



How Much Does It Take?

Activity Overview: This activity illustrates how much water goes into making the food we eat. This activity examines **virtual water** – the water embedded in the food products we use.

Objectives:

Students will learn:

- Water is needed to produce all the foods that we eat
- You can't tell by the size or appearance of a food item how much water was actually used to produce it

Materials:

- Food chart with numerical values: 25 litres, 40 litres, 70 litres, 135 litres, 200 litres & 2400 litres
- 12 laminated photographs (2 of each food item) with Velcro: a potato, slice of bread, an apple, an egg, a glass of milk and a hamburger
- Laminated answer key sheet

Setup: Place the food chart on the table. Have the laminated photographs on the table. One set is to be used by the students and the other set is to be used by the activity centre operator. Please look at the back of the photographs so you know which set is yours.

Takedown: At the end of the day, collect the food chart, cards and answer key, and leave them together ready for the next day.

Vocabulary:

Virtual Water: Virtual water is the total volume of water needed to produce and process a commodity.

Commodity: Something that is bought and sold such as an agricultural product (e.g., corn).

What will I be doing? (Procedure)

Before you start your presentation check with the teacher or chaperone to ensure that the entire group is present and ready to start.

*Remember that **doing** an experiment and **discovering** the answer is more powerful than watching and listening to someone, so try to involve as many children as possible.*

Part 1: Introduce Students to the Activity

Say: “Welcome to ‘How Much Does It Take’. Today we will be learning about how much water is needed to produce the food we eat.”

Ask: “Has anyone heard of the term ‘virtual water’?” (Wait for answers).

Say: “Virtual water is the total volume of water needed to produce something. Today you will be looking at different food items and guessing how much water you think it takes to produce that item.”

Part 2: Activity

Take one of the food item photographs and have the group discuss together how much water in litres they think it took to produce that food item. Pick one student to take the photograph and place it on the food chart beside their answer. Repeat this for all 6 food items (**Place photographs on the question marks (?) located on the chart**).

Once all products are placed on the chart you will reveal the correct answers (using the answer key) to the students by placing the remaining 6 food item photographs on the food chart beside their correct litre value (**Place photographs on the side of the board with the v**).

Answer key:

Potato: 25 Litres

Slice of Bread: 40 Litres

Apple: 70 Litres

Egg: 135 Litres

Glass of Milk: 200 Litres

Hamburger: 2400 Litres

Say: “Water is used to make all the food we eat - whether it is when the food is growing, or for the feed for the animals, or during processing of the food. For example, does anyone like hamburgers? Let’s think about how water is used to make a hamburger.”

Say: “A hamburger has a bun, meat, lettuce, and tomatoes. For the meat, you need water to grow the food for the cows and for the cows to drink. For the bread, water is used to grow the wheat, to build and run the tractor that harvested the wheat, to build and run the truck that delivered the wheat to the mill to produce flour, to process the wheat in the mill, to make the dough to bake the bread, and finally, it is used to clean up all the equipment after baking the dough into bread. For the lettuce and tomato, water

is needed to grow, maintain, and clean the crops. That is a lot of water that is used to make just one hamburger!”

Part 3: Wrap-up

Say: “Was anyone surprised about how much water it takes to make the food we eat?” (Take answers).

Say: “It is important for us to remember that water helps us stay healthy by helping to produce the food we eat. We should also keep in mind that if we waste food, we are also wasting water! We should all do our best not to create food waste.”

Thank the students for participating in the activity.

Background Information:

Believe it or not, water is used to make just about everything on earth. To produce food, water is consumed by the plants in the field through evaporation and transpiration. The amount of water needed varies by crop and depends on the location as well. Once the product is harvested and becomes available to be purchased, the water embedded in the product changes status from ‘real’ water to ‘virtual’ water.

The use of water in the production of food includes water needed for:

- Growing the crops which are eaten by animals or people
- The operation of machinery (e.g., using a tractor on the farm)
- Transportation of the food product (e.g., water used by the truck that delivers the food)
- Mixing of ingredients at a manufacturing plant to produce another food product

Multiple Grade Levels

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Your Guess	Water Needed to Produce (litres)	Answer
	2400	
	200	
	135	
	70	
	40	
	25	