Getting Started with Scratch 2.0
a daylong exploration of computational creativity

Saturday, March 23, 2013
Hosted by the ScratchEd Team
Welcome!

We are thrilled that you have joined us for this daylong exploration of computational creativity with Scratch.

Whether this is your first experience with Scratch or you have been working with Scratch for a long time, we hope that you enjoy today’s workshop – which is designed to provide you with numerous opportunities to explore, play, and create with the Scratch programming language.

This document is your guide for the day. There won’t be any lectures, or anyone standing at the front of the room asking you to follow along. You will be exploring at your own pace, supporting the people around you, and asking for help as you need help. You may get through the whole guide, or just a fraction of it.

We have organized the guide into three parts: Getting Oriented, First Steps, and Going Deeper. Each part contains a collection of activities – an inventory of questions, ideas, and challenges to help you build greater fluency and familiarity with Scratch.

Your ScratchEd Team Friends,
Karen, Michelle, Janet, Matt, and Jeff
My Scratch 2.0 Exploration Inventory

- Part 1: Getting Oriented
  - Accessing the site
  - Starting a project
  - Exploring the project editor

- Part 2: First Steps
  - Making projects
    - Step-by-Step introductory project
    - About Me project
    - Remix project
  - Reflecting on experiences

- Part 3: Going Deeper
  - Solving puzzles
  - Responding to themes
  - Exploring features
    - Broadcasting
    - Making a block
    - Cloning
    - Data
    - Camera

- Afterword: Looking Back
  - Exploring the ScratchEd online community
Part 1: Getting Oriented

We are about to begin our journey. Let’s take stock of how we are currently thinking and what questions we have – and let’s make sure we have everything we need to get started.

- What I currently think Scratch is…

- I can get to the Scratch 2.0 website at beta.scratch.mit.edu

- I can sign in to the Scratch 2.0 website with my account.

- Questions I currently have about Scratch…
I can start a new project.

I have explored the different parts of the project editor.
- The menu bar
- The cursor tools
- The stage
- The sprites list
- The blocks palette
- The costumes editor
- The sounds editor
- The scripts editor
- The backpack
- The tips window

Parts of the project editor that I currently have questions about…
Part 2: First Steps

There are many ways of getting started with Scratch. In this section, we’ll be trying three different approaches – (1) step-by-step, (2) open-ended exploration, and (3) remixing – by creating three different starter projects.

- Project #1: I have completed the “Step-by-Step Intro” that is described in the Tips window.

- Project #2: I have created an “About Me” project.
  - I added sprites.
  - I made my sprites interactive by adding scripts that enable the sprites to respond to clicks and key presses.
  - I used some of these blocks:


- Project #3: I have created a remix project.
  - I chose a project from the “Starter Projects” studio at http://beta.scratch.mit.edu/studios/190117/ (or I found another project from the online community as my starter project).
  - I studied the project’s code by clicking on the “See Inside” button.
  - I created a remix by clicking the “Remix” button in the project editor and changing the project’s code.
When people are getting started with Scratch, they typically run into similar challenges. We’ve started you off with two common questions. What questions (and answers) would you add?

- Why doesn’t my project work like I think it should?

- What is the difference between sprites and costumes?
Part 3: Going Deeper

Now that you have explored some of the Scratch fundamentals, it’s time for some deeper explorations. In this “Going Deeper” section, we offer three strategies for guiding your next stages of learning and play: (1) Solving puzzles, (2) Responding to themes, and (3) Exploring features.

Solving puzzles

These puzzles engage some of the more advanced concepts in Scratch that are related to interactivity. Interactivity is awesome – it’s what differentiates a Scratch project from a still image or a video. These puzzles don’t have one “right” solution. Try out the puzzles with a neighbor (or neighbors!) and compare your strategies.

☐ Whenever you press the B key, the sprite gets a little bigger. Whenever you press the S key, the sprite gets a little smaller.
☐ Whenever the sprite hears a loud sound, it changes color.
☐ Whenever the sprite is in the top 25% of the screen, it says “I like it up here.”
☐ When the sprite touches something blue, it plays a high note. When the sprite touches something red, it plays a low note.
☐ Whenever two sprites collide, one of them says: “Excuse me.”
☐ Whenever the cat sprite gets near the dog sprite, the dog turns and runs from the cat.
☐ Whenever you click on the background, a flower appears at that spot.
☐ Whenever you click on a sprite, all other sprites do a dance.
☐ Whenever the score reaches 10, the scene (background) changes.
☐ Whenever you move the mouse-pointer, the sprite follows but doesn't touch the mouse-pointer.

Responding to themes

Have an idea for a project you would like to build? Looking for some project-making thematic guidance? Peruse the Scratch online community for ideas of projects to create or remix – the “Explore” part of the site (http://beta.scratch.mit.edu/explore/) is particularly useful.

Or start out with one of these thematic projects:

☐ Six word memoirs
☐ Mazes
☐ Greeting cards
☐ Interactive quizzes
Exploring features

There are many advanced features to explore in Scratch – and intriguing features that are new to Scratch 2.0. In this section, you will have the opportunity to explore five of these features:

- broadcasting,
- making a block (new to 2.0)
- cloning (new to 2.0)
- data (cloud data is new to 2.0)
- camera (new to 2.0)

For each of the features, we have included an overview of the feature, a sampling of the blocks involved, a basic video tutorial of how it works, links to more complex examples, encouragement to build or remix a project using the feature, and questions for further inquiry and reflection.

Feature #1: Broadcasting

Overview

Using the broadcasting feature, you can send messages between sprites.

Blocks

*when I receive message1 ▼*

*broadcast message1 ▼*

*broadcast message1 ▼ and wait*

Basic Example

Video tutorial available at http://vimeo.com/62473683

More Examples

Collection of sample projects available at http://beta.scratch.mit.edu/studios/191536

Time to Experiment

Investigate broadcasting in one of the examples.
Try using broadcasting in a new project or remix an example.
Search for other projects using broadcasting on the website.
Time to Reflect
How else can you imagine broadcasting being used?
How would you explain broadcasting to someone else?
What are you still wondering about broadcasting?

Feature #2: Making a block

Overview
With Scratch 2.0, you can now define your own blocks.

Blocks

Basic Example
Video tutorial available at http://vimeo.com/62472894

More Examples
Collection of sample projects available at http://beta.scratch.mit.edu/studios/190107

Time to Experiment
Investigate making a block in one of the examples.
Try making a new block in a new project or remix an example.
Search for other projects on the website that use custom blocks.

Time to Reflect
How else can you imagine custom blocks being used?
How would you explain making a block to someone else?
What are you still wondering about making a block?
Feature #3: Cloning

Overview
What do you do if you want multiple instances of an object in your project? In Scratch 2.0, managing many instances is made easier with the cloning feature.

Blocks

Basic Example
Video tutorial available at http://vimeo.com/62472896

More Examples
Collection of sample projects available at http://beta.scratch.mit.edu/studios/190120

Time to Experiment
Investigate cloning in one of the examples.
Try using cloning in a new project or remix an example.
Search for other projects using cloning on the website.

Time to Reflect
How else can you imagine cloning being used?
How would you explain cloning to someone else?
What are you still wondering about cloning?
Feature #4: Data

Overview
Keep track of numbers and strings using data – in variables (individual numbers or strings) and lists (collections of numbers and/or strings). And, new to Scratch 2.0, have persistent data with the cloud variable feature.

Blocks

Basic Example
Video tutorial available at http://vimeo.com/62472895

More Examples
Collection of sample projects available at http://beta.scratch.mit.edu/studios/191535/

Time to Experiment
Investigate the use of cloud data variables in one of the examples.
Try using cloud variables in a new project or remix an example.
Search for other projects using cloud variables on the website.

Time to Reflect
How else can you imagine cloud data being used?
How would you explain cloud data to someone else?
What are you still wondering about cloud data?
Feature #5: Camera

Overview
With Scratch 2.0, you can use your computer’s camera to interact with your creations – think Microsoft Kinect meets Scratch!

Blocks

Basic Example

Change the values to experiment with the sensitivity of the video camera.

Experiment with different blocks or sounds to see what the video camera can trigger.
More Examples
Motion sensor test – http://beta.scratch.mit.edu/projects/10054960/
Collection of sample projects available at http://beta.scratch.mit.edu/studios/190118

Time to Experiment
Investigate the camera feature in one of the examples.
Try using the camera in a new project or remix an example.
Search for other projects using the camera on the website.

Time to Reflect
How else can you imagine the camera being used?
How would you explain the camera feature to someone else?
What are you still wondering about the camera feature?
Afterword: Looking Back

We are about to end our journey. Let’s revisit how we are thinking and what questions we have.

- How my thinking about Scratch has changed…

- Questions I have about Scratch…

We hope to see you at future events – and online.

- I have explored the ScratchEd online community at http://scratch-ed.org