Mc Graw Hill **Technology Education**

Multimedia: Making It Work

Objective

The students will be able to:

- **define** animation and **describe** how it can be used in multimedia.

- **discuss** the origins of cel animation and **define** the words that originate from this technique.

- **define** the capabilities of computer animation and the mathematical techniques that differ from traditional cel animation.

- **discuss** some of the general principles and factors that apply to the creation of computer animation for multimedia presentations.
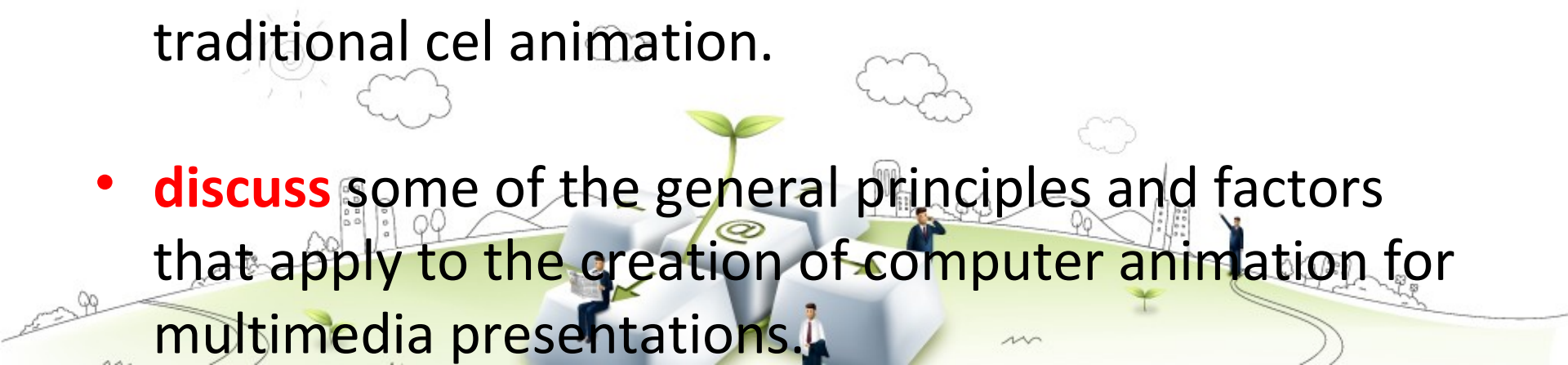
Overview

- Introduction to animation.

- Computer-generated animation.

- File formats used in animation.

- Making successful animations.

Introduction to Animation

- Animation is **defined as the act of making something come alive.**

- It is **concerned with the visual or aesthetic aspect of the project.**

- Animation is an **object moving across or into or out of the screen.**

Introduction to Animation

- Animation is possible because of a biological phenomenon known as persistence of vision and a psychological phenomenon called phi.

- In animation, a series of images are rapidly changed to create an illusion of movement.
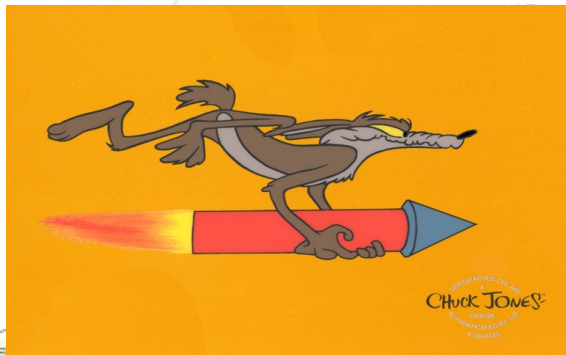
persistence of vision

Refer to video

Usage of Animation

- Artistic purposes
- Storytelling
- Displaying data (scientific visualization)
- Instructional purposes

Animation By Computer

- Types of Animation.

- Animation techniques.

Types of Animation

Animation can be rendered in:

- **2-D space** - 2-D animations are very simple and static.

- **2-1/2D space** - An illusion of depth is created through *shadowing, highlighting, and forced perspective*, though in reality the image rests in two dimensions.

- **3-D space** - Complicated and realistic animations are done in 3-D space.

Animation Techniques

- Methods of creating animation (type of animation):
    - Cel animation
    - Path animation

- Computer animation.

- Animation process.

Type of Animation: Cel Animation

- Cel animation is a technique in which a series of progressively different graphics are used on each frame of movie film.

- The term "cel" is derived from the clear celluloid sheets that were used for drawing each frame.

- Cel animation begins with keyframes.

Type of Animation: Cel Animation

- Keyframes refer to the first and the last frame of an action.

- The frames in between the keyframes are drawn in the tweening process.

- Tweening depicts the action that takes place between keyframes.

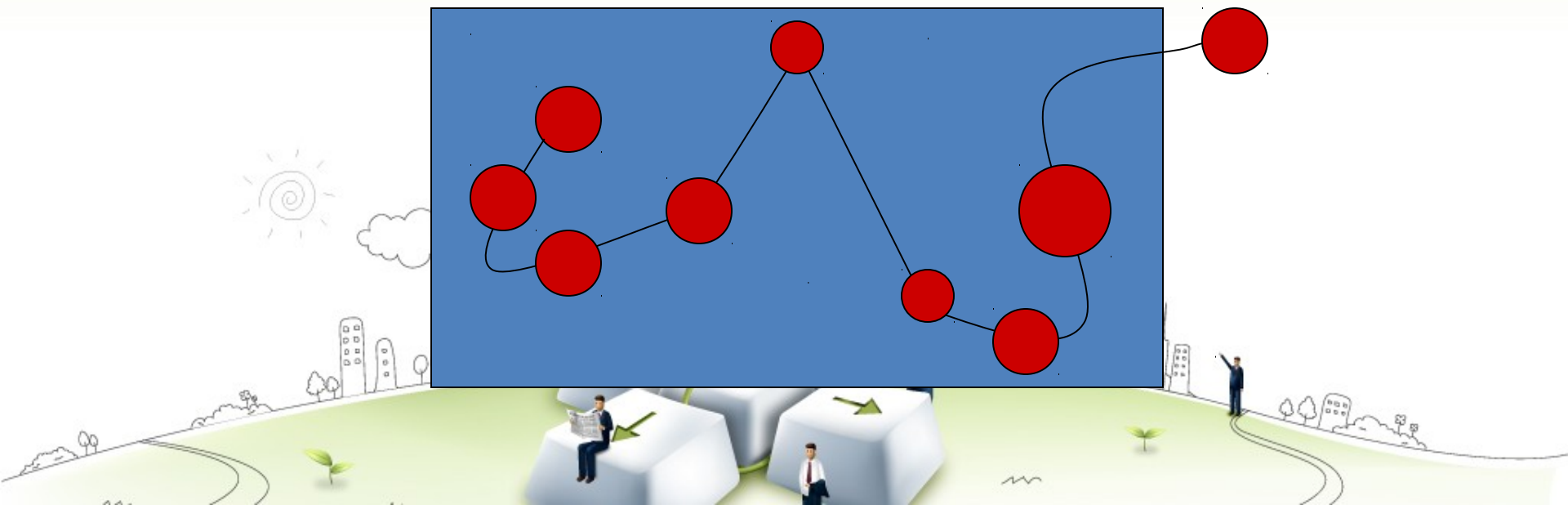- Tweening is followed by the pencil test.
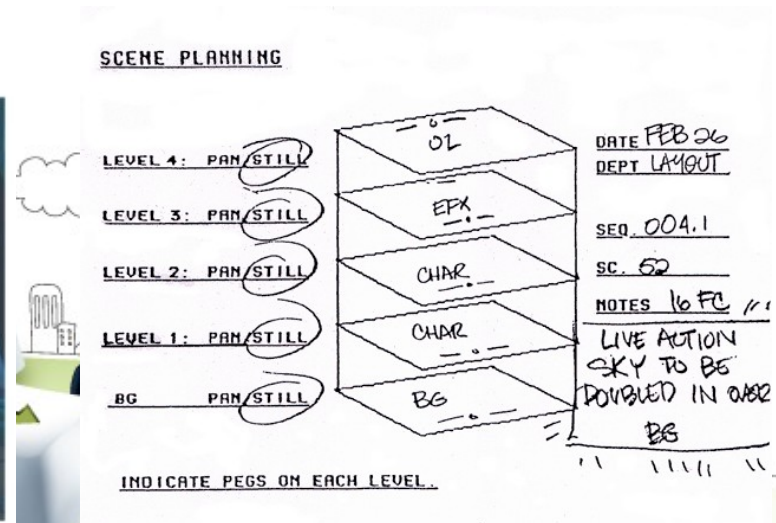
Cels Animation

Refer to video

Type of Animation: Path Animation

- The movement of an object happened along a predetermined path on the screen.

- The path could be a straight line or any number of curves.

- The object does not change, although it might be resized or reshape.

Computer Animation

- **Electronically** generated movement of anything on your computer screen.

- Computer animation is very similar to cel animation.

- The primary difference is in how much must be drawn by the animator and how much is automatically generated by the software.

- **Kinematics** is the study of the movement and motion of structures that have joints.

- **Inverse kinematics** is the process of linking objects, and defining their relationship and limits.

Computer Animation

- Morphing is an effect in which a still or moving image is transformed into another.

File Formats used in Animation

- .dir and .dcr - Director files.

- .fli and .flc - AnimatorPro files.

- .max - 3D Studio Max files.

- .pics - SuperCard and Director files.

- .fla and .swf - Flash files.

- GIF89a file format:

  - It is a version of the GIF image format.

  - GIF89a allows multiple images to be put into a single file and then be displayed as an animation in the Web browser.

  - Applications like BoxTop Software's GIFmation or ULead's GIF Animator are needed to create GIF89a animation.

Making Successful Animations

- Use animation carefully and sparingly.

- High quality animations require superior display platforms and hardware, as well as raw computing horsepower.

- File compression is very important when preparing animation files for the Web.

Making Successful Animations

Some animation tools are:

- Macromedia's Flash.
- Kai's Power Tools' Spheroid Designer.
- Alias|Wavefront's Maya.
- NewTek's Lightwave.

Summary

- Animation is visual change over time and adds great power to multimedia.

- Cell animation uses a series of progressively different graphics on each frame of movie film.

- Computer animation has eased the process of creating animation.

- Many file formats are designed specifically to contain animation.