



Integrating  
Computing Across  
the Curriculum

## Scratch Lesson 2: Movies Made From Scratch Lesson Framework



Scratch makes it easy to program your own interactive stories, games, and animations and share your creations on the web. As you create and share projects with Scratch, you learn to think creatively, reason systematically, and work collaboratively. Scratch is a project of the Lifelong Kindergarten group at the MIT Media Lab. It is available for free download from <http://scratch.mit.edu>.

Scratch functions:

- **Control:** When green flag clicked, broadcast, when I receive [broadcast], wait, repeat
- **Sound:** Import and play sound recording until done
- **Looks:** Switch to costume
- **Motion:** Move x steps

Specific programming concepts<sup>1</sup>:

- **Sequence:** To create a program in Scratch, you need to think systematically about the order of steps
- **Iteration (looping):** *Forever* and *repeat* can be used for iteration (repeating a series of instructions)
- **Event handling:** *When key pressed* and *when Sprite clicked* are examples of event handling - responding events triggered by the user or another part of the program
- **User interface design:** You can design interactive user interfaces in Scratch - for example, using clickable sprites to create buttons

Alabama Course of Study Technology Education Standards Third-Fifth Grade:

- **TC 1:** Use input and output devices of technology systems
- **TC 2:** Use various technology applications, including word processing and multimedia software
- **TC 9:** Use technology tools to organize, interpret, and display data
- **TC 10:** Use digital environments to collaborate and communicate
- **TC 11:** Use digital tools to analyze authentic problems (critical thinking, problem solving, and decision making)
- **TC 12:** Create a product using digital tools

*Lesson Framework:*

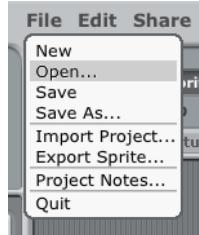
### **Step 1) Wodunne's World**

Scratch can be used to create animation movies, complete with background music, a title screen, and ending credits. Show your students the project, Wodunne's World as an example of an animation in Scratch. Wodunne's World is an example project that is preloaded in Scratch.

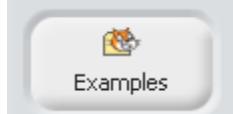
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<sup>1</sup>Programming concepts and skills supported in Scratch, <http://info.scratch.mit.edu/sites/infoscratch.media.mit.edu/files/file/ScratchProgrammingConcepts-v14.pdf>

Click on File at the top of the screen in Scratch and select Open.



On the left side of the Open Project Box, click on Examples.



Open that last folder, Stories; and select the project Wodunne's World to view.

You can ask your students to tell you what types of elements they saw in the project. Encourage them to keep these elements in mind as they will use some of them to create their own Scratch movies.

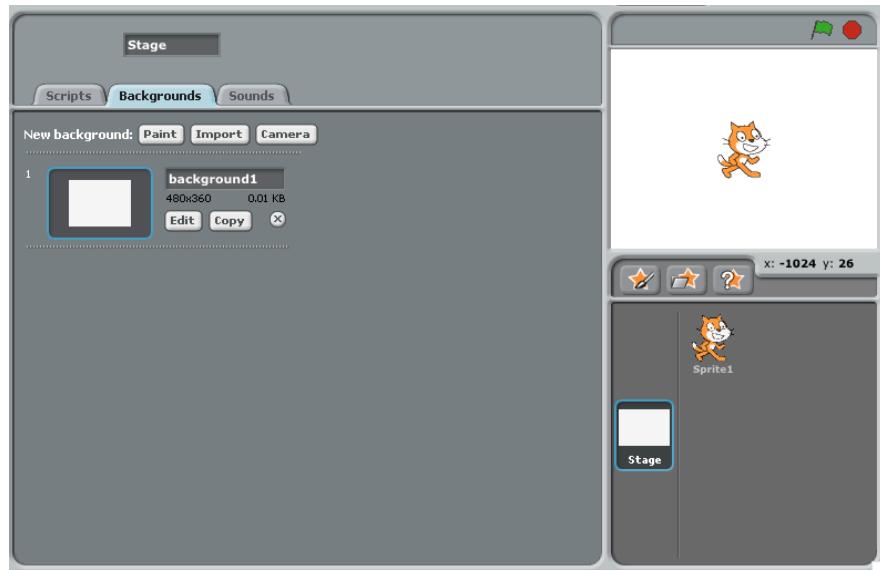
## **Step 2) Project Research**

Have the student research facts for their projects. For example, the students can create a Scratch movie to represent a scene from a book for an animated book report. For a history or social studies project, your students can recreate an event from history using animation. If the class is learning another language, the students can be challenged to make a movie with all of the dialogue in that language. The theme of the project can be anything, but the possibilities for the projects are limitless.

## **Step 3) Project Building**

Have the students first create a background for their projects.

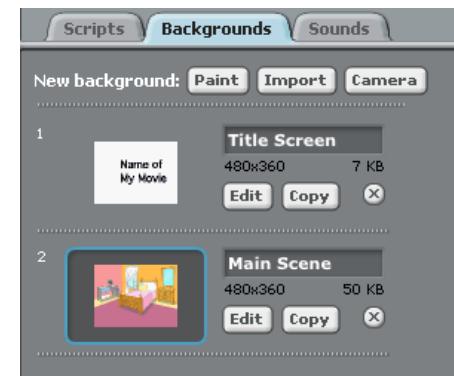
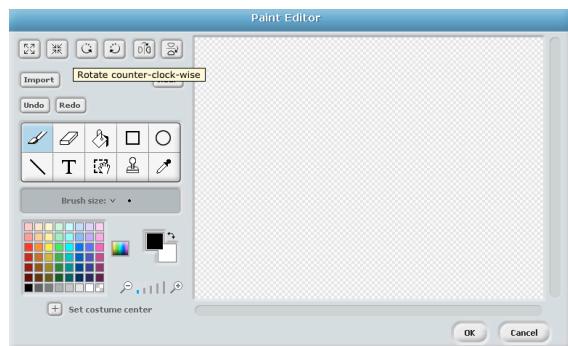
2) Click on the “Backgrounds” tab, then the “Paint” button.



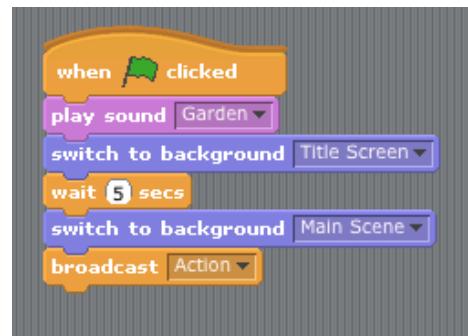
1) Click on the stage thumbnail.

3) Draw the Title Screen for your movie in the Paint Editor window using the “Text Tool” and give your movie a name. When finished, click “OK.”

Repeat steps 2 and 3 to create the main scene for your movie. Name each created background by replacing the words “background” with “Title Screen” and “Main Scene” on the Backgrounds tab.



4) Now we are going to program the transition from the Title Screen to the main scene of your movie, using “broadcast.” To use broadcast, click on the black arrow next in the block, select new, and type in “Action.” Broadcast is a silent message that will be sent to all of the Sprite to tell them what to do. Build the code on right.



NOTE: Don't forget to import your sound (Music Loops works best for theme music) to use it in your project. Play with the timing of the wait block to allow time for the theme music to end before switching to the Main Scene.

5) Click on the star with a paintbrush icon to paint a new Sprite for the first project element. This will open another Paint Editor window, similar to painting a background. The students can also choose to use a Sprite from file by selecting the star with a folder icon.



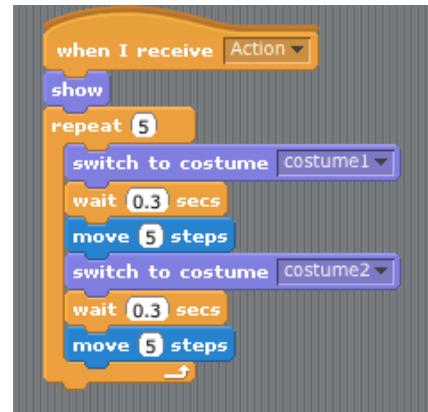
6) Click on the newly created Sprite thumbnail underneath the stage to access the scripts of this Sprite.



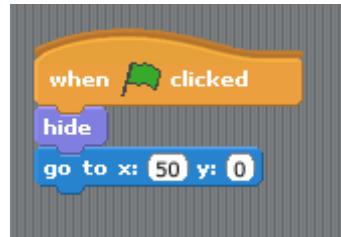
7) Program your Sprite to “walk” across the stage by first drawing or choosing a pair of costumes. Animation in Scratch is just like creating an animated flip book. You will need two slightly different versions of a Sprite to create the animated effect. Quick Tip: To create the second costume, “copy” the first costume and “edit” it to use for animating your Sprite. Some Sprites from the file are a costume pair.



8) Click on the “Scripts” tab to begin programming your animation. Create the code on the right. Double click on the stack of code to see how it works! You can change the number of repeats to make your Sprite “walk” farther across the stage. The top control block programs the Sprite to act when the broadcast is received.



9) Also add this stack of code to your Sprite. This will tell your Sprite to stay off of the stage during the Title Screen and places it at the starting point for the main scene. You can change where you would like your Sprite to begin by changing the x- and y-coordinates.



10) Program your Sprite to say something after it has walked across the stage. You can add additional Sprites to do other things in your movie. Just make sure to include the code from Step 9 so they will not be visible on the Title Screen. Have fun!

11) When you are finished, save your project.

