

# Rainwater Runoff



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Subject: Science  
Standard: MS-ETS1-3

## Discuss

## Hook

Students will discuss...

Begin by discussing how hard surfaces such as concrete for roads and parking lots prevents rainwater from being absorbed by the ground. It instead runs off the parking lot and into ponds. This pollution can affect nearby streams, ponds, and lakes.

## Read

## Inform

Students will read...

Students read about a fictional town of lakeside that gets their drinking water from their lake. Their lake has blue-green algae growing due to pollution that runs into the water from a nearby parking lot. They read about how rain gardens use an engineered sub-soil to filter pollutants.

### Activity Resource(s)

Hand 2 Mind Rainwater Runoff  
<http://www.hand2mind.com/item/stem-in-action-rainwater-runoff-design-challenge/6767>

This kit is the basis for the unit.

## Do Groupwork

## Practice

In groups, students will...

Students work in groups to test different soil types. An emptied out syringe is used for testing. Students test the time it takes for the water to filter through the different types of soil and then measure how much pollution each type removed.

They test for the removal of silt and the removal of phosphate. The kit recommends extending testing to have students test layers of different types of soil and also test mixtures of soil.

## Create

## Apply

Students will create...

Students will take the information from their tests to layer and combine the soils to create a model subsoil for the rain garden. The Hand2Mind kit has a set of criteria and constraints. One of the constraints is cost. Each soil type costs a different amount of money. They have to calculate the volume of the garden they will build and the percent of each type of soil. They test their model and redesign as necessary. The students then present their design to the "city council" of Lakeside.

How does this connect to the real world?

The library in Covington, Washington uses a rainwater garden to filter pollution.

Additional descriptions for teachers

Inviting administrators or coaches to act as the city council helps to engage students.

