CODING FOR CLIMATE

Considering Plastics

2024

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 and EarthDay.org
- 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 11 - April 22

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

Supporting Resources
TAG website: www.takeactionglobal.org
EarthProject App: www.earthproject.org
EDO: www.earthday.org/campaign/climate-environmental-literacy/

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 plastics as their environmental challenge to explore. Coding solutions are suggested.

Considering Plastics

Plastic pollution is a pervasive environmental problem caused by the excessive use of disposal and single use plastic products. Millions of tons of plastic waste end up in oceans, rivers, and landfills annually, posing severe threats to wildlife and ecosystems.

The non-biodegradable nature of plastics results in long-lasting pollution, with detrimental effects on natural habitats and the food chain. Addressing plastic pollution requires global efforts to reduce single-use plastics and promote sustainable alternatives.

Get Started

Here are some key figures on the plastics pollution problem:

- “Public schools in the U.S. generate about 14,500 tons of municipal solid waste daily. 42% of that is food packaging generated by school foodservice, contributing significantly to the global packaging waste crisis.” (1)
- “79% of plastic that has ever been made still sits in landfills or the natural environment (with the exception of the small amount that has been incinerated or recycled) [2]’
- “The world produces more than 26 million US tons of polystyrene (plastic foam) each year [3]. Americans alone throw away around 25 billion Styrofoam coffee cups every year [4].”
- “Bisphenol A also known as BPA,[5] used to make billions of plastic beverage containers, BPA is able to be absorbed by fat tissue, and is associated with increased risk of breast cancer. [6]”

Consider this

Plastic pollution is creating millions of tons of waste every year; waste that will not biograde for hundreds or even thousands of years. These plastics also create microplastics which get into our bodies and adversely affect our health.

Any potential solutions for the issue of plastics pollution must not only focus on recycling and reusing, but especially on reduction of plastics.

Solutions that inspire us

- Baltimore public schools use compostable lunch trays instead of Styrofoam.
- Plastic alternatives such as beeswax sandwich bags that can be reused and decompose more quickly than plastic.
- Advocate to your local government to reduce the use of plastics.
- Reusable utensils can be brought with you to lunch everyday instead of grabbing plastic utensils each day.

Your Challenge

After learning background information on the plastics pollution problem, students will use their coding skills to create potential solutions to the plastics problem.

Step 1: Consider a common space that is part of a typical day. Some ideas may include:

- school cafeteria
- art class
- grocery store
- your morning routine
- your lunchbox
- school sporting event

Step 2: Create a list of all the single use plastics used in that space during one experience (e.g. one soccer game, one lunch period).

Step 3: Be creative! Develop one solution to the single-use plastics problem you have identified. Maybe you want to design an invention, create an alternative, make a poster to remind people to rethink their plastics use.

Step 4: Use coding to show your solution in action.

Your Coding Solution

Research different coding solutions by visiting www.coding4climate.org or try our suggestion of using Tinkercad Codeblocks. This is a free tool for classrooms and availabe on iPad or web-based devices.

Tinkercad offers three design options:

1. 3D Design
2. Circuits
3. Codeblocks

With Tinkercad Codeblocks, students can use block-based coding to write programs to bring their designs to life.

Learn more at https://www.tinkercad.com/codeblocks.

Important links

Tinkercad Codeblocks

Classroom Resources

Share your Solutions

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

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

Coding for Climate Resources

The Coding for Climate Considering Plastics activity 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 Considering plastics activity was authored by the teams at EarthDay.org and Take Action Global.

tag

EARTHDAY.ORG

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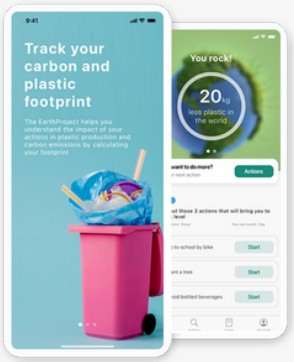
Take Action Global

#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 over 4.8 million students and educators from 160 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, 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