



askHRgreen.org Environmental Education Lesson Plans & Enrichment

Nine easy-to-use units of environmental education for Hampton Roads elementary and middle school students.

Lesson 1: Water Cycle

The water cycle may be a new concept for younger elementary students or a review topic for older students. Either way, the water cycle is a cornerstone of environmental education and a great topic to review with your student! Start by reviewing an engaging video on the topic of the water cycle. Next, complete written assignments or worksheets to reinforce concepts. Finally, bring science alive with a fun craft or science experiment.

Learn

Elementary:

- [The Water Cycle | The Dr. Binocs Show](#)

Middle:

- [Water Cycle | Bill Nye Science Guy](#)

Assignments & Worksheets

Elementary:

- [Green Learning Guide \(page 3-4\)](#)
- [eBook: The Sun & the Water Cycle](#)
- [Illustrate the Water Cycle](#)

Middle:

- [Green Learning Guide \(page 8-9\)](#)
- [NASA Interactive Water Cycle Resource \(essay, infographic, discussion questions\)](#)
- [Writing Prompts for Short Essays](#)

Experiments & Activities – *all ages, parental supervision may be required*

- [Water on Earth Game](#)
- [Water Cycle in a Bag](#)
- [Make a Cloud in a Bottle](#)
- [Water Cycle Fitness Plan](#)

Lesson 2: Watersheds

In Lesson 1, students learned the concepts of the water cycle. In this lesson, students will dive deeper into one part of the water cycle, precipitation, to explore our watersheds. Students will learn what happens when precipitation falls to earth and travels across the landscape to reach rivers and streams. Human impacts on watersheds and stormwater pollution are also covered.

Learn

Elementary:

- [Stormy the Raindrop Visits the Chesapeake Bay | Fairfax County Government](#)

Middle:

- [Watersheds | WaterMattersTV](#)

Assignments & Worksheets

Elementary:

- [Elementary Green Learning Guide \(page 10-13\)](#)
- [A day in the life of a drop of water](#)

Middle:

- [Middle School Green Learning Guide \(page 2-7\)](#)
- [Stormwater Sentries game](#)

Experiments & Activities – *all ages, parental supervision may be required*

- [Find Your Watershed \(interactive map\)](#)
- [What's your Bay Footprint?](#)
- [Water Pollution Sensory Bin](#)
- [Build a Watershed](#)
- [Coffee Filter Water Pollution Experiment \(page 8\)](#)
- [Wetlands in a Pan](#)

Lesson 3: Wastewater Treatment

Lesson 1 and 2 covered the water cycle and watersheds. This lesson delves into a more mysterious system, wastewater treatment. The wastewater system is out of sight and out of mind for most people – especially kids who have never seen a water bill! Where *does* the water go when it's sent down the drain of our sink, toilet, shower, or washer? Yes! All drains do lead to the same place, but it's not the ocean no matter what Gill says in *Finding Nemo*! Students will learn how our dirty water is cleaned and made safe for release back into the environment, what's safe to put down the drain, and how innovative wastewater treatment projects are happening right here in Hampton Roads.

Learn

Elementary:

- [Beyond the Drain | Value of Water Coalition](#)
- [What Not to Flush | askHRgreen.org](#)
- [Virtual Tour of HRSD's Virginia Initiative Plant Nutrient Reduction Improvement Project](#)

Middle:

- [How Do Wastewater Treatment Plants Work? | Concerning Reality](#)
- [What Not to Flush | askHRgreen.org](#)
- [Why You Should Never Put Grease Down the Drain | Tech Insider](#)
- [Virtual Tour of HRSD's Virginia Initiative Plant Nutrient Reduction Improvement Project](#)
- [Wastewater Woes: Sewage Spills in SF Bay](#)

Assignments & Worksheets

Elementary:

- [Clean Water Curriculum Wastewater Treatment](#)
- [Cease the Grease Maze](#)
- [Stop the Clog Word Search](#)
- [Treat it Right Workbook](#)

Middle:

- [Invisible Infrastructure](#)
- [Plants and Permits Word Problems](#)
- [Washing Water](#)

Experiments & Activities – all ages, parental supervision may be required

- [What is Wastewater?](#)
- [Just Throw it Away](#)
- [CSI: Tracking Down the Pollutant](#)
- [What Not to Flush experiment](#)

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Lesson 4: Earth Day

The first Earth Day in 1970 mobilized millions of Americans for the protection of the planet. On April 22, 1970, 20 million Americans — 10% of the U.S. population at the time — took to the streets, college campuses, and hundreds of cities to protest environmental degradation and usher in the modern environmental movement. Massive environmental protection laws like the Clean Air Act and the Clean Water Act are credited as an early success of Earth Day. Earth Day is an important time for students to learn about the environment, limited natural resources, threats to the planet, and ways we can all make a difference. These are important concepts no student should skip.

Learn

Elementary:

- [Earth Day for Kids | Home School Pop](#)
- eBook: [The Lorax | Dr. Seuss](#)
- eBook: [I Can Save the Planet | PV Storytime](#)

Middle:

- [Earth Day Animated History | Five Minded](#)
- [The Environmental Movement and the First Earth Day | PBS Learning Media](#)

Assignments & Worksheets

Elementary:

- [What You Need to Know About Earth Day](#)
- [Lorax Worksheets](#)
- [Save the Earth Quiz National Geographic](#)

Middle:

- [The Environmental Movement and the First Earth Day Support Materials](#)
- [Environmental Scorecard](#)

Experiments & Activities – *all ages, parental supervision may be required*

- [Take a virtual tour of some of America's national parks](#)
- [Nature Walk Scavenger Hunt](#)
- [#ChalkYourWalk](#). Use chalk to leave positive environmental messages around your neighborhood.
- Create an [Earth diagram](#). Identify environmental problems and solutions for each section.
- Explore Earth and the importance of conservation through [environmental films](#) such as the [The Lorax](#) (Rated: PG), [Earth](#) (Rated: G), [Oceans](#) (Rated: G) and many more.

Lesson 5: Litter & Marine Debris

In 2015, marine conservation biologist Christine Figgener posted a now viral video of an olive ridley sea turtle with a nearly five-inch straw lodged in its nostril. One video sparked a movement. Ever since, single use plastics like straws have been targeted in the fight against litter and marine debris. Because plastic persists for hundreds of years, making sure it ends up in the proper trash or recycling receptacle (and not on the ground) is very important. But most important of all is reducing our use of single use plastics to begin with. This lesson plan covers the issue of litter and marine debris from land to sea, discussing the negative environmental impacts and the simple ways we can all make a difference.

Learn

Elementary:

- [Team Up 2 Clean Up – askHRgreen.org](https://askhrgreen.org)
- [Don't Litter! Make the world better – MocomiKids](https://mocomikids.com)
- [What is marine debris? – PBS Learning Kids](https://pbslearningkids.org)
- [Marine debris impact – PBS Learning Kids](https://pbslearningkids.org)
- [What can we do to prevent marine debris – PBS Learning Kids](https://pbslearningkids.org)

Middle:

- [Team Up 2 Clean Up – askHRgreen.org](https://askhrgreen.org)
- [Plastic in the Pacific – PBS Learning Media](https://pbslearningkids.org)
- [How can we keep plastic out of our ocean – National Geographic](https://nationalgeographic.com)
- [What can we do to prevent marine debris – PBS Learning Kids](https://pbslearningkids.org)

Assignments & Worksheets

Elementary:

- [Green Learning Guide \(pages 8-9\)](#)
- [Be an Ocean Guardian Workbook](#)
- [Trash Talking](#)

Middle:

- [Sea Turtle Activity Sheet – Keep it Beachy Clean](#)
- [Talking Trash & Taking Action](#)
- [How Harmful is It – NOAA \(page 64-67\)](#)

Experiments & Activities – all ages, parental supervision may be required

- Complete a neighborhood [litter audit](#).
 - What litter do you see in your neighborhood?
 - Where do you think it came from?
 - What could be done to prevent this litter?
- [Animal Entanglement – NOAA \(page 60-63\)](#)
- [Sea Pollution in a Jar](#)
- [Oil spill cleanup](#)
- [Classifying aquatic debris](#)

Lesson 6: Drinking Water

Did you know that without tap water social distancing and handwashing would be virtually impossible? In fact, women and children in developing countries across the globe have to walk, on average, more than 3.5 miles round trip to retrieve water. Even worse? The water they collect is often contaminated with life-threatening diseases from lack of sanitation or water treatment. Compare this to the ease of walking to the kitchen sink and you'll understand why we should never take our drinking water for granted. We put in very little effort for the water to wash our hands and quench our thirst but there's a big, often unseen system at work making it all possible. Students will learn about drinking water treatment, water as a limited resource, and simple ways we can all help conserve this life-bearing resource.

Learn

Elementary:

- [Imagine a Day Without Water – askHRgreen](#)
- [How does water get to your house – SciShow Kids](#)
- [Water supply and demand – PBS Learning Resources](#)

Middle:

- [Imagine a Day Without Water – askHRgreen](#)
- [The story of drinking water – AWWA](#)
- [Are we running out of water – TedEd](#)

Assignments & Worksheets

Elementary:

- [Green Learning Guide \(pages 4-5\)](#)
- [Thistin's Wacky Water Adventure](#)
- [Test your water sense](#)

Middle:

- [Green Learning Guide \(page 8-9; 12-15\)](#)
- [Are we running out of water – "Think" & "Dig Deeper" \(TedEd\)](#)
- [The Cost of Water – Interactive Lesson](#)

Experiments & Activities – all ages, parental supervision may be required

- [Build a rain barrel](#)
- [Tap v. bottled water taste test](#)
- [Create a family water conservation plan](#)
- Use creative writing to tell the story of a day without water.

Lesson 7: Waste Reduction

Everywhere we go, people want to talk with us about waste management. Everyone has questions! Hopefully this lesson plan will help your student understand there is no “away” when we throw things away in the trash. And grownups may learn a thing or two themselves! We challenge your classroom or family to take what you learn today and change one wasteful behavior for one week. If it’s easy, just keep up the good habit.

Learn

Elementary:

- [How Recycling Works Sci Show Kids](#)
- [How and Why We Recycle from James City County](#)
- [Milly Zantow: Recycling Revolutionary – PBS Learning Media](#)

Middle:

- [How and Why We Recycle from James City County](#)
- [Waste Deep – PBS Learning Media](#)
- [Milly Zantow: Recycling Revolutionary – PBS Learning Media](#)

Assignments & Worksheets

Elementary:

- [Green Learning Guide \(pages 4-5\)](#)
- [Talkin’ Trash worksheets](#)
- [Reduce Reuse Recycle reading comprehension](#)

Middle School:

- [Green Learning Guide \(page 17\)](#)
- [Waste Deep \(supplemental resources from video\)](#)
- [Using the 3 Rs to Help the Environment \(interactive reading comprehension\)](#)

Experiments & Activities – *all ages, parental supervision may be required*

- [Milk Jug Greenhouses](#)
- [Recycle City Challenge & Dumptown Game](#)
- [Making Recycled Paper](#)
- [Compost in a Jar experiment](#)

Lesson 8: Biodiversity & Habitats

In this lesson, we'll take a look at habitats and biodiversity. Habitats are everywhere: an urban streetscape, a suburban backyard, a rural farm, or an oceanfront beach. These are all ecosystems where humans live and participate throughout Hampton Roads. The decisions we make in these habitats contribute greatly to the strength of the ecosystem to support a diverse variety of species. Whether it is the bugs in the soil or the birds in the sky, protecting local biodiversity is, in large part, up to us. Students will learn about biodiversity, discover the interconnections between humans and habitats, and learn to identify the wildlife habitats near their schools or homes.

Learn

Elementary:

- [What is Biodiversity \(PBS Learning Media\)](#)
- [Chesapeake Bay Food Chains \(James River Association\)](#)
- [Pollinator Quest](#)

Middle:

- [Why is biodiversity so important? \(TedEd\)](#)
- [Chesapeake Bay Food Chains \(James River Association\)](#)
- [Human Activities that Threaten Biodiversity \(PBS Learning Media\)](#)
- [James River Bald Eagle Resurgence \(James River Association\)](#)

Assignments & Worksheets

Elementary:

- [Green Learning Guide \(pages 2-3; 8-9\)](#)
- [Habitat Mapping](#)
- [Habitat Observations with Rustle the Leaf](#)
- [Insect Pests & Pals](#)

Middle:

- [Why is biodiversity so important? \(Think, Dig Deeper, Discuss\)](#)
- [Chesapeake Bay Food Chains \(worksheet\)](#)
- [Reclaiming Bee Habitat](#)
- [Insect Pests & Pals](#)

Experiments & Activities – all ages, parental supervision may be required

- [OLOGY from American Museum of Natural History \(games, crafts, stories\)](#)
- [Go on an urban safari](#)
- [Bird watching and identification](#)
- [Habitat Diorama craft](#)
- [Habitats Game](#)

Lesson 9: Your Environmental Impact

Have you heard of the Tragedy of Commons? When resources are shared, individuals don't always promote the common good. Resources can become depleted when individuals act in their own self-interest. Sound familiar? In this lesson, students will learn about managing limited resources and our personal ecological and carbon footprints. Each choice we make throughout the day has a positive or negative environmental impact. Each choice adds up. Whether it's what we buy, cook, wear, or how we get to work, exercise, or shop, these decisions can improve, or harm, the environment in very real ways. This is a great opportunity for classes and families to discuss environmental issues and have an open dialogue about the role we each play in protecting our Earth for generations to come.

Learn

Elementary:

- [The Carbon Footprint Mystery \(TriviaTopia\)](#)
- [Eco Footprint \(Curious Kids\)](#)
- [The Carbon Footprint Sandwich \(NPR's Skunk Bear\)](#)

Middle:

- [Five Human Impacts on the Environment \(Crash Course\)](#)
- [Tragedy of Commons \(TedEd\)](#)
- [The Carbon Footprint Sandwich \(NPR's Skunk Bear\)](#)

Assignments & Worksheets

Elementary:

- [Green Learning Guide \(pages 2-3; 6-9\)](#)
- [How Big is Your Footprint Worksheets](#)
- [I can save the earth \(Reading\)](#)

Middle:

- [Green Learning Guide \(pages 10-14\)](#)
- [Tragedy of the Commons – Think/Dig Deeper \(TedEd\)](#)
- [Personal Water Eco Audit](#)

Experiments & Activities – all ages, parental supervision may be required

- [Lemonade & M&Ms Tragedy of the Commons Activity](#)
- [What's Your Bay Footprint?](#)
- [Ecological Footprint Calculator](#)
- [Make a Meatless Monday Meal](#)
- Make five pledges to reduce your environmental footprint. Share them with us on [Facebook](#) or [Instagram](#)!