



CLIMATE CHANGE & WATER

This unit focuses on learners gaining an understanding about the connections between water and climate change. It emphasizes how equity issues influence current and future impacts and outcomes for humans and the planet.

What's covered?

The lessons in this unit:

- Explore why climate change is happening, how it impacts people and the Earth in different ways, and what can be done to adapt and mitigate to achieve a more sustainable future.
- Emphasize the importance of human choices and actions in helping to solve climate change and water security issues, both locally and globally.

Topics include: greenhouse gases, climate change, adaptation and mitigation strategies, water equity, climate justice, and how to be a changemaker.

About these lessons:

Standards: 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, Water Literacy Principles. See the Overview Matrix for a listing of lessons and the standards to which they are aligned (LINK).

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:

What are the connections between climate change and water issues?

What effects do these issues have on humans and the Earth?

The Learning Objectives of these lessons:

- Science related to greenhouse gases and their connection to human-induced climate change.
- How climate change affects them, their local community, and other parts of the world.
- Climate change impacts manifest in issues such as: flooding, drought, water quality problems and climate migration.
- How adaptation and mitigation strategies can reduce climate change impacts.
- The connections between climate change issues, climate justice, water equity and institutional racism.
- The relationship between climate change and water security problems.
- How to take action to be a positive changemaker related to climate change and water issues.

**Note: modify lessons and terms as needed for your learners ages as you see fit*

THE 5 LESSONS:

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

The Problem with Greenhouse Gases

Learners understand greenhouse gases, how they impact the climate, and humans' contribution to the advancement and impact of climate change. They do this by watching brief videos, developing a model and making a commitment to reduce their reliance on fossil fuels.

Too Much, Too Little, Too Dirty

Learners learn about climate change through a brief documentary that focuses on impacts in Tanzania, create a mind map of climate change implications in different parts of the world, and consider positive local actions that can have global results.

Climate Change Where We Live

Learners research and discuss how climate change and related water issues impact their own and other communities, and understand how adaptation and mitigation strategies can reduce this impact.

It's Intersectional

Learners learn about the equity and justice issues connected to climate change and water, research related issues and plan for a transformed future.

Water Security + Climate Change Wavemakers

Learners investigate how to make positive change in the world through brainstorming, examples, and reflecting on their own strengths. They use climate change and water security issues as a base to design a real-world project that they present to their classmates.

UNIT 3: CLIMATE CHANGE AND WATER



Lesson 1: The Problem with Greenhouse Gasses

Next Generation Science Standards (NGSS)

MS-ESS3-5. MS-ETS1-2.

Framework for 21st Century Learning

Environmental Literacy

Climate Literacy Principles

The sun is the primary source of energy for Earth's climate system.

Climate is regulated by complex interactions among components of the earth's system. Life on Earth depends on, is shaped by, and affects climate. Our understanding of the climate system is improved through observations, theoretical studies, and modeling. Human activities are impacting the climate system. Climate change will have consequences for the Earth system and human lives.

Lesson 2: Too Much, Too Dirty, Too Little

Next Generation Science Standards (NGSS)

5-ESS3-1. MS-ESS3-2

National Council of the Social Studies (NCSS)

D2.Eco.1.3-5. D2.Geo.10.3-5. D2.Geo.5.6-8.

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

CCSS.ELA-LITERACY.W.4.2, 5.2, 6.2

Framework for 21st Century Learning

Environmental Literacy Global Awareness Health Literacy

Climate Literacy Principles

Climate is regulated by complex interactions among components of the earth system. Life on Earth depends on, is shaped by, and affects climate. Human activities are impacting the climate system. Climate change will have consequences for the Earth's systems and human lives.

Water Literacy Principles

Water is Essential for All Life to Exist Water is a Natural Resource
Water Resources are Managed Water Resources Exist within Social Constructs

Lesson 3: Climate Change Where We Live

Next Generation Science Standards (NGSS)

5-ESS3-1. MS-ESS3-2. MS-ESS3-3.

National Council of the Social Studies

D2.Eco.1.3-5. D2.Geo.10.3-5. D2.Geo.5.6-8.

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

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

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

CCSS.ELA-LITERACY.W.4.2, 5.2, 6.2

Framework for 21st Century Learning

Environmental Literacy Global Awareness

Water Literacy Principles

Water Resources Are Managed
Water Resources Exist within Social Constructs

Climate Literacy Principles

Life on Earth depends on, is shaped by, and affects climate. Human activities are impacting the climate system. Climate change will have consequences for the Earth's systems and human lives.

Lesson 4: It's Intersectional

Next Generation Science Standards (NGSS)

5-ESS3-1

National Council of the Social Studies

D2.Civ.6.6-8.

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

CCSS.ELA-LITERACY.SL.4.4, 5.4, 6.4 CCSS.ELA-LITERACY.W.4.2, 5.2, 6.2

Framework for 21st Century Learning

Environmental Literacy Global Awareness

Water Literacy Principles

Water Resources Are Managed Water Resources Exist within Social Constructs

Climate Literacy Principles

Climate change will have consequences for the Earth's systems and human lives.

Lesson 5: Water Security + Climate Change Wavemakers

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

CCSS.ELA-LITERACY.SL.4.4, 5.4, 6.4 CCSS.ELA-LITERACY.W.4.2, 5.2, 6.2

Framework for 21st Century Learning

Environmental Literacy Global Awareness

Water Literacy Principles

Water Resources Are Managed Water Resources Exist within Social Constructs

Climate Literacy Principles

Climate change will have consequences for the Earth's systems and human lives.

UNIT 3: CLIMATE CHANGE AND WATER



Lesson 1: The Problem with Greenhouse Gasses

Science Standards

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

ELA Standards

W.3.8 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.

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: Too Much, Too Dirty, Too Little

Science Standards

3.ESS.1 4.ESS.2 7.ESS.1 7.ESS.2 3.ESS.3 4.LS.1

ELA Standards

W.3.8 W.5.9

Social Studies Standards

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

Lesson 3: Climate Change Where We Live

Science Standards

3.ESS.1 3.ESS.3 7.ESS.2 3.ESS.2 4.LS.1

ELA Standards

W.3.2 W.3.8 W.5.9 W.6.1

Social Studies Standards

8th Grade Geography 18: Cultural biases, stereotypes, and prejudices had social, political, and economic consequences for minority groups and the population as a whole.

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

Lesson 4: It's Intersectional

Science Standards

3.ESS.3 7.ESS.2

ELA Standards

W.3.2 W.4.8 W.5.9 W.6.1

Social Studies Standards

7th Grade Government 16: Analyzing individual and group perspectives are essential to understanding historic and contemporary issues. Opportunities for civic engagement exists for students to connect real-world issues and events to classroom learning.

8th Grade Geography 18: Cultural biases, stereotypes, and prejudices had social, political, and economic consequences for minority groups and the population as a whole.

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

Lesson 5: Water Security + Climate Change Wavemakers

Science Standards

3.ESS.3 7.ESS.2

ELA Standards

W.3.8 W.4.8 W.5.9 W.6.1

Social Studies Standards

7th Grade Government 16: Analyzing individual and group perspectives are essential to understanding historic and contemporary issues. Opportunities for civic engagement exists for students to connect real-world issues and events to classroom learning.

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

