

# Water Filtration Challenge

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*Grade Levels 3-5*

## **Program Description:**

Clean water is essential for human life. Students will be presented with a situation where a human practice has polluted drinking water. They will choose appropriate materials to design and build a water filtration system. Students will compare different systems and discuss improvements to their designs.

## **Massachusetts Curriculum Standards:**

### **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.

### **Grade 5: Physical Science**

#### **ETS3. Technological Systems**

5.3-5-ETS3-1(MA). Use informational text to provide examples of improvements to existing technologies (innovations) and the development of new technologies (inventions). Recognize that technology is any modification of the natural or designed world done to fulfill human needs or wants.

5.3-5-ETS3-2(MA). Use sketches or drawings to show how each part of a product or device relates to other parts in the product or device.

5-ESS3-2(MA). Test a simple system designed to filter particulates out of water and propose one change to the design to improve it.



**Hitchcock Center**  
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