The Climate Initiative

Hackathon

January 15th, 2022
12 - 4pm ET

Everything you need to know about The Climate Initiative's first ever Hackathon.

**FMI, contact
programs@theclimateinitiative.org**

What is a Hackathon?

A "hackathon" is usually a multi-day event where many people collaborate to solve a particular problem by computer programming. The hackathons are generally competitive and participants are put into teams to achieve their task. Hackathons are a great way to meet new people, gain knowledge about a topic, and a great resume-builder!

Why is TCI hosting a Hackathon?

Did you know that 1.1 billion people lack access to water globally, and water sanitation is a problem for 2.4 billion people worldwide? [1] Did you also know that climate change has degraded soil health and contributed to desertification, affecting 213 million people? [2].
Soil and water go hand-in-hand, and the continuing declines in soil moisture can result in dramatic impacts, including food production.

On Saturday, January 15th, 2022, from 12 - 4pm ET, TCI will be hosting an online Water and Soil Hackathon competition for high school students aged 14-18 and post high school students aged 18-22. TCI's Water and Soil Hackathon will be a little different from regular hackathons - to create functioning systems for a specific challenge through an online event. We believe that youth can help find creative and innovative solutions to our global water and soil problems. TCI's Water and Soil Hackathon mission is to inspire and empower youth to be aware of water and soil issues and create solutions. TCI would love to make your solution come to life with our first-place prizes of $7,500 (one prize awarded to the top high school team and one for the top post high school team).

The Challenge

The challenge for TCI's Water and Soil Hackathon is to develop a tangible solution to help improve the quality of water and/or soil in your community. Your solution can be an engineered product or application that your teammates create over the next few weeks and presents to judges on Saturday, January 15th, 2022, from 12 PM ET to 4 PM ET. TCI would love to help your team make that product come to life, with the first-place prizes of $7,500.

To apply, you must form a team of 3-5 people in high school, ages 14-18 OR a team of 3-5 post high school students, ages 18-22. ALL teammates must participate in this project. Registration will end on December 17th, 2021, at 11:59 PM ET. TCI will notify your team on December 22nd, 2021, if your project is chosen to present on January 15th, 2022. A total of up to 16 teams will compete to show their solution through a presentation during their designated time. The Hackathon will be a recorded event, and TCI will post a video of the recording on our YouTube channel.

What we want you to bring to the table

We want you to bring your most creative and innovative ideas! We are looking for students who wish to design water and/or soil solutions for their community using design thinking and budget planning. You must commit to implementing your design, and we would like you to show the following:

- Ability to work in a team
- Use critical-thinking
- Ability to take risks
- Desire to improve
- Express ideas easily
- Ability to show entrepreneurial and creative skills

Rules & Regulations

- Teams must have 3-5 participants.

- Team members must live in the Caribbean, Mexico, Central, North America, or South America. Application materials must be submitted in English, and the Hackathon event on January 15, 2022 will also be held in English, with hopes for multilingual events in the future!

- Each team member must be present during their presentation and show proof of their participation in the project. Only certain circumstances will be excusable if a team member cannot attend the presentation. If your team is interested in registering but a team member cannot attend, please email janki@theclimateinitiative.org for more information.

- Each team will need a computer or device to present via Zoom, especially to "share screen."

- Each team will only have 10 minutes to present their design. There is a strict cutoff to make sure to stay on schedule.

- Your team must create your design before the event.

- We expect your team to come up with new ideas. Any idea that is copied from somewhere will be disqualified.

- Each team should show their design through modeling and provide a budget plan for the $7,500 prize money.

- Each participant must treat all team members, competitors, judges, and audience members with respect and courtesy.

- Teams can reach out for advice and support from teachers, community members, and others before the event. Team members are not allowed to reach out to judges regarding their presentations before the event.

- TCI will fund the first-place winners (2 in total, one at the high school level/one at the post high school level) $7,500 with 3 increments of $2,500. The first-place winner must use the prize money to implement their design, not for other reasons. If the winner does not prove how the team used the money on the design, TCI will stop funding the prize money.

Prizes

1st Place (two awards, one at the high school level and one at the post high school level)

- $7,500 to implement the design (TCI will give this in increments of $2,500 so the team winner can prove that the money is used for the design)

2nd Place

- Opportunity to receive a future grant to implement solution/be featured on our website.

3rd Place

- Opportunity to receive a future grant to implement solution/ be featured on our website.

Design Thinking

Step 1: Define

Define and determine what problems your community has and design the necessary innovative tools to solve them. The following questions may help with this step:

- What soil and/or water issues does your community face from climate change?
- What needs does the community have?
- What understandings or conclusions can you draw from your community soil and/or water issues?

Step 2: Create

As a team, create as many ideas as you can by brainstorming. You can brainstorm by:

- Bullet-pointing views as soon as they come to mind.
- Don't have limitations or logical criteria for these ideas
- Using connections within the community to develop ideas
- Continue writing ideas until there are no more left

After listing all these ideas, figure out what tools, projects, programs, etc., you can implement the idea. By using this, you can finalize your team creation.

Design Thinking

Step 3: Model

Create a model of your team plan and show all of its characteristics. This model should be in the early stages and do not require large amounts of money. You can show your model by:

- Pictures showing the design of your idea.
- Explanatory video describing what your design is.
- Computer model describing the functions and parts of your design.
- A combination of the above.

You can use the following questions to create your model

- How can this model solve the problem facing your community?
- How much money will it take to complete this model?
- What limitations does this model have?
- What are ways to improve this model?
- How will this design be implemented?

For more information on design thinking, check out Interaction Design Foundation's "What is Design Thinking and Why Is It So Popular?" here.
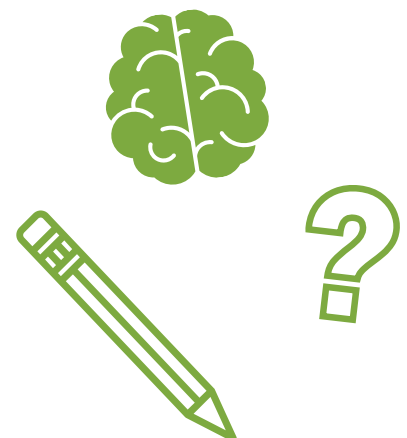
How to create a project budget

Step 1: Recognize your project scope

Your project scope includes goals, timelines, and tasks of the project you want to complete.

Step 2: Identify resources needed based on your project scope

Resources can include any additional equipment, sales, and other items required to complete the project.

Step 2: Assign amounts to each resource

Evaluate the cost of each resource you listed in Step 2 by researching or reviewing previous projects using the same supplies.

Step 4: Start budgeting

By looking at the costs for each resource, you'll be able to estimate your budget.

Keep cost estimates, budget contingency, and budget monitoring in mind when coming up with your budget plan.

For more information on creating a budget plan, check out The Motley Fool's "How to Create a Project Budget for Your Small Business Projects" here.

TCI

FAQs

What is a Hackathon?

A "hackathon" is usually a multi-day event where many people collaborate to solve a particular problem by computer programming. The hackathons are generally competitive and participants are put into teams to achieve their task. Hackathons are a great way to meet new people, gain knowledge about a topic, and a great resume-builder!

TCI's hackathon will be a little different from regular hackathons - to create functioning systems for a specific challenge ahead of time and ready to present to our judges via Zoom on January 15th, 2022. We believe that youth can help find creative and innovative solutions to our global water and soil problems.

What are the benefits of a Hackathon?

Hackathons are a great way to meet new people, gain knowledge about a topic, and resume-build! The first-place winning teams will receive $7,500 to implement their project. Second and third places will receive options for a future grant and feature their project on our website! This event will also have swag prizes throughout the event, so join us!

Who can participate in the Hackathon?

High school students ages 14-18 and post high school students ages 18-22 can form teams and apply to participate in the hackathon by December 17th, 2021, to receive a confirmation to compete on December 22nd, 2021. These teams must have 3-5 members. Each member must participate while presenting or showing their contribution to the design they created. Each team member must be present at the event on January 15th, 2022.

*See REQUIRED waiver for participants.

FAQs

How will I know if my team is selected?

A TCI staff member will email you on December 22nd, 2021, to tell you if your project is selected to compete for January 15th, 2022.

In what ways can I show my design for the Hackathon?

Your design can be in the form of a mock-up, illustration, diagram, video, app, or website that can help interactively present your idea.

Where can my team apply to compete for the Hackathon?

You can register here: Click to Register

How will the first-place prize money be distributed?

Although the first-place prize money is $7,500, TCI will give this money in 3 increments of $2,500. TCI will be monitoring the prize money to keep track that the team winner is using the money to only fund their design. The team winner can provide proof by scheduling meetings with TCI, showing project status, budget spreadsheets, receipts for equipment, etc.

Who can view the Hackathon event?

The Hackathon event on Saturday, January 15th, 2022, can be viewed for participants and the public! To view the event as an audience member, register in advance here.

FAQs

Will there be a training?

There will not be any formal training before this event, but TCI staff will answer your questions throughout the next few weeks. If you have any questions, you can contact TCI's Assistant Program Officer, Janki Patel, at janki@theclimateinitiative.org, and TCI's Volunteer Coordinator, Ariel Maldonado, at ariel@theclimateinitiative.org.

How much does it cost to participate?

This event is free to participants and the public!

Where can I get support if I have further questions?

You can contact TCI's Assistant Program Officer, Janki Patel, at janki@theclimateinitiative.org and TCI's Volunteer Coordinator, Ariel Maldonado, at ariel@theclimateinitiative.org.

Who are the judges?

Check back shortly to see the biographies of our 4 judges.

Who is the keynote speaker?

Sapna Mulki, Principal of Water Savvy Solutions and Host of the "Breaking Green Ceilings" podcast

Where can I learn more about TCI?

You can learn more about TCI's mission and information about our organization here.

TCI

Background on the Importance of Soil & Water Health

Why does soil health matter?

Soil health matters because it is the foundation of all ecosystems supporting plants, insects, animals, and people. Soil is its ecosystem home to living organisms that must be protected and preserved because all other land-based ecosystems depend on soil. It provides all the nutrients needed for everything to grow. It is where nutrients return once they break down from organic living matter.
Source: USDA

Background on the Importance of Soil & Water Health

What does soil do?

Soil has several essential functions beyond being the foundation of land-based life. These functions include:

Cycling nutrients

- When living beings release waste, their excrement is often heavy in phosphorus or nitrogen. Waste gets deposited in the soil and acts as a fertilizer for plants. When living beings die, their bodies break down into all the nutrients and return to the soil.

Regulating water

- Water dissolves in and flows through the soil. It helps mitigate floods and runoff. Healthy soil can store water in the ground, while depleted soil can cause runoff, creating floods.

Filtering pollutants

- Microbes and minerals filter, degrade, buffer, detoxify and immobilize organic and inorganic material, including industrial byproducts.

Physical stability & support

- Soil helps provide stability and structure for plant roots and human structures.
- Source: **USDA**

Background on the Importance of Soil & Water Health

What makes soil?

Soil comprises billions of fungi, bacteria, microbes, sand, rocks, and broken down organic matter like bones, leaves, wood, and more. The exact makeup of soil depends on what type it is and the location. Some soil is sandy and drains water quickly, while some soil is full of clay and retains moisture.
Source: USDA

What is Greywater?

Greywater is industrially, domestically, or commercially used water. It is used water from washing facilities, sinks, and tubs. Not all household water is considered greywater. Soiled water from human waste, diapers, grease, or detergents is not acceptable to reuse. That is because it contains detergents and would be harmful to soil and plants.
Source: WaterEducation.org

How can we reuse greywater, and why should we?

You should not release greywater into existing bodies of water, but it is a valuable fertilizer to plants. Greywater can irrigate lawns, gardens, vegetables, and fruit trees. As long as greywater is not touching the edible part of a plant, it is safe to use. Creating simple greywater systems that connect our homes to our lawns and outside is a great way to participate in the natural water cycle.

There would be less usable water through sewer and septic systems if more homes and residential areas actively reuse their greywater. The nutrients in greywater would contribute to replenishing soil health and allow us to have access to fresh, clean water.
Source: Greywateraction.org

Background on the Importance of Soil & Water Health

How are soil health and water recycling connected?

Around the United States, it is not uncommon for private properties to have poor soil quality. Replacing native plants with grass for lawns has been a driving factor in the soil becoming nutrient-depleted, dried, and cracked. Monocultures, like lawns, are known to cause nutrient depletion because when the same plant re-plants, it continues to pull the same nutrients from the soil. The soil becomes unbalanced and depleted. Additionally, lawn grasses have short roots that do not go deep into the soil, vital for keeping them loose and healthy. When soil becomes dry and compacted, it can no longer absorb water at the rate it previously did. Dry soil prevents water from going through the filtering process. The absorbed water filtered through the soil to become clean groundwater is now runoff. Runoff is not clean, usable, or consumable water. With so many water shortages and droughts becoming more and more common, finding ways to continue to clean and replenish our water sources are vitally important.

Individuals, businesses, and cities can collectively work towards solutions that keep soil healthy and promote reusing and recycling water. Creating accessible water systems and ways to bring nutrients into the soil (without chemical fertilizers) is essential to improving the health of our environment.