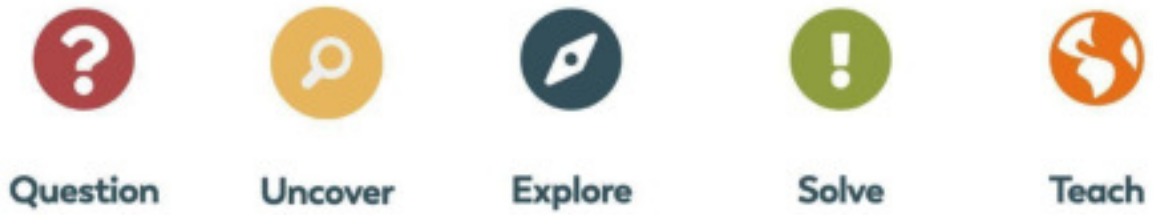
Project Hero
Soil Quest FAQs
https://heroforttheplanet.org/soil

What's a Quest?
A Project Hero Quest follows a QUEST framework that offers a hybrid project- and problem- based learning pathway to explore a particular issue, culminating in students' design and implementation of a project that makes a meaningful difference for species or ecosystems in their own community.

What is the QUEST framework?
All Quests follow Project Hero's QUEST learning approach. This is a project-based approach that integrates the engineering design process to solve a local problem.



What's this Quest about?
The Soil Quest focuses on restoring the health of soil around you and sequestering carbon to help slow our Earth's changing climate. Students investigate soil ecosystems and their role in the carbon cycle, the health of the atmosphere, and climate. They explore human and ecological impacts on soil health from both conventional and regenerative agricultural practices. Once grounded in the science and human impacts, students identify a place in their community where they can do a project that restores the health of the soil. After planning the project with permission of the land owner, they carry it out and share what they learned on the Quest with others.

How is soil health related to climate change?
Healthy soil acts as a big storehouse for sequestered carbon (carbon drawn down from the atmosphere). So healthy soil is vital for keeping carbon levels balanced in the atmosphere. The carbon cycle is out of balance when carbon is released into the atmosphere more quickly than it is sequestered into the soil.

Who can do this Quest?
Any school classes, informal education programs, home schoolers, families, and individuals who are interested in pollinators, gardens and flowering plants, human impact on the environment, and using the engineering design process to design and implement projects with positive environmental outcomes.

Is this Quest for a particular age or grade?
It is aligned to middle school (grades 6-8) Next Generation Science Standards, with concepts also relevant to standards in high school. If you are interested in climate change, gardening and farming, soil science and health, or human impacts on Earth's environment, this Quest has something for you!

Do we have to do the whole Quest from beginning to end?
No. Quests are designed to be flexible. You as the educator and guide are encouraged to explore the content covered in the Quest and design the best path through it for your students. You can spend as little

or as long on a step as you choose, but our testing has suggested that the longer students spend exploring the issues and the more you leave the path open to their inquiry, the richer the experience for them.

What do we have to do to get a grant to fund our project?

In SOLVE, students in classes and informal education programs can write and submit a Project Plan to Captain Planet Foundation that describes what they need to implement a project that solves a problem for local pollinators. Captain Planet Foundation will review the proposal and consider funding of up to $150 per class. *Note: If you are having your students complete a Quest from home, the grant will still be available at the CLASS level, so please consider how the grant could support learners doing their projects at home.*

What happens in each part of the Quest?

Q - Question. All science investigations and problem-solving start with questions. Students can generate questions by:

- observing their local soil in its natural habitat
- determining what they already know about soil health and its relationship with climate, and
- brainstorming questions they want answered so they can help pollinators around them.

U - Uncover. The investigation begins! Here students begin answering some of their questions about soil, and organizing any clues that will help them determine how best to help the soil around them. Activities and questions to consider are suggested on each page. Key questions they will be answering include:

- What makes soil so special?
- What is soil?
- Why is soil so important?
- Why is soil in trouble?

E - Explore. In this stage, students will explore agricultural practices and other human actions that are harming and healing soil. They will investigate these practices in their communities, locate places where soil carbon is released and sequestered, and calculate their personal carbon footprint. This will prepare them to identify a local soil problem they want to address.

S - Solve. As soil experts, students will apply their new understanding to design and carry out a solution to reduce a threat and help their local soil. Here are the steps for students to follow:

- Define the local problem you want to focus on
- Survey places nearby where you can get permission to do a project
- Compare pros and cons of possible project ideas
- Design and do your soil project

Time to help! With a new understanding of soil and its effects on climate, students work with the engineering design process to define a problem with soil health in their community. They will survey the site with unhealthy soil and design a project that would help restore the soil's health. Finally, they carry out the project.

T - Teach Others. The final step of the Quest is for students to inspire others to help restore the health of soil in their community by sharing their project and Quest experience. The people they share with might be members of their family, school, or community. Students are able to reflect on how this Quest has changed them and let Captain Planet know what they did.

What if I have more questions?

Feel free to email us at projecthero@captainplanetfdn.org if you have further questions or need assistance.