

Thoreau as Engineer

Grades 5 and 6

Understanding: Students will understand how Thoreau used inquiry, data collection, and engineering ideas. Students will understand the engineering process of inquiry, design, test, and revise.

Objective: Students will be able to use the inquiry process. Students will be able to revise their work based on feedback.

Lesson 1 – Mapping Walden

Materials: Photos and maps of Walden Pond, paper, pencils, rulers, other tools as needed by students.

- Begin by showing photos of Walden Pond and telling the story of Thoreau and how he lived there.
- Tell that Thoreau wanted to know the shape of the pond under the water. How could he figure it out?
- Divide students into groups. Each group should come up with a plan for how they will measure the shape of the pond under the water.
- Have each group present their plan. Other groups should ask them questions.
- Help students look for flaws in their plans. How will they fix these problems?
- Students revise plans.
- Students present revised plans.

Lesson 2 – Improving the Pencil

- Tell students about how Thoreau's family owned a pencil factory and Thoreau helped make a better pencil.
- Challenge students to work in teams and think of a way to improve a plain pencil. They should create a plan.
- Students present plans. Other students ask them questions about the plan.
- Help students look for flaws in their plans. How will they solve these problems?
- Students revise plans.

-After they have revised their plans, students use any materials available to them to create their improved pencil.

-Students devise a way to test their pencils compared with a plain pencil. How successful were they?

-Students present their improved pencils, show how it fared in their tests, and suggest what they would do differently if they continued to improve the pencil.