

# WATER FOOTPRINT & VIRTUAL WATER

## GRADE LEVEL

6-8

## DURATION

30-40 minutes

## ESSENTIAL QUESTION

How much water does it take to produce a good or food product?

## NORTH CAROLINA STATE STANDARDS

**6.G.1.4** Explain how and why civilizations, societies, and regions have used, modified, and adapted to their environments (e.g., invention of tools, domestication of plants and animals, farming techniques, and creation of dwellings).

**7.G.1.3** Explain how natural disasters (e.g. flooding, earthquakes, monsoons, and tsunamis), preservation efforts and human modification of the environment (e.g. recycling, planting trees, deforestation, pollution, irrigation systems, and climate change) affect modern societies and regions.

**8.G.1.3** Explain how human and environmental interaction affected quality of life and settlement patterns in North Carolina and the United States (e.g. environmental disasters, infrastructure development, coastal restoration and alternative sources of energy).

**8.P.2** Explain the environmental implications associated with the various methods of obtaining, managing, and using energy resources.

**8.E.1** Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.

## SUMMARY

Students will understand the impact the production of food and goods has on water resources. This is a way for participants to understand resource input beyond what they can see.

## BACKGROUND

Everyone knows that all living things need water. As the world population grows, so does our water use. This means the number of people using water is increasing but the amount of water on Earth remains the same. Our impact on this resource is becoming more and more important. This is why an understanding of our individual water footprint and the water footprint of a product is valuable. An individual's water footprint is calculated by totaling up the amount of tap water used for showers, toilets, laundry, drinking, watering, cooking, etc., plus the water needed to produce food, make energy, and manufacture products. The latter is what's known as virtual water and although it's the "invisible" part of our water footprint, it is still important. Every product we consume contains virtual water.

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## VOCABULARY

**Goods.** Merchandise; wares; tangible products that satisfy human wants

**Peak Water.** A situation in which the supply of fresh water is not replenished at the rate it is consumed.

**Virtual Water.** The water used to produce food, to make energy and to manufacture consumer products. Also known as indirect water use.

**Water Footprint.** The total volume of freshwater used to produce the goods and services consumed by the individual or community or produced by the business.

**Industrial Agriculture.** A modern type of agriculture wherein densely populated groups of animals are confined to cages, barns, or feedlots.

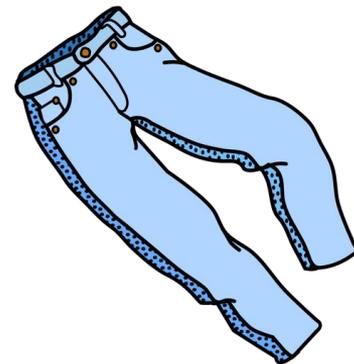
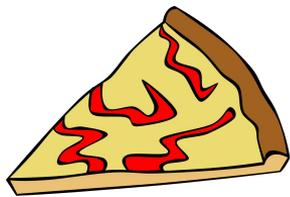
**Processed Food.** Any raw agricultural commodity that has been altered from its natural state.

## PROCEDURE

- Review the PBS article on water footprint: [www.pbs.org/wgbh/molecule-that-made-us/home/water-footprint/](http://www.pbs.org/wgbh/molecule-that-made-us/home/water-footprint/)
- View the YouTube video featured below:



- Calculate your water footprint: [www.watercalculator.org/](http://www.watercalculator.org/)
- Attempt to match the product with the water footprint (activity sheets attached).
- The entire lesson can be accessed through [nearpod.com](http://nearpod.com). Contact [Erin.Harrison@DurhamNC.gov](mailto:Erin.Harrison@DurhamNC.gov) for link.



518 gallons

122 gallons

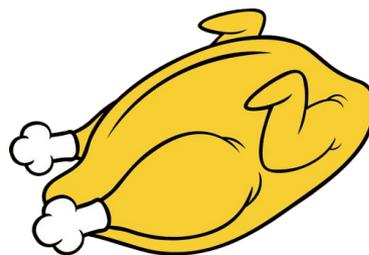
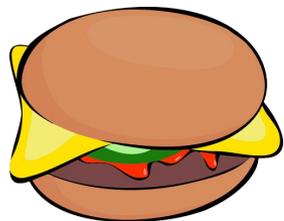
2.5 gallons

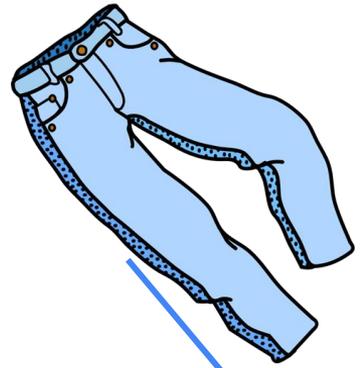
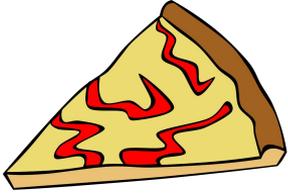
42 gallons

831 gallons

240 gallons

2,100 gallons





518 gallons

122 gallons

2.5 gallons

42 gallons

831 gallons

240 gallons

2,100 gallons

