Water, Water Everywhere
Resource Guide

Summary:

- **Recommended grade level:** 2 - 5
- **Classroom activity:** 1 hour
- **Site visit:** 1 - 2 hours
- **Benchmarks**: Social studies, reading and language arts, science
- **Subjects:** Growth of Florida, geography, informational text, properties of matter
- **Skills:** Innovation, decision-making, communication, history inquiry and analysis, teamwork, problem solving, evaluation
- **Objectives:** Students will identify the three states of water and examine the importance of each state at DeBary Hall. They will create a hypothesis and test ideas to solve a real-world problem. Students will read informational texts and text features to organize information to solve problems about DeBary Hall

Materials:

- *Learn and Tour Lessons – Innovation: Water, Water Everywhere* lesson booklet
- *Water, Water Everywhere* display panel
- Multimedia disk
- Paper
- Writing utensil
- Ice cubes (optional)
- Plastic container (optional)
- Various materials such as cloth, paper, sand, saw dust and leaves (optional)

Vocabulary:

- *Cistern:* container for holding water, often built outside
- *Coal:* a black substance that can be burned as fuel to provide heat or power
- *Ice box:* a large container that keeps perishable items cool when packed with ice
- *Ice house:* a building that stored ice before refrigeration
- *Scientific method:* the steps of testing observations and experiments
- *States of water:* the forms water can take – gas (steam), liquid and solid (ice)
- *Steamboat:* a boat that used coal and water to create steam to function

Background:

From toilets to ice to steamboats, water was important at DeBary Hall. The wealthy deBarys cared about water because their comfort depended on it. More than most people around Florida, they could almost control their surroundings. The deBarys brought many technologies with them to manipulate water to be able to store it, utilize it and even enjoy it. They used all three states of water – liquid, solid and gas – to their advantage. They used steam to arrive at DeBary Hall on steamboats, ice to keep their food fresh in their ice house, and water for comforts and to drink.

Throughout this lesson, encourage your students to understand how we store and use water with pipes, water tanks and faucets. Ask them to envision a life where water isn't as easily accessible and think of all the ways we use water today and the methods we use to store it – water fountains, pools, wells, sprinklers, refrigerators and purifiers.

Procedure:

1. Review the *Water, Water Everywhere* exhibit panel and the multimedia presentation and ask students to compare how the deBarys used water before electricity. What structures did they build to utilize water?
2. Have students brainstorm ways they use water each day. Ask them to imagine a day without water and discuss what would they miss most – fresh water, baths, swimming pools, etc.
3. The tour portion of the lesson will focus on utilizing the three states of water – steam for steamboats; ice in the ice house; and water used in the water tanks, cisterns, water towers and swimming pool

Extension ideas*:

1. Study the exhibit panel, *Water, Water Everywhere.* One of the most important buildings on site was the ice house, which kept the ice from melting without electricity! Using the *Water, Water Everywhere* worksheet, use the scientific method to understand how they did this.
    a. Ask students to create a hypothesis about how the deBarys kept ice from melting before electricity. To test each theory, provide students with one ice cube and various materials – paper, cardboard, sand, sawdust, cloth towels, plastic bowls – whatever you have around! See how long they can keep an ice cube from melting and discuss the results.
    b. Give each student or team 20 ice cubes and a large plastic container. Ask the students to draw a diagram about how they would arrange, stack or position each ice cube to keep them from melting. Next, ask the students to test their ice cubes as they have diagramed.
2. As a class, explore a country or another time period where water is not as easily accessible. How do these cultures store their water for future use? What do they do when there is no rain or there is a drought?

*Extension activities may be completed during the tour of DeBary Hall, please contact the education coordinator for details.

Benchmarks

Social Studies	Science	Reading and Language Arts
SS.4.A.4.1	SC.4.P.8.2	LA.4.6.1.1
SS.4.G.1.3		