Activity Sheet 4

"Virtual Water"

Introduction

This activity is designed to introduce students to the concept of virtual water and the unseen demand placed on our water supplies. Virtual water is water that is not seen or felt. It is water that is used in almost every step of the production process. This activity is a follow up to the discussion and points raised from Activity Sheet 3. It focuses on a specific demand for our water.

The content of this activity sheet relates to the following Geographical Concepts and Skills and Geographical Knowledge.

Geographical Concepts and Skills

- Identify, analyse and explain spatial distributions and patterns and identify and explain their implications
- Collect and record relevant geographical data and information from useful primary and secondary sources, using ethical protocols

Geographical Knowledge

- Nature of water scarcity and the role of humans in creating and overcoming it, including studies drawn from Australia and West Asia and/or North Africa.
- The spiritual, economic, cultural and aesthetic value of water for people, including Aboriginal and Torres Strait Islander peoples and peoples of the Asia region, that influence the significance of places.

Equipment required (teacher to prepare before class)

For each item below print the name on a separate sheet of A4 paper (you may wish to laminate these so that they can be re-used). For future reference the list also contains the approximate amount of water required to produce each item (do not include this).

Print these on separate A4 pages (1 per page)	**TEACHER ANSWERS**
1 litre of milk	1 litre of milk (1,020 litres)
A mobile phone	A mobile phone (3,190 litres)
1 cotton T-shirt	1 cotton T-shirt (2,700 litres)
1 hamburger	1 hamburger (2,393 litres)
1 kilogram of potatoes	1 kilogram of potatoes (287 litres)
1 egg	1 egg (196 litres)
500 sheets of plain A4 paper	500 sheets of plain A4 paper (6,500 litres)
1 kilogram of apples	1 kilogram of apples (822 litres)
500 grams of chocolate	500 grams of chocolate (8,320 litres)
A 5 minute shower	A 5 minute shower (95 litres)
1 pair of jeans	1 pair of jeans (10,000 litres)
1 litre bottle of Coke	1 litre bottle of Coke (250 litres)
500 grams of butter	500 grams of butter (2,776 litres)
A pizza	A pizza (1,216 litres)
1 loaf of bread	1 loaf of bread (48 litres)
1 tomato	1 tomato (50 litres)

Steps:

1. Ask for volunteers and hand each volunteer a sheet containing the name of one of the above items.
2. Ask those students to come to the front of the class. Their task is to rank each of the products from highest to lowest according to how many litres of water is used to produce this item. Once they have agreed to this get the students to line up in order of highest to lowest.

N.B. (If you wish to involve the other students they could research the answers whilst this step is taking place.)

3. Reveal the answers to the students. Once these have been revealed get the students to line up in the correct order.
   Discuss these results and explain how they are calculated.

   There are several sites with this information such as The Water Footprint Calculator.

   If using this or similar sites some useful follow up questions could include
   - What is virtual water?
   - How is the water footprint of a product calculated?
   - Distinguish between the three different types of virtual water mentioned.
   - What are some other words or names for "virtual water"?

   Some useful search terms when looking for information are "hidden water" and "embedded water" as well as "virtual water".

Follow Up Activities

1. Get students to research and then calculate the amount of water used for a product/s that they commonly use. Examples could include breakfast items, the clothes that they would wear to the movies, the technology products they would use etc.
2. With reference to above and the information from Activity Sheets 1 and 2 discuss the social and economic impacts that arise for countries with a poor access to freshwater supplies. Question prompts such as:
   - Without sufficient water supplies what would we have to cut back on? How could this impact our standard of living?
   - If we did not have enough water what would happen to the prices of items that require water to be made? (This will be covered in more detail in later activity sheets.)

Extension Activity

1. Research ways in which production companies are able to reduce the amount of water they use in the manufacturing process. Name and outline these processes and list some companies that are doing this already.