

# Teaching Water Conservation with the Water Footprint Calculator

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**watercalculator.org**  
**calculadoradeagua.org**



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## GRACE Communications Foundation

- A non-profit dedicated to creating a more sustainable food system.
- Developed the Water Footprint Calculator to raise awareness about how people in the United States use water throughout their day.

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## Today's Agenda

- Introductions & Questions for Participants
- Presentation
  - How do we use water? - Robin
  - What are water footprints? - Kai
- Discussion: How can we educate students about their water use?

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## Questions to Consider During the Discussion

- Introduce yourself.
- How do you teach about water in your particular setting?
- What topics are most pertinent to you in your particular setting/location?
  - water scarcity?
  - water/agriculture issues?
  - water pollution?
  - something else?

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How many gallons of water do you think you use in a day, for all uses?

- 250 gallons?
- 500 gallons?
- 1,800 gallons?
- 5,000 gallons?

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## Is there more to water than the water cycle?

- Teaching about water sometimes means teaching about the water cycle and sometimes water pollution and conservation - it can be limited.
- Water education incorporates hydrology and aquatic biology, natural resource management and climate science and even social sciences and the arts.
- Educators who want to go beyond the water cycle might not know where to start.
- In order for students to understand why water issues and water conservation matter, they first have to understand how and why they use water.

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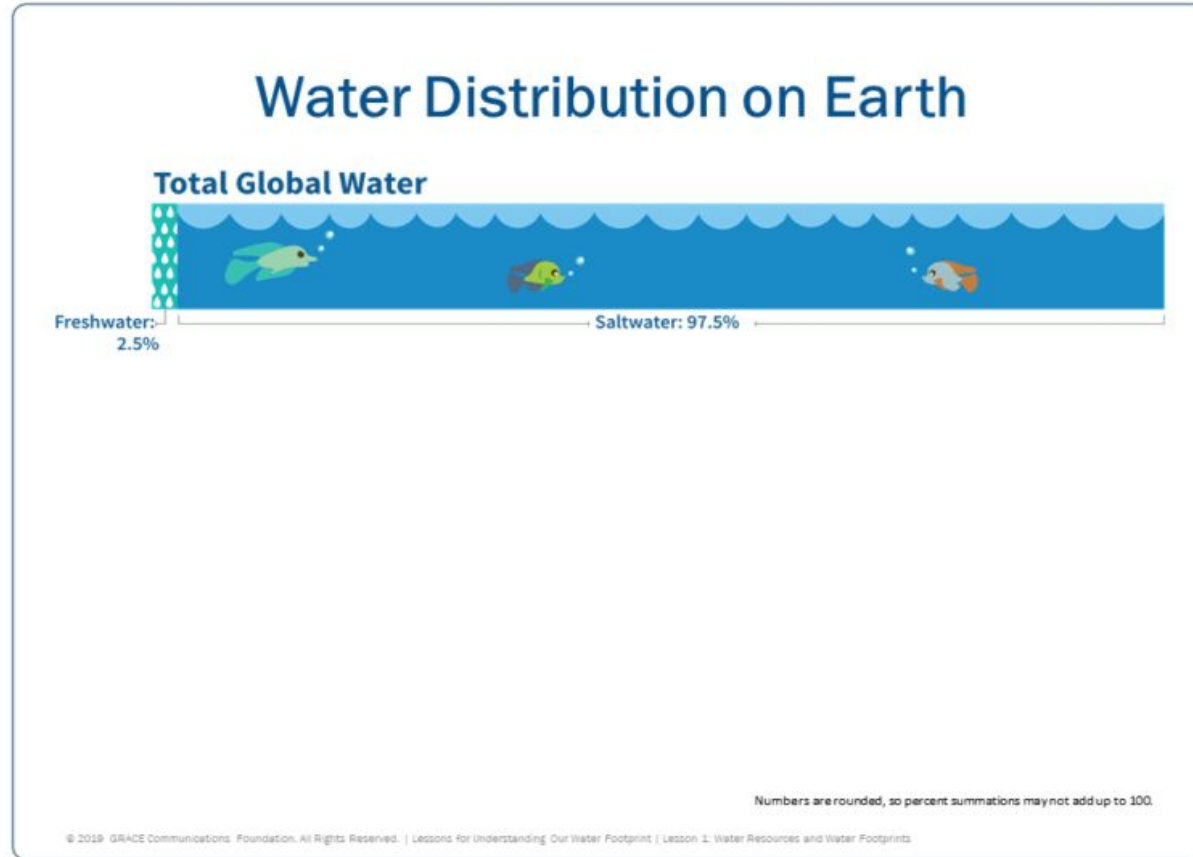
## The Many Ways We Use Water

**How many uses can you identify in this illustration?**

We want students to learn that the ways they use water in different parts of their life is important because there is increasing strain on water resources.

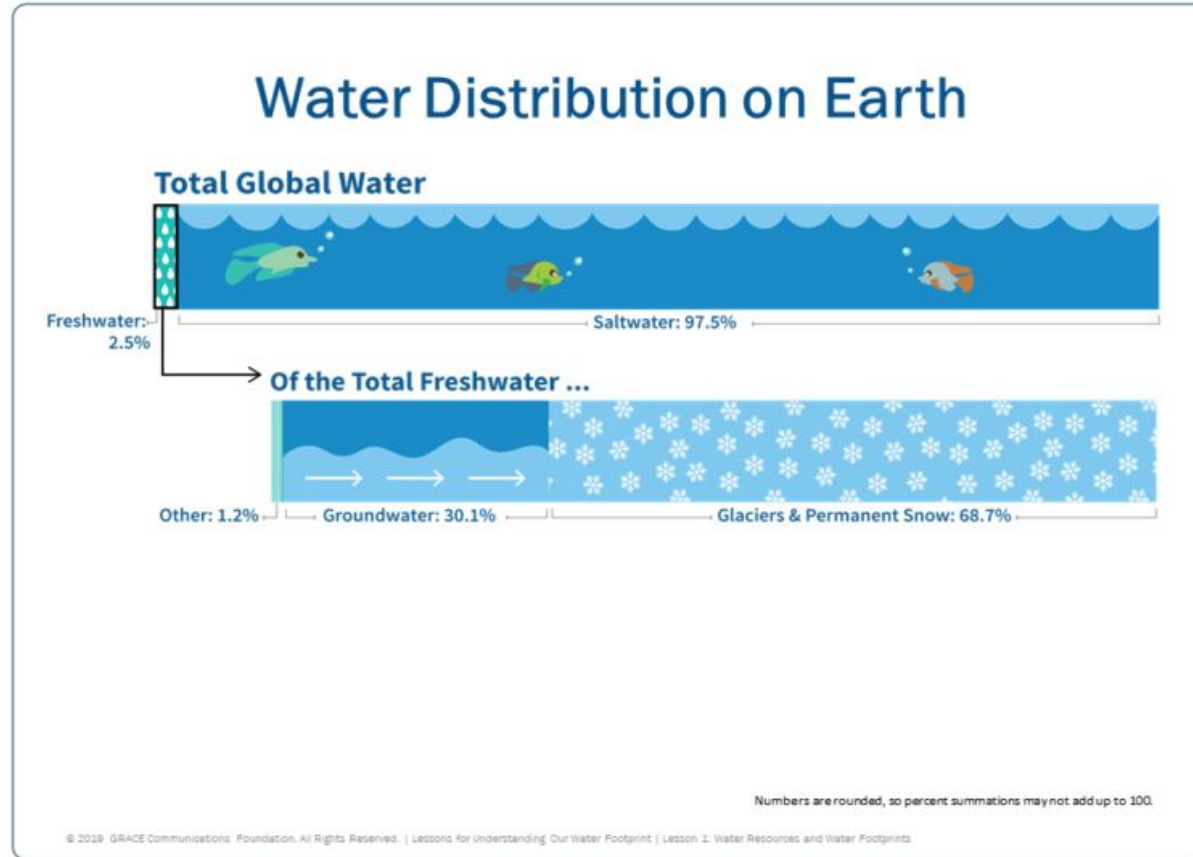


# Water is Finite: How is it Distributed on the Planet?

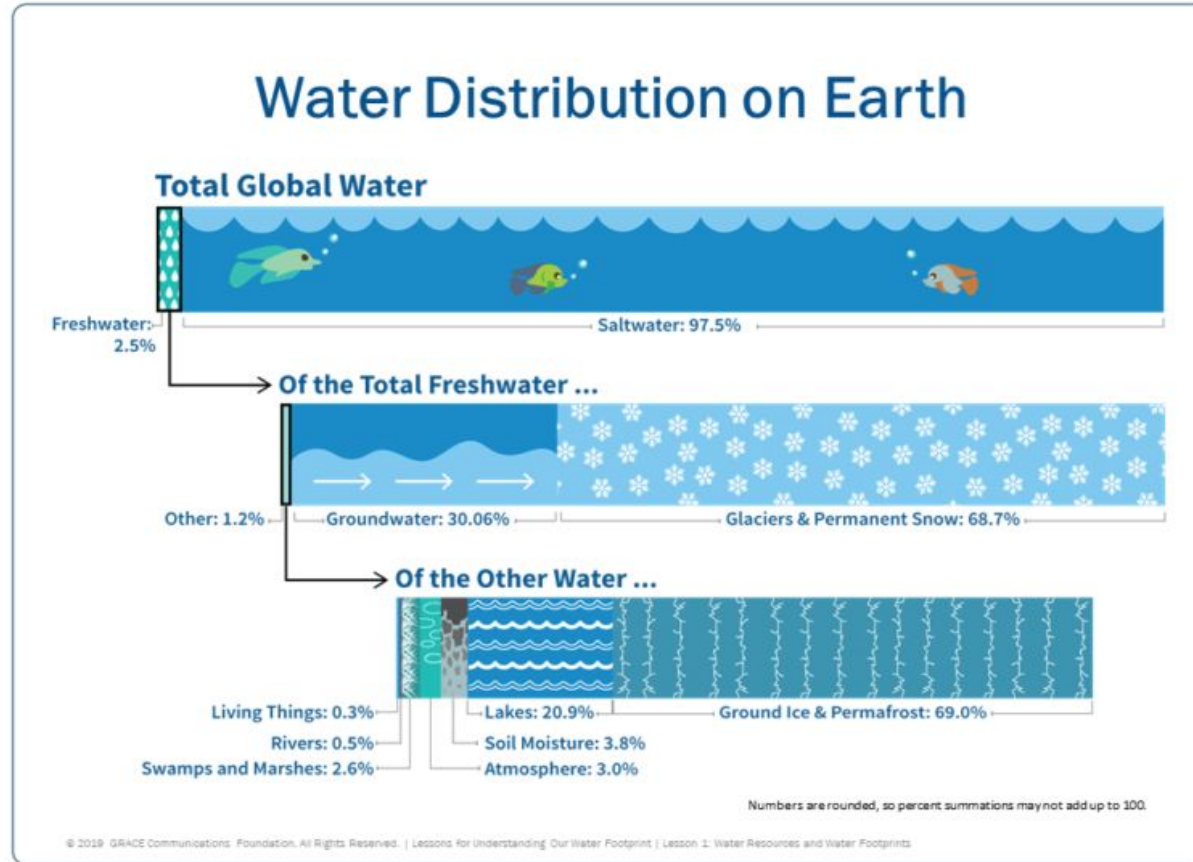




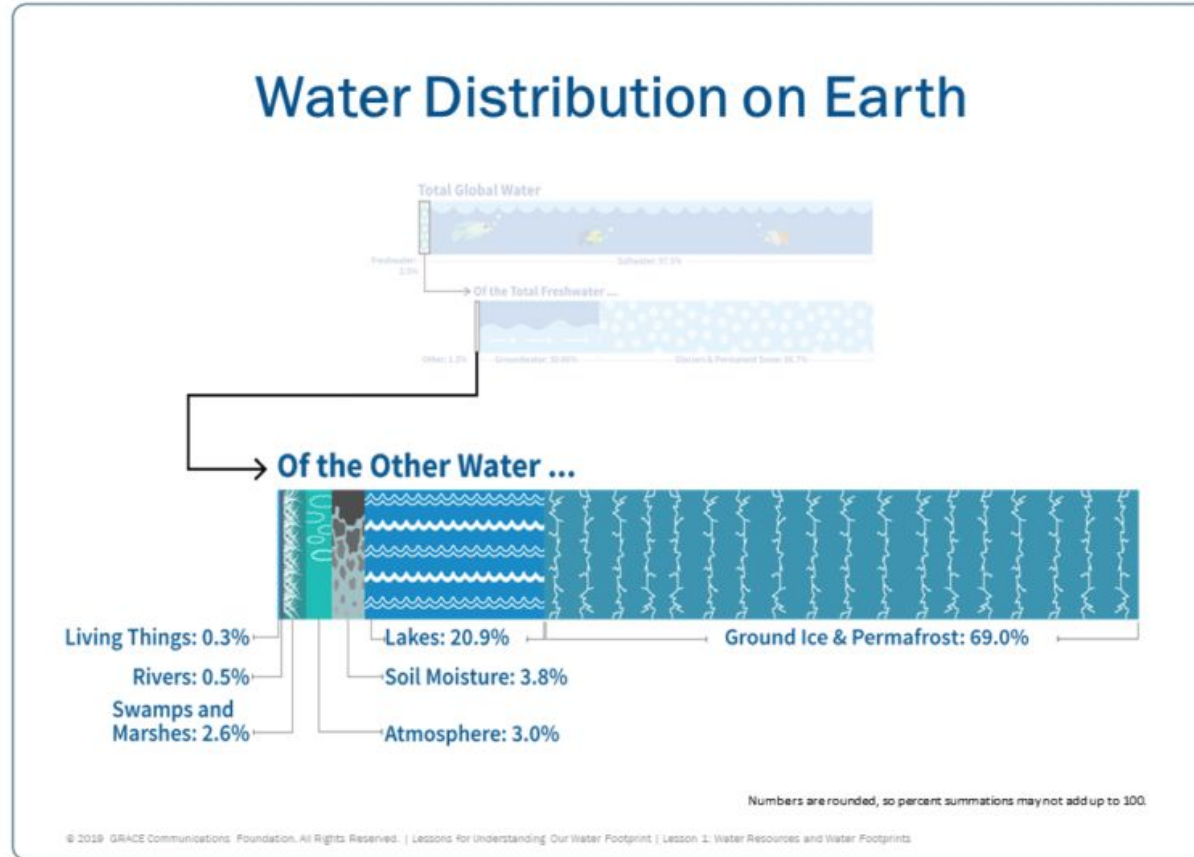
## Water is Finite: How is it Distributed on the Planet?



# Water is Finite: How is it Distributed on the Planet?



# Water is Finite: How is it Distributed on the Planet?



## How Do We Use Water?

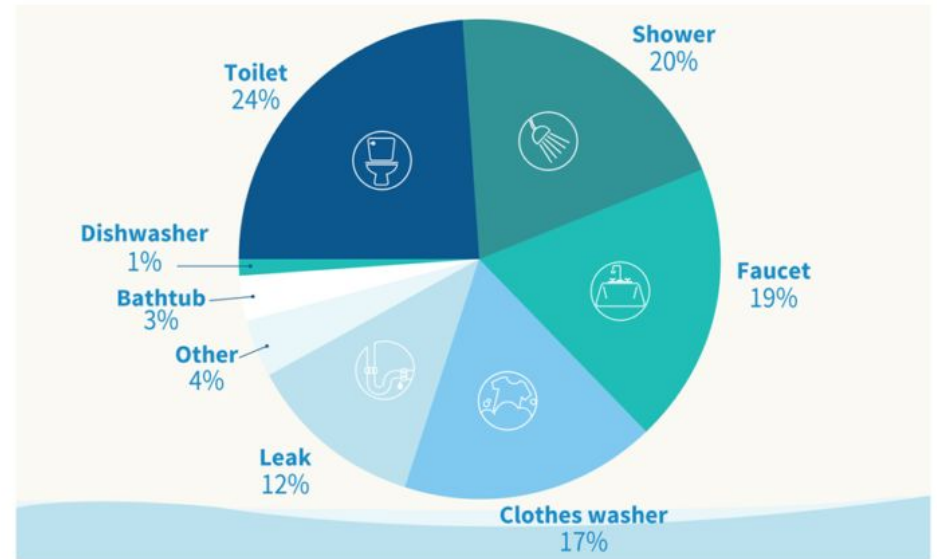


## How Do We Use Water?

A breakdown of our indoor water use in the United States reveals where we use the most water.

**Are you surprised by these results?**

Daily Direct Water Use in the United States



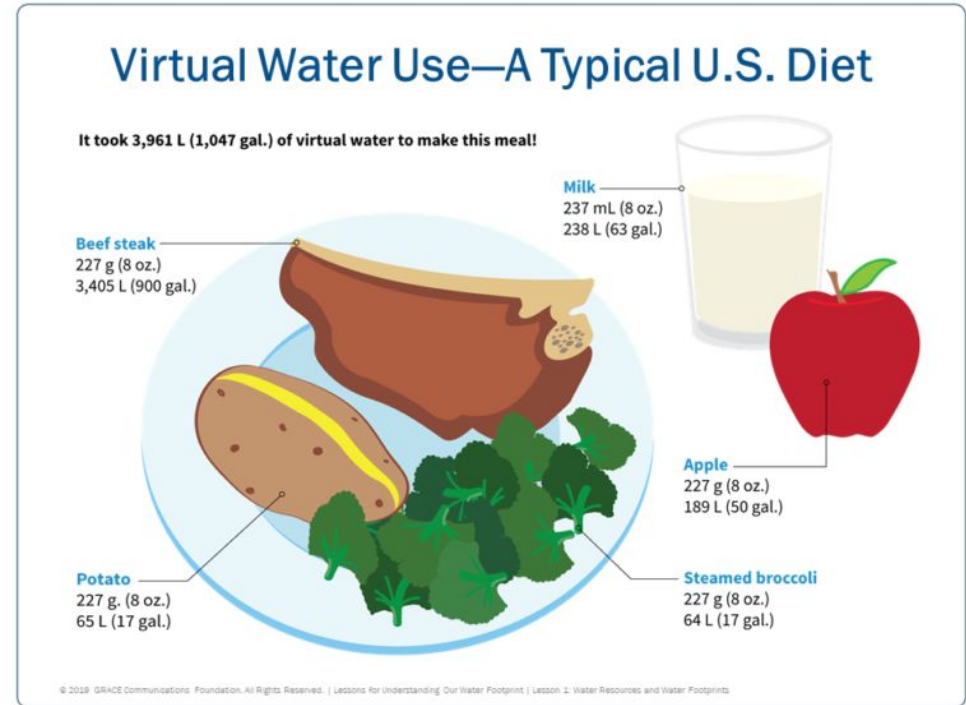
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## What is “Virtual” Water Use?

**Indirect** or **virtual water** is the water “hidden” in the products, services and processes you buy and use every day for crop irrigation, power production and consumer goods manufacturing.

US-agricultural water use is one of the biggest, because most animals are fed grain and other feed types from irrigated crops.

Your diet is the biggest indicator of what your personal water footprint will be, especially if you eat animal products.

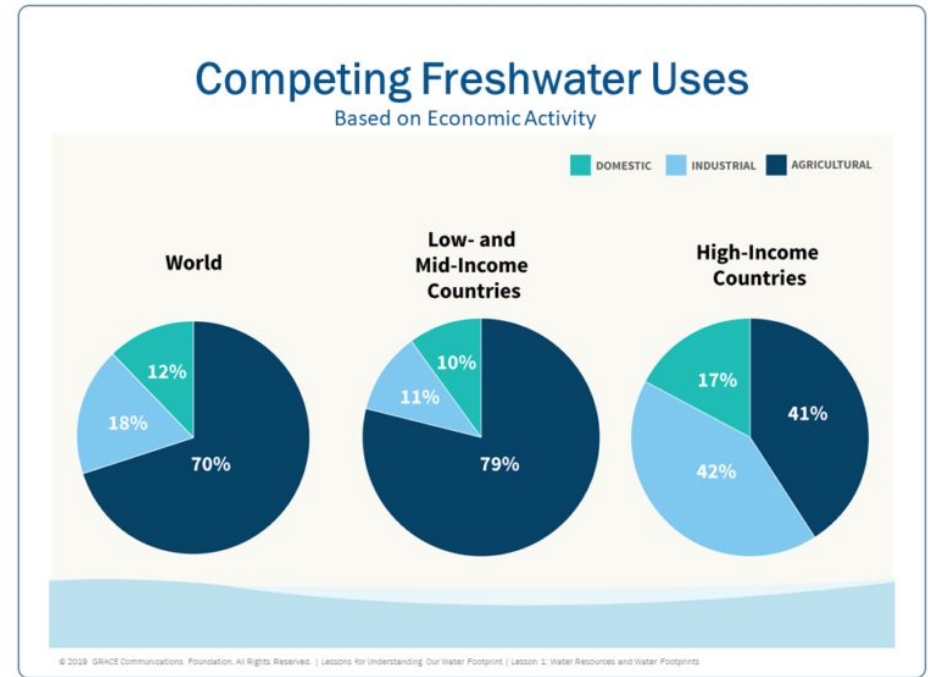




## Categories of Water Use

**Three main purposes:**

Domestic  
Agricultural  
Industrial



## Categories of Water Use

**In the United States we use water in the following ways:**

- Public supply and domestic use;
- Industrial uses - thermoelectric power production, manufacturing and mining;
- Agricultural uses - irrigation, livestock production and aquaculture.

### Categories of Water Use in the United States





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## What is Water Security?

### ***United Nations Definition of Water Security***

“The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters and for preserving ecosystems in a climate of peace and political stability.”

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## Worldwide Water Use

The worldwide rate of water use has increased at twice the population growth rate.

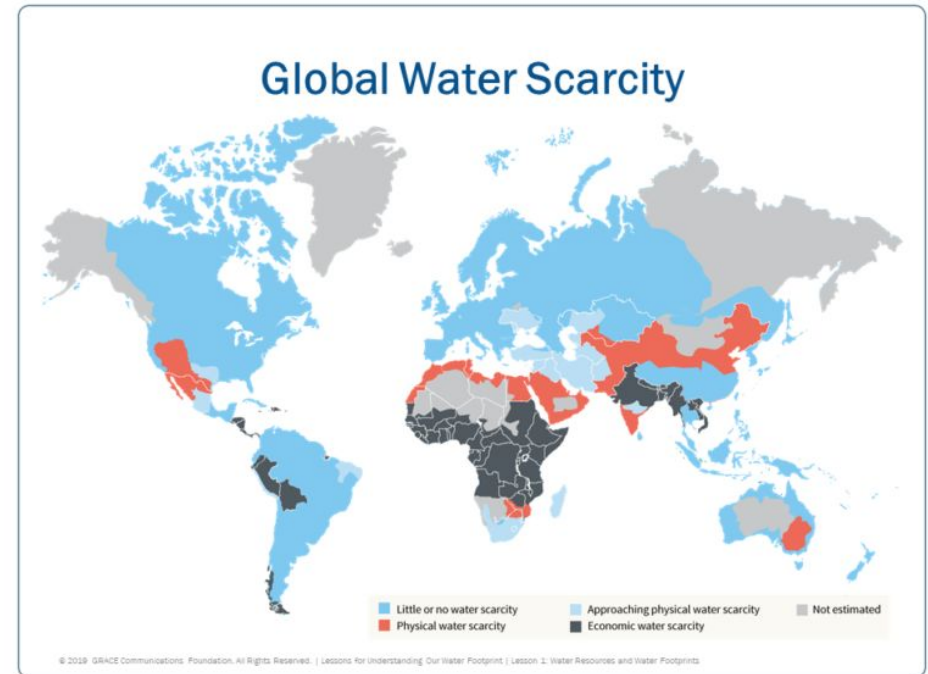
This is leading to instances of water insecurity.

The Ogallala Aquifer is a good example of this.

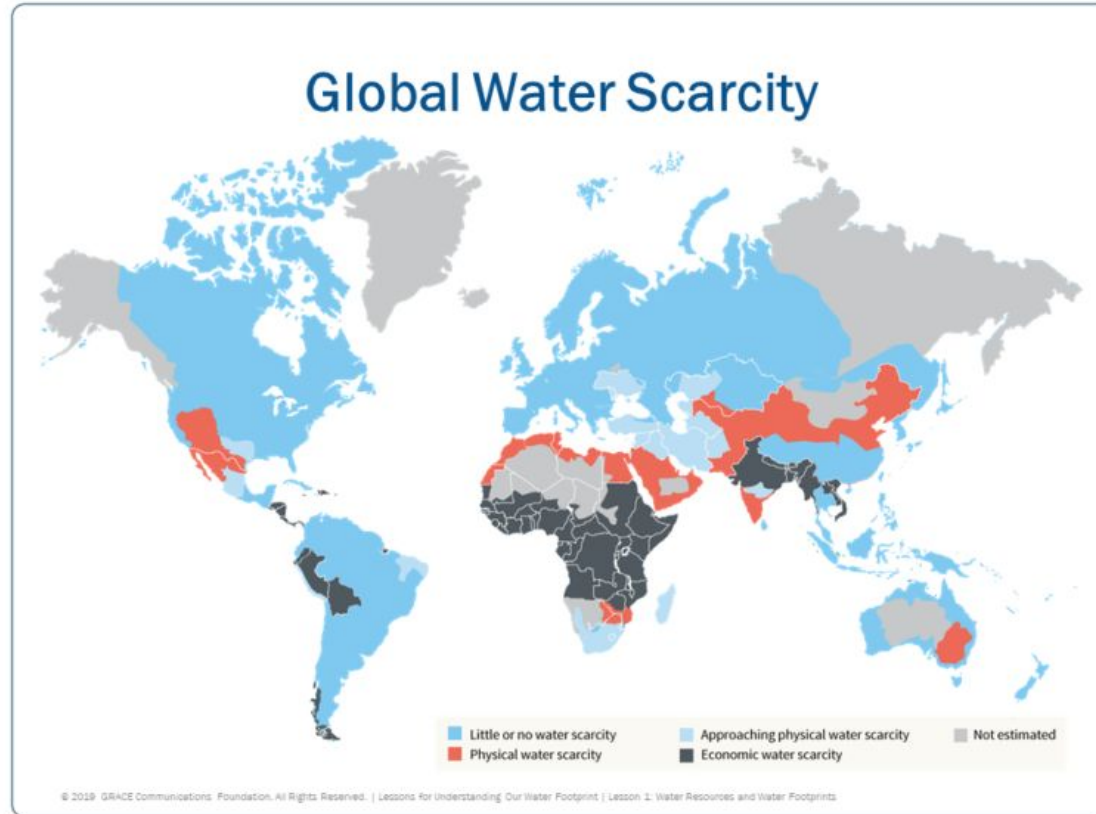


## What is Water Security?

**Water Security** means everyone has enough water to meet their needs sustainably.



## What is Water Security?



# Climate Change and Water Resources

Any place can have a drought -  
climate change is making them longer  
and more intense.

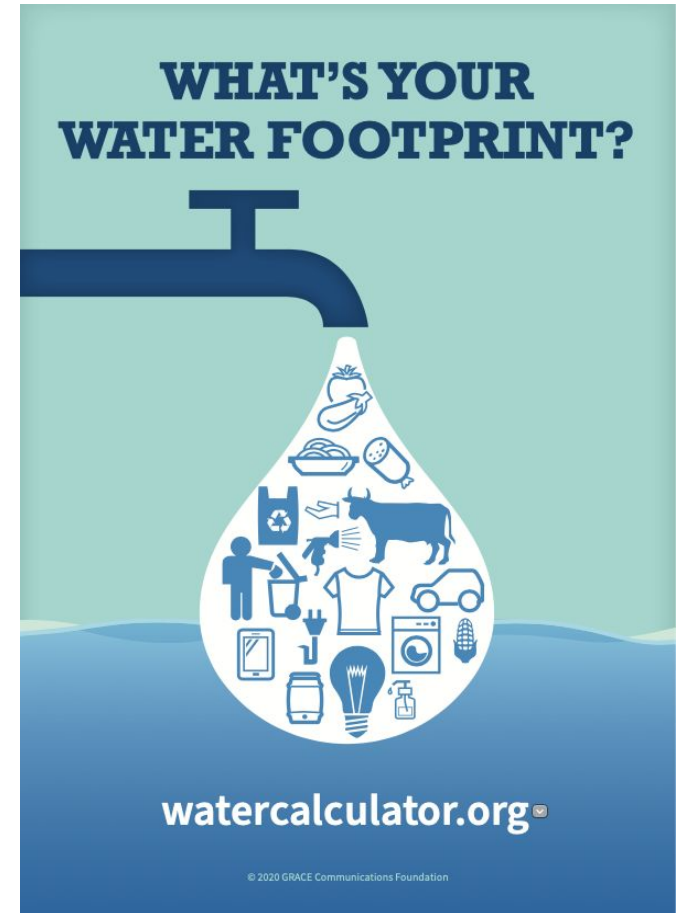


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## The Water Footprint Calculator

Open a Browser Window:

[watercalculator.org](https://watercalculator.org)  
[calculadoradeagua.org](https://calculadoradeagua.org)



## What is a Water Footprint?

- (10 minutes) Take the **Water Footprint Calculator**
- Keep the results page open for discussion.

### What Is a Water Footprint?



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## What is a Water Footprint?

- A method to analyze the ways we use (or overuse) and depend on water.
- The volume of water **consumed**, **evaporated** and **polluted** to make a product or conduct a service.





## What is a Water Footprint?

Your personal water footprint includes:

- The water you use **from a tap**.
- The “**virtual water**” used to produce the food you eat, the products you buy and the energy you use - this makes up most of your water footprint.



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## What is a Water Footprint?

### What is the Water Footprint Calculator?

A tool that helps users find their personal daily water footprints.



## What is a Water Footprint?

- Back to Water Footprint Calculator Results - Average User
- How did you do?
- Any surprises?
- Share results and why.



## Take a Break

- Come back in 5 minutes!



## Water Footprint Resources for Educators

- **Calculator:** helps users find their personal daily water footprints.
- **Lesson Plans:** lessons for middle- and high-school; standards-aligned.
- **Educator Resources:** materials to help educators teach students about water use and how to save water.
- **Student info:** information on careers in water protection and research and reports.



# Water Footprint Resources for Educators

- **Coming Fall 2021:**
  - “The Water Footprint of Food Guide”
  - “Quiz: The Water Footprint of Food.”



# Water Footprint Lesson Plans

## Water Footprint Lesson Plans:

- 3 middle-school, 3 high-school
- Can be adapted up to undergraduate level or down to elementary-school level;
- Standards alignments:
  - TEKS: Texas Essential Knowledge and Skills
  - CCSS: Common Core State Standards for ELA/Literacy and Mathematics
  - NGSS: Next Generation Science Standards NGSS and
  - WFS: Cloud Education for Sustainability Standards & Performance Indicators.

**FREE  
WATER FOOTPRINT  
LESSON PLANS**

**School Water Audit: Virtual Water Use**

One way to reduce a water footprint on a large scale is to take a closer look at the operations of a large business, identify areas that can be made more sustainable, and then take action. What if the school business is your? Your school, of course! Auditing your school gives you an opportunity to gather concrete data on school operations that impact the environment, and then use that data to inform changes that promote more sustainable practices. For this activity, you will work in the same marketing teams that you used for creating posters for Save Water Awareness Campaign. This worksheet for the School Virtual Water Audit groups. A separate worksheet is available for groups doing the Indoor and Outdoor Water Audits.

If you have been introduced	You will know for auditing
Indoor water	School Water Audit: Indoor Water Use
Outdoor water	School Water Audit: Outdoor Water Use
Food	School Virtual Water Audit: Food Footprinting
Electricity	School Virtual Water Audit: Energy Use
Buying habits	School Virtual Water Audit: Electronics Purchasing

**High School Facts**

Your mission is to work with your team to find out how either food purchasing, energy use, or electronics purchasing impacts your school's water footprint. (Water footprint is the total amount of water used in the production of a product or service.) The Earth's water use is growing rapidly. For example, you can find out how much water is used to produce a hamburger. You can also find out how much water is used to produce a computer. Your mission is to find out how much virtual water is needed in your category to support your campaign. To do this, you'll need to know more about water footprint, electricity, and electronics used at or by the school (water bills, how much they cost, how often they are purchased, what alternatives are available to reduce virtual water consumption, etc.).

**Materials**

- Clipboard
- Interviewing questions (see sample questions)
- Pencil or pen
- Timing device
- Recording device
- Relevant administrative data, such as food purchasing receipts, school energy bills, or school records purchasing data

**WATER FOOTPRINT CALCULATOR**

**DOWNLOAD NOW**

# Water Footprint Lesson Plans

## Lesson Plans:

- Lesson 1: Water Resources and Water Footprints
- Lesson 2: My Water Footprint
- Lesson 3: The Value of a Water Footprint

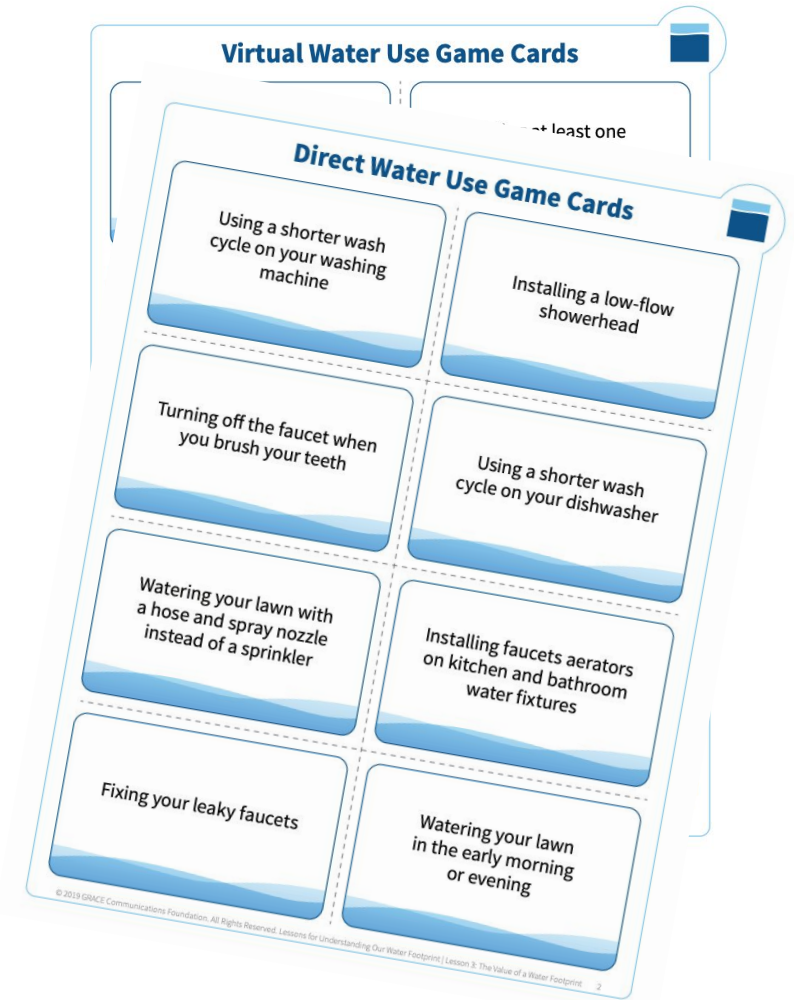
# FREE WATER FOOTPRINT LESSON PLANS



## Water Footprint Lesson Plans

Interactive activities help students understand different types of water use.

Flash cards are a good example.



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## Interactive Activities

**Activity:**

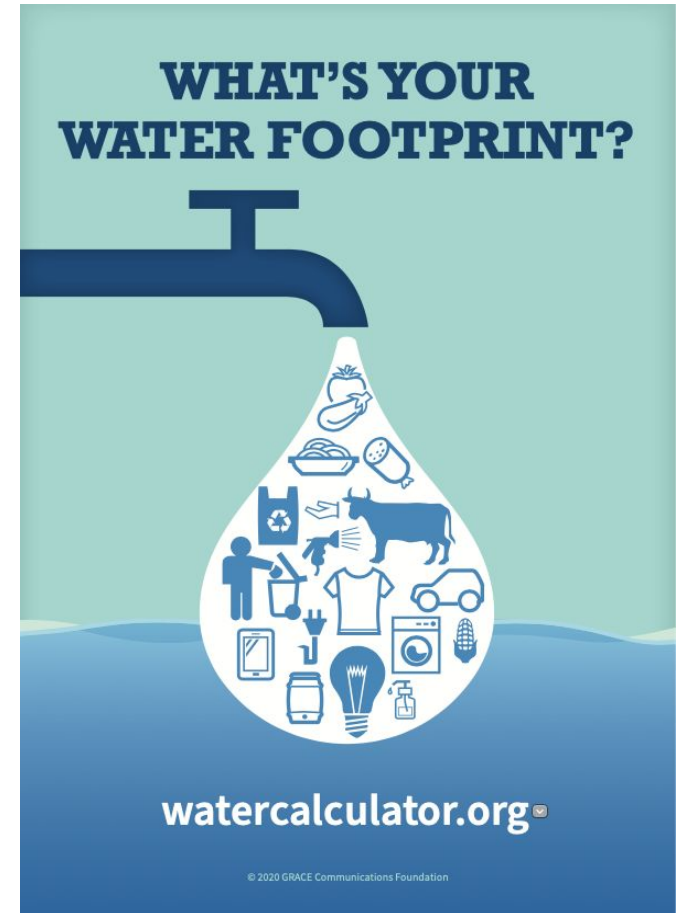
**Pasta Sauce/Chocolate Bar/Steak**

**(Page 5)**



## Water Footprint Calculator

[watercalculator.org](https://watercalculator.org)  
[calculadoradeagua.org](https://calculadoradeagua.org)



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## Final Questions

- What will you take away from this presentation?
- What water-related issues most interest your students?



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## Relevant Links

- [The Water Calculator in English](#)
- [The Water Calculator in Spanish](#)
- [The Water Footprint Lesson Plans](#)
- [Educational Resources](#)
- [Water Saving Tips](#)
- [The Water Jobs Video](#)

# Thank you!

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