Where the River Meets the Sea
Lewes and the Delaware Bay Watershed

A Curriculum-Based Program for Students in grades 3-6
An Ancient Town By The Sea
Pre-visit Lesson 1

Objective:
Students will be able to articulate the environmental conditions that made Lewes a valuable place for settlement. Students will think critically about human interaction with the natural environment and how settlement of the area has impacted local natural resources.

Activity and Discussion:
Gather students for a discussion about the town of Lewes. Invite students to share what they know about the history of the town and how it was settled. Next, ask students if they know the reason why Lewes was chosen for the first settlement in Delaware. After giving a few moments to discuss, share that the Dutch selected Swaanendael as their first settlement in the area because they wanted to turn it into a whaling town. The Dutch thought that the area was rich in marine life and thought that they would be able to have a successful settlement by using the natural world around them.

Although that first settlement was ultimately unsuccessful, as time passed and Lewes became a permanent settlement, the citizens of the area became increasingly more dependent on the environment around them.

Have students take a few minutes to think about the geography of the area. If possible show students a local map that shows all of the local creeks and streams. Invite students to share their ideas about why settlers would have selected these areas to settle when they first arrived in North America. What resources would have been in the area that settlers would have been able to use to build homes? Would there be clean water for the settlers to drink? Could settlements be sustained by hunting and gathering, or would farms be needed to grow food for the settlers?

With each of these questions, create a classroom list of ways that settlers interact with the environment around them. On the list, you may want to have students think about and share some of the consequences of these decisions. Waste would pollute the water. Too many trees cut would damage habitats where people could hunt. The soil may not be right for farming. Clean water could become scarce.

Explain to students that they will continue to look at the interaction between humans and the natural environment by studying the interaction of water flow and how the people of Lewes became dependent on the bounty of the sea.

Standards

Common core standards
C.C.3-6.S.L.1
C.C.3-6.S.L.4
C.C.3-6.W.8

Next Generation Science
Standards
4-ESS2-1
5-ESS3-1

Delaware State History
Standards
Geography 3.4-5a
Geography 4.4-5a
History 4.4-5a
Where does all this water go?
Pre-visit Lesson 2

Objective:
Students will think critically about where the water from their homes goes and other things that get washed into the storm drain. Students will clearly articulate the concepts associated with water flow, including drainage, pollution and habitat disruption.

Activity and Discussion:
Prepare smart board or large sheet of paper to generate a KWL (Know, Want to know, Learned) chart with students.

Next, gather students for a science meeting. Share a personal anecdote about your own experiences with water. You may want to start with a story like “I was washing my dishes last night after dinner and I started to think- What happens to all of this soapy water? Does it drain into the ground? Does it go into a sewer?” or “I took my dog for a walk and noticed that there was a sign painted on the storm drain that said, “Drains to Bay” on it. Does this mean all the water I use outside can drain there too?”

Invite students to share what they know about water flow. Some students may have seen a similar situation or they may have had similar thoughts about what happens to the water they use, particularly outside their home. They may know that the water drains to the Bay because they may have been at the beach one day and have seen streams emptying into it.

Once you feel that students have had ample time to discuss their thoughts on water, you may begin to fill in the KWL chart. First, ask students what they already know about what happens to their water. Write short statements in the K column (see sample on right). Next, ask the students what they would like to know about what happens to the water. For this section, you may want to model a question for the students like “what happens when trash or chemicals end up in the water?” or “How does the water get from the drain to the bay?”

After students have come up with several statements about what they already know about water flow in their area, ask them what they are looking to learn about water in the area. Questions about what students are looking to learn can be modeled for them to help guide their thinking about the topics. Remind students that the KWL chart is a “living document” and that the class can add or subtract questions as the unit progresses. Keep the chart in a visible area so that students can access the information and be reminded of what they are exploring. At the end of the unit, gather the class to complete the learned section of the chart.
Primary Expedition

Objective:
Students will examine both the natural and man-made environment through hands-on expeditionary learning. Students will be able to accurately describe their surroundings and take detailed notes and descriptions of the world around them. Students will pay careful attention to multiple senses and track what they notice about each sense as they move through the expedition.

This activity involves leaving the classroom. You may wish to set aside some time with your students to discuss rules and what they will be seeing on their expedition so they will be prepared for leaving their classroom.

Activity and Discussion:
Have students gather their clipboards and worksheets. Bring students to an available water source and allow them to walk around the area, observing the natural and man-made environment.

Have students take a moment or two to write what they notice about the area. What do they see? What can they smell? Do they think the water is flowing to another body of water or if they think it is stagnant. Encourage students to talk with each other about what they are observing.

Next, have students take a few minutes to draw a detailed sketch of the environment they are in. Encourage them to take notes on what materials they see (dirt, grass, water, etc.) and be sure they make notes of colors and textures that they see.

After students have had enough time to sketch and observe, bring them back into the classroom to debrief and introduce the next activity that they will be working on.

On the Smart Board or on large paper show students an aerial map of the area they just visited. Ask students if they notice any streams or rivers flowing into or from the site of their expedition. Next, explain to students that they will be building a topographic or 3-D model of the area in the classroom to further illustrate how water flows into the Delaware River or Bay.

Students will be using all of the expedition information to create their topographic map.

Standards

Common core standards
C.C.3-6.W.2
C.C.3-6.S.L.4
C.C.6.8.W.H.S.T.2

Next Generation Science Standards
4-ESS2-2
5-LS2-1

Delaware State History Standards
History 4.4-5b
Geography 1.4-5a
Geography 2.4-5a

Note:
If a water source is not available within walking distance of your school, you may substitute any natural or built environment. The purpose of this exercise is to get students thinking about the world around them and how humans interact with as well as impact the natural environment to create the world we know.
Classroom Expedition

**Observations:** Look at the world around you. Do you hear animals? Does the air smell fresh and clean? Are there houses or trees? Write down things that you see, hear, smell and touch in each box.

What kind of things can you see were done by people? Is there pollution in the area?

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Find a place where you can sit and sketch what you notice. Be sure to include notes about colors, smells and where you are standing. (We are going to use these sketches back at school).

Notes

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Building the Map
Pre-visit Lesson 3

Aim:
Students will be able to clearly articulate their expedition experience and be able to describe what they observed about the water, foliage and the human impact of the space. Students will also become familiar with mixed media and understand the complexities of creating a three-dimensional map.

Activity and Discussion:
Invite students to the meeting area. Have them bring along their worksheets from the walking trip. Have students share what they saw on their trip with other students. After giving them several minutes to discuss with their peers, invite the students to share with the whole class if they would like. After students have had sufficient time to share what they saw, bring their attention to the smart board or overhead projector with an aerial map of the bog and the surrounding area.

Bring up the image and ask students if they can recognize what they see. Once students have taken the time to share what they see, invite them to the area where you have all of the supplies for the classroom model.

Building the Model
Explain to students that they will be building a large classroom model of the area they visited that will run all the way to the Delaware Bay (not to scale). Have students bring their sketches over to the area. Provide a few options on how to start the project, such as creating an outline map or working on sections of the map in groups. You may want to assign students different sections of the map to create. Explain that they do not have to build all of the houses they see and it does not have to be a perfect representation of the map on the board, this model is here to represent the student’s perspective on the area.

Begin with large piece of plywood. Provide students with a range mixed media and have them begin building the land on the map. Include natural materials like sticks, leaves, or sand to bring the natural world into the classroom model. After they have finished the natural environment, encourage them to add homes and buildings like the school or other important local structures. This process may take several days to complete. Be sure that all components are fully dry before moving on to the next lesson.

In order to show simple drainage for the next lesson you may want to place the plywood at a very slight angle towards the bay so gravity helps to pull the water in the right direction.

Materials
- Ply wood
- Clay
- Pencils
- Sand
- Sticks
- Leaves
- Cardboard
- Construction Paper
- Water

Standards
Common core standards
C.C.3-6.S.L.1
C.C.3-6.S.L.4
C.C.3-6.S.L.5

Next generation science standards
3-5-ETS1-2
5-ESS2-1

Delaware State History Standards
Geography 1.4-5a
Geography 2.4-5a
Pollution and Water Flow
Pre-visit Lesson 4

Aim:
Students will be able to understand and describe the flow of water from their expedition site to the Delaware Bay. Students will be able to describe what happens to the water when a pollutant enters the waterway.

Activity and Discussion:
Students will be using the classroom map to observe what happens when a pollutant (food dye or cooking oil) is entered into the water system in the classroom model. Students will be able to drop the pollutant or debris into the model and jot down what they notice about the pollutant. Once students have finished, the class will discuss the large-scale effects of introducing pollutants into local streams and discussing possible impacts on the ecosystem of the Bay. You may also want to have a brief discussion about pollutants entering the bay through ground water drainage.

Gather students around the classroom map. Pour some water in the model and once again ask students to think about what they notice about the water and where it goes. Invite students to share what they see. Some may realize that when pollutants are introduced, they travel through the water and into the bay. Explain to the students that pollution from people can go into the water and travel down thorough all the creeks and streams and damage the ecosystem of the bay area.

To illustrate this, have a few kinds of “pollutants” available for students to test in the model. Students may place a few drops of food coloring in the water and watch it flow from the expedition site into a creek and ultimately into the bay. Students may comment on how one tiny drop of coloring spreads out in the water and makes a much bigger problem than one small drop. Students may also want to drop a packing peanut or floating debris and watch it travel as well, ending up in the bay. Have students take notes on what happens when their pollutant enters the water.

After students have had time to experiment with different pollutants, gather them together to discuss what the impact of these pollutants has had on their classroom bay. Have students share about what they noticed happened to the bay model in the classroom. Ask students if they can think of anything living in or around the bay. Answers may include fish, crabs, clams, jellyfish, seaweed and several other species of animals. What do they think happens to these animals that live in the bay when it becomes polluted? Next explain to the students that they are going to have an opportunity to go to the bay and see the impact that people may have made on the area when they visit the Lewes Historical Society.

Standards
Common core standards
C.C.3-6.W.7
C.C.3-6.S.L.1
C.C.3-6.S.L.3

Next Generation Science Standards
4-ESS3-2
5-ESS2-1

Delaware State History Standards
Geography 2.4-5a
Geography 4.4-5a

Materials
Packing Peanuts
Food coloring
Small scrap wood
Vegetable oil
Sand
Rocks
Plastic or foam pieces
Secondary Expedition-
Trip to the Lewes Historical Society

In this secondary expedition, students will have the chance to explore the rich world around them in a trip to The Lewes Historical Society. Students will learn about the history of settlement in the Lewes area, some “Green” building techniques and how the people who settled Lewes lived in relation to their environment.

In this docent-facilitated program, students will share their knowledge of the environment around them and the human impact of the local watershed and deepen their understanding of the impact pollution can have on life in their communities.

Students will be able to tour the Historic complex and study some of the materials that were used to build the historic buildings and will be able to see how early settlers to the area were able to make the most out of their homes using locally sourced building materials.

After the tour of the complex, students will make their way to the United States Life-Saving Service Station to do an observational study of the Lewes-Rehoboth Canal. Students will take time to look at both the natural and man-made environments around them and how people have been interacting with the environment from the first Native American settlers to the present.

Students will also have the opportunity learn about some local industries based upon the natural resources in Lewes, such as menhaden fishing and the extraction of minerals from seawater to make medicines that we still use today.

At the end of their tour program, students will have the chance to create public service announcement posters highlighting what they learned through their trip, concentrating on how citizens can work collaboratively to preserve and maintain a positive relationship with the natural environment and work to end the pollution of the local waterways.
The Lewes Historical Society

Around 1960, a local newspaper columnist named Marjorie Virden wrote several articles for the local papers lamenting the fact that many of Lewes' fine eighteenth century buildings were rapidly disappearing. Particular attention was called to the plight of the David Rowland House on Front Street, which carries in its foundation a cannonball memento of the War of 1812 and the Bombardment of Lewes in April of 1813. Over the years, the house had been so neglected that the interior brick nogging was visible through missing shingles.

One day in 1961, a group of concerned citizens including Robert Orr, Ginnie Orr, and Sarah Chambers were sailing down the canal towards Roosevelt Inlet. As they passed the Rowland House, someone remarked that despite much talk, no action had been taken to save Lewes' historic architecture. That same evening, Mrs. Orr held a meeting at her house for dozens of concerned citizens. Soon after, a general meeting was held to organize the Lewes Historical Society. Temporary officers were selected, invitations sent - with excellent results - to prospective members, and the Lewes Historical Society was officially founded on January 19, 1962.

Later that year, a lot at the corner of Third and Shipcarpenter Streets was purchased and named the Lewes Historic Complex. Gradually, the Burton-Ingram House, Thompson Country Store, Rabbits' Ferry House, Creamery, Necessary, Early Plank House, Blacksmith Shop, and Ellegood House were moved to the Complex and restored. Conservation efforts continue today. The neglected house of David Rowland was eventually bought by the Society and restored. Today it sits on its original site at the corner of Front and Bank Streets and serves as the popular Cannonball House Maritime Museum.

In 1989, the John Farrace Bequest enabled the Society to purchase 110 Shipcarpenter Street, then known as the Watts property, and renamed as the Hiram Rodney Burton House to honor a local physician and Delaware's Congressman from 1901-1904. This structure houses the Society's library, archives as well as the administrative offices of the organization. In 1991, Freddie's Barn, the Society's maintenance facility, was built to honor long-time historic preservationist and restoration specialist, Fred Hudson, who worked for the Society from 1962-2008. The Doctor's Office, previously located on Second Street, was moved to the Complex to consolidate Society properties and in 2000, it was joined by Midway School #178.

With the cooperation of the City of Lewes, the Society received a lease to the waterfront property on the canal at the foot of Shipcarpenter Street, where the Society berthed the lightship Overfalls and where the boathouse of the Lewes Life Saving Station sits. Since 1997, the Society has leased the Ryves Holt House at the corner of Second and Mulberry Streets from the Episcopal Diocese of Delaware. Located in the heart of Lewes' thriving business district, the Ryves Holt House serves as the Society's Visitors Center.

The Society continues to offer a rich and exciting array of activities that engage our visitors and promote Lewes' unique heritage to an ever-increasing number of seasonal guests and year-round residents of the area. From our Winter Meeting Series to the summer Antique Shows and Craft Fairs the Society offers annual programs that have become signature events of the Society. The Society has sponsored several conferences of Lewes and Delaware History, has invited numerous local, national and international scholars and dignitaries to speak at its events, and promoted the arts and cultural exploration and appreciation in Southern Delaware. As Lewes continues to grow, the Society will strive to maintain a record of the past of this special and ancient town by the sea.
Resources and References

Print Resources

Online Resources
Delaware River Keeper
www.Delawareriverkeeper.org
Delaware Department of Natural Resources and Environmental Control and the University of Delaware
www.Delawarewatersheds.org
Lewes Historical Society
www.historiclewes.org
Sea Grant, Delaware
www.DESeaGrant.org

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Bottom: Hand-Tinted post card depicting Lewes Creek. LHS collection. Object Number ph.swa.277
Page 3: Lewes-Rehoboth Canal. LHS Collections. Object Number 1980.2.4100
Page 4: LHS collection. Object Number 1980.2.499
Page 7: LHS collection. Object Number 2006.1.6
Page 8: LHS collection. Object Number 1995.1.64-2
Page 10: Midway School #178. LHS Complex. 2013

Booking your Trip
Thank you for your interest in The Lewes Historical Society’s educational programming!
To book a trip for your students, visit our website at www.historiclewes.org.
We offer a variety of educational programs ranging from traditional historical complex walking tours to in-depth multi-disciplinary curriculum unit programs. Each of our programs meet the latest Common Core, Next Gen Science, and Delaware State History Standards.
The fee for our programs are $1.00 per child, due no later than the scheduled date of your tour.
Once the form is complete and submitted, you will receive an email receipt of your reservation. If you have any questions or comments, feel free to email education@historiclewes.org or call 302-645-7670.
Professional Affiliations

American Alliance of Museums, American Association for State and Local History, Delaware Museum Association, Mid-Atlantic Regional Archives Conference, National Trust for Historic Preservation, Preservation Delaware, Small Museum Association, United States Life-Saving Service Heritage Association