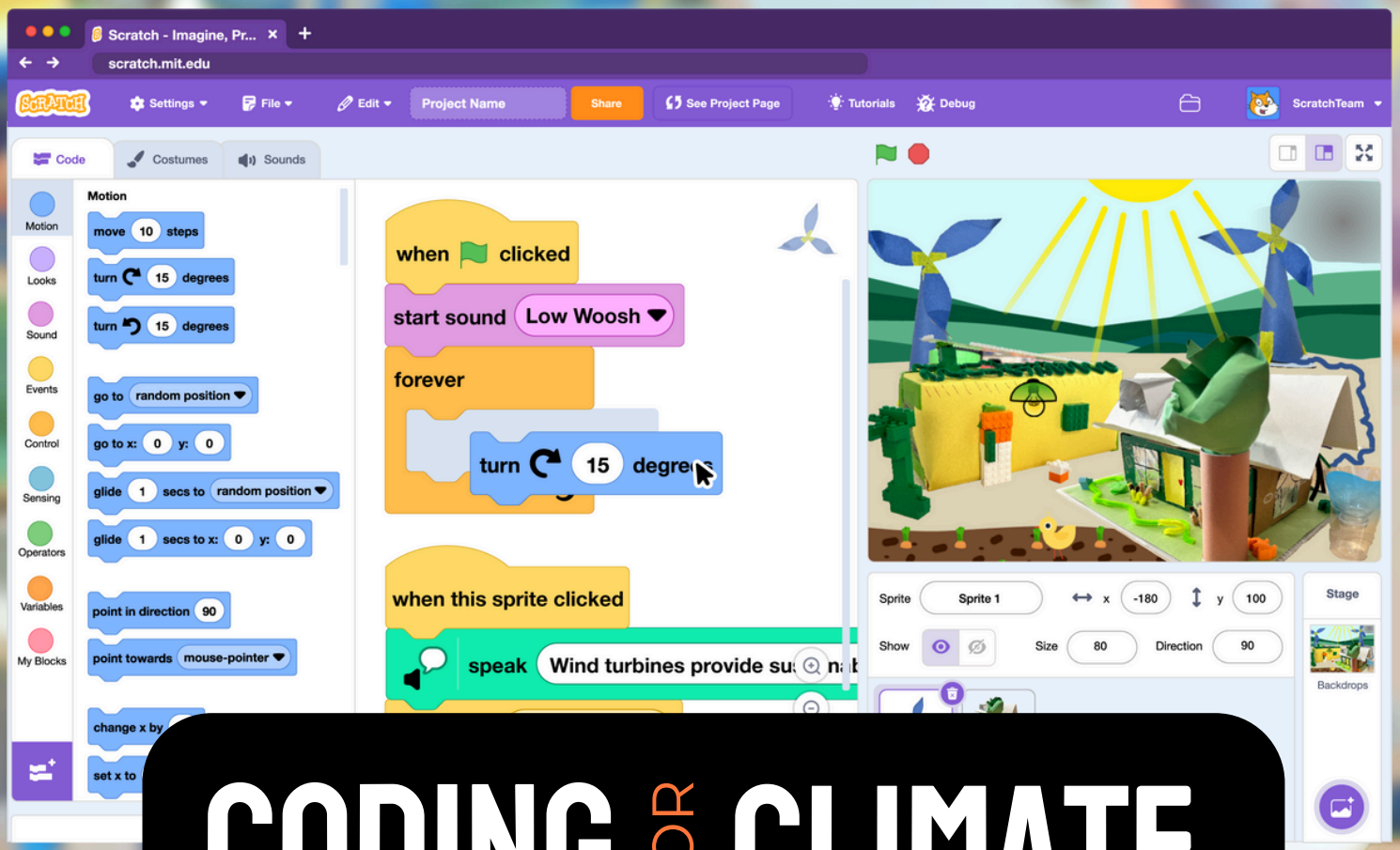


CODING FOR CLIMATE

Scratch Playbook

2025

Welcome to Coding for Climate

We are thrilled to welcome you and your class to the Coding for Climate Global Challenge! Over the next few weeks, you will join classrooms from around the world to take action on climate change. Classrooms will be introduced to computer science foundations then will use skills of problem-solving, computational thinking, creativity, and digital literacy to create solutions for our planet.

Overview

- Brought to you by Take Action Global
- 3-6 week project (flexibility for holidays, school schedules, and testing)
- all ages, all content areas
- free, open to all
- 3 phases of action to be completed from March 10 - April 22

Primary Resources
Website: www.coding4climate.org
Hashtag: #Coding4Climate

Supporting Resources
TAG website: www.takeactionglobal.org
EarthProject App: www.earthproject.org

As part of the coding experience in Phase II of the project, students will be able to select their top tool for coding as their coding solution. This playbook is designed to support classrooms, teachers, and students who select the future of work as their challenge to explore. Coding solutions are suggested.

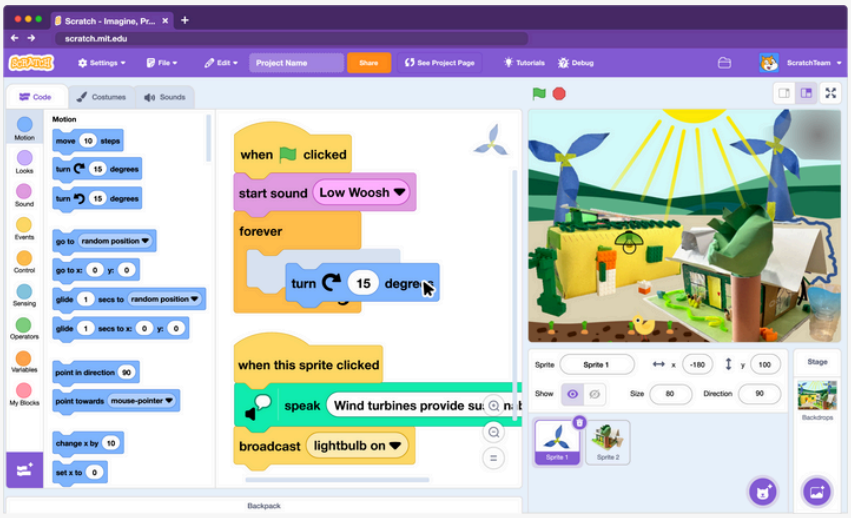
Scratch as Your Tech Tool of Choice

This lesson focuses on creating building solutions to real-world sustainability challenges using the objects you have around you! Then, create a Scratch project that incorporates the model, bringing to life ideas on how to integrate sustainable elements.

Objectives

- Explore environmental sustainability and how different locations necessitate different building solutions.
- Create models of sustainable buildings to address real-world concerns in your local community.
- Transition from analog to digital through further ideation in Scratch, while building on creativity and personal interests.
- Reflect on what you've learned and the process of both building and creating Scratch projects.
- Communicate and share projects.

The idea comes from the LEGO Group's Build the Change social impact program, "Immerse, Create, and Share."



Getting Started

Gather Necessary Supplies:

- Recyclable materials and craft materials found in your home or learning space (i.e., boxes, sticks, paper, scissors, play doh, tape, LEGOs, etc.) to build your prototype.
- A device with a camera to take pictures.
- A computing device that can access the online version of Scratch (or alternately has the downloadable version).
- Our Build the Change Coding Cards for tips. (resources.scratch.mit.edu/www/cards/en/buildchange-cards.pdf)

Imagine:

Buildings can tell a lot about a community and the people who created them, such as: what technology was available to help, what skills were needed to build it, and what materials were available and necessary to construct the building. But as time goes on, buildings can fall apart or need significant repair because they cannot withstand the environmental conditions. It is not sustainable.

Imagine a physical place that is important to you and people in your community. This can be a real building, your home or the home of someone you know, or even a place in your imagination that makes people feel welcomed and safe when they are inside. Now, imagine how you can make that building or structure better for the environment with a more energy-efficient and nature-friendly design, as well as more accessible for all in the community.

Let's imagine and prototype building solutions!

Create Your Build

Use materials you have around you to **imagine, design, and build the change you want to see**! Construct the building, community space, and surrounding areas you imagined using recyclable and craft materials (i.e., boxes, small sticks, paper, scissors, play doh, tape, LEGOs, etc.).

What common environmental threats and problems will you need to consider when designing and building your structure?

As you build, reflect on your design choices. How can you make your building or space more:

- **accessible** for all
- energy **efficient**
- **nature friendly** and less harmful to the environment around it (such as building materials, layout, add-ons)

After you have created your prototype, take a minute to draw, sketch, doodle, or **write about the building**.

- Why is this building important to you and anyone else who uses it in your community?
- Label or describe the materials the building is made of.
- How did you address environmental threats, accessibility, and energy efficiency?
- How did you ensure it does not harm what already exists within the environment/the natural surroundings?

Bring Your Build to Life in Scratch

You can utilize an interactive and expressive canvas in Scratch to share your ideas more widely with an audience of your peers, as well as enhance the ideas you started exploring with your prototype by adding sounds or narration, animating objects, and incorporating digital elements to enhance your project, add additional context, or address missing elements to your build.

To start bringing your prototype to life using Scratch, head to **scratch.mit.edu** and click "**Create**."

If you have a Scratch account, be sure to **log in** so your work is automatically saved. If you are new to Scratch and just getting started, create a **free account** to save and share your work. Check out our **Getting Started Guide** (http://bit.ly/Scratch-Getting-Started-Guide) for more information.

Build the Change Coding Cards - tips and tricks for bringing your build into Scratch

Scratch Design Journal - imagine, plan, iterate, and reflect through all stages of your project's development.

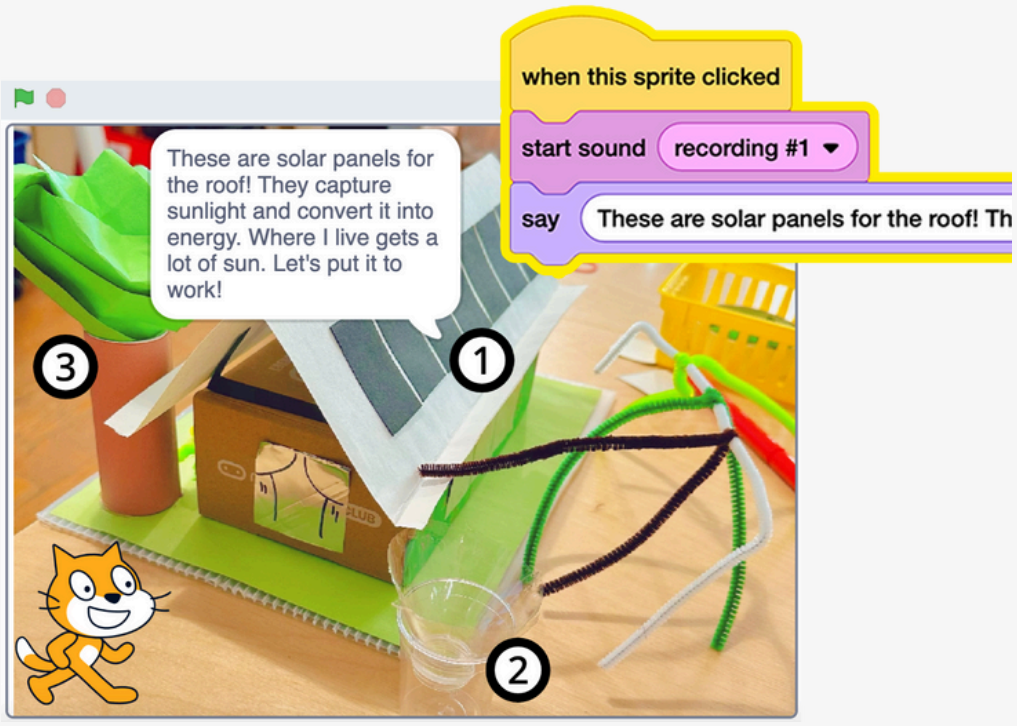
What Will You Create?

There are many different approaches you could take to share information about your sustainable building solution.

We've shared a number of examples in our Build the Change Coding Cards.

- Upload a photo of your build as a backdrop (no need to remove the background) and add **clickable sprites**. When users click on each sprite, play a recording or display text on the screen to describe your scene. *(Example here.)*

- Create an **informational slideshow**. Upload a series of photos of your build (photos could include closeups of individual items, different views of the build, etc.). Text could be overlaid via the costume editor, a recording could play as each slide shows, etc. *(Example here.)*



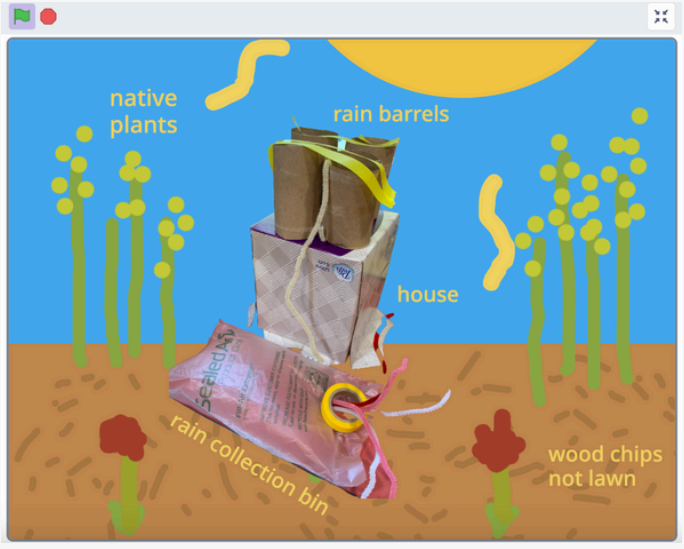
- Animate items on your build **using stop motion techniques**. Upload a series of photos of your build, moving pieces a bit at a time. *(Stop motion example here.)*

- **Create additional sprites** using the Scratch paint editor that, when triggered, animate an element and provide additional context. (*Example here*.)

- Take individual pictures of different elements of your build, remove the background, then **animate with code blocks to turn or change color, etc.** *(Example here.)*

- **Re-create digital versions of elements to animate.** *(Example here.)*

- Or you could create an original game, animation, or informational project inspired by Earth Day or environmental sustainability topics like recycling, biodiversity, reforestation, ocean pollution cleanup, clean energy, etc.



Reflection

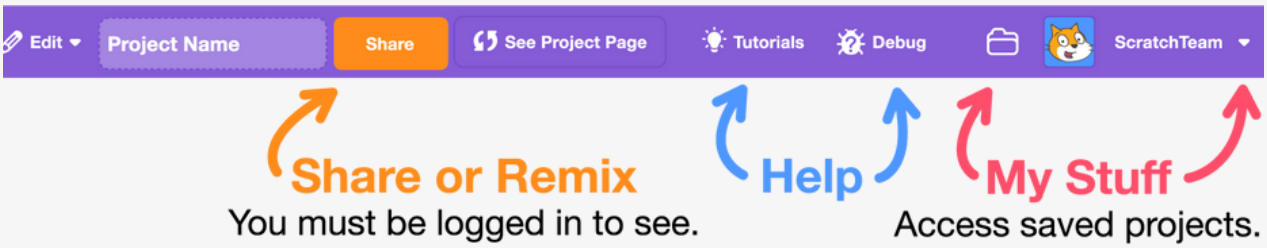
What environmental threats and problems did you need to address with your design?	
How did you address those threats, accessibility, and energy efficiency?	
How did you ensure your build does not harm the natural surroundings?	
How did bringing your prototype into Scratch let you expand on your idea? What did you do to bring it to life?	
What did you like about creating this project? What challenges came up for you?	
If I had two more days, I would add...	
What is something you are looking for feedback on?	

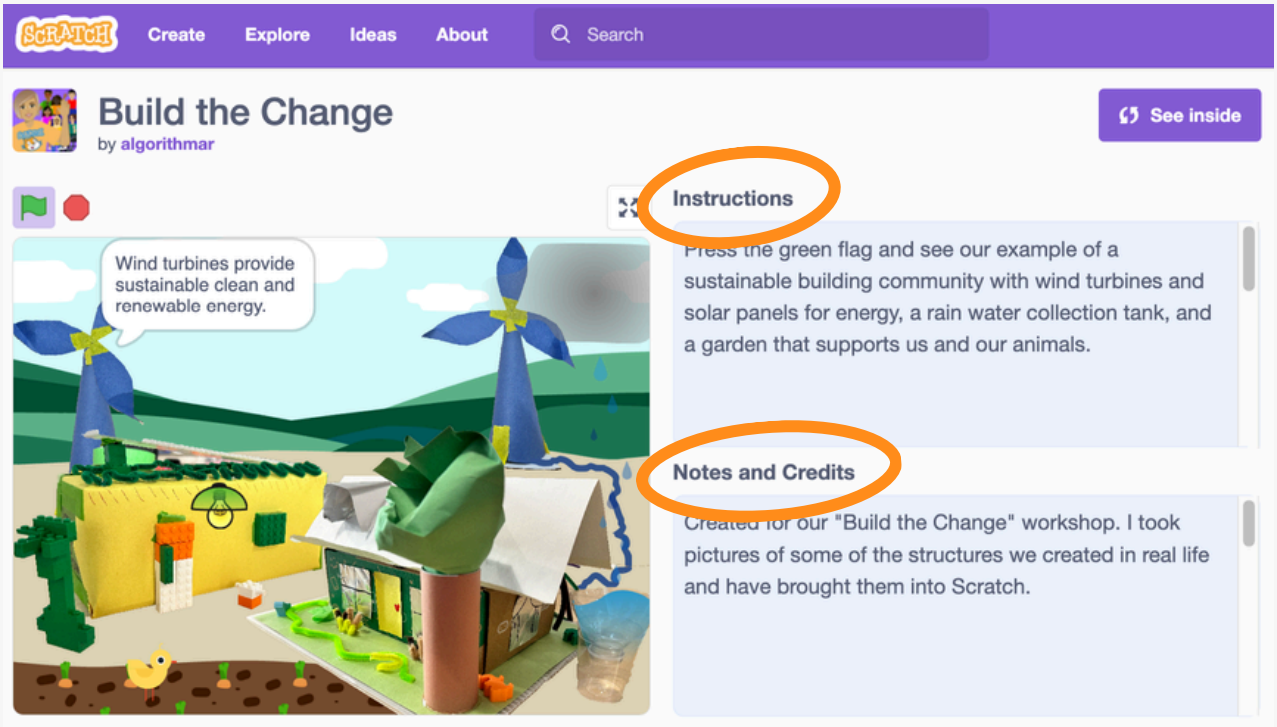
Share Your Project in Scratch

Click the orange “Share” button at the top of the Scratch editor to share your project with the global Scratch Community and make it visible to others, like your Coding for Climate League.

Sharing projects allows others to experience your program and see inside to explore your code. Projects can be unshared at any time (under “My Stuff”). And commenting can be turned on or off, based on your preference. You must be logged in to share projects.

Add instructions on how to interact with your project on the project page, as well as any credits.





Share your Solutions

As students create their coding solutions (using Scratch or any other tool), be sure to share on social media using #Coding4Climate tagging in @TakeActionEdu.

Share solutions in the Whatsapp group and with your Coding for Climate League.

Coding for Climate Resources

The Coding for Climate Scratch Playbook is part of a collection of resources in the Coding for Climate Global Project. All resources are open access and available for preview and free download at www.coding4climate.org.

K-12 classrooms can participate in the #Coding4Climate project. Free registration is available at www.coding4climate.org.

The Coding for Climate Scratch Playbook is authored by the Scratch Foundation and Take Action Global.

tag

Authors

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Maren (aka algorithmar on Scratch) is the Learning Resource Designer for the Scratch Foundation, developing creative learning resources and engagement experiences for Scratchers and educators.

Scratch's mission is to provide young people with digital tools and opportunities to imagine, create, share, and learn. Creating Scratch projects fosters the development of computational and creative thinking skills that are critical for future success.

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Jennifer is the Co-Founder and Executive Director at Take Action Global.

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Koen is the Co-Founder and Executive Director at Take Action Global.

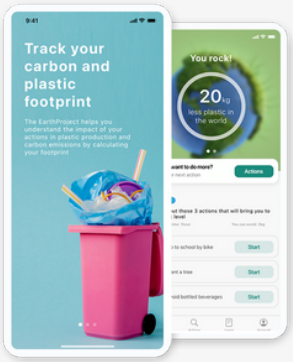
Take Action Global

#TakeActionEdu

Take Action Global (TAG) is a leading education non-profit 501(c)3 organization committed to climate education for all and equitable educational learning opportunities for global educators and PreK-grade 12 students. Since 2019, TAG has served nearly 6 million students and educators from 170+ countries through online learning programs and has supported over 2 million tree plantings.

Take Action Global brings communities together in online spaces for authentic learning experiences, including Climate Action Project, Climate Action Day, and Climate Action Schools.

TAG partners include international experts and world leaders, including the UN, UN Environmental Programme, Earth Day Organization, NASA, LEGO Group, the NYC Mayor's Office, Fridays for Future, the U.S. Department of State, FHI360, and the Jane Goodall Institute. Event speakers have included Prince William, Dr. Jane Goodall, Rick Davis (Mars Expedition, NASA), and Sir David Attenborough. Learn more: www.takeactionglobal.org.



Explore our free EarthProject app.

Available for iOS and Android.
https://www.earthproject.org