

Bottled water vs tap water lesson 2

Group

Year 4, a one-hour lesson.

Areas of the curriculum

Geography, Science – S2,
Maths – Ma4, English, Citizenship, ICT, PSHE.

Objectives

- To understand about drinking water.
- To understand how our water drinking habits affect the environment.
- To record a survey on tastes best tasting water as a graph.

Equipment

Bottle of tap water with the letter A written on bottle.

Bottle of mineral water, with the letter B written on bottle (both with labels taken off only teacher is able to identify which is which)

Cups – for the tasting

Pencils/colour pencils

A4 or larger paper

Graph paper

Activity

- A blind taste test of mineral water and tap water.
- Record the results in the form of a “Best tasting water” graph (see work sheet), could be created using ICT.
- Discuss the pros and cons of both types of water (see worksheet).

Additional/homework activities

- Create a poster to encourage the drinking of tap water.
or
- Create a map showing all the free local water sources.

Discuss:

- Which type of water do you think you prefer (before the taste test) why?
- Which tasted best, A or B?
- Did they taste different?
- Did they taste the same?
- Which one was the mineral water?
- Which one was the tap water?
- Can the students tell the difference?

Summary

The bottled water companies spend millions of pounds trying to make bottled water look better than tap water. But is it? What have we discovered?

How do the results from before and after the taste test compare?

Bottled water is expensive. It creates waste and most people cannot taste the difference between bottled and tap water.

Ask the students what they think about bottled water now? Will the students change their habits? Will they buy fewer drinks in plastic bottles? How will they encourage others to drink more tap and less bottled water?

Evaluation

Resources

- Britain consumes 3bn litres of bottled water per year.
- Tap water costs around 0.097p a litre – or around 1p for a bucket of water. Bottled water costs, on average, 500 times more than tap water.
- The average person will spend £25,000 on bottled water and associated soft drinks in their lifetime.
- A Which? survey questioned 3,000 of its readers and found half were unable to tell the difference between tap and bottled water.
- Research shows that bottled water isn't any cleaner, better for you or tastier than tap water.
- Tap water in developed nations is transported from treatment works in underground pipes and requires much less energy than the production, distribution and 'disposal' of bottled water.
- The UK bottled water industry is worth approximately £2bn per year.
- The majority of bottled water is sold in PET (polyethylene terephthalate) bottles, which can be recycled. These bottles are not designed to be used more than once.
- In 2007 it is estimated that 13bn plastic bottles of water were sold in the UK of which only 3bn were recycled.
- Most plastic bottles for bottled water are produced using a virgin petroleum feedstock.
- 162g of oil and seven litres of water are required to manufacture a single one litre volume disposable PET bottle and this amounts to the release of 100g of carbon dioxide (CO₂) a major greenhouse gas (GHG).
- Some research has claimed that drinking 'a bottle' of water has the same impact on the environment as driving 'a car' for one kilometre.
- The World Wide Fund for Nature (WWF) campaigns strongly that bottled water is not only environmentally unfriendly but also a waste of consumers' money.
- 50% of bottled water contains added minerals and salts. This does not mean that it is more 'healthy'.
- The UK bottled water industry has made some changes recently. PET plastic bottles have been redesigned so that they are 30% lighter than 15 years ago and increasing amounts of recycled plastic are used to manufacture the bottles themselves, but there is litter problem with many discarded PET bottles and other 'waste' plastics.
- Recycling rates though improving are still low in the UK as a whole. Today nearly 35% of PET plastic bottles in household waste streams are now collected for recycling.
- The majority of PET bottles end up in landfill. It is estimated that these bottles will take between 500 and 1000 years to decay.
- Fewer are incinerated with some energy being recovered. Many 'discarded' bottles become environmental pollution and can be found in hedgerows, parks, streams and rivers. Via rivers they can be transported to the open seas.
- The Great Pacific Garbage patch (also known as the Eastern Garbage Patch) is an area 6 times the size of England, where plastic outweighs plankton by 6:1. It is the world's largest waste dump.

Links

www.nottingham.ac.uk/etc/news-water.php

www.education.nationalgeographic.com/education/encyclopedia/great-pacific-garbage-patch/?ar_a=1

www.ow.ly/i/UW9G

www.bbc.co.uk/news/business-11813975

www.nytimes.com/2010/06/23/us/23water.html?_r=2&hp&

www.drinkingfountains.org

www.kids.nationalgeographic.com/kids/stories/spacescience/water-bottle-pollution

www.which.co.uk/home-and-garden/heating-water-and-electricity/guides/switching-from-bottled-to-tap-water-/tap-vs-bottled-water

www.guardian.co.uk/education/2011/aug/08/bottled-water-taste-research

www.news.nationalgeographic.co.uk/news/2010/03/100310/why-tap-water-is-better

www.tapwater.org/faqs

Pros and cons of tap water and bottled water

Bottled Water	
Positives	Consequences
Convenient	Expensive

Tap Water	
Positives	Consequences
Cheap/free	Not always convenient

Which water tastes best?

Blinded taste test tap water vs bottled mineral water

		Best-tasting water before blinded test				Best-tasting water after blinded test		
	Student names	Tap water	Bottled water	Unde- cided		Bottle A	Bottle B	Unde- cided
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2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
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13								
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