SUU SOUTHERN UTAH UNIVERSITY

Southern Utah University – Teacher Education
Daily Lesson Plan (Updated: 20230106)

PPAT Directions
Click "Task" Buttons Throughout Template
TASK 1 TASK 2 TASK 3 TASK 4

Essential Data for Plan TASK 1 TASK 3	Name		Date		Grade Level & Content Area	5th grade Science & Engineering Education (SEEd)	Estimated Instruction Time	45 min
Utah Core Standard(s): ** Standards indicate what students should know or be able to do by the end of term/year.* ** Standards are copied here verbatim from the Utah Education Network website.*	**Standard 5.3.4** Evaluate **design solutions** whose primary function is to conserve Earth's environments and resources. *Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.* Emphasize how humans can balance everyday needs (agriculture, industry, and energy) while conserving Earth's environments and resources. (ESS3.A, ESS3.C, ETS1.A, ETS1.B, ETS1.C)							
Learning Objective(s): ** Objectives are single sentence statements of intended learning. Objectives break standards/learning into smaller steps.* ** Objectives begin with* Students will be able to…	Students will be able to evaluate design solutions that balance human needs with environmental conservation. Students will be able to define problems, identify criteria and constraints, analyze data, and determine optimal solutions.							
Materials & Technology: ** List what is needed to teach this lesson.*	Slide Show: Unit 5: Lesson 3 Vocab: Vocabulary Worksheet (Fill in the blank or write it out) Worksheet: Unit 5: Lesson 3 Worksheet Measuring Cup Calculator Sink Test: Unit 5: Lesson 3 Assessment Test Answers: Unit 5: Lesson 3 Assessment Test ANSWERS Exit Ticket							

LESSON COMPONENTS

Planning Elements	Action Steps TASK 3	Evidence of Learning TASK 2 TASK 3	Meet Learner Differences TASK 2 TASK 3
	** What will **students** and **teachers** do together in this lesson?* *• Describe instructional strategies and learning activities–**listening is not sufficient**.*	** Describe activities students complete that provide evidence of learning.* ** How will you know **all** students have learned?* *• Identify criteria that connect to learning objectives and standard(s).*	** Identify evidence-based practices to meet specific individual/group learner needs.* ** Consider content, process, product, and/or environment.*

	** Outline each component's steps and how long they will take.*		
BEGINNING	Use Unit 5 Lesson 3 Slides: Unit 5: Lesson 3 (Slide 2/3) Intro Discussion: Ask students • What types of human activities are you familiar with that harm the environment? • What types of human activities are you familiar with that help protect the environment? (3min)	x	A print out of the slides can be provided for those that have difficulties with following along slideshow presentations.
MIDDLE	**Lecture:** Google Slides (Slide 4-13) Have students follow along with the Vocab Sheet. (10 min) **Group Activity:** (Slide 14) Hand out worksheet and divide students into groups of 2-3. Have each group use the sink to measure out water for 6 seconds. Students will then fill out worksheet together to calculate the amount of water for: each minute each shower and each year. (15 min) Lecture: Slide 15 Discussion and any questions. Assessment Test (12 min)	Vocabulary Worksheet Unit 5: Lesson 3 Worksheet **Completed Worksheets:** The vocabulary worksheet and group activity will show that the students will have an understanding in water usage, conservation, and the things that affect the preservation of the environment. Unit 5: Lesson 3 Assessment Test **Assessment:** The assessment will provide tangible evidence of their understanding of solutions that balance human needs with environmental conservation. Unit 5 Lesson 3: Rubric	For those students that may struggle with math concepts on the worksheet, a calculator will be provided, and the worksheet helps to lay out the math concepts for the students.
END	Review the importance of Reduce, Reuse, Recycle and hand out the exit ticket for the lesson.	Exit Ticket: The exit ticket will provide an overall short assessment of the entire lesson, and bring it to a close. Students should be able to provide at minimum one example to reduce water usage.	x

NAME: _____

Unit 5: Lesson 3 Vocabulary

Key Terms:		
	Human Population	Natural Resources
Species	Renewable Resource	Nonrenewable Resource
	Conservation	Wildlife Preserve

_____: The number of humans living in a particular area.

_____: Materials or substances such as minerals, forests, water and fertile land that occur in nature and are necessary or useful to humans.

_____: A natural resource that is replenished by natural processes at a rate comparable to its rate of consumption.

_____: A resource that will not return, or renew, or will only return after a long period of time.

_____: A group of animals, plants, or other living things that all share common characteristics.

_____: Protected natural areas that are important in maintaining biodiversity or conducting scientific study.

_____: Prevention of wasteful use or protection of natural resources.

NAME: _____

Unit 5: Lesson 3 Vocabulary

Key Terms:		
	Human Population	Natural Resources
Species	Renewable Resource	Nonrenewable Resource
	Conservation	Wildlife Preserve

1. Human Population: _____
_____
2. Natural Resources: _____
_____
3. Renewable Resource: _____
_____
4. Nonrenewable Resource: _____
_____
5. Species: _____
_____
6. Wildlife Preserve: _____
_____
7. Conservation: _____
_____

Unit 5: Lesson 3 Worksheet

Learn how to calculate the amount of water you use in an entire year!

Step 1: Place your measuring cup under the water for *SIX* seconds.

Water Measurement: _____

Step 2: Calculate the average water measurement per minute.

_____ X 10 = _____
(Step 1 Amount) (Step 2 Answer)

Step 3: Write down the estimated number of minutes you take a shower. _____
(Hint: Average Shower Length = 8 minutes.)

Step 4: Take the number of minutes and multiply it by the length of your shower.

_____ X _____ = _____
(Step 2 Answer) (Step 3 Answer)

Step 5: Calculate how much water you use in a year.

_____ X 365 = _____
(Step 3 Answer)

Unit 5: Lesson 3 Assessment Test

Section 1: Fill in the Vocabulary

A. Human Population	B. Natural Resources	C. Renewable Resources
D. WildLife Preserve	E. Conservation	F. Non-Renewable Resources

1. _____ Prevention of wasteful use or protection of natural resources.
2. _____ Materials or substances such as minerals, forests, water and fertile land that occur in nature and are necessary or useful to humans.
3. _____ Protected natural areas that are important in maintaining biodiversity or conducting scientific study.
4. _____ A natural resource that is replenished by natural processes at a rate comparable to its rate of consumption.
5. _____ A resource that will not return, or renew, or will only return after a long period of time.
6. _____ The number of humans living in a particular area.

Section 2: Answer the Questions

7. The United States uses an estimated _____ million tons of waste each year.
    a. 75
    b. 100
    c. 200
    d. 275

8. The average American home uses an estimated _____ gallons of water.
    a. 100
    b. 200
    c. 300
    d. 400

9. We can recycle
    a. Plastic
    b. Cardboard
    c. Aluminum
    d. All of the above

10. What does plastic do?
    a. Dissolve
    b. Get smaller
    c. Get bigger
    d. Nothing

11. Freshwater comes from?
    a. The Ocean
    b. A River
    c. A Pool

12. What is wildlife conservation?
    a. The practice of protecting wildlife
    b. Going to the zoo
    c. Adopting a pet

Unit 5: Lesson 3 Assessment ANSWERS

Section 1: Fill in the Vocabulary

1. E
2. B
3. D
4. C
5. F
6. A

Section 2: Answer the Questions

7. D
8. C
9. D
10. B
11. B
12. A

Unit: 5 Lesson: 3 : Human Impact on the Environment Rubric

Standard	Criteria	3 - GREAT JOB	2 - Making Progress	1 - Let's Work on This
Standard 5.3.4 Emphasize how humans can balance everyday needs (agriculture, industry, and energy) while conserving Earth's environments and resources.	Worksheet	All elements of the worksheet are correctly identified and placed with clear understanding of their roles.	Some elements of the worksheet are correctly identified but there are a few errors in placement or understanding.	Many elements of the worksheet are incorrectly identified or misplaced.
Standard 5.3.4 *Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.*	Assessment	All elements of the test are correctly identified and placed with clear understanding of their roles.	Some elements of the test are correctly identified but there are a few errors in placement or understanding.	Many elements of the test are incorrectly identified or misplaced.
Standard 5.3.4 Emphasize how humans can balance everyday needs (agriculture, industry, and energy) while conserving Earth's environments and resources.	Engagement and Participation	All group members actively participated in the activity and presentation, showing high levels of engagement.	Some group members participated, but there was a noticeable lack of engagement from others.	Few group members participated, with minimal engagement and effort.
	Exit Ticket	Exit Ticket included a complete thought.	Exit Ticket was answered without a complete thought.	No Exit Ticket turned in.

Unit 5: Lesson 3 Exit Ticket

EXIT TICKET Name:

WHAT ARE SOME WAYS HUMANS CAN REDUCE OUR USE OF Water AS AN ENERGY SOURCE?

EXIT TICKET Name:

WHAT ARE SOME WAYS HUMANS CAN REDUCE OUR USE OF Water AS AN ENERGY SOURCE?

Unit 5: Cycling of Matter in the Ecosystem

Lesson 3: Human Impact on the Environment

WHAT ARE THE HUMAN IMPACTS ON THE ENVIRONMENT?

The huge growth of human population since the Industrial Revolution created a negative impact on the natural environment.

Increased water consumption and pollution have damaged many ecosystems. Changes to human behaviors such as the types of products we use, conserving water, and the way we live with other species can help reduce our impact on the planet.

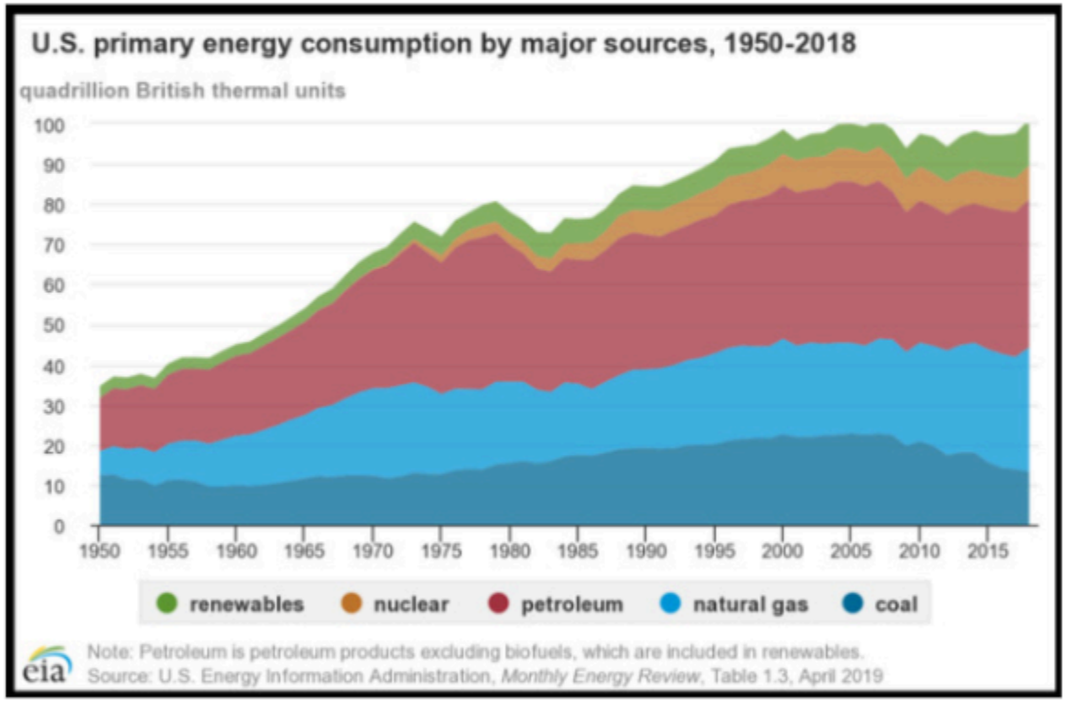
Let's Talk about it!

What types of human activities are you familiar with that harm the environment?

Vocabulary Words

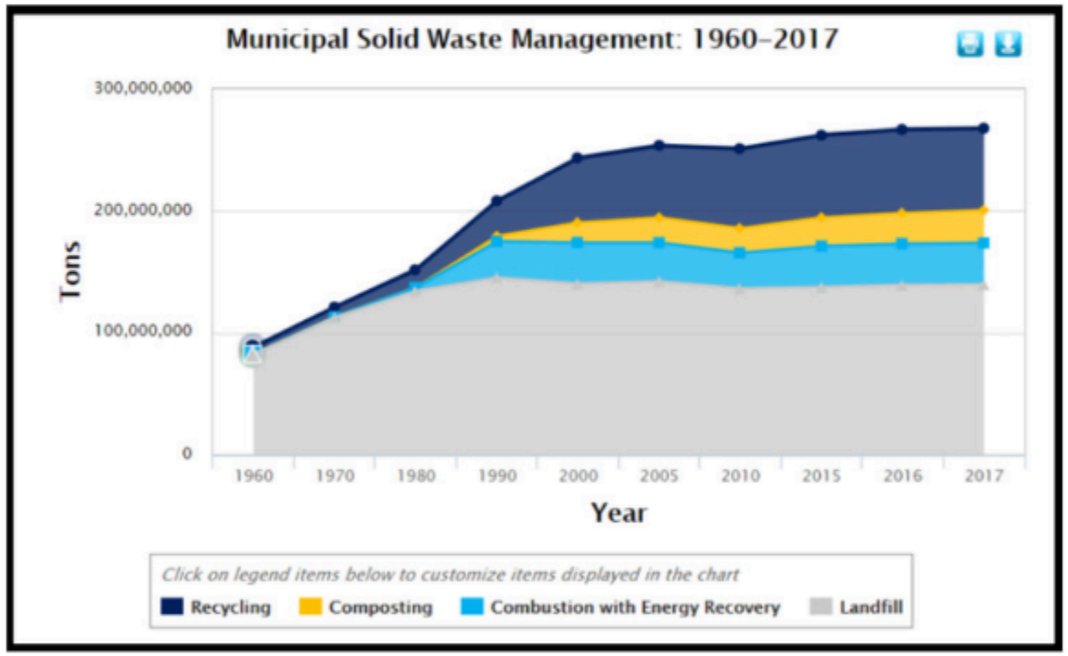
- Human Population: The number of humans living in a particular area.
- Natural Resources: Materials or substances such as minerals, forests, water and fertile land that occur in nature and are necessary or useful to humans.
- Renewable Resource: A natural resource that is replenished by natural processes at a rate comparable to its rate of consumption.
- Nonrenewable Resource: A resource that will not return, or renew, or will only return after a long period of time.
- Species: A group of animals, plants, or other living things that all share common characteristics.
- Wildlife Preserve: Protected natural areas that are important in maintaining biodiversity or conducting scientific study.
- Conservation: Prevention of wasteful use or protection of natural resources.

Energy Usage



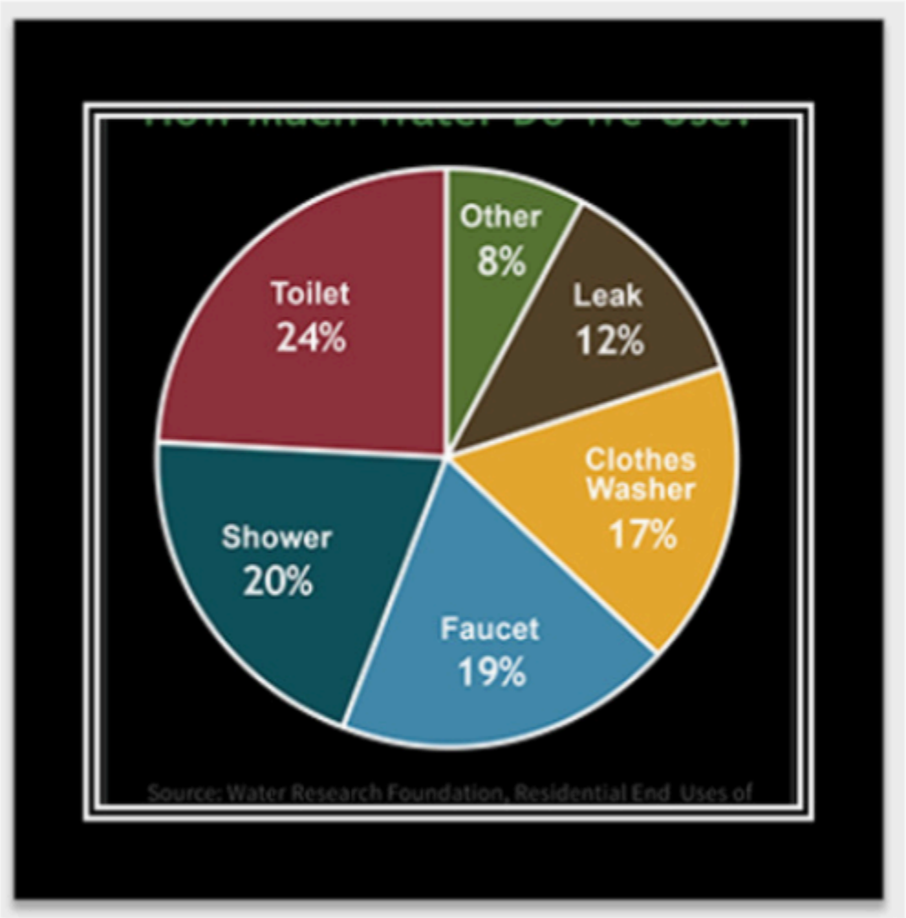
The United States uses close to 100 quadrillion BTU of energy from different sources. The majority of the energy consumed comes from fossil fuels.

Energy Usage



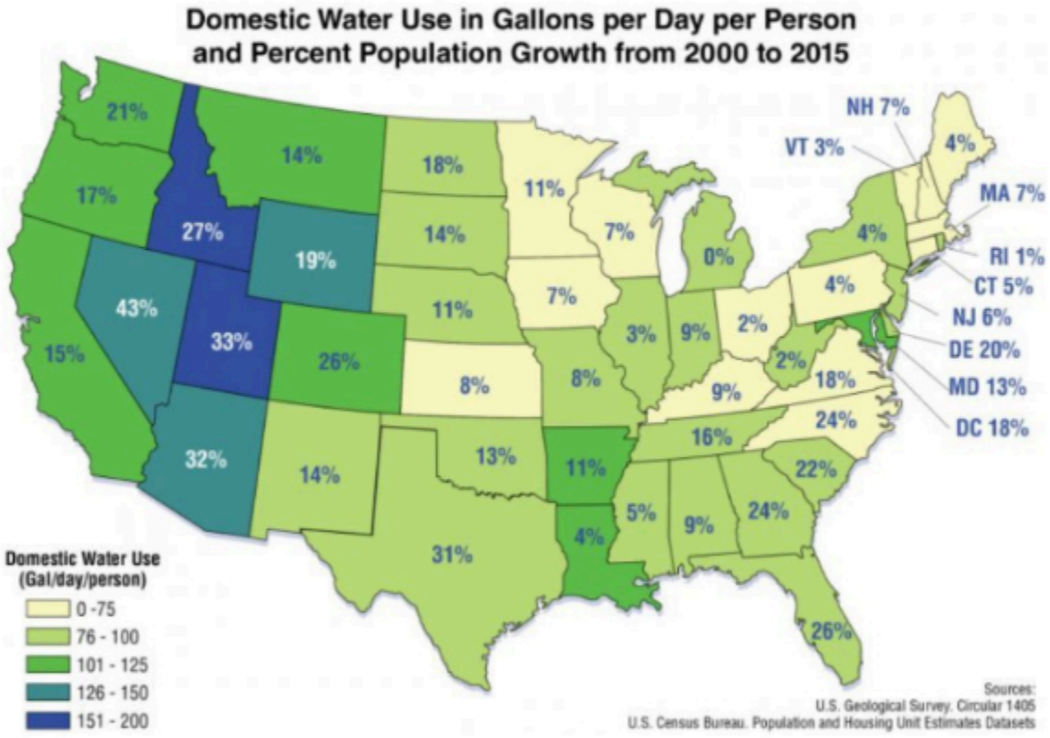
The United States uses about 275 million tons of waste each year.

Water Usage



The average American home uses 300 gallons of water.

Water Usage



In the state of Utah, we use more gallons of water per day per person than most states. We also have a large population growth of 33%.

Human Population Growth

Modern humans have been around for about 300,000 years.

Around the mid-1700s, the world's human population grew by about 57% to 700 million people due to the start of the Industrial Revolution.

In the 250 years since the Industrial Revolution, the world population has increased by 6 billion people and is predicted to continue to grow to a total of 8.6 billion by 2030.

Reduce, Recycle, and Reuse

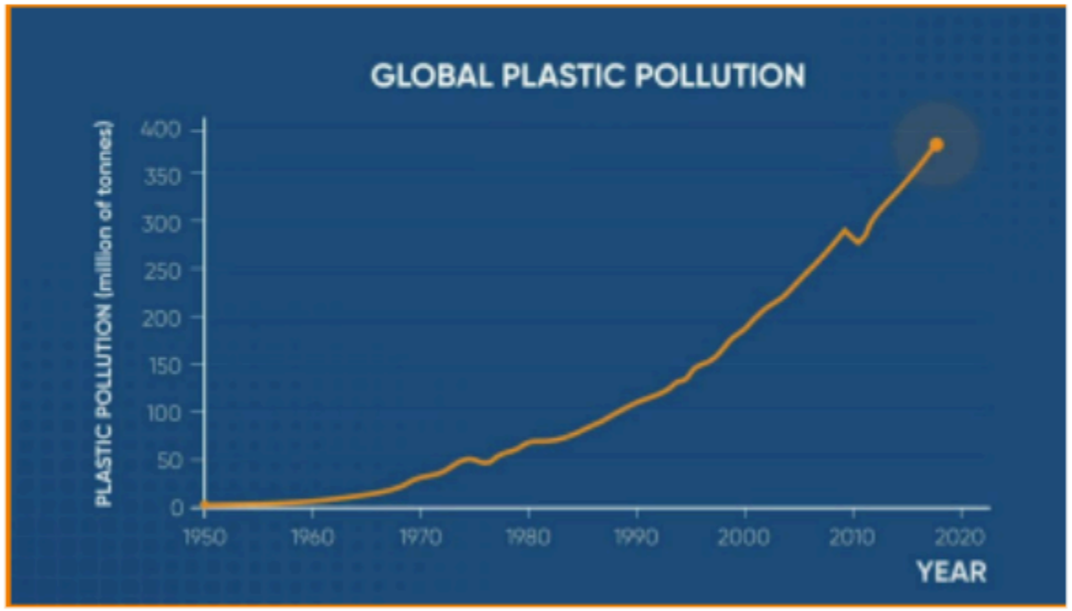
Raw materials from the Earth and energy are needed to create, package, and transport new products to stores and homes.

Reusing products such as clothing, building materials, and storage containers helps reduce the amount of waste produced.

Recycling is another way to reduce waste. Things like plastic soda bottles can be recycled into clothing and paper can be recycled into new paper products.

By following your local guidelines, you can recycle your aluminum, cardboard, glass, paper, and even yard waste to help make a positive impact in your community.

Plastics in our Environment



Scientists estimate that more than 8.3 billion tons of plastic has been produced since the 1950s.

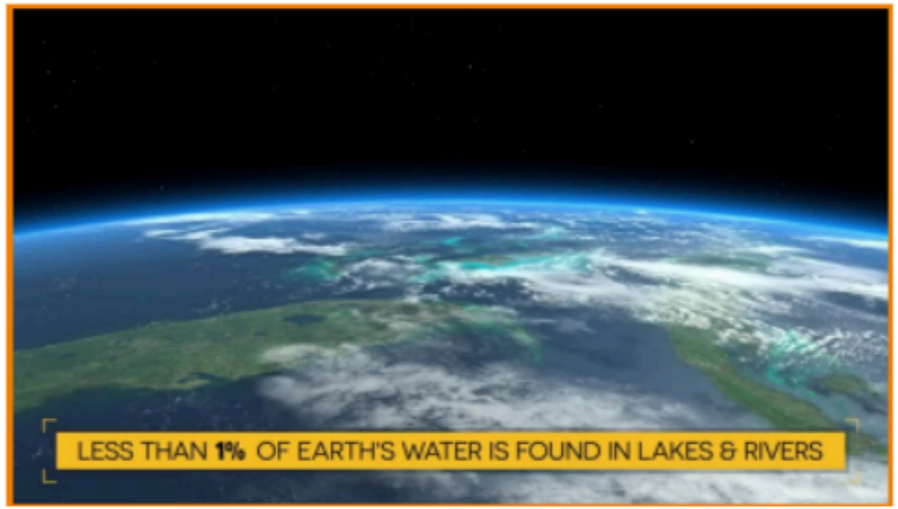
About 60% of that plastic has ended up in either a landfill or the natural environment.
About 8 million tons of plastics end up in the world's oceans every year.

Whether in a river, ocean, or land, plastics can remain in the environment for centuries since they are non biodegradable.

Most plastics never fully disappear, they just get smaller and smaller over time.

If the current trends continue, our oceans could contain more plastic than fish by 2050.

Freshwater Conservation and Production



Freshwater is a natural resource that is slowly disappearing.

The U.S. Environmental Protection Agency (EPA) has developed federal requirements mandating water conservation that has produced significant results.

Simple changes in human behavior such as turning off the water while you brush your teeth or watering plants in the early morning or late evening all help to conserve water.

Although freshwater sources are limited, there is plenty of saltwater in our oceans.

Ocean water can be desalinated through a process driven by electricity called reverse osmosis to reduce the dissolved salt content in water so that it is suitable for human consumption or irrigation.

Currently, there is only about 1% of the world's population that is dependent on desalinated water to meet daily needs, but this is expected to grow as freshwater becomes scarcer.

Wildlife Conservation

Wildlife conservation is the practice of protecting plant and animal species and their habitats.

The goal is to ensure the survival of these species and to educate people on living sustainably with other species.

Wildlife preserves are protected areas that are important to maintaining the biodiversity of an area and are also used for scientific study.

Conservation biologists have helped protect public lands and write legislation such as the Endangered Species Act of 1973 in the United States to protect various species.

Activity Time!

Learn how to calculate the amount of water you use in an entire year!
Get into groups of 2-3 students

Supplies:

- Measuring Cup
- Calculator
- Sink

Instructions

1. Start by collecting water from the sink into the container for exactly 6 seconds.
2. Take that measurement and multiply it by 10 to calculate how much water you used each minute the shower was on.
3. Then use the stopwatch to calculate how long your shower takes. You can also just estimate this number.
4. Take the number of minutes and multiply it by the amount of water your shower puts out each minute (from step 2). That tells you how much water you use each time you shower.
5. To find out how much water you use for showering in a year, multiply the number from step 4 by the number of days in a year (365).

Let's Talk about it!

What types of human activities are you familiar with that help protect the environment?