





Schuylkill River Heritage Area Girl Scouts Patch

The waters of the Schuylkill River have surged with the currents of our nation's history. Along its storied banks the American, Industrial and Environmental Revolutions were born. We invite you to explore this Schuylkill River National & State Heritage Area and discover the region's remarkable history and character. Through the work you do to earn this patch, you will learn more about the region's culture, history and environment.

In order to earn the Schuylkill River Heritage Area Patch, girls must complete the appropriate number of activities for their age level:

Daisies – 1 activity from each section, for a total of 3 activities

Brownies & Juniors – 2 activities from each section, for a total of 8 activities

Cadettes - Ambassadors – 3 activities from each section, for a total of 12 activities Visit any of the Heritage Sites listed on page 16 to learn more about the Schuylkill River Heritage Area. This visit can be used in place of any activity listed.

In order to receive your Schuylkill River Heritage Patch, submit a brief summary to info@schuylkillriver.org of activities completed. Note how many girls completed the patch.

Introduction

Section I: The American Revolution

Activity 1: Design a Flag

Activity 2: Revolutionary Food

Activity 3: The Women at Valley Forge

Activity 4: Revolutionary Games

Section II: The Industrial Revolution

Activity 1: Hex Signs

Activity 2: Anthracite Mining

Activity 3: Railroad and Canal Transportation

Activity 4: Manayunk Mills

Activity 5: Pennsylvania Pretzels

Activity 6: Schuylkill River Puzzle

Section III: The Environmental Revolution

Activity 1: Nature Hike on the Schuylkill River Trail

Activity 2: Citizen Science: Species Identification

Activity 3: Mapping

Activity 3: Trail Clean Up

Activity 5: Macroinvertebrate Water Quality Testing

Visit a Heritage Site

Introduction

What is a Heritage Area?

A National Heritage Area is a place designated by the United States Congress because it is considered nationally significant. Today, there are 49 National Heritage Areas in the country. National Heritage Areas are supported by staff members who work to preserve the culture, conserve the environment and encourage others to value their region. They do this in a variety of ways, including educating people about the history of a region and encouraging outdoor recreation, conservation and tourism, so that people understand and value the area. You can learn more about National Heritage Areas on the Alliance of National Heritage Areas website at http://www.nationalheritageareas.us/.

About the Schuylkill River National & State Heritage Area

The Schuylkill River Heritage Area is considered nationally significant because the events that took place here and the people who lived here affected three important eras in American history: the American, Industrial, and Environmental Revolutions. Because of this, we sometimes call the Schuylkill the River of Revolutions.

The Schuylkill River watershed was designated a Pennsylvania Heritage Area in 1995 and was later named a National Heritage Area in 2000. The official name, Schuylkill River National & State Heritage Area, has been shortened to the Schuylkill River Heritage Area. Its boundaries cover the Schuylkill River watershed in Schuylkill, Berks, Chester, Montgomery, and Philadelphia Counties. Over 3.2 million people live in this area, and about 1.5 million people draw their drinking water directly from the River.

What is a Watershed?

A watershed is an area of land where all of the streams, creeks and other water sources drain into the same waterway, such as a larger stream, river, lake or even the ocean. In the Schuylkill River Watershed, all the water sources drain into the Schuylkill River. Streams that feed a river are called its tributaries. A tributary can have its own watershed made up of smaller streams, so that smaller watersheds drain into larger ones.

Section I: The American Revolution

The battle for America's independence began in and around Philadelphia, which is located in the Schuylkill River Heritage Area. Philadelphia was the site of America's first government, the Continental Congress. It is where the Declaration of Independence was signed and Betsy Ross created the first flag. During the Revolutionary War, George Washington's army crossed the Schuylkill River multiple times, in an effort to keep the British out of Philadelphia. The Patriot army fought several difficult battles and camped throughout the Philadelphia region. The farms and iron furnaces in the area provided much needed food and supplies. The most famous encampment took place at Valley Forge, where, following a difficult winter, the war-torn patriots emerged in spring as a well-disciplined army.

Activity 1: Design a Flag

In May 1776, three representatives of the Continental Congress (George Washington, Robert Morris, and George Ross) called upon upholsterer Betsy Ross to make the first American flag. Colonies and militias had previously used many different flags, but the



leaders of the emerging nation wanted to promote national pride and unity. On June 14, 1777, the Continental Congress "resolved: that the flag of the United States be thirteen stripes, alternate red and white; that the union be thirteen stars, white in a blue field, representing a new constellation". The American flag was first created in Philadelphia and first flown at the Moland House in nearby Bucks County.

Design your own flag, including symbols that relate to your life. For example, use red to symbolize power or blue to represent the water and wisdom. Note: Older girls might be interested in designing and then sewing their own flags out of fabric. For more information on the original US flag, visit: http://www.ushistory.org/betsy/flagtale.html and for more information about common flag symbols and colors, visit http://www.kids-world-travel-guide.com/world-flags.html.

Activity 2: Revolutionary Food

During the Revolution, Americans lost valuable trade ties with Britain and were forced to be more creative about sources and types of food. Without enough supplies to last them through the long, tough winters of the Revolutionary War, soldiers made do with whatever they could. Flavorless flour cakes or firecakes, a type of biscuit made using only flour and water, were eaten in place of bread. Through the cold winter at Valley Forge, soldiers mixed flour and water to a make thick, damp dough which they baked on rocks on the fire.

Make biscuits of your own. You can use a recipe of your choosing or this recipe available at http://cooking.nytimes.com/recipes/1013741-all-purpose-biscuits. Try to imagine what it would be like if you were missing 5 of these 7 ingredients. You can also make Fairy Butter, a sweet compound butter flavored with orange or rose flower water that was popular in Colonial America. To read more about Fairy Butter and watch an instructional video, visit http://recipes.history.org/2015/01/to-make-fairy-butter/.

Activity 3: The Women at Valley Forge

The important role that women played at the encampment at Valley Forge is often overlooked when studying American history. Author Nancy Loane describes "Most of the hundreds of women with the Valley Forge encampment remain only as shadowy, anonymous figures of a bygone war. We will never know their names. We will never know their stories or how they individually contributed to America's freedom". We do know that without the help of women, the American Revolution would have played out very differently. At Valley Forge, Martha Washington and other high-class women helped boost soldiers' morale and provided social entertainment, while more commonclass women cooked, cleaned, and made clothing for soldiers, risking their own lives to help nurse soldiers back to health. Margaret Corbin became the first woman to receive a pension from the Continental Army, as she took her husband's position in the artillery after he was injured.

Write a diary entry pretending that you are a woman stationed at Valley Forge during the Revolutionary War. Consider what a normal day might entail for a Revolutionary-era woman. For more specific information about the women of Valley Forge, consult http://www.finebooksmagazine.com/fine_books_blog/2010/01/post.phtml. How does this day compare to a normal day in your life? What would be the best thing about being a woman at Valley Forge? What would be the worst?

Activity 4: Revolutionary Games

During downtime and the long winters of the Revolution, soldiers boosted morale by playing games. Dice and paying cards were very popular among the troops because they are easy to carry and provide endless hours of entertainment!



Learn to pay a card game from the Revolutionary War era. The website http://revwargames.webs.com/ has many great selections. Younger girls might like to play the dice game *Going to Boston* and older girls might like playing card game *All Fours*.

Section II: The Industrial Revolution

Did you know that the Schuylkill River region was a worldwide leader in the Industrial Revolution? That's because this area had important natural resources that were vital to early industry, and particularly iron production. Iron ore, lumber, and limestone—all essential for making iron—were plentiful in the area. Water power from the river and streams was used to operate machines in factories and iron forges. In colonial America, iron furnaces produced basic provisions like nails, horseshoes and cooking utensils. During the Revolutionary War, they supplied the Continental Army with ammunition.

While agriculture remained a key industry, factories produced a wide variety of items all along the river corridor. Like the mines of Schuylkill County, the factories attracted immigrants from many different countries who came to this region seeking a better life. Products that were produced in the Schuylkill River Heritage Area include paper, textiles, pretzels, iron, and steel.

Activity 1: Hex Signs

Hex signs are a form of Pennsylvania Folk Art in the form of stars in circles. If you drive around the area you will surely see a barn adorned with hex signs. Some say that hex signs are purely decorative, but others say that they have talisman qualities and bring luck and protection. They often reflect personal symbolism, with different colors and figures having different meanings. For example, blue conveyed protection and birds conveyed luck and happiness. Many German farmers originally called the signs "blumme" (flower) or "schtanne" (star). The term hex was introduced in the 20th century and may derive from the Pennsylvania German word "hex", meaning witch. This terminology became popular with increased tourism in the region.

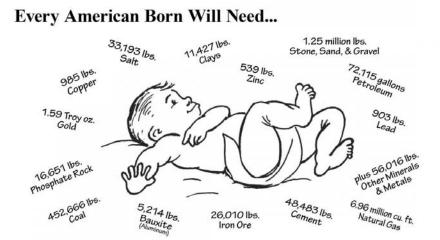
Draw, paint, or color your hex sign. Include symbols and colors that represent your interests, values and beliefs. For more information on hex signs, visit the following sites: http://lancasterpa.com/shopping/hex-signs/ https://handmadephilly.wordpress.com/2011/03/02/pennsylvania-dutch-hex-signs/

http://www.amishnews.com/featurearticles/Storyofhexsigns.htm

Activity 2: Anthracite Mining

In the late 1700s, anthracite coal was discovered in Schuylkill County, near the mouth of the Schuylkill River. Anthracite coal burns longer and more efficiently than other forms of coal, so it became an important fuel for factories and for steel production. Immigrants came from around the world to find jobs in the coal mines of Schuylkill County. Mining peaked in 1917 when 100 million tons of anthracite was extracted by 160,000 workers. It was not until much later that the harmful effects that mining had on Heritage Area were realized. The land, the river, and the entire Schuylkill River Watershed were

contaminated with dangerous pollutants until the Schuylkill River Project began in 1947 to clean up the environment.



3.11 million pounds of minerals, metals, and fuels in their lifetime

©2015 Minerals Education Coalition The Society for Mining, Metallurgy & Exploration Foundation

Learn more at www.MineralsEducationCoalition.org

Consider your impact on the Heritage Area and the planet. View the Minerals Education Coalition's infographic above describing how many pounds of minerals, metals, and fuels each American born today will need in his or her lifetime. This image is also available at https://www.mineralseducationcoalition.org/sites/default/files/uploads/2015baby.jpg. Note that each American will need 452,666 pounds of coal in her lifetime! Next, calculate your ecological footprint by visiting the Global Footprint Network online at http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/. How many Earths would it take to support your lifestyle? How does your Footprint breakdown? Explore the scenarios that allow you to reduce your Ecological Footprint and consider making changes to your lifestyle.

Activity 3: Railroad and Canal Transportation

A canal was built along the river in 1825 to transport coal to Philadelphia. It was called the Schuylkill Navigation System and it made the river navigable so that hundreds of coal barges once traveled up and down the river. Later, railroads were built. Trains could carry three times more coal and were able to make the trip from Pottsville to Philadelphia in five hours, while canal boats took six days. Two nationally important railroads began along the Schuylkill River, the Reading Railroad and the Pennsylvania Railroad. Today, the Schuylkill River Trail is built on land that once carried Pennsylvania Railroad trains.

View this interactive 1878 Map of the Transcontinental Rail Network, from Rand, McNally & Co.'s United States http://publications.newberry.org/k12maps/module_11/map/core.html. If you can, print the map. First, find Schuylkill County on the map. Then see how far you can follow the rail lines. Try to map a rail route from Schuylkill County to Philadelphia, Washington D.C., or even Los Angeles! List the obstacles the railroad constructors would have had to

overcome, such as hilly terrain, bodies of water, and even urban areas. How did engineers make use of the local geography in the Heritage Area?

Bonus: Visit Schuylkill Canal Association's Lock 60 Recreation Area to view a fully restored Schuylkill Navigation System lock or take a ride on the Colebrookdale Railroad, a restored 19th-century railroad to better understand the Industrial-era trains! More information about these sites is available below in the Visit a Heritage Area section.

Activity 4: Manayunk Mills

In the 1800s cotton and wool goods were produced all along the river corridor, and most notably in Manayunk, which boasted 26 large-scale manufacturing complexes in 1875, the majority textile mills. At that time, Philadelphia was one of the nation's foremost textile cities. Paper mills also dotted the Schuylkill and its tributaries, especially around Philadelphia. At its peak, there were 54 mills just along Wissahickon Creek. Here, textiles, oil, dye, and paper were produced to supply the United States with these necessities.

For this activity you will produce your own paper or a unique textile. Choose between making your own paper or your own tie-dyed piece of clothing. Imagine what life would be like if you had to hand-make every single piece of paper or clothing you own! Read more about what was produced in the Philadelphia area, earning it the title 'workshop of the world' at http://www.workshopoftheworld.com/manayunk/manayunk.html.

Option 1: Hand-make your own recycled paper. For instructions on how to make paper from scraps visit http://www.auntannie.com/Papermaking/RecycledScraps/. Note that this activity works best if left overnight to dry.

Option 2: Tie dye a t-shirt or other item of clothing. Start off with a basic one-color dye or us one of the cool techniques at http://tiedyeyoursummer.com/get-inspired.html.

Activity 5: Pennsylvanian Pretzels

Pretzels date back to as early as 610 A.D. and trace their origins to the season of Lent, when meat, dairy, and eggs were prohibited from consumption in the Catholic religion. The three holes of a pretzel came to represent the Father, Son, and the Holy Spirit and have since come to represent prosperity and wishes of good luck. The first commercial pretzel bakery was started in nearby Lancaster County in



1861 by Julius Sturgis. The Reading Pretzel Machinery Company created the first automated pretzel-making machine in 1935 and employees were able to make 245 pretzels per minute! In 1948, Reading companies produced one-third of all the pretzels sold in the United States. Today, 80% of pretzels made in the United States are made in Pennsylvania.

Learn to roll and bake your own soft pretzel. An easy recipe is available at http://www.chow.com/recipes/28382-soft-pretzels. You can also choose to tour the Julius Sturgis Pretzel Bakery in nearby Lancaster County, where you can get a hands-on lesson in pretzel twisting. More information on the bakery is available at http://www.juliussturgis.com/. You can read more about the interesting history of pretzels at http://www.history.com/news/hungry-history/the-pretzel-a-twisted-history.

Activity 6: Schuylkill River Puzzle

During the Industrial Revolution, human development had a very negative effect on the health of the Schuylkill River watershed. Mines, factories, power plants, mills, farming, and railroad/canal transportation all polluted the river and ultimately made the water unsafe as a source of drinking water. In the 1940s, the state and the federal government led the first environmental clean up of its kind and size, the Schuylkill River Project. Although we as humans do still have some sources of pollution along the river, we have developed a much more sustainable pattern of land use in the Heritage Area.

Put together a River Puzzle that provides for a healthy river. Begin by visiting http://education.nationalgeographic.com/activity/river-puzzle/. Click Preparation, then A River Puzzle, and print out the pieces of the puzzle. Place the source piece on the top and the mouth piece on the bottom of a piece of construction paper. Now arrange the rest of the puzzle pieces in the order that best allows for a healthy ecosystem. Consider the ways each form of land-use may affect the river downstream and the watershed in general. View this annotated map of the watershed from the Schuylkill Action Network available at http://www.schuylkillwaters.org/watershed_maps.cfm. Consider the different types of land-use in the Schuylkill River Heritage Area. Where is Philadelphia relative to the agricultural areas in the watershed? Where is the Limerick Generating Station that uses large amounts of water from the Schuylkill River in the cooling process? Why might this be? Can you imagine any problems that might occur as a result of this placement? Note that there is no one correct answer, but a typical river sequence can be found at the above website. Note that this makes a great group activity for girls to engage in discussion with smaller groups of 3-4. Groups can then present their rivers to the rest of the troop and explain why they created them in this way.

Section III: The Environmental Revolution

The roots of the nation's environmental movement can be traced to the Schuylkill River Heritage Area. Perhaps the most significant environmental undertaking was the Schuylkill River Project. This project, which took place along the river in the 1940s and 50s, was the first large-scale government funded environmental cleanup. At that time, coal operations had so badly polluted the river with coal silt that some people believed it could never be cleaned. The Schuylkill River Project dredged millions of tons of coal silt from the river.

Other important environmental events took place here as well. In 1812, Philadelphia built Fairmount Water Works along the river, becoming the first large American city to develop a safe public water system. Later, city officials created the Fairmount Park Commission to acquire land along the river to prevent industrial development and pollution. This is among the first recorded instances of a government purchasing open space to protect the water.

Some of the America's first naturalists lived here, including John Bartram and John James Audubon. Later, in 1934, of Hawk Mountain was founded, becoming the world's first refuge for birds of prey. Today it remains a worldwide leader in habitat conservation.

Today, environmental efforts continue as conservancies and environmental agencies work to improve the water quality of the river.

Activity 1: Nature Hike on the Schuylkill River Trail

The Schuylkill River Trail is a multi-use trail in Southeastern Pennsylvania with a



projected length of almost 130 miles. Currently over 60 miles of trail are complete, including a 35-mile stretch from Parkerford to Philadelphia. The trail is a great way to enjoy the outdoors, exercise, and/or commute. In August 2015, USA Today voted the Schuylkill River Trail the Best Urban Trail in America.

Go on a nature hike, run, or bike ride along the Schuylkill River Trail. Be sure to note local plants and animals on your journey to help complete Activity 2! For more information and a map of the Schuylkill River Trail visit www.schuylkillrivertrail.com.

Activity 2: Citizen Science: Species Identification

The Earth's natural diversity of species is being threatened by humanity's impact on the biophysical world. But before we can work to save species from extinction, we must study which species exist and where they live. Scientists are working all around the globe to correctly identify species and to figure out where certain species originate from as well as where they exist currently. But scientists cannot be everywhere all the time. Citizen science links scientists with the public to collect and analyze data collected by people all

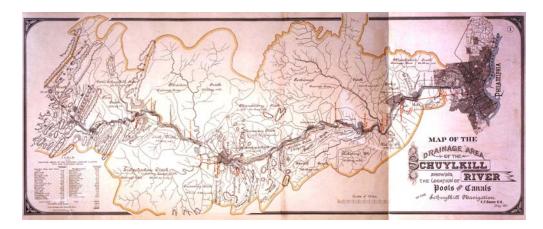
around the world. By identifying plants in the Schuylkill River Heritage Area, you can help contribute to the scientific research of species in the area.

Become a citizen scientist! While hiking or exploring a local park, identify three plant or animal species. If you'd like, create a nature journal with a list and illustrations of the kinds of plants or animals you have seen. A Pennsylvania Tree and Wildflower guide is available at http://www.dcnr.state.pa.us/forestry/plants/. To view a list of birds and mammals local to Pennsylvania, visit http://www.portal.state.pa.us/portal/server.pt?open=514&objID=825100&mode=2. With supervision, download the application *Project Noah* on your smartphone. This app allows you to submit pictures of plants, mammals, birds, arthropods, fungi, reptiles, amphibians, or fish and helps you identify the individual to the species level. It also gives scientists a record of where and when these species were seen, helping scientific research with species location.

Older girls might be interested in differentiating between native and invasive species in Southeastern PA. Common invasive species include Multiflora Rose, Japanese Honeysuckle, Wineberry, Oriental Bittersweet, Japanese & Giant Knotweed, and Poison Ivy. For a more detailed explanation of local invasive species, visit http://www.dcnr.state.pa.us/forestry/plants/invasiveplants/index.htm.

Activity 3: Mapping

Cartography is the art of representing the Earth or a part thereof on a flat surface. Maps are a great way to better your understanding of your location and place in an area- or in the world! Imagine what life was like before maps existed. This early map shows what people thought the Schuylkill River Watershed was like in 1891.A more detailed version is available at http://www.phillyh2o.org/backpages/Maps/Schuylkill_Drainage1891.jpg. Technological advances have given us a much more detailed understanding of what the Heritage Area looks like, as seen in our current maps.



Visit www.schuylkillriver.org to view a map of the Schuylkill River Heritage Area and locate your area on the map. Next, find a nice quiet place in a local park or even just outside your meeting room. Using paper and colored pencils, design a map of the area. You can use your memory of the area or go out and explore, taking notes about the

relative location of things. Remember a map is just a visual representation of your environment and only needs to be as intricate as you make it. Consider including a North Arrow, a Legend, a Title, and Scale. Younger girls might be interested in creating a sound map by sitting quietly, observing and mapping the noises that they hear. A good example of a sound map activity is available at http://www.sensorytrust.org.uk/information/creative-activities/sound-maps.htm. Older girls might be interested in using aerial imagery to help visualize their environments. To do so, visit http://education.usgs.gov/lessons/schoolyard/MapSketch.html for more information.

Activity 4: Trail Clean Up

A clean and accessible trail network has many benefits for individuals, communities, and for the world! Each person who walks, runs, or bikes a trail experiences health and wellness benefits and new social connections. Communities benefit from tourism and economic stimulation, linkages both made possible through the presence of a trail. Trail networks also encourage sustainable transportation by providing biking and walking paths for commuting and help foster a connection between people and the natural world.

Help your friends, your community, and your planet by cleaning up the Schuylkill River Trail. Volunteer for a pre-organized trail clean up or host one of your own group cleanups, working with other Girl Scouts. For more information about volunteering along the trail, visit http://schuylkillrivertrail.com/volunteer/.

Activity 5: Macroinvertebrate Water Quality Testing

After a century of anthracite mining in Schuylkill County "the water in the Schuylkill River became the dirtiest in the state- a disgrace to the Commonwealth and a breeding place of disastrous floods and disease" (The Schuylkill River project, by the Commonwealth of Pennsylvania's Department of Forests and Waters, 1948). The river was no longer navigable and its value as a water supply was threatened. In the following decades, the Schuylkill River Desilting Project and the United States Army Corps of Engineers worked to remove pollutants from the river. The project dredged silt from the river and poured it into canal beds and silt basins. More information about the cleanup is available at http://www.schuylkillriver.org/Environmental_Revolution.aspx. This was the first large scale environmental cleanup conducted by the US government agency and was the largest operation of its kind in the world. Today, 1.5 million people get their drinking water from the Schuylkill River. The river still faces environmental challenges including abandoned mine drainage, stormwater runoff, agricultural pollutants, and fracking.

Aquatic macroinvertebrates are small insects, crustaceans, mollusks, arachnids, and annelids that live in the water for all or part of their lives. They are large enough to be seen with the naked eye ("macro") and lack a backbone ("invertebrate"). As they are sensitive to physical and chemical conditions of the water, macroinvertebrates are great indicators of water quality. Certain species are more tolerant of pollution than others, so if species that are do not tolerate pollution well are present, you know you have a healthy body of water!

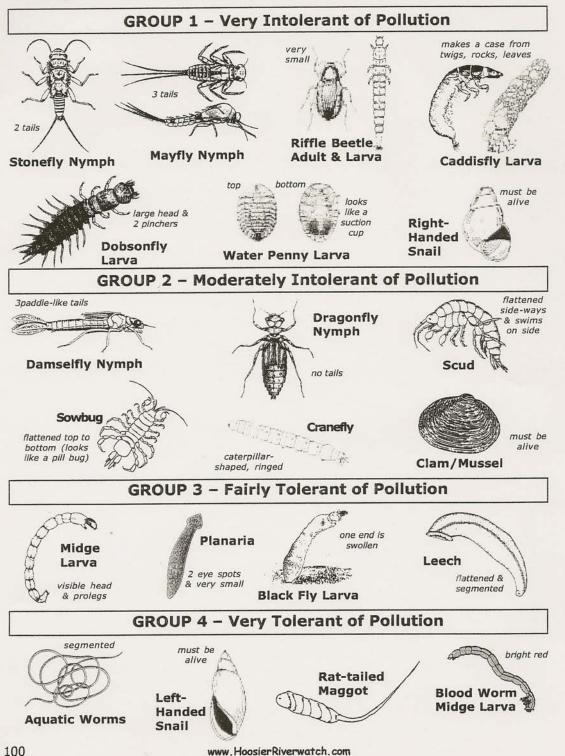
Using the following two macroinvertebrate identification keys, test the quality of the water in the Schuylkill River. The best place to catch macroinvertebrates from the water is in a riffle area or an area of fast flowing shallow water around objects or debris. Avoid pools or deep slow water. While wearing waders or non-slip shoes, collect macroinvertebrates from the water with a net with a relatively fine mesh. These organisms often attach to rocks, so disturbing debris above the net, scraping algae, or kicking up riverbed upstream of the net you can dislodge the macroinvertebrates for sampling. Once they are collected, place all organisms in a tray and try to identify which macroinvertebrates are present. If you only have species that are listed as pollutant tolerant, you have a less healthy area. Conversely, if you have species that are pollutant intolerant, your water source is healthy!

This activity is best completed in Spring or Autumn, as these seasons see the highest numbers of macroinverterate species. Also note that for younger troops, leaders might collect samples and the girls can divide the organisms and identify the species. Further information on water quality testing with macroinvertebrates in the area can be found at http://www.stroudcenter.org/education/macrokeypage1.shtm.

Key to Macroinvertebrate Life in the River No Shells Shells No Legs Single Shell Double Shell Microscopic With tentacles, brushes or tails Gilled Snail Orb Snail Fingernail Clam Planaria or Flatworm Midge Larva Tubifex Werms Midge Pupa Blackfly Larva Water Snipe Fly Larva Cranefly Larva Rat tailed Maggot Larva Cranefly Larva 0 Ostrocod or Clam Shrimp Daphnia or Water Flea Copepod or Cyclops 10+ legs Three Pairs of Legs Four pairs of legs Wings Leathery Wings Beetle-like, wings hard Amphipod or Scud Riffle Beetle Isopod or Aquatic Sowbug Predaceous Diving Beetle Crawling Backswimmer Water Scavenger Beetle Whirligig Beetle Giant Water Bug Water Beetle No Obvious Tails One orTwo Tails Three Tails Water Scorpion Caddisfly Larva Caddistly Larva Pyrallid Caterpillar Caddislly Larva Water Penny Mayfly Nymph Maylly Maylly Nymph Dragonfly Nymph Caddisfly

Developed by University of Wisconsin-Extension in coaperation with the Wisconsin Department of Natural Resources. May be reproduced for educational, non-profit purposes. For information contact UWEX Environmental Resources Center 608/262-0020.

Macroinvertebrate Identification Key



Visit a Heritage Site

Visit any of the following sites to learn more about the Schuylkill River Heritage Area. Remember that this visit will count as one activity completed in any section.

- (1) Schuylkill River Heritage Area's River of Revolutions Interpretive Center: 140 College Drive, Pottstown, PA, 19464
- (2) Fairmount Water Works Interpretive Center: 640 Waterworks Drive, Philadelphia, PA, 19601
- (3) Hawk Mountain Sanctuary: 1700 Hawk Mountain Road, Kempton, PA, 19529
- (4) Crows Nest Preserve and Natural Lands Trust: 201 Piersol Road, Elverson, PA, 19520
- (5) Sweet Arrow Lake Park: 108 Clubhouse Road, Pine Grove, PA, 17963-9401
- (6) Black Rock Sanctuary: 953 Black Rock Road, Phoenixville, PA, 19460-5106 (Preregistration is required for programs)
- (7) John James Audubon Center at Mill Grove: 1201 Pawlings Road, Audubon, PA, 19403
- (8) Fairmont Park: Many locations in Philadelphia, PA
- (9) Bartram's Garden: 5400 Lindbergh Boulevard, Philadelphia, PA, 19143
- (10) John Heinz National Wildlife Refuge at Tinicum: 8601 Lindbergh Boulevard, Philadelphia PA, 19153
- (11) Berks County Heritage Center: 633 Court Street, Reading, PA, 19601
- (12) Hopewell Furnace National Historic Site: 2 Mark Bird Lane, Elverson, PA, 19520
- (13) Schuylkill Canal Association's Lock 60 Recreation Area: 400 Towpath Road, Mont Clare, PA, 19453 a virtual tour is available at http://schuylkillcanal.org/page-330530#com1
- (14) Valley Forge National Park: 1400 North Outer Line Drive, King of Prussia, PA, 19406
- (15) Betsy Ross' House: 2389 Arch Street, Philadelphia, PA, 19106
- (16) Colebrookedale Railroad http://www.colebrookdalerailroad.com/