










The Susquehanna RiverSchool is the only 75-minute floating classroom on the Susquehanna River. Held on the Pride of the Susquehanna Riverboat, programs are held every Saturday morning 9:30am-10:45am June-October and features interactive education about the river, its history and ecology, conservation, and the environment.

The Susquehanna River School educational programs are open and FREE to kids of all ages. Parents/Adults accompanying a child pay just \$15.00/adult. During the week, we offer private daytime cruises for clubs, after-school programs, school field trips, homeschoolers, scouting groups, summer recreation programs, daycare, etc.

Currently, we offer five different 75-minute history, geology, and science lessons which were developed by certified educators and are aligned with Pennsylvania Academic Standards. Every lesson is held in the lower climate-controlled cabin with seat and tables for all participants. Each includes a brief history of the Susquehanna River, the first inhabitants (Susquehannock Indians), and biography about The Pride and paddle boats in general. Each lesson is designed to be hands-on with experiments, crafts, music, artifacts, and demonstrations. We conclude each lesson on the upper/outside deck with a scavenger hunt of monuments and historical buildings/places as we cruise up and down the river.

### **THE SUSQUEHANNA RIVERSCHOOL PROVIDES**

-  Youth access to the river and its environs.
-  Interactive learning for K-12 students as they study the Susquehanna River.
-  Integrated learning activities to strengthen student connection with the river.
-  Partnerships with other community groups and organizations to provide quality activities and instruction.
-  Opportunities for educators to use the floating classroom as a community and service-learning resource.
-  Teaching of aquatic safety.
-  An enhanced knowledge and appreciation of the Susquehanna River

## **LESSON SUMMARIES**

### **#1 Plants, Animals, and Insects Oh My!**

First, the instructors go out along the river with nets and containers to catch samples of critters such as tadpoles, nymphs, frogs, toads, crayfish, snails, different turtles, insects, birds, mice, etc. to let the kids touch and explore the different animals during different stages.

During this lesson we cover topics like metamorphosis, habitats, adaptations, food and shelter needs, and roles each animal plays in the ecosystem of the land and water surrounding the area. Locomotion is demonstrated with kids racing rocket balloons. Life cycles are taught through critter examples and posters. We also have a nice assortment of bones, exoskeletons, skins, resin models, and fur samples of other mammals, reptiles, fish, amphibians, and birds from the area.

### **#2 Protecting the Susquehanna River**

In this lesson we talk about the uses of water, pollution, and filtration of polluted water. Each participant is given a film canister with a different type of "pollutant": soap, oil, coal dust, leaf debris, salt, vinegar (acids) etc. The instructors wrote a story about the history of the river and how it started out clean with the ice age and then the Susquehannock Indians and how it slowly got more and more polluted as settlers came, the rise of the industrial revolution and to the present-day technology age. As we read the story aloud, the participants get to dump their pollutant in a central aquarium with fresh river water in it. By the end of the lesson, the water is very polluted. We then teach about the sewage and filtration systems currently operating in the area, which clean the water we use every day. Two filtration experiments are completed with the participants whereby the polluted water goes through rocks of decreasing sizes, coffee filters, and cotton balls: mimicking actual filtration systems. We end the lesson talking about ways to conserve water and what each participant can do to clean up the pollution and prevent it in the future.

### **#3 Mankind and the Susquehanna River**

In this lesson, we cover the progression of inhabitants for the past 400 years along the river. We begin with the Susquehannock Indians and their life in longhouses and villages along the river. Each participant gets five rocks to paint a Native American story using Native American symbols from that time. We then progress into the early explores and settlers and how they lived along and used the river as a resource. After that we cover the Industrial Revolution and Civil War Era with a mini lesson on simple and complex machines. We cover the logging, coal, and steel industry of the area. The participants then create a craft by combining two simple machines to make a complex machine: a catapult using popsicle sticks, rubber bands, tape, and marker. We then pass out mini marshmallow ammunition and conclude the lesson using their complex machine to shoot each other in a marshmallow battle.

#### **#4 The Science and Geology of the Susquehanna River**

In this lesson we teach about the formation of the Appalachian Mountains and how the Susquehanna River came to run through them. Using a sand-stream table we demonstrate how the river was formed by wind, water, ice, and soil erosion.

From there, we talk about tectonic plates and their shifting under water and on the crust of the earth. Each participant is given an Oreo cookie as we demonstrate earthquakes, the shifting plates, and mountain formations. Afterwards, we all have an Oreo cookie treat.

#### **#5 The Susquehanna River and the Chesapeake Bay Watershed**

In the lesson we discuss the role that the Susquehanna River plays within the Chesapeake Bay Watershed. The lesson begins with defining what a watershed is and showing various maps of the Chesapeake Bay Watershed and how the Susquehanna River plays a major role in that watershed. Next, students are introduced to how both biotic (living) and abiotic (nonliving) factors make up the watershed. Next, students are taught about the water cycle and how water moves through the watershed.

For the hands on part of the lesson, students create a large, whole-group watershed using a large kiddie pool and various objects to represent mountains, valleys, homes, and other man made structures. Students predict where water will flow and pool in this demo "watershed." Water is added via watering cans and students check their predictions of water flow. Following the whole-group watershed demonstration, students create their own mini-watershed demonstrations using individual cafeteria trays and crumpled parchment paper. They will use water based markers to mark out and hypothesize where they believe water will flow and water will pool. Finally, they will use water misters to add water to their watershed and test their hypothesis.

In conclusion, students will get an idea of how water moves through our watershed and how actions here in central Pennsylvania can affect water quality and life in the Chesapeake Bay.