



Scratch Lesson Plans (1-8)

Scratch Lesson 1

Topic

Introduction to Code and Scratch

Time

60 minutes

Objectives

Students will be able to:

- Describe what code is
- Find the Scratch website
- Explore Scratch resources

Procedure

Welcome - 5 min (Students together without computers if possible.)

Welcome everyone to coding. Introduce yourself. Explain that over the next few sessions, they're going to learn how to make their own computer programs by writing code!

Introduction to Code - 15 min

Start a discussion about code using the Introduction to Code presentation.

Introduce Scratch - 10 min

Introduce Scratch as the programming language they're going to use to build their programs. Show the Scratch Overview video: <https://vimeo.com/65583694>

Explain that today, they'll be exploring the Scratch website (or the Scratch app if Internet is



unavailable.) You'll show them how to get there first and then their goal is to find at least 3-5 ways that they can learn more about Scratch.

Go through the following steps with the class:

1. First, point out that they should use Google Chrome or Safari if possible (Internet Explorer does not work well).
2. Show them how to visit the [Scratch](https://scratch.mit.edu) website. Write the address on the board.
3. Explain that you want them to find at least 3-5 different areas of the website where they can learn more about Scratch. For example:
 - a. Where can they learn to create their first project?
 - b. Where can they learn to use the paint editor?
 - c. How can they find out what a code block does?
4. Explain that they'll share their findings at the end of class.

Exploring Scratch - 20 min (Ask students to go to computers.)

Ask students to go to their computers, find the Scratch website, and start exploring! One option is to have students write their findings on a piece of paper or on the board during or after their exploration. Be sure to give them a 5 minute warning when 5 minutes are remaining.

Wrap up - 10 min

Ask everyone to pause their exploration and ask for their attention. Ask for a few volunteers to share the resources that they found (on the projector if possible).

Explain that next class, they'll start learning what all the code blocks mean and how to write their own code!

Scratch Lesson 2

Topic

Exploring Scratch

Time

60 minutes

Objectives

Students will be able to:

- Create a new Scratch project
 - Save and open a Scratch project
 - Add a sprite
 - Add a backdrop
 - Assemble code blocks in the script area and test their code
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Procedure

Welcome - 5 min (Students together without computers if possible.)

Welcome everyone back! Review some of the concepts they learned last class.

- What did they learn last session?
- What is code?
- What kind of projects can you make in Scratch?
- What is an algorithm?
- What is debugging?

Give an overview for today. Explain that today, they'll learn:

- How to create their first Scratch projects
- How to save and open projects
- How to add characters and objects into projects
- How to add a backdrop
- How to start writing code!

Demonstrate how to create, save, and open projects - 10 min

1. Go online to the [Scratch](#) website.



2. Click Create.
3. Give the project a name. Use your first name, and ask students to use their first name.
4. Click File -> Download to your computer.
5. Select the Desktop (or another location that will be safe) and click Save.
6. Open the project by clicking on File -> Upload from your computer.
7. Find and select your project and click Open.
8. If it asks to Replace contents of the current project, click OK.

Creating, saving, and opening projects - 15 min (Have students go to computers - discuss how the teacher wants to save projects. There is also the Teacher studio in Scratch, which is a good option so teachers can keep their students projects together)

Have students go to Scratch, create, save, and open a project.

Demonstrate basic features - 10 min (Students together without computers if possible.)

Next show the basics of Scratch. If sitting together is not an option, ask for everyone's attention, i.e., hands off of the keyboard and mouse, eyes and ears to the front. Click on the "+" sign on the bottom right corner of the editor to zoom in on any code. Show the following skills:

- Delete Scratch Cat using the scissors.
- Add a backdrop from the library.
- Add sprites from the library. Add at least 2 sprites.
- Point out the different categories of code blocks in the toolbox.
- Test a block. Select a sprite and click on the **move 10 steps** block in the toolbox.
- Make the character move 10 steps when the green flag is clicked.
- Make the character say "Hi!" afterwards.
- Click on another sprite to demonstrate that the other sprite can have its own code and behaviours. For example, make the sprite change color when it's clicked.
- Demonstrate how to delete blocks by dragging them back to the toolbox.

Making something surprising! - 10 min (Have students go to computers.)

Give students 10 minutes to add a backdrop, add a sprite, and make it do something surprising!



Introduce the About Me project - 10 min (Students together without computers if possible.)

Ask students to save their projects and close Scratch. If students are sitting together again, ask them to log off of their computers as well.

Explain that the goal over the next few classes is for everyone to make an interactive project about themselves! Show an example that you made and/or an example from a past student: <https://scratch.mit.edu/projects/2424010/>

Their homework is to start thinking about their projects, come up with at least 3 things about themselves that they can share in their projects, and write it down. They can also begin to sketch their ideas if they'd like. Give students a chance to ask questions.

Scratch Lesson 3

Topic

Moving Sprites

Time

60 minutes

Objectives

Students will be able to:

- Move sprites in a variety of ways

Procedure

Welcome - 5 min (Students together without computers if possible.)

Welcome everyone back! Ask students what they accomplished in Scratch last class. You can also ask students to raise their hands if they tried to:

- Add more sprites
- Draw their own backdrops or sprites
- Turn their sprites



- Make their sprites say something
- Play a sound

Ask students if they encountered any blocks that they didn't understand. Demonstrate how to use the block help. Also suggest that they can ask or help each other.

Review About Me project - 5 min

Ask who has their 3 things ready. If they don't yet, they can come up with them by the end of today's class. Ask if anyone has any more questions about the project.

Demonstrate how to move sprites - 10 min

Before they start working on their projects, explain that you'd like them to try something first. Navigate to the following Scratch project:

<https://scratch.mit.edu/projects/107238251/>

Read the instructions. Then click "See inside" and select Scratch Cat. Use the comments as a guide. Work from top to bottom. Click on the "+" sign on the bottom right corner to zoom in. For each question, ask students to share their guesses. Then test their guesses before moving on.

After finishing the last script for Scratch Cat, go to the basketball. When you reach the last comment, ask students to keep their guesses because you want them to try this themselves!

Demonstrate what you'd like them to do when they get to their computers:

- Go to the Scratch website
- Enter Kids Code Jeunesse in the search bar
- Click on the studio (If not searchable, go to <https://scratch.mit.edu/studios/2021069/>)
- Click on the project "Make it move!"
- Click "See inside"
- Click on the basketball
- See if they can solve the puzzle!

Make it move! - 10 min (Have students go to computers.)

Give students 10 minutes to solve the puzzle. Encourage them to help each other. When most students have solved it, ask for a volunteer to show his or her solution using the projector.



Working on About Me projects - 20 min

Before they begin to work on their projects, show them how to create a new project in the editor:

- Click File -> New
- Name their project with their name followed by About Me, ex., Wendy About Me
- Save their project by clicking File -> Download to your computer

Review what they should be working on:

- Coming up with their 3 things
- Working on their About Me project, i.e., add a backdrop, add sprites, make them move!

Wrap up - 10 min

Give students their 5 minute warning. After 5 minutes, remind students to save their projects to their computers and log off.

Now that they have their 3 things and they've had a chance to play with Scratch, their homework for next class is to make sketches of their projects. They should think about the following:

- What will their projects look like to someone else?
- Will the sprites appear all at once?
- Will some sprites appear at different times?
- Can some sprites be clicked on and what will happen to them?
- Will there be multiple scenes or backdrops?

Scratch Lesson 4

Topic

Animating Sprites and Backdrops

Time

60 minutes

Objectives

Students will be able to:



- Animate sprites by switching costumes
- Animate the stage by switching backdrops

Procedure

Welcome - 10 min (Students together without computers if possible.)

Welcome everyone back! Ask students to share what they tried last class. You can also ask students to raise their hands if they tried to:

- Experiment with repeat blocks
- Make a sprite spin
- Make a sprite constantly change colours

Ask if anyone encountered any problems that they'd like to share. Demonstrate how to fix common issues such as:

- How to make the sprite face the other direction, i.e., use the **point in direction** block
- How to make the sprite not turn upside-down, i.e., change the rotation style
- What to do when the sprite goes off of the screen, i.e., use the **go to x: y:** block

Demonstrate how to animate sprites - 20 min

Explain that today, they'll learn about animation in Scratch!

Navigate to the following project: <https://scratch.mit.edu/projects/107423908/>

Read the instructions. Click "See inside". Select the parrot, and then go to the Costumes tab. Point out that the parrot has 2 costumes: parrot-a and parrot-b.

If you click on each costume, the parrot looks like it's flying! So all they have to do is figure out which block will change costumes!

Go to the Scripts tab. Click on Looks. Demonstrate where to find the **switch costume to** block. Show them how to use the down arrow to change the costume. Ask students what will happen when you click on each of the blocks in the Scripts area. Zoom in if needed. Test their guesses.

Now ask if they can make the parrot's wings go up and down by itself. Hopefully, they'll suggest snapping the blocks together. Test it. They'll see that it doesn't work. Ask them why. Give clues that will lead them to realize that the code is running too fast for them to see.

Once they realize it's too fast, go to Control and show them the wait block. Explain that it



tells the computer to wait before it does the next action. Where should they place the block to slow down the animation?

Once they're successful, ask them to make the parrot flap its wings forever. Solve it together. Make sure they add another wait block so that the flapping is even.

Congratulations! Now demonstrate what you'd like them to try themselves:

- Go to the Scratch website and find the studio:
<https://scratch.mit.edu/studios/2021069/>
- Click on the project "Make it fly!" and click "See inside"
- Click on the Stage
- Click on the Backdrops tab to show that the stage has multiple backdrops just like a stage can have multiple costumes
- Add another backdrop from the library
- Go back to the Scripts tab and click on Looks
- Find the **switch backdrop to** block and change the backdrop using the down arrow
- See if they can make the backdrop change from one location to the next!

Animating backdrops - 10 min (Have students go to computers.)

Give them 10 minutes to animate the backdrop. Encourage them to help each other. When most students have solved it, ask for a volunteer to show his or her solution using the projector.

Working on About Me projects - 15 min

Remind students how to open their saved projects and suggest things to try:

- Click File -> Upload from your computer
- Select their project and click Open
- If it asks to Replace contents of the current project, then click OK.
- Suggest they try animating sprites and backdrops in their projects!

Wrap up - 5 min

Remind students to save their projects and log off before the end of class.

Scratch Lesson 5



Topic

Playing sounds

Time

60 minutes

Objectives

Students will be able to:

- Add sounds from the sound library
- Play a single sound
- Repeat a sound

Procedure

Welcome - 10 min (Students together without computers if possible.)

Welcome everyone back! Ask students to share their accomplishments from last class. You can also ask students to raise their hands if they tried to:

- Draw their own costumes
- Draw their own backdrops
- Make a sprite dance

Ask if anyone encountered any problems that they'd like to share. Students often ask how to "reset" their sprites. Now might be a good time to show them how to use the **go to x: y**, **point in direction**, and **switch costume to** blocks to reset their sprites at the start of their scripts.

Demonstrate how to add and play sounds - 15 min

Explain that today, you'll show them different ways to add sounds to their projects! And then the rest of the time will be for them to continue working on their projects.

Navigate to the following project: <https://scratch.mit.edu/projects/107778039/>

Read the instructions. Click "See inside". Start with the Drum. Ask students to read the code and predict its behaviour. Zoom in if needed. Test it. Explain that the **play drum** block is from the Sound category and it allows them to play drum sounds!



Move onto the Cymbal. Ask students to read the code and predict its behaviour. Test it. But it doesn't sound like a cymbal! Show them how to use the down arrow on the **play drum** block to choose other drum sounds.

Select the Piano. Ask students to read the code and predict its behaviour. Test it. Explain that they can combine **play note** blocks to make a song!

Go to the Trombone. Ask students to read the code and guess its behaviour. Test it. But it sounds wrong. Work together to make it sound like a trombone, i.e., use the arrow on the **set instrument to** block, as well as play a different note, i.e., use the arrow on the **play note** block.

Move onto the Guitar. Read the code and test it. But say you want a different sound. Show them that by clicking on the arrow, there are other sounds to choose from. But explain that there are even more sounds not in this list.

Demonstrate how to play a sound from the library:

- Click on the Sounds tab
- Click the Choose sound from library icon
- Click on Music Loops to filter the list
- Click the play button next to "guitar chords 1" to sample the sound
- Click on "guitar chords 1" to select it
- Click OK
- Click on the Scripts tab
- Change the **play sound** block to play "guitar chords 1"
- Test it

Challenge the class to see if they can change the code to play the sound twice in a row. Make sure that they can see the different sound blocks in the toolbox. They may try snapping two **play sound** blocks together. But is there another block that plays sounds that they can try? I.e., **play sound until done**.

Working on About Me projects - 30 min (Have students go to computers.)

Suggest that they try adding different sounds to their projects!

Wrap up - 5 min

Remind students to save their projects and log off before the end of class.

Scratch Lesson 6

Topic

Coordinating sprites

Time

60 minutes

Objectives

Students will be able to:

- Coordinate actions to occur in parallel
- Coordinate actions to occur in sequence

Procedure

Welcome - 5 min (Students together without computers if possible.)

Welcome everyone back! Ask students to share their accomplishments from last class. What kinds of sounds did they add to their projects? Does anyone have any questions about sounds?

Demonstrate how to coordinate actions in parallel - 10 min

Explain that today, they'll learn how to coordinate sprites, like how to make a parrot flap its wings and move at the same time, or how to make two sprites talk back and forth.

Navigate to the following project: <https://scratch.mit.edu/projects/111524725/>

Read the instructions. Click "See inside". Make sure Pico is selected.

Start with the first script at the top. Click on the script to show students what it does. Then focus their attention on the next script. Ask them to predict its behaviour. Then click on it to confirm. Work together to make Pico animate and move at the same time when the green flag is clicked, i.e., add the **when green flag clicked** block to the top of both scripts.



Demonstrate how to coordinate actions in sequence - 10 min

Next, click on the say block at the bottom. Ask students how they would make Pico start the joke after he stops moving. Work together to add the block to bottom of one of the other scripts.

Then select Giga. Explain that Giga needs to respond to Pico. Ask students how they would make Giga reply after Pico has asked the question. If necessary, remind them of the **wait** block. Work together to get Giga to reply to Pico, i.e, add the **when green flag clicked** and **wait** block.

Once they're successful, demonstrate what you'd like them to try themselves:

- Go to the Scratch website and find the studio:
<https://scratch.mit.edu/studios/2021069/>
- Click on the project "Make it funny!" and click "See inside"
- Ask students to make Pico respond to Giga to finish the joke! They can change the joke if they'd like as long as it goes back and forth at least 2 times.

Coordinating sprites - 10 min (Have students go to computers.)

Give them 10 minutes to complete the joke project. When they have finished, ask them to share their joke with another student before working on their About Me projects.

Working on About Me projects - 20 min

Give students time to work on their projects!

Wrap up - 5 min

Remind students to save their projects and log off before the end of class.

Scratch Lesson 7

Topic

Putting it all together



Time

60 minutes

Objectives

Students will be able to:

- Build a project with movement, animations, and sounds

Procedure

Welcome - 5 min (Students together without computers if possible.)

Welcome everyone back! Explain that today, they have the entire class to work on their projects and that next day, they'll have the chance to present their projects if they'd like. Take a few minutes to answer any questions before they start.

Working on About Me projects - 50 min (Have students go to computers.)

Help students with their projects!

Wrap up - 5 min

Remind students to save their projects and log off before the end of class.

Scratch Lesson 8

Topic

Presentations

Time

60 minutes



Objectives

Students will be able to:

- Present a project to the class (optional)
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Procedure

Welcome - 5 min (Students together without computers if possible.)

Congratulate everyone for making it to the last day! Explain that today, they'll have more time to work on their projects. Then they can present if they'd like. Address any concerns.

Working on About Me projects - 25 min (Have students go to computers.)

Give students time to continue working on their projects. Students who want to present can write their names on the board. If needed, save their projects to a USB key.

Presentations - 25 min (Have students sit together if possible.)

Have each presenter describe their project, their challenges, what they enjoyed the most, etc.

Wrap up - 5 min

Remind students to save their projects and log off before the end of class. Thank them all for their hard work and encourage them to keep coding!