

# Algorithms

## Facilitation Guide

*Introduce learners to algorithms, including what they are, how they work, and why they matter for our online experiences.*

### Overview

This module introduces algorithms and helps learners explore and unpack what algorithms are, how they work, what are their effects, and why they increasingly matter for our online experiences and our society at large.

For more information, be sure to watch Series 2 of the NYC Digital Safety Training videos.

### Outcomes

By the end of this module, participants will be able to:

- Define algorithms
- Analyze the effects of algorithms
- Discuss how algorithms work and how they shape online experiences

### Format + Time Frame

This module provides an overview of algorithms and encourages learners to discuss and explore how algorithms work and why they matter through a guided activity.

This module will take approximately one hour and twenty minutes to complete and includes a guided activity and time for discussion. If you have less time, you may consider making the guided activity something that learners do later on their own.

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### Materials

- Slide deck
- Facilitation guide
- Handout

### Lesson Plan

Activity	Materials	Time Needed
<b>Introduction and welcome</b> Greet learners and review the plan for this module.	Slides 1 and 2	2 minutes
<b>Defining algorithms</b> Share a working definition of algorithm.	Slide 3	3 minutes
<b>Discussion: what do you already know about this topic?</b> Hold an open conversation with learners about what they've heard about algorithms so far.	Slide 4	5 minutes
<b>How algorithms work and where we can see them in action</b> Review different aspects of algorithms, how they work, and where we can see them in our online lives. Pause to see if anyone has anything else to add to these lists and examples.	Slides 5 through 14	15 minutes
<b>Pros and cons of algorithms</b>	Slides 15 through 17	10 minutes

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<p>Share different pros and cons of algorithms and see what else your learners have to add here.</p>		
<p><b>Activity: Discuss personal feelings towards algorithms</b></p> <p>Divide your learners into small groups Have them discuss the questions listed on the accompanying slide deck about their feelings towards algorithms. Bring everyone back together to share what they discussed in their groups.</p>	<p>Slide 18</p>	<p>10 minutes</p>
<p><b>Ways to manage algorithms</b></p> <p>Review the list of ways to manage algorithms, and the effects those choices can have on our online experiences. Pause to see if anyone has anything else to add or any questions.</p>	<p>Slides 19 through 23</p>	<p>10 minutes</p>
<p><b>Activity: Testing out algorithms</b></p> <p>Put your learners into pairs so they can discuss this activity together. Have learners use their guided handout to explore algorithms by running searches with different tools and comparing the results.</p>	<p>Slide 24, handout</p>	<p>20 minutes</p>
<p><b>Wrap up, final tips, and final questions</b></p> <p>Review the closing thoughts and share the suggested resources. See if anyone has any final questions.</p>	<p>Slides 25 through 28</p>	<p>5 minutes</p>

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### Considerations

Algorithms can be a very complex topic with a number of implications. Algorithms increasingly feature in debates around online safety and security, tracking, and issues of inclusion and equity online, with publications like *Algorithms of Oppression* by Safiya Umoja Noble detailing the ways in which algorithms can reinforce discrimination. This lesson can really benefit from providing time and space for discussion and dialogue. And try to be flexible; different learner groups might raise different issues and you can take this module in a variety of directions!

Before this lesson, you might consider reviewing information and resources on algorithms and other modules here that delve into broader issues of privacy, data generation online, and other topics to prepare for questions and the different directions your conversations might go.

### Options and Variations

Algorithms are a large topic in and of itself and this module benefits from standing on its own. However, you could pair this lesson with other related modules on topics like online tracking, data generation, and privacy more generally as part of a workshop series.

This module includes a suggested guided activity that is best run during a workshop session. This activity does not work as well if it is done by a solo individual.

You can also provide this information and content to patrons via a service point by discussing algorithms with them and sharing resources where they can learn more.

### Assessment

The following are some suggested assessment questions that you can use and adapt for your own purposes. These questions can help you assess various things, including knowledge retention, personal views and preferences, and concept application.

You might consider asking these as a pre or post test, or you can have learners answer these as part of an exit survey or a follow-up survey. Keep reading for suggested questions and an answer key with further details and explanations.

### Questions for Participants

What is an algorithm?

- A. A set of instructions for solving a problem or performing a task on a computer
- B. The chip that interprets digital instructions from applications on a computer
- C. A program that bring directions from one application to another
- D. Terms for when a program moves forward with a task

Where can we find algorithms in action online?

- A. Search engines
- B. Social media sites
- C. Media viewing platforms like Netflix or YouTube
- D. Shopping sites
- E. All of the above

Can algorithms be biased?

- A. Yes
- B. No
- C. Unsure

What are strategies you can use to manage the influence algorithms can have?

- A. Change the ways in which you view posts on social media sites
- B. Get out of your filter bubble and seek out different kinds of information
- C. Manage your online privacy and security settings
- D. All of the above

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### Answer Key

What is an algorithm?

*Answer: A. A set of instructions for solving a problem or performing a task on a computer*

Algorithms are sets of instructions for solving a problem or performing a task, and they are a key aspect of software coding. Algorithms, like all code though, are written and developed by humans which means they can be prone to human issues like bias.

Where can we find algorithms in action online?

*Answer: E. All of the above*

Algorithms are pretty much everywhere online. Every website, search engine, app, and social media platform makes use of them.

Can algorithms be biased?

*Answer: A. Yes*

As noted, algorithms are designed by humans which means they can often reflect human biases. There are a number of studies that document the ways in which algorithms can be racist, sexist, and otherwise discriminatory.

What are strategies you can use to manage the influence algorithms can have?

*Answer: D. All of the above*

Algorithms are nearly impossible to avoid but being more aware of them, being aware of how you use social media and the Internet, and managing your privacy settings are all ways to help mitigate the effect algorithms can have and break out of their influence.

## Connections to Other Modules

This module connects to many other modules. The following suggestions provide opportunities for exploration, connection, and potential programming. However, feel free to explore and make connections between other modules not listed here as well!

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1.1 Data Generation

1.2 Data Minimization

2.1 Targeted Advertising

2.1 Cookies

2.2 Browser History

These and other modules can be found at this project's website, [nycdigitalsafety.org](https://nycdigitalsafety.org).

## About This Project

These materials were released in October 2022 as part of NYC Digital Safety: Privacy & Security.

NYC Digital Safety: Privacy & Security is a partnership between New York City's three library systems — Brooklyn Public Library, The New York Public Library, and Queens Library — and METRO Library Council. With support from the New York City Office of Technology and Innovation, this project ensures that NYC residents can rely on public libraries for their questions about internet privacy and security.

Visit [nycdigitalsafety.org](https://nycdigitalsafety.org) for more information.