Getting Started with Scratch

a guide to designing introductory Scratch workshops

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Overview

There's no one way to host a Scratch workshop.

Workshops can take on a variety of forms – different audiences, different lengths, different themes.

But we’ve found that workshop participants frequently have meaningful learning experiences when workshops are designed with certain key principles in mind. Participants should have opportunities to:

+ engage in design activities
+ pursue personal interests
+ interact through creative collaborations
+ reflect on experiences
This section describes elements that could be part of an introductory Scratch workshop.

- Setting goals
- Meeting one another
- Introducing Scratch
- Creating projects
- Sharing experiences
- Preparing for next steps
What do you want participants to get out of your workshop?

Setting goals is good for the organizer, as it helps guide planning of the workshop activities. Sharing those goals at the beginning of the workshop session is also good for the participants, as it helps participants feel prepared for the experience.

At the beginning of the workshop, discuss the **goals** (*what* we want to achieve, the attitudes, knowledge, and skills to be developed in the session) and **agenda** (*how* we will achieve it, the plan for the session) with workshop participants.

The goals and agenda - as well as how explicitly you discuss them - will vary with your audience.
Whether the workshop participants are strangers or friends, it’s important to create a space for people to feel comfortable with others they’ll be working with. There are lots of different ways to help people get to know each other better. Here are a few suggestions for icebreaker activities.

**Name game**
Go around the entire group with each person introducing her/himself, such as sharing name, motivation for attending, hopes for the workshop session. For an additional challenge, the current person could also introduce every previous person.

**Colorful introductions**
Create a bowl that contains a bunch of colorful objects, like a collection of red, blue, and yellow LEGO bricks. Each color represents different categories of facts. Each person takes a handful of the objects and then shares information about him/herself based on the colors s/he selected. For the workshop, the questions could have a Scratch flavor.

  + For Scratchers who are just starting
    Red: Something you notice about the user interface
    Blue: Your favorite character in the sprite library
    Yellow: Something you hope to create with Scratch

  + For Scratchers with some experience
    Red: Your favorite Scratch project
    Blue: Explanation of a feature you’ve used in Scratch
    Yellow: Something you would change about Scratch
**Find someone who**

Make a bingo card sheet with each block containing an attribute, like:
- Find someone who has at least 4 Scratch projects posted online.
- Find someone who knows who Gobo is.
- Find someone who has used the broadcast block.
- Find someone who helps people learn Scratch.
- Find someone who has been Scratchin for more than a year.
- Find someone who posts to the Scratch forums.

Participants get to know other Scratchers by finding a different person to sign each block on their sheet. (See appendix for handout.)

**Personal flag**

Each participant constructs a flag using craft materials that contains his/her name and represents her/his interests. People can then introduce their flags or post them on a shared surface.

**Getting to know you**

On large sheets of chart paper, write survey questions, like:
- If you could have an endless supply of any food, what would you get?
- If you were an animal, what would you be?
- What's your favorite thing to do in the summer?
- If you could visit any place in the world, where would you choose to go?
- Are you a morning or a night person?
- What are your favorite hobbies?
- What's the weirdest thing you've ever eaten?
- What three words would you choose to describe yourself?

Have participants write their answers on post-it notes that they can cluster on the chart paper to identify similarities and differences.
Before getting into the heart of a Scratch workshop, it’s important to introduce some of the basics of Scratch - as a tool, as an activity. There are many different ways to introduce Scratch.

**Demo**
It’s often useful to start by showing participants how to build up a project. Just open up Scratch and create a simple project, like making the cat dance back and forth to a beat. How much you show at once in a demo depends on numerous factors (overall workshop length, facilitator/participant ratio, etc.), but some basic tasks that are useful to demo include:

+ how to snap blocks together
+ how to make a sprite move and say something
+ how to add another character
+ how to change the background image

**Sample projects**
In addition to showing how easy it is to create a project by snapping blocks together, it’s also good to show participants a range of things that have been created with Scratch. Visit the Scratch website to find projects that will inspire your participants.

**Other resources**
Some workshops are facilitated in a less centralized fashion - leaving the participants to explore the fundamentals of Scratch through resources rather than through demonstration. The support page on the Scratch site links to videos, a step-by-step guide to creating a first Scratch project, and a set of cards to explore various code excerpts. Of course, these approaches aren’t exclusive. The facilitator can lead with a brief demo, while making these other resources available to accommodate different learning styles.
Creating projects

After introducing Scratch, it's time to engage in Scratch design activities. Depending on the length of the workshop, several cycles of introducing-creating-sharing may be planned and a variety of activities may be included. Activities may explore different themes, genres, or constraints. A short project-creating activity could be followed by a longer activity, or a series of shorter activities could be planned. Here are a few suggestions for projects.

8 blocks
Getting started with all 100+ blocks in Scratch can be overwhelming. In this activity, participants create a project using eight pre-specified blocks. (See appendix for handout.)

Monkey business
Participants start with a new project. The challenge? Create a project in which something surprising happens to a monkey.
Interactive us
Participants incorporate their voices and images into a project, creating something that helps others learn about themselves and the people, issues, and things they care about. (See appendix for handout.)

Pass it on
What happens when you share a story? In this activity, participants each begin a story and have a few minutes to elaborate on it however they choose. When the time is up, they pass the computer to another participant, who continues the story. After one or two more passes, the story is finished.

Interactive postcard
Are the workshop participants in a location that’s new to them? Where in the world do participants wish they were? Participants collect and create audio and visual representations of a location and create a project that documents the place. The postcard could take numerous forms, such as an interactive map or a photo gallery.

Let’s play
A game has a goal, rules, and an outcome. In this activity, participants create a game with Scratch. It can be completely new or a re-creation of an old favorite. (See appendix for handout.)
While participants will likely be sharing and collaborating throughout the design process, it is important to dedicate time to sharing and reflection, so that both participants and facilitators can discuss what happened and share reflections on or analysis of the activities. Some strategies for sharing and reflection include:

**Show and tell**
Each participant (or team of participants) has an opportunity to demonstrate what was created and discuss design experiences, either with the entire group or in smaller groups. It’s useful to provide some concrete questions for participants to think about and respond to. What did you find surprising? What was challenging? What motivated or influenced your project decisions?

**Galleries**
In addition to sharing with the other participants, the Scratch online community can be used to share projects developed in the workshop. Create a gallery and encourage participants to post their projects (with project notes describing how to interact with the project and about the process of creating the project).

**Lessons learned**
Reflecting on their processes, participants can create a guide of lessons learned for future Scratchers. What approaches, techniques, or tips would they recommend? Create a mind map or “Top 10” list of the ideas and suggestions.
Preparing for next steps

So the participants have had a great workshop experience.

But what happens after the workshop? There are numerous forms of support available that can be shared as resources to conclude the workshop.

**Scratch online community**
The Scratch online community is a venue for people to share their Scratch projects and get feedback through comments. The Scratch site also offers resource materials (such as videos and guides). The Scratch forums can be used to ask questions about a wide variety of Scratch topics and to share ideas.

**ScratchEd**
For educator workshops, ScratchEd is a new support structure. ScratchEd is a companion site to the main Scratch site, designed especially for educators, where they can share stories, exchange resources, ask questions, and find others.

**Events**
While online communities enable a large number of people with a diverse set of experiences to connect, gathering people in a physical space offers numerous benefits, such as responsiveness and real-time collaboration. The Scratch conference at MIT and annual Scratch Day events around the world provide opportunities for people to connect in-person on a large scale, in addition to the numerous global Scratch workshops being organized.

**Further explorations**
Workshop participants may be interested in extending their Scratch experiences. Scratch can be used in a variety of ways, and participants can be encouraged to explore different genres and forms of expression. Participants may be interested in Scratch’s capacities for extending to the physical world through the Scratch sensor board and the LEGO WeDo robotics kit.
These six workshop elements (*setting goals, meeting one another, introducing Scratch, creating projects, sharing experiences, preparing for next steps*) can be combined in a wide variety of ways. Feel free to (re)mix and match as appropriate for participants’ backgrounds and interests, as well as workshop size and duration. Here are two examples of possible agendas:

**1 hour workshop for small group of Scratch beginners**

*Welcome and goal setting* (5 minutes)

*Meeting one another: Name Game* (10 minutes)
Going around the room, participants introduce themselves.

*Introducing Scratch* (5 minutes)
In preparation for the hands-on activity, facilitator demonstrates:
  - how to snap blocks together
  - how to make a sprite move and say something
  - how to add another character

*Creating projects: Collaborative story* (25 minutes)
Each participant spends 10 minutes starting a story in Scratch, passing the story off to another participant at the end of the time block. The next participant has 10 minutes, then the final person has 5 minutes to finish the story.

*Sharing experiences: Show and tell* (10 minutes)
Participants review their own and their neighbors’ stories and share their observations about Scratch.

*Preparing for next steps* (5 minutes)
Facilitator introduces the Scratch online community, shows some sample projects, and closes by answering questions.
2.5 hour workshop for beginner Scratch educators

Welcome and goal setting (5 minutes)

Introducing Scratch (5 minutes)
Facilitator demonstrates the fundamentals of Scratch by showing how to snap blocks together.

Creating projects: 8 blocks (20 minutes)
In pairs, participants create a project using only eight pre-specified blocks.

Sharing experiences: Show and tell (15 minutes)
Participants review their own and their neighbors’ projects, and share their observations about Scratch.

Introducing Scratch (20 minutes)
Facilitator introduces the Scratch online community, showing a collection of sample projects to demonstrate the variety of projects that can be created with Scratch. Then in preparation for the next hands-on activity, facilitator demonstrates how to use Scratch to create an interactive postcard.

Creating projects: Interactive postcard (40 minutes)
In pairs or individually, participants create an interactive postcard for a place they’ve been or would like to go.

Sharing experiences: Lessons learned (20 minutes)
Participants review their own and their neighbors’ projects, and share their observations about Scratch to generate a list of suggestions for other educators.

Preparing for next steps (10 minutes)
Facilitator introduces the ScratchEd online community, shows the different areas (stories, resources, discussions, members), and closes by answering questions.
The appendix includes several resources mentioned in this guide.

+ *Find someone who* icebreaker activity
+ *8 blocks* project handout
+ *Interactive us* project handout
+ *Let’s play!* project handout (4 pages)
+ *Scratch cards*
FIND SOMEONE WHO

Get to know other participants by finding a different person to sign each block on your page.

came to the workshop by car

is completely new to Scratch

owns a pet

speaks another language

has lived in two other cities

draws or paints as a hobby

loves to play board games with friends

has taught someone how to ride a bicycle

has met someone famous

loves hot weather

has taught someone else to use Scratch

teaches high school students

has recently been on vacation

has been to the workshop venue before

has used a Scratch sensor board

is currently reading a novel
What can you build with these 8 blocks?

- move 10 steps
- turn 15 degrees
- think Hmm... for 2 secs
- set size to 100%
- say Hello! for 2 secs
- play sound meow until done
- when Sprite1 clicked
- wait 1 secs

What can you build with these 8 blocks?

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- turn 15 degrees
- think Hmm... for 2 secs
- set size to 100%
- say Hello! for 2 secs
- play sound meow until done
- when Sprite1 clicked
- wait 1 secs
Interactive Us

Create a project that helps others learn about you and the people, issues, and things you care about.

- move 10 steps
- turn 15 degrees
- say Hello! for 2 secs
- set size to 100%
- play sound meow until done
- wait 1 secs
- repeat 10

when Sprite1 clicked

I'm trying to improve my Spanish.
LET’S PLAY!

Games provide numerous opportunities to explore a variety of computational concepts and skills. Here are some blocks that are frequently useful in games.

TOUCHING
See if two sprites are touching or if a sprite is touching a color

VISIBILITY
Make a sprite appear or disappear

RANDOM
Get a computer-generated number from within a specified range

TIMING
Have the computer keep track of time for you

STRINGS
Test, access, and change words and sentences

VARIABLES
Store a number or string in a container to access later

COMPARE
Compare values to help make decisions within your game

KEY PRESS
Make a sprite respond when different keys are pressed
MAZE

GOAL
Get from the start of the maze to the end

RULES
Don’t touch the green walls

OUTCOME
Win when the yellow marker is reached

move the sprite around

```
when down arrow key pressed
point in direction 180
move 10 steps
```

```
when up arrow key pressed
point in direction 0
move 10 steps
```

```
when right arrow key pressed
point in direction 90
move 10 steps
```

```
when left arrow key pressed
point in direction -90
move 10 steps
```

have the sprite bounce off the green walls

```
when flag clicked
go to x: -249 y: 149
```

```
when flag clicked
forever if touching color ?
  turn -180 degrees
  move 10 steps
```

```
when flag clicked
wait until touching color ?
say You win! for 2 secs
```

players wins when sprite reaches the yellow end marker

no scripts, draw a maze-like background with colored walls and a differently colored end marker

7 scripts

Draw a maze-like background with colored walls and a differently colored end marker.
COLLIDE

GOAL
Help the cat navigate a gobo minefield

RULES
Collect yellow gobos to earn points, avoid pink gobos to avoid losing points

OUTCOME
Maximize your score

reset the cat's position and the score
when the cat collides with a yellow gobo, the gobo disappears and the score increases by 10
when the cat collides with a pink gobo, the gobo disappears and the score decreases by 10

no scripts
have the cat follow the mouse cursor
GUESS

GOAL
Test your spelling abilities

RULES
Type the words spoken by the cat

OUTCOME
Learn whether you spelled each word correctly

create a list of words and audio-record their pronunciations

[Diagram of Scratch scripts and sounds]

New sound: Record Import

Make a list
Delete a list

[List of words]
1. fungi
2. maniacal
3. prestidigitation

when clicked
forever
set currentWord to pick random 1 to 3
play sound currentWord
ask How do you spell....? and wait
if answer = item currentWord of words
say Correct! for 2 secs
else
say Incorrect! for 2 secs

no scripts
1. Fold the card in half.
2. Put glue on the back.
3. Cut along the dashed line.

**Xtra Tip**
Press the space bar to change colors.

**Try This Code**
Or choose one from a folder.

**Change Color**
Press a key to change the color of a sprite.

**Scratch**
https://scratch.mit.edu
1. Fold the card in half.

2. Put glue on the back.

3. Cut along the dashed line.

Click the green flag to start.

Click to choose a drum sound.

TRY THIS CODE

Choose a dancer or other image.

New sprite:

DO IT!
1. Fold the card in half.
2. Put glue on the back.
3. Cut along the dashed line.

**Extra Tip:**
Press the arrow keys to move.

**Try This Code:**

**Key Moves:**

**Sprite**

---

**Scratch!**
1. Fold the card in half.
2. Put glue on the back.
3. Cut along the dashed line.

Say Something

Try This Code

Type in any words.

When duck chucked

Type in a name for your sprite.

Select a sprite.

Costumes

Say:

- How I didn’t knowhippos could fly for 2 secs.

What do you want your sprite to say?
1. Fold the card in half.

2. Put glue on the back.

3. Cut along the dashed line.

Make a Card

TRY THIS CODE

GET READY

GLIDE

Move smoothly from one point to another.

TRY THIS CODE

DIFFERENT NUMBERS.

GLIDE 2 SECS TO X: 110 Y: -100
GLIDE 1 SECS TO X: 110 Y: -70
GLIDE 1 SECS TO X: 80 Y: -70

TRY CODE

Click the green flag to start.

Click the green flag to start.

Import a costume:

New Costume: 10, 10

Import: 10, 10

Extra Tip

Click the green flag to start.

Extra Tip

Click the green flag to start.

Click the green flag to start.
1. Cut along the dashed line.
2. Put glue on the back.
3. Fold the card in half.

Scratch

Follow the Mouse

Do IT!
1. Fold the card in half.
2. Put glue on the back.
3. Cut along the dashed line.

**Extra Tip**

As you move the mouse, notice how the numbers change.

**Scratch**

Click the green flag to start.

Try this code:

Choose a sprite from the menu:

Other photo to whirl:

Choose the squirrel or

New sprite:

Mr. Ready

Interpretive Whirl!
1. Fold the card in half.

2. Put glue on the back.

3. Cut along the dashed line.

 MAKE A CARD

DO IT!

Click the green flag to start.

TRY THIS CODE

GET READY

Animate it!

Make a simple animation.

Sketch the milk emoji

Switch to costume ghost35

Wait 1 secs

Switch to costume ghost

Forever

When clicked

Copy a costume

Edit the new costume

Edit costume

Copy

100px
60px

ghost35

ghost
1. Fold the card in half.
2. Put glue on the back.
3. Cut along the dashed line.

Extra Tip

If you're working on a Scratch project, you can change your sprite's costume to make it move. Does your sprite move?

Try this code:

Import a pair of costumes

Get Ready

Animate a character as it moves.

Moving Animation

Scratch
1. Fold the card in half.
2. Put glue on the back.
3. Cut along the dashed line.

Click the green flag to start.