

Leapfrog Program

Course Title: Animation Station: An Introduction to Computer Animation

Course Description

How do you get a dog to run across a computer screen? Computer animation does the trick! In this hands-on course students learn fundamental computer animation using *Scratch*, a programming language designed to help young people produce rich interactive media, and *SAM*, a software program, which allows students to create stop-motion animated movies. Skill development includes basic drawing tools as well as simple animations, graphic morphing, and graphic layering. Students create a simple animation program and stop-motion movie to share at the Expo! After completing this course, students are prepared for more advanced animation and program design work.

Essential Questions

- How do computers create animated images?
- How do people use computer programs to create animated stories and games?
- How do people add graphics, music, and sound to animated stories and games?
- How do people use stop-motion photography software to create animation?

Outcomes

Upon successful completion of this course, students will have:

- Demonstrated an understanding of the basic concepts of successful programming by creating animated images
- Created digital stories, animations and games with the Scratch programming language.
- Designed and implemented programs that control and mix graphics, animations, music, and sound.
- Demonstrated knowledge of sprites, coordinate system, stages, programming blocks, and variables.
- Created stop-motion animated movies using SAM Animation software.
- Created hand-drawn, frame-by-frame animations using basic Drawing software.

Instructional Strategies

Teachers will model programming concepts for the whole group. Students will then practice and learn these concepts by doing hands-on programming on their own or with a partner. Based on teacher observation of students' work, students will also receive one-on-one help and instruction as they program and create their own projects. An "Activity Menu" of different projects, tasks and programming challenges will allow students to make choices about what they do, with teacher guidance and suggestions, as needed, based on skill level and interest. This will also allow students to work at their own pace and receive support specific to their project goals and programming needs.

Resources and Materials

- **Books**

- a. *Scratch 1.4* software
- b. Badger, Michael **Scratch 1.4 Beginner's Guide**. (2009) ISBN: 1847196764
- c. Ford, Jerry Lee, Jr. **Scratch Programming for Teens**. (2008) ISBN: 1598635360

- **Websites**

- a. **Scratch web site:** <http://scratch.mit.edu>
- b. **Learn Scratch web site:** <http://learnscratch.org>
- c. *SAM Animation* software
- d. **Sam Animation web site:** www.samanimation.com
- e. Berger, Nicholas **The Klutz Book of Animation: Make Your Own Stop Motion Movies**. (2010) ISBN: 1591747333

Student Assessment

- a. **Pre-Assessment**

This will include a survey of students' familiarity, and previous work, with computer programming software (*Scratch*, *SAM Animation* as well as other programming languages and software). Students will also fill out a sheet assessing their knowledge of animation – what it is, how it is done and examples of animation they have encountered.

- b. **Documentation of learning:**

During the course, students will be assessed based on teacher observation of students working, completed activities and projects, participation in class discussions and cooperation during group activities. "Mini-tasks" will allow teachers to evaluate a student's grasp of a particular programming element while more complex projects will allow teachers to assess a student's ability to weave together different programming concepts into an integrated whole. Projects will include creating animated poetry, stories and interactive, user-controlled animations as well as simple projects of the student's own devising.

- c. **Post-Assessment**

This will be based on students work throughout the course with an emphasis on the two or more projects completed for sharing at Expo on the last day of the course. At the end of the course students will receive a written evaluation based on general class performance, discussion, participation (whole group and small group) evaluations, and written work. Final Student evaluations are written are mailed out by September 15. Please refer to the Leapfrog Family handbook for more information.

Schedule

Date(s)	Topic(s)	In-class Activities	How will you document learning for Assessment?
July 11, 2011 (Monday)	<p>Programming Basics</p> <ul style="list-style-type: none"> • Motion and Sound • Repeating Actions • Playing with Color • Creating Your Own <ul style="list-style-type: none"> • Sprites • Speaking and Thinking • Creating Image Effects • Sounds, Voices and Music • Creating Animations <p>More Programming Concepts</p> <ul style="list-style-type: none"> • Move, Turn and Point <ul style="list-style-type: none"> • Go and Glide, Changing Positions <ul style="list-style-type: none"> • Bouncing, Locating the Sprite • Changing Costumes • Speaking, Thinking and Graphic Effects • Size, Presence and Layers 	<ul style="list-style-type: none"> • Teacher guided learning • Hands-on lab: <ul style="list-style-type: none"> -Mini-programming Tasks -Project Activity Menu <p>Activities will include a choice of the following: creation of an animated poem, interactive storybook (personal narrative or fiction), music video, dynamic art piece, Student-generated projects</p> <ul style="list-style-type: none"> • Free Exploration • Screening Room 	<ul style="list-style-type: none"> • Daily teacher notes, based on observation of students' work and projects; • Evaluation of completed "<i>mini-tasks</i>" and projects and the degree to which students do them independently. <p>Mini-tasks will need to incorporate:</p> <ul style="list-style-type: none"> *Motion and sound, *Changing character and background colors, *Sprite creation *Making simple animated sequences. <ul style="list-style-type: none"> • Understanding demonstrated during discussions based on students' questions, answers and comments.
July 12, 2011 (Tuesday)	<p>Adding Multimedia Elements</p> <ul style="list-style-type: none"> • Playing Sounds • Playing Drums • Playing Instruments • Pen and Color Control <ul style="list-style-type: none"> • Pen Size, Shade, Stamp <p>Advanced Programming Concepts and Techniques</p> <ul style="list-style-type: none"> • Beginning and Waiting • Repeating Actions • Broadcasting • Conditional Actions • Stopping • Mouse and Keyboard Control <ul style="list-style-type: none"> • Touching, Over, Distance Reporting • Using the Timer and 	See Above	<ul style="list-style-type: none"> • Daily teacher notes, based on observation of students' work and projects; • Evaluation of completed "<i>mini-tasks</i>" and projects and the degree to which students do them independently. <p>Mini-tasks will need to incorporate:</p> <ul style="list-style-type: none"> *Pen and Color control *Playing/Adding Music *Repeating actions *Conditional actions <ul style="list-style-type: none"> • Understanding demonstrated during discussions based on students' questions, answers and comments.

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July 13, 2011 (Wednesday)	<p>Animation, Graphic Imaging and Game Design</p> <p>Projects might include:</p> <ul style="list-style-type: none"> • Knock Knock Joke • Cheetah Animation • Silly Haiku • Name Iteration • Vanishing Point • Bee in a Maze • Etch-Sketch <ul style="list-style-type: none"> • Drawing Plane • Colorful Ball • Pac Man • Pong • A Thousand Arrows <ul style="list-style-type: none"> • Sierpinski Fractal • Kaleidoscope 	See Above	<ul style="list-style-type: none"> • Daily teacher notes, based on observation of students' work and projects; • Evaluation of completed "<i>mini-tasks</i>" and projects and the degree to which students do them independently <u>and transfer the skills to new projects and design scenarios.</u> Projects will need to incorporate skills learned the previous two classes: • Understanding demonstrated during discussions based on students' questions, answers and comments.
July 14, 2011 (Thursday)	<p>Introduction to Stop-Motion Animation and SAM Animation software</p> <p>Storyboarding, shooting and editing a stop-motion animated short.</p>	<ul style="list-style-type: none"> • Teacher modeling and guided learning <p>-Project Activity Menu Create one or more stop motion animated shorts using the following materials:</p> <ul style="list-style-type: none"> - paper cutouts - physical objects - white board or post-it note drawings - people 	<ul style="list-style-type: none"> • Daily teacher notes, based on observation of students' work and projects; • Evaluation of both the technical, artistic and storytelling aspects of the animated short. <p>Evaluation of student's ability to work cooperatively, share and explain ideas, compromise, as needed, with work partners, and divide up tasks and project work.</p> <ul style="list-style-type: none"> • Understanding demonstrated during discussions based on students' questions, answers and comments.
July 15, 2011 (Friday)	<p>Storyboarding, shooting and editing a stop-motion animated short.</p>	<p>See Above</p> <p>Share projects at Expo!</p>	<ul style="list-style-type: none"> • Daily teacher notes, based on observation of students' work and projects;

	<p>Finish Up Expo Projects</p>		<ul style="list-style-type: none"> • Evaluation of both the technical, artistic and storytelling aspects of the animated short. <p>Evaluation of student's ability to work cooperatively, share and explain ideas, compromise, as needed, with work partners, and divide up tasks and project work.</p> <ul style="list-style-type: none"> • Understanding demonstrated during discussions based on students' questions, answers and comments.
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CTD Statement on Third-Party Web Sites

Instructors are required to thoroughly review any third-party web sites they intend to use in their courses for inappropriate content. However, because web content continuously changes, CTD disclaims any responsibility for any of the content contained on third-party web sites used in course materials. If you become aware of anything that may be inappropriate, please notify CTD staff immediately.