

# STOP MOTION

Stop motion is a powerful animation technique that makes static objects appear to be moving. Creating stop motion draws attention to placement, framing, direction and speed of movement. There are many types of stop motion techniques, in both 2-D and 3-D media, such as: hand drawing, cel, cut-paper, sand, and Claymation.



## Conceptualization

The best projects result from strong ideas. To generate stronger ideas it is worthwhile to engage students in critical viewings of animation, and encourage brainstorming and synthesis of ideas. Feeling ownership of the concept will help keep students interested and dedicated throughout the animation process.

## Scripting

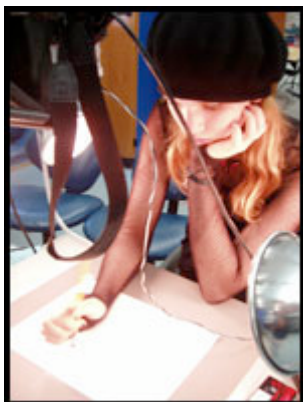
After students brainstorm ideas they need to write down their thoughts to determine what interaction and action will take place. Most people prefer to start with scripts, a storyboard that is completely textual. Writing descriptions of the action helps to determine how and in what order every shot will become animated later in the process.

## Storyboarding

Storyboarding is a major component to any animation project because it ensures that ideas are well developed before production, and saves time by anticipating problems. The purpose of the storyboard is to visually plan out the entire animation. Here is where students begin to think about the "camera work" by showing every shot or important transition in the animation. Storyboards should be required for all stop motion projects.

## Set-up

Stop motion requires a camera or video device to expose single or multiple frames of images that, when run at normal speed, appear to represent continuous movement. You can set up by connecting a computer to video camcorder, digital still camera, or a webcam. When using a video recording device to compose shots, keep the camera steady by using a tripod or animation stand. Your computer needs current software that supports single frame capture.



## Recommendations:

- **FrameThief** is a premiere software package for creating animation on Macintosh platforms.
- **Stop Motion Pro** is an easy to use, powerful tool for creating animated films on Windows PC platforms.

## Stop Motion Tips:

- The quality of the art in storyboards isn't very important, but a well-executed storyboard is the best of all planning devices. Use arrows to indicate motion of the camera or motion of the characters within the storyboard drawings.
- Anything that detracts the viewer's attention from what is being animated works against the movie. For this reason, backgrounds should be simple and steady.
- Using a copy stand for animation requires one to work upside down because of the camera mount. This can be inconvenient or confusing for students.
- Improvise - don't give up when your story calls for something to happen that seems impossible to achieve with the techniques.
- Remind students that since stop motion filming is very time consuming, students need to take turns in responsibilities and use of equipment.

## LESSON PLAN

### Objectives

Students will use a stop motion technique to create a simple two-dimensional and/or three-dimensional animation that communicates an idea. They will also be able to define the concepts of: placement, framing, direction, and speed.



### Introduction

Show different examples of stop motion animation. Some DVDs of animation include "Making Of" documentaries that can also be a great way to begin discussing the techniques and strategies used in stop motion.



### Examples:

*Monty Python's Flying Circus* (Work of Terry Gilliam)  
available on video

*The Legend of The Sky Kingdom*

Mark Osborne's *More*

Nick Park's wonderful *Wallace and Gromit* series of shorts

Tim Burton's *The Nightmare Before Christmas*

Students choosing objects to animate

### How Can Students Create an Animated Stop Motion Narrative?

### Brainstorming

Have students spend up to an hour discussing, brainstorming, and writing everything down. Challenge students in suggesting new ideas and adding to existing ideas. Even weak ideas can be developed into something good!

### Tips:

- Remind students that great ideas can come from simple, every day experiences.
- Have students take notes and write down their thoughts on the plot, the scenes, the characters, and any extra details that come to mind while they are writing. Use the linked handout to get them started!

- KEEP IT SIMPLE! The shortest and simplest concepts are the easiest to animate. Limit them to one or two characters, so that they can concentrate on the details.
- The approach students take (2-D, 3-D or combined) should support their overall idea.



### Scripting

A script is the written description of the actions that will take place. Ask students questions such as:

- What is your theme or idea?
- What sort of personality would you like to create?
- How long do you plan for this to be? How many frames and fps is that? (Make them do the math!)
- Who in your group will do which production jobs?
- What materials or objects will you need to collect?
- What kind of background will you need?
- Will 2D or 3D technique work better for this particular story? Why?
- What different shots do you need? What close-ups?
- Attach your storyboard! Have you varied the scale, pace, angle or whatever of the shots?
- What else do you want to say about your idea?

### Storyboarding

The story then is ready to be visually depicted as a storyboard outlining the plot, characters, and backgrounds. Remind students that storyboarding and planning on paper saves time and energy because they will figure out all the details before committing to the animation. Storyboarding will also ensure that each group selects the one approach best suited to the basic concept they've identified. Using poster board, preferably large, and a packet of Post-it-notes, sort out the ideas and images to be used. Divide up the page, discuss the sequence of shots, and draw in key transitions or moments, making notes as necessary. Label each section of the storyboard with sequence, camera angle, timing, and other directorial information as you go.



### Set-ups

Once groups have decided on the story they will be telling and have created their storyboards, they need to begin gathering their props, characters, and back drops to be ready to film their animation.

### Background

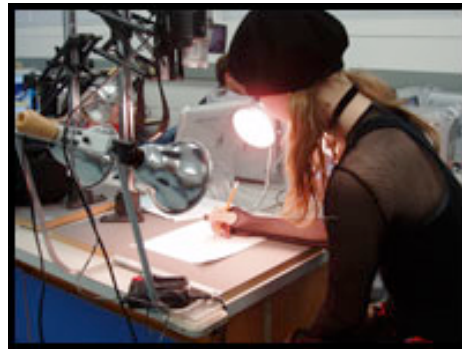
Backgrounds for stop motion animation can be created from just about any materials you have on hand:

- Art materials such as: crayons, markers, construction paper, colored paper, watercolors, cardboard boxes, whiteboard, blackboards, tempera paint, clay, etc.
- Real objects: a rock for a boulder, a branch for a tree, etc.

- Animated background: one that changes during the course of your animation.
- Remember, arranging a 3D space with objects in the foreground can give your animation a nice sense of depth. Make sure that your background is the same scale as your characters, and that it will fill the frame for whatever camera you will use to capture the images.



Cut paper background



Student working on Animation Stand

### **Camera**

You can use almost any camera to capture the individual frames of your animation. The advantage of using a digital camcorder is that it can save each picture directly onto the computer's hard drive as you take it.

### **Animation Stand**

In 2D stop motion animation, the camera is positioned directly above the background upon which the cutout characters lay flat.

### **Tripod**

The camera is mounted on a tripod because you don't want the camera to move at all during the picture-taking process.

## **How do I Record Stop Motion?**

- Connect the camcorder to the computer using the FireWire or the USB port.
- On the computer, open the software for the camera you are using. FrameThief's Project Chooser window shows up and choose New Animation to begin a new animation project or Open Previous if you will continue a previously saved animation project.
- The FrameThief software now allows you to select where you'd like your frames to be stored. Create a folder in your desktop to save all of your images and project.
- If Video Source pop up window shows up it means that FrameThief was unable to connect to a video source. Please make sure that your video device is connected and working properly. Make sure camcorder is turned on and that FireWire cable is connected from the camcorder to the computer. Click "Check Again" to try the connection again or "Continue" to proceed without connecting.

- Place the background so that it completely fills the frame for the pictures you'll take.
- Position the characters where you'll want them, and then press the "Capture" button to take your first frame.
- Stop motion animation looks good at a frame rate as low as ten frames per second. However, because video rate is 30 frames per second, it is recommended to capture each frame three times. By clicking the number 3 on your keyboard, you will be capturing 3 frames at once.
- After you take each picture, slightly move your characters into position for the next shot. Each picture you take will become a frame in your movie.
- Click play to replay captured frames in real-time.
- After you've taken all the pictures, it is time to turn your stills into a QuickTime movie.
- File Menu > Export > Animation to QuickTime Movie.
- In the Export Animation settings box that appears, you can change the size, Starting and Ending Frames and Compression. The standard Video resolution is 720 x 480 pixels. By clicking on the Edit button next to the Compression box. You may choose to change the quality and Frame rate. It is recommended to keep the Frame rate from 10 to 15 fps.
- Click OK > Enter the name of the QuickTime Movie to create and determine where you would like the Movie to be saved > Click Save.
- To finalize animation students can add sound and credits in video editing programs such as iMovie or Final Cut Pro archive their projects in DV tape, CD or DVD.

## **Evaluation**

Instructors may evaluate this project using the general rubric provided. Select or add criteria depending upon the needs or levels of your students, and/or other curricular concerns. This lesson introduces new terminology therefore instructors should give a quiz. In addition to that formal final assessment I encourage teachers to conduct informal, in-progress assessment thinking about questions like these:

- How well are the groups working together?
- How well are group members communicating? To what extent is each group member contributing to the project?