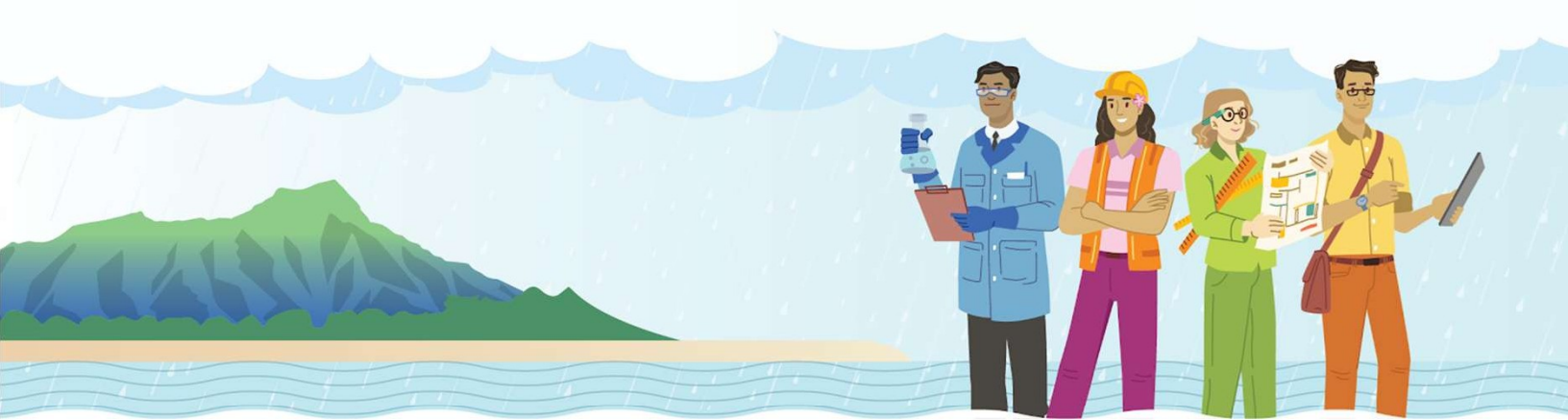




Storm Water in Action!

Storm Water Career: All

All Careers Full- Course Lesson Plan #:

15 of 15

SUMMARY

In this lesson, students will explore how storm water systems function in real-world settings. Students are encouraged to observe storm water Best Management Practices (BMPs), then discuss how planning, engineering, science, and architecture work together to protect water quality and manage runoff.

MATERIALS NEEDED

- Field Trip Permission Forms (if applicable)
- Clipboards or notebooks and writing utensil
- Printed Field Observation worksheets
- Closed-toed shoes, sunscreen, water, etc.
- Phone, tablet, or camera (optional)

LEARNING OBJECTIVES

- Identify structural and non-structural BMPs
- Explain the flow of storm water into receiving waters
- Describe the various roles of professionals
- Evaluate the effectiveness of storm water BMPs

VOCABULARY

Review all vocabulary on the Hawai'i Storm Patrol Young Professionals Program Comprehensive Vocabulary List (<https://shorturl.at/Pvqne>)



Background

In previous lessons students explored the roles of storm water management professionals in planning, engineering, science, architecture, and their collaboration in projects. Throughout this program, students have learned how storm water moves through natural and built environments, how land use and surface types influence runoff, and how Best Management Practices (BMPs) are designed to reduce pollution and protect watershed health. Students have developed a vast variety of skills with opportunities to apply these skills to project ideas for a school or community.

In the previous lesson, students reflected on their learning and their experience in participating in project-based teamwork. Through debriefing, students identified their successes, challenges, and growth, and considered how their learning may influence their future education, interest, or career exploration.

This lesson builds on that reflection by taking learning outside the classroom and into the surrounding environment. By examining a real or virtual site, students will be able to see how water flows, where pollutants may accumulate, and how professionals design and maintain systems that protect watershed health.

I. Observing Storm Water in the Field Activity

FOR OFF-CAMPUS FIELD TRIPS

Distribute the Storm Water Exploration worksheet and pass out the full Vocabulary List to the students.

1. Explain that students will be documenting storm water conditions at the field trip site, and that they will be sketching storm water features and structures that they have learned about throughout the Hawai'i Storm Patrol Young Professionals Program.
2. Once at the field trip site, have students work in small groups to walk through the site. As they view the site, students should work to identify the various surfaces, the flow of water along those surfaces, and any storm water BMPs, features, and structures.
3. Direct the students to sketch a simplified map of the area in the designated box on the worksheet, adding arrows to show expected or observed flow paths. They will also use symbols to note the types of surfaces, the location of structures, and any other important features they see.
4. Once students have finished their site-assessment and have returned to the classroom, have each group present at least one aspect of what they observed at the site. Additionally, ask students which storm water professionals would be responsible for the various aspects of the site they viewed.

To accommodate scheduling, transportation, and other logistics, this lesson includes several options:

- A Field Trip Observation at an off-campus location
- A Walk the Neighborhood activity around the school or nearby community
- A Virtual Exploration of a site using mapping tools

Across all format options, students will practice observing, questioning, sketching, and evaluating storm water systems as emerging young professionals.

Adaptations and Resources

Project Based Learning Track

1. This activity engages students in identifying storm water features using the BMP Scavenger Hunt worksheet.
2. Distribute the BMP Scavenger Hunt worksheet.
3. Explain that students search a site of their choosing or an assigned site for as many BMPs and storm water features as possible.
4. Have students record the location of each found item and briefly describe its purpose.
5. Encourage students to photograph items when appropriate, especially if multiple groups are exploring different areas.
6. Conclude by reviewing the scavenger items as a class and discussing which features were common and which were rare or missing.

NOTE: *This activity can be adapted to be virtual through the use of platforms such as Google Earth. Direct students to take a screenshot or create a sketch of the identified site. Once the screenshot or sketch has been made, follow the remaining steps above to complete the field trip activity.*

Activity-Centric Learning Track:

Conduct Activity I with an off-site Field Trip Observation or II with a on-site Walk the Neighborhood.

Tips to Truncate Lesson:

- Use only the field trip worksheet applicable to the field trip.
- If travel time is limited, opt for the Neighborhood or Virtual field trip option.

Tips to Extend Lesson:

- Utilize the BMP Scavenger Hunt worksheet alongside the Field Trip worksheet.
- Following the field trip, ask students to evaluate how storm water BMP performance at the site could be improved and propose their own design solutions.
- Set up a Q&A session with storm water experts or those working at potential field trip sites.

Resources:

- Google Earth, <https://earth.google.com/>
- Google Maps , <https://www.google.com/maps/>
- GSI Case Studies across US, <https://www.asla.org/greeninfrastructure.aspx>

List Of O'ahu Field Sites

- <https://shorturl.at/aThOT>

