



A Legacy of Conservation

“It is a wholesome and necessary thing for us to turn again to the earth and in the contemplation of her beauties to know the sense of wonder and humility.”

- Rachel Carson

Rachel Carson was a prolific biologist, writer, and one of the founders of the modern environmental movement – and she was born and raised right here in Western Pennsylvania! Learn about her writing, where she grew to love nature, and how her advancements in the field of environmental science have helped make our world a better, greener place. Then try your hand at improving the health of the environment around you!

Steps

1. Dig deep into Rachel Carson’s work
2. Follow in Rachel Carson’s footsteps
3. How healthy is your environment?
4. Evaluate your environmental impact
5. Take Action to help your environment

Purpose

When I’ve earned this badge, I will have learned about Rachel Carson’s work, her impact on the environmental movement, and worked to make my own environment happier and healthier!



Rachel Carson (1907-1964) was a prolific writer, scientist, and ecologist whose writing connected people with nature and environmental issues in a beautiful and powerful way. She grew up outside of Pittsburgh, Pennsylvania and went to school at the Pennsylvania College for Women (now called Chatham University). She went on to become a marine biologist, working for the U.S. Fish and Wildlife Service while writing about the intersection between people and nature.

She spent many years exploring the coast of Maine and had a true love for the ocean. She wrote many books about marine biology, ecology, and how people can better appreciate the nature that surrounds them. Rachel Carson is credited with starting the modern environmental movement through her groundbreaking book *Silent Spring*. This book detailed the vast damage to the environment caused by pesticide use in the United States. Through her writing, she brought complicated environmental science research to the common person.

She was a strong believer in the connection between people and the land they live, work, and play on. This is your chance to explore her life and her impact on environmental science as we know it today. Hopefully she will inspire you to think of ways for you and the people in your life to keep our environment clean and green.



We wish to extend a special thank you to Linda Lear and the Linda Lear Center for Special Collections and Archives at Connecticut College for the use of their photo archive and their wealth of knowledge about Rachel Carson.

Step 1: Dig deep into Rachel's work

Rachel Carson was a trained scientist who spent many years working with and leading biologists across the country, but her true passion was writing about nature. Check out some of her writing, and see how the topics are still relatable today, almost 70 years after she wrote them.

Each step has three choices. Do ONE choice to complete each step. Inspired? Do more!

- Be inspired by the story.** Create a work of art (painting, drawing, sculpture, poem, or story) that is inspired by one of Rachel Carson's books. Need help finding a book? Ask a librarian or search online for passages from the books.

OR

- Be the star of the show.** Create a trailer for a movie about one of Rachel Carson's books – who is the main character? What challenge are they facing? Act it out with some friends in front of a live audience, or record it and have a movie trailer screening.

OR

- Explore the web of life.** Find out about how DDT, a poisonous chemical featured in Carson's book *Silent Spring*, affects everything it touches. Draw a web that shows how DDT poisons at least ten different living things.



Some examples of living things to put in your web are:

- Apple tree
- Trout
- Bald Eagle
- Alfalfa plant
- Adult human
- Baby human
- River
- Soil

Environmental Careers to Explore

Marine Biologist

Ecologist

Environmental Field Technician

Zoologist

Park Ranger

Agricultural Engineer

Climatologist

Geologist

Wildlife Rehabilitator

Environmental Lawyer

Environmental Engineer

Step 2: Follow in Rachel Carson's footsteps

Rachel Carson grew up in Springdale, Pennsylvania, which is right on the Allegheny River, upstream of Pittsburgh. She attended the Pennsylvania College for Women (now Chatham University). She eventually moved to Maryland, then to Maine to work for the government, but she called Pittsburgh home for most of her childhood. Retrace the early steps of one of the founders of the modern environmental movement.

- Visit the Allegheny River.** Rachel Carson grew up in a town on a bend in the Allegheny, near the epicenter of the steel industry. The river traces its way across the heart of Western Pennsylvania. Visit the shores of the Allegheny in a local or state park.

During your visit, take photos, draw a picture, or write about what you see, hear, and smell. Find your favorite spot, and spend some time sitting or playing there. What do you like about it? How has this landscape changed since the 1920's, when Rachel Carson was young?

OR

- Visit places named after Rachel Carson.** People in Western Pennsylvania are very proud to count Rachel Carson as one of our hometown heroes. Visit a site named in her honor and take photos with any memorial signs or plaques you see. Why was her legacy so important?

OR

- Visit Pennsylvania parks.** Talk to an environmentalist at a local, state, or national park in Western Pennsylvania. What can they tell you about the environment here? Why is it unique? What kinds of plants and animals live here and why?



Did You Know?
Pennsylvania is home to 117 state parks, and every resident lives within 25 miles of a park! You can find a full list of Pennsylvania's State Parks and Forests at www.dcnr.state.pa.us

More to Explore

The Allegheny River is one of the headwaters of the Ohio River, which is 981 miles long. It has a long history of pollution due to its proximity to over 10% of the U.S. population. Do some research to find out about the Ohio River's pollution issues and what efforts are out there to help fix them.

You can start here, with the Ohio River Foundation:

http://www.ohioriverfdn.org/education/ohio_river_facts/

Looking for a good place to visit? Try these locations!

For visiting the Allegheny River:

- Point State Park, Pittsburgh, PA
- Three Rivers Heritage Trail, Pittsburgh, PA
- Aspinwall Riverfront Park, Aspinwall, PA
- Riverview Memorial Park, Tarentum, PA
- Armstrong Rails to Trails, Rosston to East Brady, PA
- Brady's Bend Overlook, East Brady, PA
- Allegheny River Trail, Oil City to Franklin, PA
- Riverfront Park, Franklin, PA
- Lighthouse Island, Tionesta, PA
- Cornplanter State Forest, Tionesta, PA
- Betts Park, Warren, PA
- Kinzua Dam, Allegheny Reservoir, Allegheny National Forest, Warren, PA

For visiting a place named after Rachel Carson:

- Rachel Carson Trail, Allegheny county, PA

This 34-mile hiking trail starts in North Park and winds through the rolling hills of Allegheny county. There's an annual race during which participants try to complete the whole trail in one day!

- Rachel Carson Bridge, Pittsburgh, PA

This bridge connects downtown Pittsburgh with the North Shore. The bridge is lit by 16,000 LED lights that are powered by 16 wind turbines, making it totally green!

- Rachel Carson Homestead, Springdale, PA

This is Rachel Carson's birthplace and family homestead. Visitors can see how her early environmental attitudes were shaped by her modest farm upbringing.

- Rachel Carson Institute, Eden Hall Campus, Chatham University, Richland, PA

The Rachel Carson Institute in conjunction with Eden Hall Campus teaches students (kindergarten through college and beyond) about sustainability, agriculture, design, and more.

Step 3: How healthy is your environment?

Try your hand at being a scientist, just like Rachel Carson. Do some simple tests to see how healthy your environment is. Head out to a local park, creek, or other outdoor space with a few simple tools to gather the data.

- **Study the water.** Grab a magnifying glass and head out to a tributary of the Allegheny River – a stream or creek that will eventually feed into the river itself – to explore its banks. Scan the surface of the water, flip over rocks, look under leaves, and observe mud puddles for signs of life. You might find larvae, worms, crayfish, or water striders. These creatures are called macroinvertebrates, and they are great indicators of water health. Use a macroinvertebrate identification key to identify what you find. How healthy is your body of water based on the macroinvertebrates you found?

OR

- **Study the air.** With the help of the Environmental Protection Agency’s air health website (www.airnow.gov), find the current air quality forecast for your area – this can be your neighborhood, town, or even all of western Pennsylvania. Or you can do an online search to find the AQI (air quality index) in your area. Find out about what weather factors (temperature, humidity, cloud cover, etc.) influence air quality. Make a prediction about the air quality in your area for the next week based on the weather forecast. Check back in a few days to see if you were right!

OR

- **Study the forest.** Take a walk in the woods someplace in western Pennsylvania. You could go to a local or state park, or just explore a wooded area in your neighborhood. Is it an open forest, or is there a lot of underbrush? Are there new trees growing? What evidence of animals do you see (or not see)? Identify at least three different kinds of trees, three different animals, and how those animals use trees as a resource – whether it be their home, for food, or as protection from predators. After your walk, have a discussion with your friends about why trees are important for a healthy environment.

Feeling inspired? Identify all the trees you see!

“A rainy day is a perfect time for a walk in the woods...”

- Rachel Carson
The Sense of Wonder



Step 4: Evaluate your environmental impact.

Rachel's work focused on the relationship between people and nature and how people can have a very powerful, often negative effect on nature. Figure out some of the ways that you have an impact on the environment and how you can reduce that impact.

- **Box it up in a different way!** Many products sold in stores have lots of packaging (plastic, cardboard, etc). Packaging is important to businesses that make products – it protects the contents, keeps them safe from contamination, and makes consumers more likely to buy what's inside. However, many products have a lot of packaging that can be hard to open, and can create a lot of extra waste. Find a product that you think has excess packaging, then redesign the packaging to be more environmentally friendly. Research other materials (like bamboo or recycled plastic or paper) and think about new ways to shape the packaging. Draw a picture of your redesigned packaging with a key explaining why it's more environmentally friendly.

Feeling inspired? Build a model of your new packaging and email a photo of the new design to the company that makes that product with your suggestions.

OR

- **Research your carbon footprint.** Your carbon footprint is a sum of all the carbon your daily activities produce. Do research to find out more about carbon footprints, how they affect the environment, and why they're important. Can you reduce your carbon footprint through the food you eat, the way you travel, or the products you buy? Once you've calculated your carbon footprint, find out or come up with three ways you can reduce or offset it. Encourage your family and friends to reduce their carbon footprints too!

OR

- **Visit a local recycling or compost center.** Do some research to find a nearby recycling or composting facility. Then take a tour and talk to the staff.

For recycling: How is the recycling collected? What is the process to take recycling from the curbside or dumpster and transform it into usable materials? What is one new item that you learned is recyclable?

For composting: How does the decomposition process work? How long does it take certain materials to break down, like a banana peel or glass? What is compost used for?



Check out some of these resources to help figure out you or your family's carbon footprint:

- Environmental Protection Agency:
<https://www3.epa.gov/carbon-footprint-calculator/>
- The Nature Conservancy:
<http://www.nature.org/greenliving/carboncalculator/>

Did You Know?
Aluminum is the most recyclable of all materials, and 75% of aluminum used today comes from recycled materials!

Step 5: Take Action to help your environment.

Not all impacts on the environment are negative – people can help their local creeks, fields, and forests not only recover from damage, but also continue to thrive.

- **Spread the word.** Create a short movie or video clip (2-5 minutes) about Rachel Carson and her importance to the environmental movement. Make sure to mention how her legacy is alive and well today. Then have a movie night with your friends, family, or troop!

OR

- **Roll up your sleeves and do some hands-on clean-up.** Find a trail clean-up day or recycling event and volunteer! Spread your knowledge about ways that others can lessen their negative impacts on the environment.
 - PA State Parks events: www.events.dcnr.pa.gov
 - American Hiking Society events: <http://nationaltrailsday.americanhiking.org/ntd-events/>

OR

- **Find your weekly water usage.** Use a water usage calculator to find out how much water you use in a day. Record how much water you use every day for a week. Then take the water challenge! Try to decrease your water usage by 10 gallons for a week. The next week, try to decrease your water usage by 20 gallons. See how much you can reduce your own usage.

Feeling inspired? Challenge the rest of your family to decrease their water usage too!

Tip: Check out National Geographic's tips on how to reduce water usage:
<http://www.nationalgeographic.com/environment/freshwater/water-conservation-tips/>

Tell other Girl Scouts about this badge!

Find a way to encourage other Cadettes to earn this badge! Here are a few ideas:

- Contact your local Service Unit and ask if you can show your movie at the next Service Unit meeting, day camp, or another gathering. Think about supplies you will need – a projector, a screen or sheet to project on, a microphone, etc.
- The Rachel Carson Homestead hosts events and tours throughout the spring, summer, and fall (www.rachelcarsonhomestead.org). Contact the Homestead staff and see if you can show your film during an event, or invite your troop, family, and friends to a viewing and a tour!
- Send your video to pics@gswpa.org and ask to be highlighted on GSWPA social media!



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