Integrating Computing Across the Curriculum

Session 1: Introduction to Scratch

Time	Activities
5 min	Sign In

10 min	Introduction: What is Scratch?
	• *Ask students: By show of hands, how many of them have heard of Scratch?*
	• *Ask one of the students who raised their hands to explain to the group what Scratch is.*
	• Repeat the student's answer and tell the group that Scratch is a computer program that allows them to create animations, games, stories, movies, and much more. Tell the students that over the next 5 weeks we will learn how to make their own projects in Scratch.
	• Show the students a couple of projects to highlight what type of things can be created with Scratch.
	  ○ Example Scratch project _____
	  ○ Example Scratch project _____

5 min	Introduction: This is Scratch
	• Have students open Scratch on their own computers.
	• Introduce the students to the four main components of Scratch: the stage, the sprites, the scripts, and the design palette.
	  ○ **Stage** – This is where your project – story, animation, game, etc. – takes place
	  ○ **Sprites** – Sprites are programmable objects; these are the objects that you program to perform in your project, like actors perform in a play.
	  ○ **Scripts** – This is where your program your sprites to perform in your project. This is similar to the scripts that actors use in the play. Each sprite has its own script, just like each actor has his own script.
	  ○ **Design palette** – These are the blocks that you use to build your scripts for your sprite to perform on the stage in your for your project. There are over 100 blocks in 8 different categories to choose from. *Ask the students to give you names of the categories.*
	  ○ The above introduction uses the analogy of a play to describe the components of Scratch, feel free to create your own, unique analogy to help you best introduce Scratch to your students.

20 min	Build: Control, Motion, and Sounds • Tell the students that we are now going to create a simple Scratch animation together to introduce them to some important Scratch blocks. • Tell the students that the Scratch Cat will be starring in our animation, and we are going to need a block that tells the Scratch Cat to begin the animation. The blocks that we need are called, **control** blocks. • Lead the students to click on the control block category with you. Explain that there are 3 blocks that can do this: **when green flag clicked**, **when space key pressed**, and **when Sprite1 clicked**. Today we are going to use the first block, **when green flag clicked**. • *Ask the students: Where do you build the program for the Scratch Cat sprite?* • When the students answer correctly, show them how to drag the **when green flag**

	block to the scripts. Tell the students that every script that they build will need to begin with a control block, since these blocks are going to tell sprites when to begin our projects. • *Ask the students to figure out which block that we will need to use to make the Scratch Cat move so many steps on the stage and to raise their hands when they have found it.* Ask one of the students to tell under which category they found the block and which block it is. Once all of the students have found the **move 10 steps** block in the **Motion** category, guide them in adding it to their script underneath the **when green flag clicked** block. • *Ask the students what do we need to do to get the cat to move on the stage?* Encourage the students to look at the instructions that they wrote in their scripts to find the answer. Tell the students clicking on the green flag tells the cat to move 10 steps when we click on the green flag. So if we click on the **green flag** in the upper right-hand corner of the stage, the Scratch Cat will move 10 steps on the stage. You can change the number in the motion block to make the Scratch Cat move a greater of smaller number. Give the students a minute to change this number in their own blocks. • Next tell the students that we are going to program our cat to meow. From the **Sound** category, drag the **play sound meow until done** block to the scripts and connect it below the **move** block. ○ *Ask the students: what will the Scratch Cat do now when we click the green flag?* The students should understand that the Scratch Cat will perform what is programmed in the script in that order; so when the green flag is clicked, the cat will move 10 steps then meow. • Copy the motion and sound blocks (either using the **Duplicate** tool or by right-clicking on the motion block and selecting "duplicate") and attach the copy to the rest of the blocks. Change the second **move** block to -10 steps, so that the cat moves backwards 10 steps. Now when you click the green flag, the cat will dance forward and back while meowing. • *Ask the students: what do we need if would like to cat to repeat this movement*? If they have trouble figuring this out, tell to look at the **control** blocks for a hint. Select the **repeat** block and wrap it around the four **move** and **sound** blocks; the Scratch Cat will repeat whatever is inside of the **repeat** block. *Ask the students: how can we program the cat to repeat his dance 5 times?* Change the number in the repeat block to 5. • Have the students click the green flag to see their cat dance and meow.
10 min	Create: The Say Block • Introduce the students to the **say Hello! for 2 secs** block. This block makes the sprite talk with a cartoon word bubble. Tell the students to add this block below the **repeat** block in their scripts. Have them change the "Hello!" in the white space to a sentence that says something that they learned about Scratch today. The students can also change the number of seconds so that an audience would have enough time to read their sentence. • Have them add more **say** blocks to their project to program the Scratch Cat to say some things about what they hope to learn in Scratch Club. • Next, task them to add a **say** block before the repeat dance, introducing the Scratch Cat.

10 min	Save & Upload • Tell the students that we will now upload their projects to the Scratch website to share with others. From the Scratch website they can download their projects and continue working on them at home if they like. If no Internet connection is available, save their projects on the Scratch Club jump drive. Let the students know that we will upload their projects later so that they can view them online at home. • To save projects to a jump drive o Click **File** and select "Save As…" o Click on the **Computer** button on the top left of the **Save Project** window o Double click on the E: drive o Enter a New Filename at the bottom: Intro to Scratch STUDENTNAME (i.e. "Intro to Scratch Lucy Hunter") o Enter the date in the "About this project" box. o Click **OK** when done • To share their projects online, click on the **Share** at the top of the screen and select "Share This Project Online…" o Enter the club's Scratch login name: _____ o Enter the password: _____ o Have the students name their projects: Intro to Scratch STUDENTNAME (i.e., "Intro to Scratch Lucy Hunter") o Have the students enter the date under project notes o Click **OK** when done
Extension	If students finish early and there is extra time after showing the students the **say** block, show them how to import a background to their projects. • Click on the **stage thumbnail** underneath the stage. o In the scripts area, click on the **Backgrounds** tab. To import a background, click on the **Import** button option next to "New background." Click on one of the folders to view backgrounds in that category. Scroll through the backgrounds until you find the one that you would like to use. If you want to view backgrounds in another category, click on the **white arrow** pointing up next to the name of the background category to return to the list of all background categories. o When you have found your desired background, click **OK,** and the background will be added to the stage.