



## THROWING MONEY DOWN THE DRAIN

### Goal(s):

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- To understand that water is a limited natural resource and that we tend to waste a significant amount each day.
- To learn to take responsibility and limit the water waste through simple measures.

### General description of the activity:

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We use water everyday regardless of the time of a year. People who live in towns and cities loose touch with water sources and take tap water for granted. Only when water is cut-off do we realize how vital it is. The pupils and adults need to realise the importance of water as a natural resource and to avoid wasting it.

In this exercise the pupils observe and record the consumption of water at home. They learn to calculate the amount of water used and quantify how much water is wasted. The pupils also learn how to use water efficiently. The activity focuses on the wastage of water during tooth brushing and washing up (but can be used for any activity using water).

The volume of wasted drinking water is determined by timing how long it takes to brush teeth tooth and washing up under constantly running water. The pupils need to time how long it takes to fill a litre jug with water. This is used to calculate the volume of water wasted e.g. each litre equates to a period of time.

The pupils can then decide how could be used the equivalent volume of drinking water for other purposes.

The pupils can also calculate the costs for the wasted water.

### Required materials:

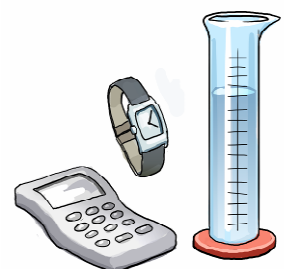
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One litre jar/glass, calculator, watch

### Required child skills:

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Reading volume in measuring glass, using a stop-watch, using a calculator, ability to work in a group, literacy, drawing a table and graph





### How does this activity fit into the curriculum:

This activity is well suited for lessons in Literacy, Mathematics, Physics, Social Science, Geography, Citizenship and Literacy.

### Safety issues:

No safety issues

### Individual steps of the activity:

### Required time:

1. Talk with the pupils about importance of water for life, about problems with water contamination, process of water treatment, countries with scarce water sources etc.	1 lesson
2. Also discuss water use in every day life: what would change in our lives if there wasn't constant running water? Where and how we can minimise water wasting?	
3. Explain the exercise to children. Make sure the pupils understand the way in which wasted water is calculated (as described above). The activity can be given as a homework , but ideally should be demonstrated in class first.	Explanation ½ lesson
4. Calculate the volume of water that is/was wasted during the selected activity (e.g. tooth brushing) using Aid 2 (see below). Draw graph to show results.	Counting and discussion – 1 lesson
5. Volume and cost for wasted water can be calculated and compared with school-mates.	
6. Discuss the outcomes – Is saving water important? How much money we can save? How else do we waste water? etc. What are the wider consequences and does the situation vary in other countries?	

### Suggestions for combination with other AL activities:

"Tiny drops but a huge waste of water" – A similar exercise carried out at in school.

[The listed activities above may change when all the activity sheets have been finalised.]

### Variations:

*Increased complexity of the activity on wasting of water:* Discuss where else is drinking water wasted both at home and at school. Discuss how much water is wasted during washing up under running water compared to that in dishwasher. Find out how much water dishwashers use – compare different water consumption for different dishwasher programs. What can improve dishwasher water efficiency? Discuss and measure how much water we use for flushing a toilet? How can we improve water efficiency in toilets?

Emphasising value of drinking water: Measure how much water we use during a school day for different activities – washing hands, toilet etc. Compare the volumes for different activities and decide which are the most water demanding and which the least. Discuss for which activity we need drinking water. Stress that keeping the brain hydrated is necessary for successful learning. Do the pupils drink enough during the school day?

Increased dissemination: Have the class prepare a written presentation for other classes and their parents. Let the pupils ask their parents whether they think they use water sensibly and discuss what has changed since their parents were school kids.

Using the results actively: How is the payment for water calculated (water rate + waste water rate)? Let the pupils commit themselves to saving measures they will take.

### Available aids:

Aid 1 – Background information on water consumption and savings possibilities

Aid 2 – Table for calculation of water waste





## Throwing money down the drain – Aid 1



### Background information on water consumption and savings possibilities

[Each partner will insert the relevant material or/and links on consumption when taking shower as compared to having a bath, volume of water consumed for washing up in a dish washer, sink or under running water, how much water we need for flushing the toilet etc.]

[For example for Poland the source of information: "Úsporná domácnost"; Ladislav Tintěra, publisher ERA, 2002]



## Throwing money down the drain – Aid 2



### Table for calculation of water waste

Activity or child name	Amount of time when water is running and not used (minutes)	Time required to fill a 1 litres container with water (minutes)	Volume of wasted water during the activity (litres)	Volume of wasted water in a year (litres/year)	Price of water (EUR/m <sup>3</sup> )	Yearly cost of wasted water (EUR)
	(A)	(B)	(C=A/B)	(D, see notes)	(E)	(E*D/1,000)
<b>TOTAL</b>						

1 m<sup>3</sup> water = 1,000 litres water

In column 5 you need to know the number of times which an activity is carried out in a year in order to be able to calculate "D". For example teeth brushing is typically done twice a day every day of the year. That is 2\*365 = 730 times/year. You then multiply this number with the volume of wasted water during the activity (i.e. "C" from column 4).

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### Search words:

Energy topic	General topic	Educational subject	Age level
Transport	<b>General sustainable development</b>	<b>Language</b>	6-8 years
Space heating & cooling	Renewable energy	<b>Mathematics</b>	<b>9-10 years</b>
<b>Hot &amp; cold water</b>	Energy efficiency (saving)	<b>Science</b>	<b>11-12 years</b>
Lighting	CO <sub>2</sub> wise transport	<b>Geography</b>	
Electric appliances		<b>Citizenship</b>	