FREE

WATER QUALITY

LESSONS

with Hendricks County Partnership for Water Quality

Sarah Wolf, the Education Coordinator, offers FREE environmental education lessons in Hendricks County. These lessons are hands-on activities which include board games, full-body games, demonstrations, experiments, and more. The lessons are interdisciplinary, and aim to show how science connects to many areas of our daily lives.

These lessons are listed for 2nd grade and up. Don't see what you are looking for? Contact us if you have a specific water quality lesson request.

The science standards are listed for each lesson - the standards are at least partially met, if not exceeded. Most lessons can be adjusted up or down. Email if you like a list of the other standards for your specified lesson.

Email Sarah at scwolf@co.hendricks.in.us to schedule programs for your class! We prefer to teach only one class at a time, and to have several classes scheduled back-to-back. No Mondays are available in January-May.

Homeschool groups, scout and other youth groups

We'd love to work with your group! You'll need at least 10 students, age 8+, working at the 2nd grade level or higher. Program must be scheduled for a public space in Hendricks County such as a library, church, or park.

Grades	Lesson Name and Description	2023 Indiana Science Standards
MS-HS	***8-4-1, One for All*** Representing eight different water users, students must safely carry one water container "downstream" and must navigate through four simulated water management challenges to reach the next community of water users on the same "river." Length: 45 minutes; Setting: best outside due to water spills	HS-ESS3-1
5th-MS	***A Drop in the Bucket*** By estimating and calculating the percentage of available fresh water on Earth, students understand that this resource must be used and managed carefully. Length: 30 minutes	5-ESS2-2 MS-ESS3-4
MS-HS	***A Grave Mistake*** Students analyze data to solve a mystery and identify a potential polluter. Yesterday's solutions can sometimes become today's problems. Length: 45 minutes	MS-ESS3-3
5th-MS	***A-maze-ing Water*** Through a full-body activity, students simulate the movement of water drops through a maze to learn how activities in their homes and yards affect water quality. Length: 30 minutes; Setting: gym or large room needed.	5-ESS3-1 MS-ESS3-3
2nd-5th	***Blue Planet*** Students estimate the percentage of Earth's surface that is covered by water and, by tossing an inflatable globe, take a simple probability sample to check their estimates. Length: 30 minutes	2-ESS2-2 2-ESS2-3 5-ESS2-1 5-ESS2-2
2nd-MS	***Blue River*** Students participate in a whole-body exercise to simulate the movement of water through a river and its watershed. Length: 30 minutes	5-ESS2-1 5-ESS2-2 MS-ESS2-1
MS-HS	***Back to the Future*** Students analyze streamflow by monitoring data to determine safe and beneficial locations for a growing community. Length: 45 minutes	MS-LS2-4 MS-ESS3-2 MS-ETS1-2 MS-ETS1-3 HS-ESS3-3 HS-LS2-7 HS-ENV3-1 HS-ENV4-2

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5th-MS	***Common Water*** Students analyze the results of a simulation to understand that water is a shared resource and is managed. Length: 45 minutes	5-ESS2-1 5-ESS3-1
HS	***Conservation Choices*** Students confront a variety of water conservation dilemmas and choose courses of action to deal with them. In the process, they face ethical, financial, and practical issues. Length: 45 minutes	HS-LS2-7 HS-ESS3-4 HS-ENV2-6 HS-ENV4-2 HS-ENV6-2
MS-HS	***Dragonfly Pond*** Students evaluate the effects of different kinds of land use on wetland habitat, and discuss and evaluate lifestyle changes to minimize damaging effects on wetlands. Length: 30 minutes+	MS-LS2-5 HS-LS2-7 HS-ESS3-3 HS-ENV2-6 HS-ENV4-2
MS	***Ghost Map*** Through a series of clues, students solve a mystery to discover that water can also produce negative effects for people. Length: 45 minutes	MS-LS2-1 MS-LS2-4 MS-ESS3-4
HS	***Hydropoly*** Students play a board game about wetlands management and economics, while honing their decision-making skills. Length: 45 min+	HS-LS2-7 HS-ESS3-4 HS-ENV2-6 HS-ENV4-2 HS-ENV6-2
MS-HS	***High Water History*** By calculating economic loss that results from flooding in a specific area, students investigate how people are affected by floods and other weather events. Length: 45 minutes	MS-ESS2-2 MS-ESS3-2 HS-ENV3-1
2nd-HS	***Incredible Journey*** With a roll of a cube, students simulate the movement of water within the water cycle. Students make a bracelet to track their journey. Middle school and high school students will also see how humans impact the movement of water. Length: 30-45 minutes; Setting: gym, large room, or outside	2-ESS2-3 5-ESS2-2 MS-ESSW-4 HS-ENV1-2

Grades	Lesson Name and Description	2023 Indiana Science Standards
MS-HS	***Invaders!*** Students will learn what aquatic invasive species are and then participate in a full-body movement game that simulates competition for habitat and resources; students will also create graphs and find out about prevention and management of aquatic invasive species. Length: 30-45 minutes; Setting: gym, large room, or outside	MS-LS2-4 HS-LS2-6 HS-ENV1-1 HS-ENV4-2
5th-MS	***Macroinvertebrate Mayhem*** Students play a game of tag to simulate the effects of environmental stressors on macroinvertebrate populations. Length: 30-45 minutes; Setting: gym, large room, or outside	5-LS2-1
3rd-5th	***Marsh Munchers*** Students use body movement and pantomime to simulate the feeding motions of marsh animals during this active game. Length: 30 minutes; Setting: gym, large room, or outside	3-LS4-3 4-LS1-1 5-LS2-1
MS-HS	***Migration Headache*** Students portray migrating waterbirds traveling between nesting habitats and wintering grounds during this active game. Students see how changes to habitats effects animal populations. Length: 30 minutes; Setting: gym, large room, or outside	MS-LS2-1 MS-LS2-2 MS-LS2-4 HS-LS2-7 HS-ENV1-2 HS-ESS3-6
4th-HS	***Storm Water*** Students learn how water travels through a community and how it can be managed. Students learn methods that city planners, water managers and landowners use that can reduce the impact of storm water runoff. Students will simulate how storm water runoff can be captured, stored and released. Length: 45 minutes+	4-ESS3-2 5-ESS2-1
5th-HS	***Super Bowl Surge*** Students learn how wastewater systems can be overwhelmed and then do in-depth research and present action plans to solve the problem of increased demands on a community's wastewater treatment plant. Length: 30 minutes+	5-ESS3-1 MS-ETS1-1 MS-ETS1-2 MS-ESS3-3 HS-LS2-7 HS-ENV4-2 HS-ETS1-3

Grades	Lesson Name and Description	2023 Indiana Science Standards
5th-HS	***Urban Waters*** Students participate in a demonstration of the urban water cycle, focusing on water's use, treatment, and return to the source. Length: 30 minutes	5-ESS3-1
MS-HS	***Water Chemistry*** Students perform water quality tests, learn how pollutants enter waterways, and discuss how to reduce or prevent this pollution. Tests may include: pH, nitrate, dissolved oxygen, and phosphate. Length: 30 minutes+	MS-LS1-5 MS-ESS3-3 HS-ENV1-5
MS-HS	***Water Quality? Ask the Bugs!*** Students conduct a simulated bioassessment of a stream by sampling aquatic macroinvertebrates. By learning the process by which macroinvertebrates are assessed, results are recorded and Pollution Tolerance Indexes are determined. Length: 30 minutes	MS-LS2-4 HS-LS2-6 HS-ENV1-1 HS-ENV1-5
4th-HS	***Watershed Demonstration*** Students participate in a demonstration that shows how water flows in a watershed and how everyday actions can pollute our waterways. Students then brainstorm ways to reduce or prevent this water pollution. Length: 30 minutes; Setting: best outside due to spills	4-ESS2-2 5-ESS2-1 5-ESS3-1 HS-LS2-7 HS-ESS3-4 HS-ENV5-3 HS-ENV4-2
4th-MS	***Water Taste Test*** Students will perform taste tests on water samples, discuss where our water comes from, and discover financial aspects of drinking water. Water samples may include bottled water; distilled water; filtered water; tap water from school; etc. Length: 30 minutes	Just for fun
MS	***What's in the Water?*** Students analyze the pollutants found in a hypothetical river. They graph the quantities of pollutants and recommend actions that could be taken to improve the habitat. Length: 30 minutes	MS-LS2-4 MS-ESS3-3