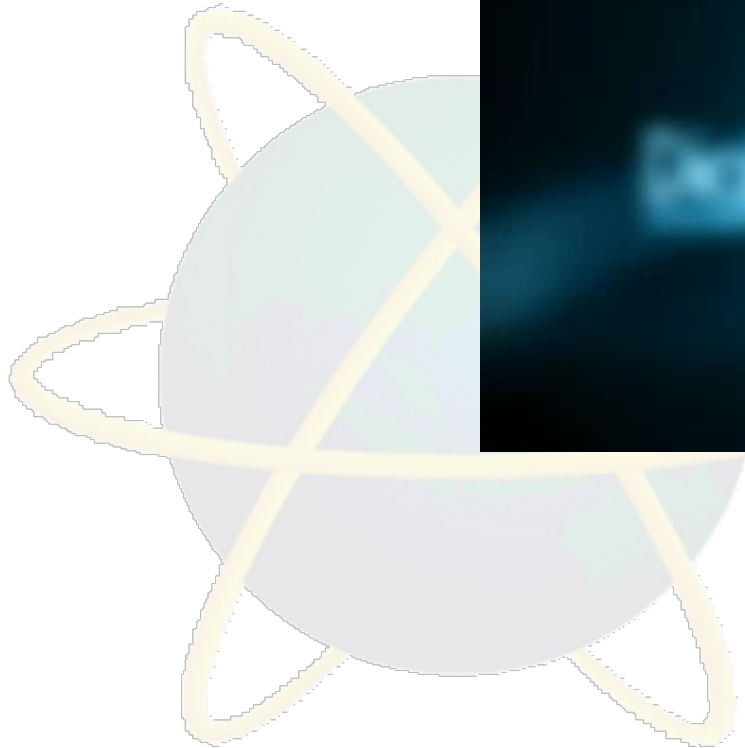
3. McDonald's – Drive Thru Car Free Day



4. CoronaVirus



# Introduction to Animation



# Types of 2D Animation



**2D animations:**



Motion created or the object that is animating uses only two dimensions of space, x-axis and y-axis.



2D images very often use bitmap images to create the animation.



However, vector based 2D animation popular nowadays because of *flash* software

# Types of 2D Animation

Cel animation

Path animation

Screen or Object Transitions

Title animation

Frame animation (traditional) - Entire image updates each frame

2 1/2 D - special effects (extrusion, coloring, etc.) for a 3-D like effect

# 2D Animation - Cel animation

Reduce the enormous amount of labor

*Cel* comes from the word *celluloid*

Celluloid: a clear sheet material on which images were drawn

Those objects in a scene that might move are drawn separately from the background

That means the objects would be drawn on *cel*

The object then would be laid over a background.

In producing a sequence, only the moving objects on the *cel* need to be redrawn for each frame

# Example - Cel Animation



**How It's Made | Traditional Cel Animation**

# 2D Animation - Path animation

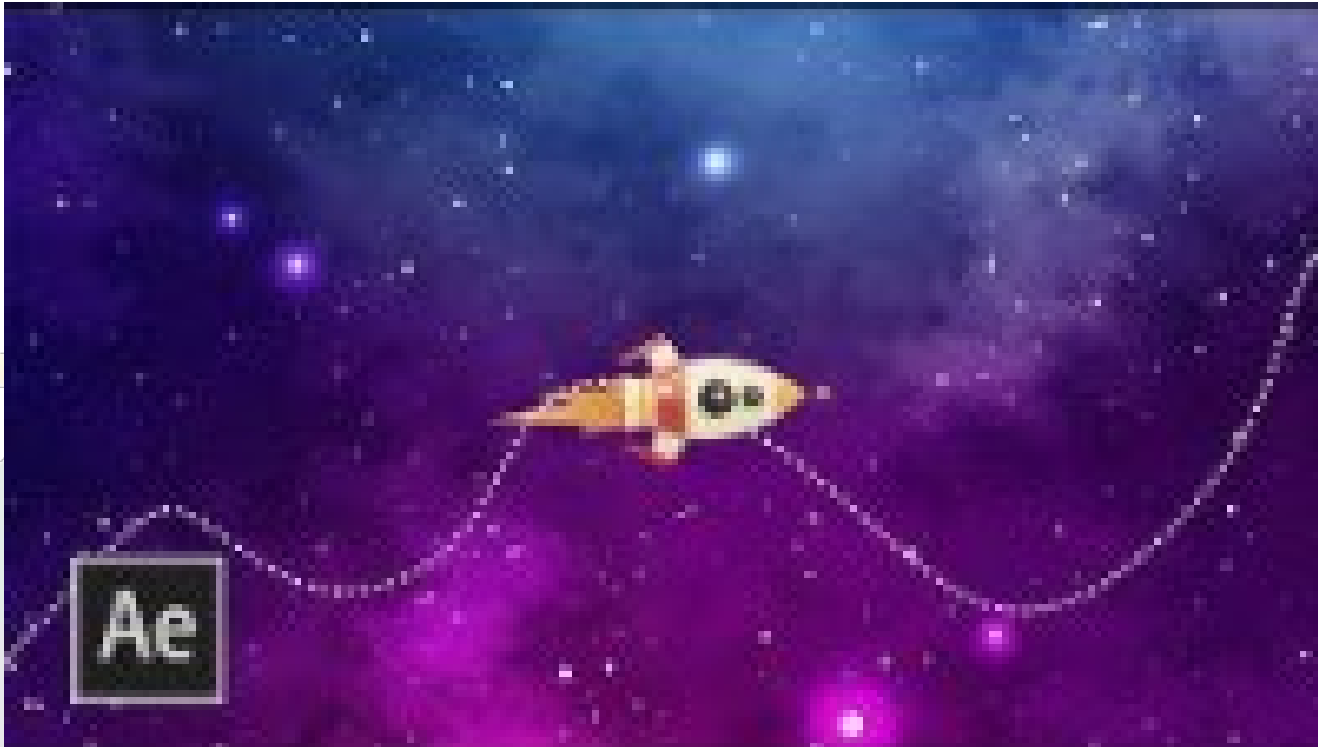
Objects move along a predetermined path on the screen.

The path could be a straight line or it could include any number of curves

Often the object does not change, although it might be resized or rotated.



# Example - Path Animation



**Create Custom Path Animation Along A Path**

# 2D Animation - Screen or Object Transitions



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Transitions: transfer from one page to another with a pleasant visual effect such as random dissolve, box in, box out, circle in, circle out, wipe right, etc.

Transitions are temporary phenomena

In many authoring and presentation packages, screen changes are provided in the form of slide transition.

# Example – Screen/Object Transition



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**Simple Transition Using Objects in the Video**

# 2D Animation – Title Animation

Present their title, key production and cast members, or both, utilizing conceptual visuals and sound.

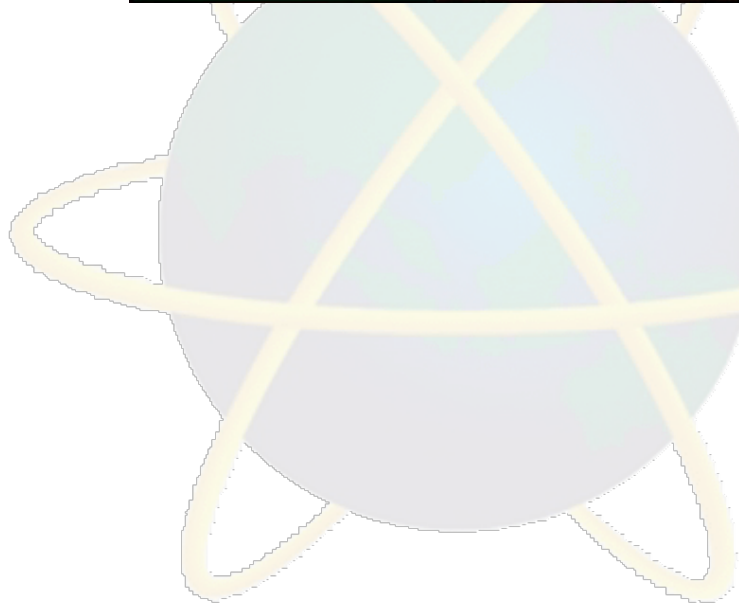
It may consist of live action, animation, music, still images, and/or graphics.



It typically includes (or begins) the text of the opening credits and helps establish the setting and tone of the program.

Slide

# Example – Title Animation



# 2D Animation – Animation

A sequence of key frames defines which movement the viewer will see, whereas the position of the key frames on the film, video, or animation defines the timing of the movement.

The drawings are called "frames" because their position in time is measured in frames on a strip of film

Entire image updates each frame.

Traditional approach of 2-D Animations.

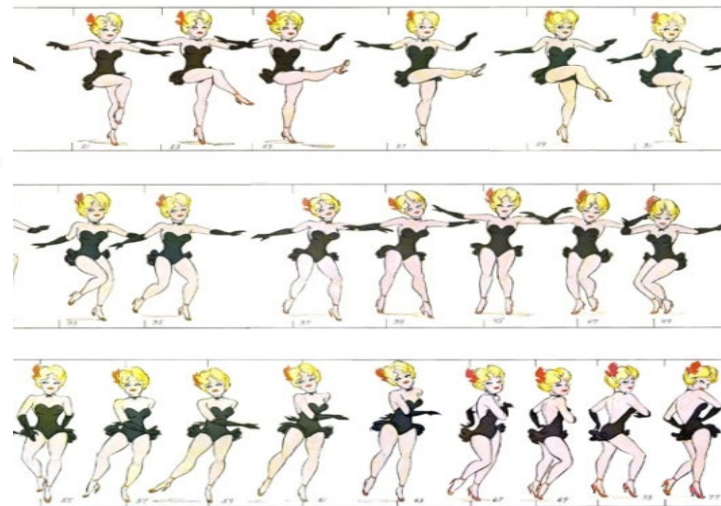
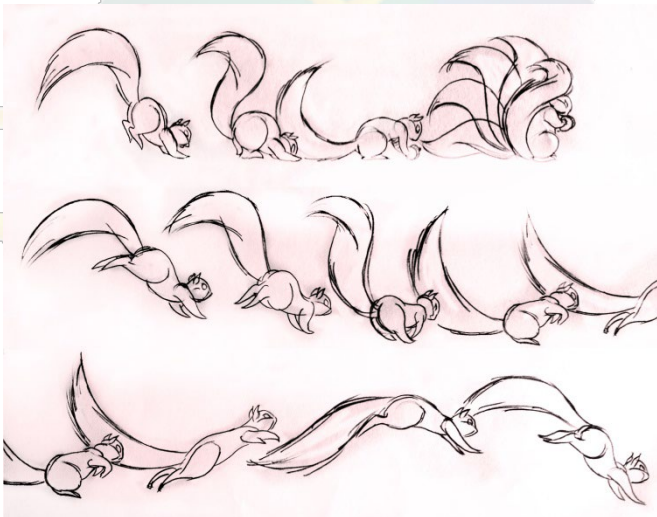
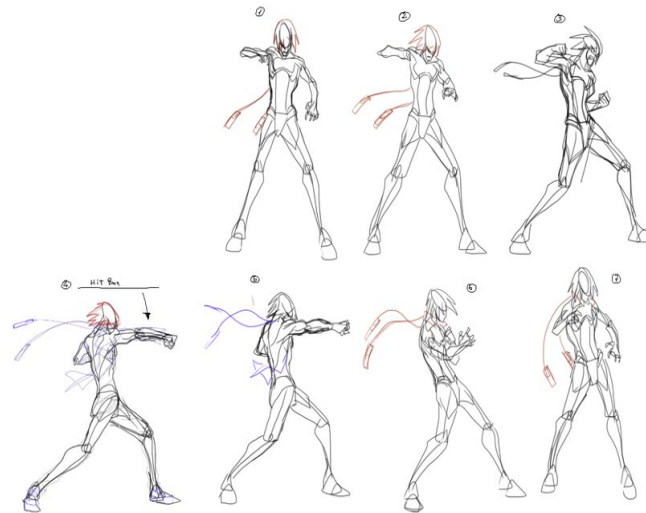
A drawing that defines the starting and ending points of any smooth transition.



# Example – Title Animation



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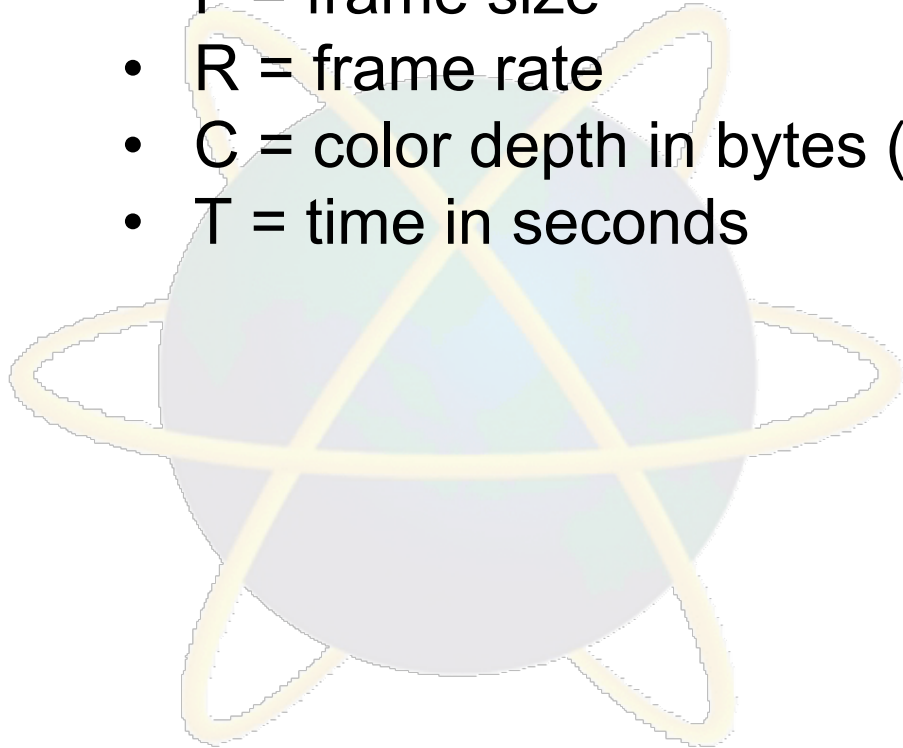
# Animation File Size Calculation



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## Calculating Animation File Size:

- Important consideration: file size
- Animation File Size =  $F * R * C * T$
- F = frame size
- R = frame rate
- C = color depth in bytes (1 bit = 0.125 byte)
- T = time in seconds





# Example: File Size Calculation

File size for an animation file in :

- 24-bit color,
- 320 x 240 pixels of screen size,
- 15 frames per second and
- 30 seconds of running time is

=  $320 \times 240 \times 3 \text{ bytes} \times 15 \text{ fps} \times 30 \text{ second} = 103680000 \text{ bytes (103 MBs)}$

# Animation File Format

\*.dir (created using Director)

\*.fli (created using AnimatorPro)

\*.max (created using 3D Studio Max)

\*.pics (created using SuperCard and Director)

\*.avi (Windows Audio Video Interleaved Format)

\*.qt (Macintosh Time-based Data Format)

\*.mov (Macintosh Time-based Data Format)

\*.mpeg or .mpg (Motion Video)

\*.gif (can be created using Ulead GIF Animator)

\*.dcr (Shockwave)

# Animation Authoring Software

Adobe Animate

Alias/Wavefront  
Maya

NewTek  
LightWave

Discreet 3D  
Studio Max

Softimage 3D

VRML -  
interactive 3-D  
worlds

Macromedia  
Flash

Adobe After  
Effects

Caligari  
TrueSpace

Impulse  
Imagine

Strata 3D

# Quick Review Question

01

Define the  
term  
animation

02

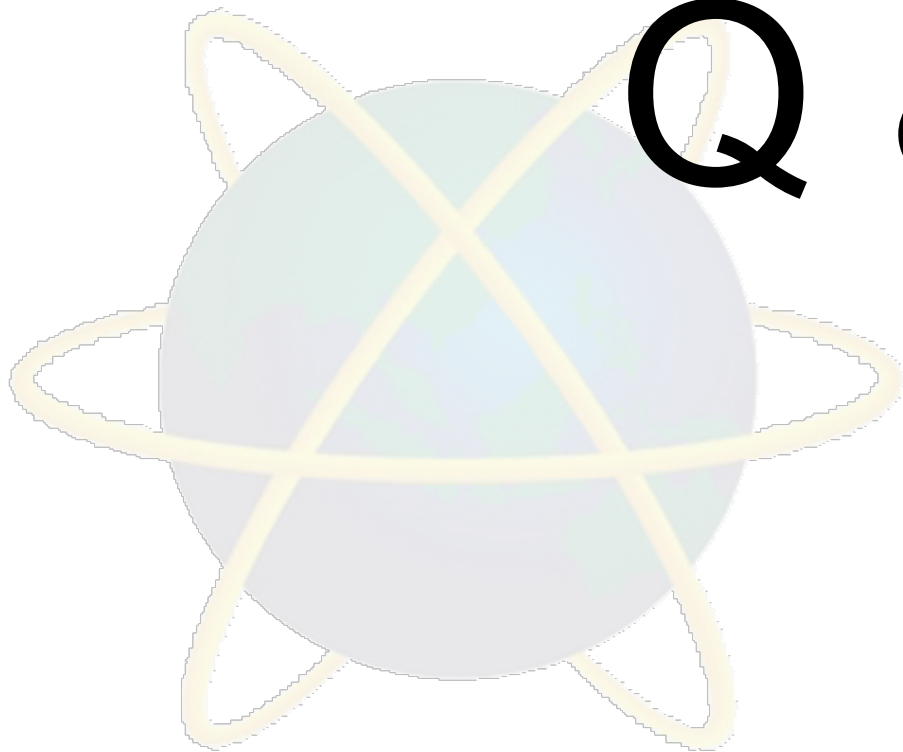
Identify and  
explain 2  
categories of  
animation

03

List 5  
examples of  
Animation  
File Formats

# Question and Answer Session

# Q & A



# Next Session



Text