



Hour of Code is a global movement in over 180+ countries designed to show that anybody can learn the basics of computer science. Each week, you can join millions around the world by hosting a 1-hour activity to inspire your students and maybe even discover a lifelong passion.

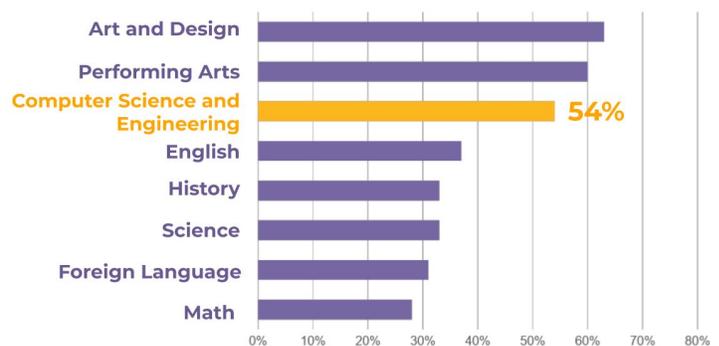
Why the Hour of Code?

Hour of Code is a great way to introduce young people to computer science.

Computer science is part of nearly every industry—including healthcare, ecology, engineering, and the arts—and helps to cultivate an engineering mindset.

Plus, children love learning it! The resources below are aligned with the Million Girls Moonshot's [Engineering Mindset Principles](#).

Subjects students report liking “a lot”



1 Register your event

Show your support and be counted. Every week, [register your event here](#) to put your program on the map.



2 Prepare for your activity

Try the activity yourself and test it works with your technology. Pair up kids if you don't have enough devices.

4 Celebrate

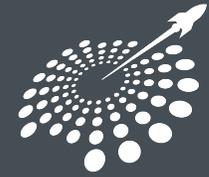
[Print a certificate](#) for each child and share photos of your experience on social media with #HourOfCode

3 Spread the word

Share this guide with others who can lead their own event and [promote the campaign](#) in your community.

5 Go beyond an hour

[Help change policies](#) at the federal, state, and local level to advocate for computer science for everyone.



Do I have to do these sessions in order?

You can do these sessions in any order and even mix and match! Some students may finish their activities in less than an hour, so feel free to move on to the next session or have them explore more tutorials at hourofcode.com/learn.

Can I do an Hour of Code outside of Computer Science Education Week?

While Hour of Code takes place each year during Computer Science Education Week (this year December 4-10, 2023), you can host an Hour of Code all year-round.

I don't know anything about computer science or coding. Can I still guide young people through an Hour of Code?

Of course. Hour of Code activities are self-guided. While this guide recommends a tutorial for you each week, you can [explore all tutorials](#) offered and pick any tutorial you want. We have options for every age and experience level, from kindergarten and up. Since students are using their own devices, they can even be doing different tutorials.

What devices should I use?

Code.org activities work on all devices and browsers. Tech needs for non-Code.org activities can be found on code.org/learn in the specific activity's description. Don't forget: We also offer unplugged activities if your program can't accommodate the tech needs!

Do we need to log on using an account?

No. Absolutely no signup or login is required for young people to try the Hour of Code. Signing up for the Hour of Code does NOT automatically create a Code.org account.

How much can one learn in an hour?

The goal of the Hour of Code is not to teach anybody to become an expert computer scientist in 60 minutes. One hour is only enough to learn that computer science is fun and creative, that it is accessible at all ages, and for all young people, regardless of background. Millions of the participating teachers, families, and children have decided to go beyond one hour — to learn for a whole day or a whole week or longer, and many kids have decided to enroll in an entire course (or even a college major) as a result.

Above all, what all participants can learn
in an hour is that **we can do this.**

Mark your calendars for December 4-10, 2023! [Start at HourofCode.com](https://hourofcode.com).



Computer science isn't only about science, technology, engineering, and math.

This week, students will learn how **creativity and imagination** come into play, especially when artificial intelligence generates images and videos.

1 Warm up exercise (15 min)

1. Choose a partner
2. On the count of 3, each of you say the name of any animal out loud
3. For 3 minutes, each of you will draw a new animal that is a mix of the two animals
4. Compare your drawings. What is similar and what is different?
5. Share your images with another partnership. Can they guess which animals you combined?

For a deeper dive, [see the full lesson plan here](#).

2 Watch [this video](#) (5 min)

Learn how artificial intelligence improved from using a generative adversarial network to diffusion models and how this models trains artificial intelligence to generate images and videos.



3 Wrap up discussion (10 min)

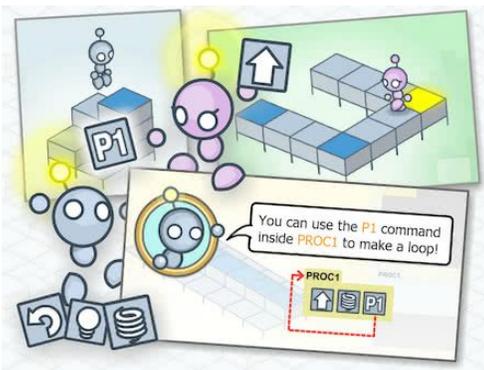
Are diffusion models creative? Why or why not?

Students may have very different answers to this question. Some may think diffusion models are creative because they create things that have never been made before from prompts. Others will note that it's only re-creating details it has seen before in new configurations.



This week, celebrate **Lights on Afterschool** - the only nationwide event celebrating afterschool programs and their important role in the lives of children, families, and communities.

1 Lightbot (50 min)



Lightbot is a game that asks players to use programming logic to solve puzzles! Gain a practical understanding of basic coding concepts by guiding Lightbot to light up all the blue tiles in each level. Learn how to sequence instructions, write procedures, and utilize loops along the way in this self-guided activity. Great for all ages and all skill levels.

Have students [complete this Hour of Code activity here](#).

2 Optional Hints for Students

Don't be discouraged if your program is not correct on your first try. Carefully read each instruction you gave Lightbot and imagine how he would and should act at each step.

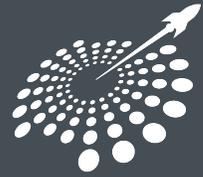
If you are really stuck, ask three other students for help. Explain your program step by step and see if they can spot a mistake. Programming in the real world is a collaborative effort - it is normal to work together to solve puzzles.

3 Reflection (10 min)

How would you explain, in words, what the turn and jump instructions do?

How did you come up with a solution to a new level? All in one go? A step at a time?

If Lightbot did not do what you wanted, how did you find the mistake and fix it?



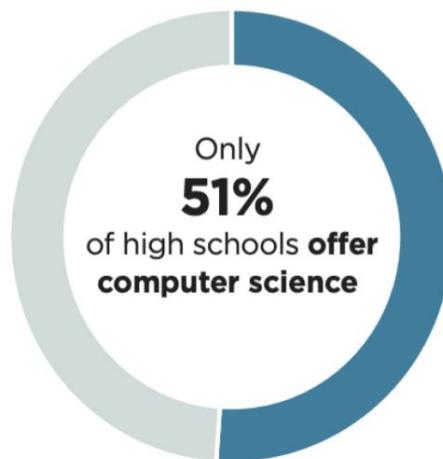
November is **Native American Heritage Month**. This week, learn about the unique experiences and challenges that Native American communities face when it comes to offering and fully engaging in computer science education in their K-12 systems.

1

Learn about the disparities in access and participation

Data gathered in the [K-12 Computer Science Access Report](#) shows that Native American students are far less likely to attend a school that offers computer science (59% as opposed to the next lowest access group, Black students at 73%).

Learn more about [how you can get involved](#) with the Native American and Indigenous Peoples Initiative.

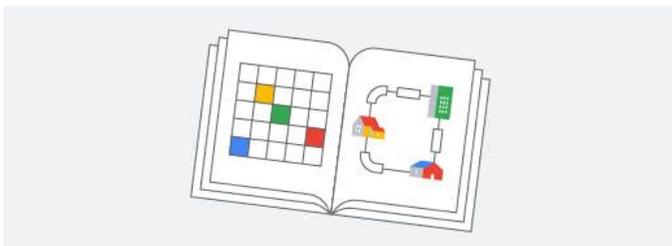


2

Don't have a computer? You can still learn computer science "unplugged"

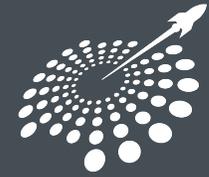
CS First

unplugged 



No computer or internet? No problem. Try the CS First Unplugged activities to explore how computer science can solve problems like helping people stay connected while apart. 'Plugged in' Scratch activities are available too!

Have students [complete this Hour of Code activity here](#).



November 8 is **National STEM Day**. Ignite young minds with the magic of science, technology, engineering, and mathematics and shape innovators of tomorrow's world.

1 Watch [this video](#) (5 min)

Learn about a form of artificial intelligence (AI) called machine learning and how they can use the Problem Solving Process to help train a robot to solve problems.



2 Artificial Intelligence for Oceans (45 min)



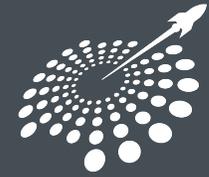
Computer science is about so much more than coding! Learn about AI, machine learning, training data, and bias, while exploring ethical issues and how AI can be used to address world problems. Participate in machine learning activities where a robot is learning how to detect patterns in fish.

Have students [complete this activity here](#).

3 Reflection (10 min)

What characteristics did you consider when sorting the fish? Did you think it's okay to use other characteristics like color instead of only the fish's expression?

What's a situation where it might be helpful to use machine learning to solve a problem?



This week, learn how **neural networks** work and discuss the need for diverse perspectives when creating recommendation systems (for example: movie recommendations on streaming services.) Then, have kids create their own adventure to help Wakanda.

1 Warm up discussion (5 min)

Prompt: Think of a time when you got a recommendation from another person or app (e.g. a food, a movie, a musician or song). Think of 1-2 examples to share.

Prompt: Do these recommendations tend to be accurate? Or do they feel random? How do you think the person or app knew what to recommend to you?

For a deeper dive, [see the full lesson plan here](#).

2 Watch [this video](#) (5 min)

Learn how biological neural networks influenced artificial neural networks and how these neural networks are used to power recommendation systems (like how streaming services recommend the next movie you should watch.)



3 Long Live Wakanda Activity (50 min)



Shuri, Okoye, and Riri must band together to help Wakanda. Code your own action-packed activity inspired by Marvel Studios' 'Black Panther: Wakanda Forever'!

Have students [complete this Hour of Code activity here](#).



This week, learn how artificial intelligence can use **large language models** to write sentences, paragraphs, and even essays that sound like a human wrote them.

1 Warm up activity (10 min)

Prompt: Complete the following sentences with one word only:

Thank _____.

I think _____ is really fun.

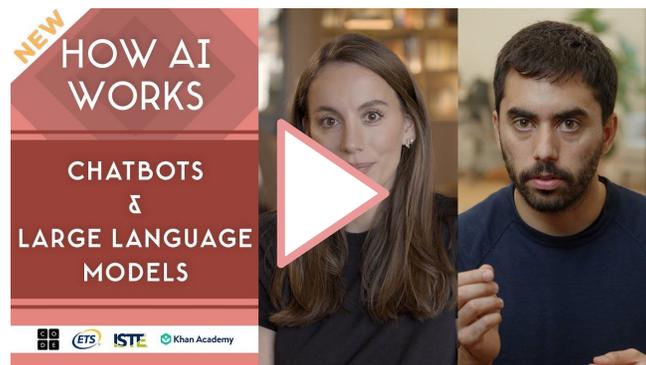
On the weekend, my friend and I like to _____.

This morning I ate _____ for breakfast.

Compare your answers with your neighbors. Where did you pick the same words? Where did you pick different ones? For a deeper dive, [see the full lesson plan here](#).

2 Watch [this video](#) (8 min)

Large Language Models like ChatGPT have remarkable abilities to generate content based on training data, but do they have actual intelligence and creativity?

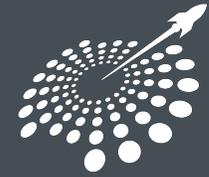


3 Hello World (42 min)



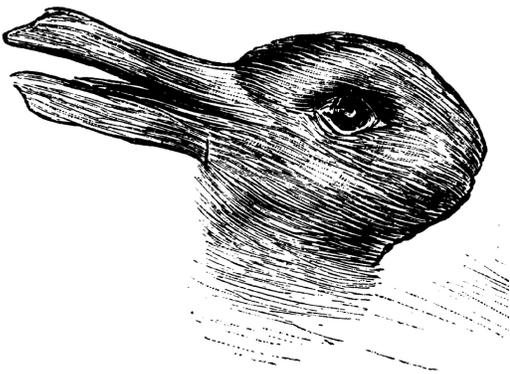
The first program many students create is a simple one that outputs an iconic line of text: "Hello World!" Say hello to the world of computer science with this introductory activity that equips students with the basic coding skills and confidence to create apps.

Have students [complete this Hour of Code activity here](#).



This week, explore computer science through the lens of an **artist**. Learn how computers see and process pictures and videos and then create your own pixel art.

1 Warm up activity (10 min)



Prompt: Show this image to students and ask them which animal they see. After a brief pause, ask students to share what they saw. Students will likely notice one of two animals: either a duck or a rabbit. Once both options are shared, see if students can see the second animal they might not have noticed the first time.

For a deeper dive, [see the full lesson plan here](#).

2 Watch [this video](#) (7 min)

Find out how a computer learns to classify images, how it can build from simple shapes to more complex figures, and why it's so difficult for a computer to tell the difference between a chihuahua and a muffin.



3 Code your own pixel art (43 min)



Learn Python and create your own colorful animations!

Have students [complete this Hour of Code activity here](#).



This **Giving Tuesday**, have students think about the impact of technology and how important it is to develop innovative technology through a responsible approach that supports the community ethically.

1 Watch [this video](#) (5 min)

The potential for AI to help society is enormous, but we need to develop technology with a focus on ethics, access and fairness. Explores the influence of AI on every aspect of life, while understanding the importance of ethical oversight.

ETHICS
and AI

EQUAL ACCESS
&
ALGORITHMIC
BIAS



2 Save the Forest with MakeCode Arcade (25 min)



Code a game with Microsoft MakeCode Arcade that recreates the conditions for a forest fire, and then code your firefighting air tanker plane to spray water and put out the flames!

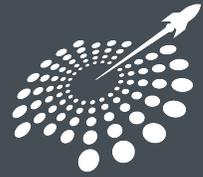
Have students [complete this Hour of Code activity here](#).

3 Responsible Consumption and Production (25 min)



Part of the UN Sustainable Development Goals project, this coding prompt shows off projects exploring issues surrounding recycling and reuse. Beginners can play with working projects and advanced programmers can create their own projects from scratch.

Have students [complete this Hour of Code activity here](#).



For **Computer Science Education Week**, join millions across the globe in organizing an hour of coding, with or without AI and learning how AI works.

Anyone, anywhere can do it. No experience needed.

1

Register your Hour of Code event (5 min)



Don't forget to [register your Hour of Code event](#). Then, help us create a multiplier effect. Ask two colleagues to **register** and **host** their own Hour of Code activity. They, in turn, can secure two colleagues. Together, we can accelerate the movement forward by expanding access and participation and reaching a tipping point for computer science graduation requirements.

2

Dance Party (25 min)



Code a Dance Party to share with your friends. Featuring Beyoncé, Lizzo, Harry Styles, Lil Nas X, Selena Gomez, music from Disney's 'Encanto', and more!

Have students [complete this Hour of Code activity here](#).

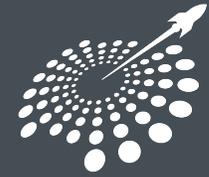
3

Minecraft Education (25 min)



Journey through Minecraft with code!

Have students [complete this Hour of Code activity here](#).



This **Winter Solstice**, launch students into space to learn about the solar system and even save the planet!

1

NASA's Space Jam (20 min)



Create a solar system that really rocks! Learn about music, astronomy, and coding in this self-guided activity (no coding experience required). Program planets to make music, creating your own musical solar system, complete with spacey melodies.

Have students [complete this Hour of Code activity here](#).

2

Coding Galaxy - Adventure Planet (20 min)



For your first mission on Adventure Planet, your duty is to solve coding puzzles to save the beautiful planet.

Have students [complete this Hour of Code activity here](#).

3

Responsible Consumption and Production (20 min)



Write real code to help the monkey astronaut catch bananas in space!

Have students [complete this Hour of Code activity here](#).



Celebrate the end of the year with a series of **wintery activities**. Students can learn computer science and coding even when they're ice skating, skiing, or creating holiday cards.

1 Code with Anna and Elsa (20 min)



Let's use code to join Anna and Elsa as they explore the magic and beauty of ice. You will create snowflakes and patterns as you ice-skate and make a winter wonderland that you can then share with your friends!

Have students [complete this Hour of Code activity here](#).

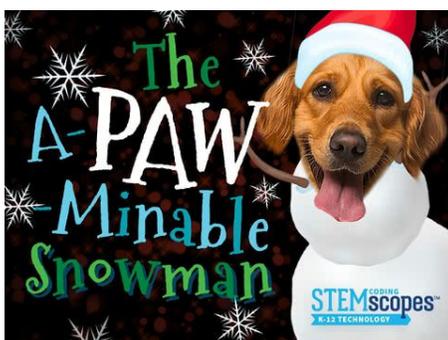
2 Sport + Code: Skiing (20 min)



Design a ski course down a hill with frozen obstacles. Using code in this Scratch activity, add movement, sensing, and collision interaction - then boom! You're ready to strap on your skis down the mountain of fun.

Have students [complete this Hour of Code activity here](#).

3 Code a Virtual Holiday Card (20 min)



Students will build their own virtual holiday card using typed JavaScript code. Get excited to share your own virtual card with friends and family this holiday season!

Have students [complete this Hour of Code activity here](#).