

Unit 1 Overview

WATER FOOTPRINT



This unit teaches learners that we all have environmental and water footprints, and it is up to us to take responsibility for their impact.

What's covered?

The lessons in this unit:

- Explore human roles in creating and solving environmental problems related to lifestyle choices, such as the products we buy, particularly plastics, and the food we eat.
- Emphasize ways to approach solutions through sustainability concepts and environmentally-friendly decisions.

About these lessons:

Standards: These lessons are aligned to: Next Generation Science Standards, National Council of the Social Studies, Common Core State Standards for English Language Art and Literacy, Framework for 21st Century Learning, Climate Literacy Principles, and Water Literacy Principles. See the **Overview Matrix** for a listing of lessons and the standards to which they are aligned.

Timing: The suggested lesson duration included in the lessons can be used as a guide for how long they should take, as each classroom is different. Depending on the size and length of each class, these lessons can be taught in one sitting or over a few days.

Content: Many of the topics in these lessons can evoke an emotional response from learners. Modify the lessons as needed to ensure they are appropriate for your learners. Anticipate the questions and responses these discussions and activities may elicit.

Essential questions for the unit:

How does my impact on the world affect me and other people and places?

How can I take responsibility for my impact?

The learning objectives of these lessons:

- Their actions have an environmental impact
- How their choices are reflected through their carbon and water footprints
- How to reduce their ecological footprints and make more sustainable decisions
- What single-use plastic items are and alternatives for them
- The environmental impact of food choices, related to plant-based vs. animal-based meals
- The 7 R's and how to integrate them in their lives

THE 5 LESSONS:

THE FIVE LESSONS IN THIS UNIT CAN BE TAUGHT AS A COMPLETE SET OR INDIVIDUALLY.

What's My Eco Footprint?

Learners consider their water and carbon footprints and create a diagram to reflect on their current habits and the changes they can make to decrease their impact on the Earth.

Herbivore vs. Omnivore Diet

Learners learn about the difference between plant-based and animal-based diets, and how the foods they choose to eat impact the environment.

Do You Know the 7 R's

Learners review the three R's (reduce, reuse, recycle) and discuss why we need four more R's (refuse, repurpose, repair, rot). They generate different ways to practice the 7 R's.

Break the Plastic Habit

Learners consider how they use plastic each day and their behaviors impact on the environment. They leave the lesson with practical solutions and ideas to reduce their daily use of plastic and are challenged to help others reduce their own plastic use.

Microplastics: Tiny Trouble

Learners research microplastics and their environmental impact, while considering positive actions they can take for the Earth.

Website suggestions:

Encyclopedia.com www.encyclopedia.com/environment/energy-government-and-defense-magazines/carbon-footprint

Marine Safe www.marinesafe.org/the-problem/single-use-plastic/

Plastic Free Challenge www.plasticfreechallenge.org/what-is-single-use-plastic

The National Ocean Service, National Oceanic and Atmospheric Administration oceanservice.noaa.gov/facts/microplastics.html

The Recycling Partnership, Solving for Circularity recyclingpartnership.org/recycling-101/

The Vegetarian Society www.vegsoc.org/info-hub/why-go-veggie/environment/



UNIT 1: WATER FOOTPRINT



Lesson 1: What's my Eco Footprint?

Next Generation Science Standards (NGSS)

5-ESS3-1. MS-ESS3-3.

National Council for the Social Studies

D2.Eco.1.3-5.

Common Core State Standards for English Language Arts & Literacy (ELA)

CCSS.ELA-LITERACY.SL.4.4, 5.4, 6.4, 7.4, 8.4

Framework for 21st Century Learning

Environmental Literacy

Water Literacy Principles

Water Connects All Earth Systems Water is a Natural Resource

Climate Literacy Principles

Human Activities are impacting the climate system. Climate change will have consequences for the Earth's systems and human lives.

Lesson 2: Herbivore vs Omnivore Diet

Next Generation Science Standards (NGSS)

5-ESS3-1 MS-ESS3-3

Common Core State Standards for English Language Art and Literacy (ELA)

CCSS.ELA-LITERACY.W.4.7, 5.7, 6.7

Climate Literacy Principles

Human activities are impacting the climate system Climate Change will have consequences for the Earth's systems and human lives.

Framework for 21st Century Learning

Global Awareness

Health Literacy

Water Literacy Principles

Water is Essential for All Life to Exist

Water Connects All Earth Systems

Water is a Natural Resource

Water Resources Exist within Social Constructs

Lesson 3: Do you know the 7 R's?

Next Generation Science Standards (NGSS)

5-ESS3-1.

MS-ESS3-3.

Framework for 21st Century Learning

Environmental Literacy

Global Awareness

Lesson 4: Break the Plastic Habit

Next Generation Science Standards (NGSS)

5-ESS3-1.

MS-ESS3-3.

National Council of the Social Studies (NCSS)

D2.Eco.1.3-5.

Common Core State Standards for English Language Art and Literacy (ELA)

CCSS.ELA LITERACY.SL.4.4, 5.4, 6.4

Water Literacy Principles

Water Connects All Earth Systems

Framework for 21st Century Learning

Environmental Literacy

Global Awareness

Lesson 5: Microplastics, Tiny Trouble

Next Generation Science Standards (NGSS)

5-ESS3-1.

Common Core State Standards for English Language Art and Literacy (ELA)

CCSS.ELA LITERACY.W.4.1, 5.1, 6.1, 7.1, 8.1

Framework for 21st Century Learning

Environmental Literacy

Global Awareness



UNIT 1: WATER FOOTPRINT



Lesson 1: What's my Eco Footprint?

Science Standards

3.ESS.1 3.ESS.2 3.ESS.3 4.LS.1

ELA Standards

W.3.2 W.3.8 W.4.2 W.4.8 W.5.9

Social Studies Standards

4th Grade Geography 12: People have modified the environment throughout history resulting in both positive and negative consequences in Ohio and the United States.

4th Grade Economics 20: Tables and charts organize data in a variety of formats to help individuals understand information and issues.

5th Grade Economics 14: The choices made by individuals and governments have both present and future consequences.

6th Grade Economics 12: The choices made by individuals and governments have both present and future consequences. The evaluation of choices is relative and may differ across individuals and societies.

8th Grade Government 20: Active participation in social and civic groups can lead to the attainment of individual and public goals.

Lesson 2: Herbivore vs. Omnivore Diet

Science Standards

3.ESS.2 3.ESS.3 3.LS.3 4.LS.1 5.LS.1 6.LS.4 7.LS.1 7.LS.2 8.LS.1

ELA Standards

W.3.8 W.4.2 W.5.9 W.6.1

Lesson 3: Do you know the 7 R's?

Science Standards

3.ESS.1 3.ESS.2 3.ESS.3

ELA Standards

W.3.8 W.4.2 W.5.9

Social Studies Standards

6th Grade Economics 12: The choices made by individuals and governments have both present and future consequences. The evaluation of choices is relative and may differ across individuals and societies.

8th Grade Government 20: Active participation in social and civic groups can lead to the attainment of individual and public goals.

Lesson 4: Break the Plastic Habit

Science Standards

3.ESS.1 3.ESS.2 3.ESS.3 7.ESS.1

ELA Standards

W.3.2 W.3.8 W.4.2 W.4.8 W.5.9

Social Studies Standards

4th Grade Economics 20: Tables and charts organize data in a variety of formats to help individuals understand information and issues.

5th Grade Economics 14: The choices made by individuals and governments have both present and future consequences.

8th Grade Government 20: Active participation in social and civic groups can lead to the attainment of individual and public goals.

Lesson 5: Microplastics, Tiny Trouble

Science Standards

3.ESS.1 3.ESS.2 3.ESS.3 7.ESS.1

ELA Standards

W.3.2 W.3.8 W.4.2 W.4.8 W.5.9

Social Studies Standards

4th Grade Economics 20: Tables and charts organize data in a variety of formats to help individuals understand information and issues.

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