

# Rainwater Capture Challenge

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*Grade levels 3-5*

## **Program Description:**

In this activity, students will be presented with a real world problem – a shortage of water. They are challenged to create a model of a roof to capture and store rainwater and snowmelt. They must meet certain criteria and work within the constraints of materials, time and cost. Students will test and compare solutions, and discuss improvements to the model.

## **Massachusetts Curriculum Standards:**

### **Grade 3: Earth and Space Sciences**

#### **ESS3. Earth and Human Activity**

3-ESS3-1. Evaluate the merit of a design solution that reduces the damage caused by weather.

### **Grade 3: Technology/Engineering**

#### **ETS1. Engineering Design**

3.3-5-ETS1-1. Define a simple design problem that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost that a potential solution must meet.

3.3-5-ETS1-2. Generate several possible solutions to a given design problem. Compare each solution based on how well each is likely to meet the criteria and constraints of the design problem.

### **Grade 4: Technology/Engineering**

#### **ETS1. Engineering Design**

4.3-5-ETS1-3. Plan and carry out tests of one or more design features of a given model or prototype in which variables are controlled and failure points are considered to identify which features need to be improved. Apply the results of tests to redesign a model or prototype.

4.3-5-ETS1-5(MA). Evaluate relevant design features that must be considered in building a model or prototype of a solution to a given design problem.

## **Grade 5: Earth and Space Sciences**

### **ESS3. Earth and Human Activity**

5-ESS3-1. Obtain and combine information about ways communities reduce human impact on the Earth's resources and environment by changing an agricultural, industrial, or community practice or process.



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