



TINY DROPS BUT A HUGE WASTE OF WATER

Goal(s):

- To understand that water is a finite limited natural resource
- To know that we tend to waste a significant amount of water each day
- The pupils learn to take responsibility and limit the water waste by taking simple measures.

General description of the activity:

Water is often perceived as easily accessible and a low cost commodity. This is far from the case. Planet Earth has a relatively small amount of fresh water and purifying water and distributing it through pipes is very energy intensive. The pupils can have a significant effect on water consumption at school and at home, as this activity demonstrates.

In this exercise the pupils check and record any malfunctioning tap causing it to drip, or simply measure how much water is wasted when the tap is not turned off properly. They then learn to calculate the amount of water that is wasted. The pupils can also learn to take responsibility for ensuring that taps are repaired or switched off properly.

The volume of wasted drinking water is recorded by observing and recording the volume of dripping water in a minute, and then calculating volume of wasted water in an hour, day, month and a year.

The pupils then discuss what an equivalent volume of drinking water could be used for instead of being wasted and how much money could be saved.

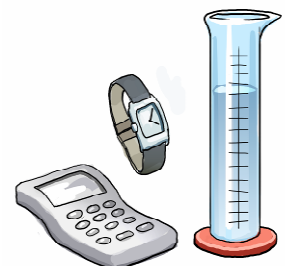
The pupils are encouraged to report dripping taps, showerheads and toilets to the school management.

Required materials:

Measuring container, calculator, watch

Required child skills:

Reading volume in measuring container, using calculator, reading seconds on a watch.





How does this activity fit into the curriculum:

Language, mathematics, physics, social science, geography, and citizenship.

Safety issues:

No significant safety issues

Individual steps of the activity:

Required time:

<ol style="list-style-type: none"> 1. Present the exercise to all teachers in school and get their consent to the pupils monitoring the state of taps in all classrooms and school premises they can access. The pupils might need teacher’s assistance and the teachers therefore need to know what the pupils are expected to do. Based on individual opportunities and needs the monitoring can take place either during classes, during breaks or after school. 2. Present the exercise to the school caretaker(s) and get his/her agreement to provide the necessary assistance. 	<p>Introduction and preparation – A meeting with relevant teachers and a meeting with the school caretaker</p>
<ol style="list-style-type: none"> 3. Explain the exercise to the pupils and split up the class into several groups, each responsible for a different activity – monitoring the taps, recording the findings, measuring volume of wasted water in a minute. The class can be also split into several groups each monitoring a different part of school. 4. Also measure different water flow/dripping rates when the tap is closed improperly. 5. The pupils should check the state of their taps at home and at school do the calculations of waste. 6. When the data are collected the whole class should calculate the volumes of wasted water during different time periods (minute, hour, day, month and year) using Aid 2 (see below). 	<p>Observation and analysis – 1 lesson</p>
<ol style="list-style-type: none"> 7. Prepare a presentation for the school management/caretaker on why the taps should be mended. Show cost of wasted water and show what this could have been used for e.g. so many toilet flushes, etc. Emphasise the change of behaviours needed to improve the situation. 8. Select the pupils responsible for informing the school caretaker/management. 	<p>Preparing presentation – 1/2 lesson</p>
<ol style="list-style-type: none"> 9. The pupils should discuss the outcome of their activity. What are the wider perspectives and the situation in other countries? 	<p>Discussing the outcomes – 1/2 lesson or less</p>

Suggestions for combination with other AL activities:

“Throwing money down the drain” – A similar exercise carried out at each child’s own home.

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

Variations:

Increased complexity of the activity: Emphasising the value of drinking water (it adds brain-power by keeping it hydrated!), 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 one is the most water demanding and which the least. Discuss for which activity we need drinking water.

Increased dissemination: Have the class prepare a poster or a written presentation for other classes and school management.

Using the results actively: Look at how water meters work. How is the payment for water calculated (water rate + waste water rate)? How much drinking water do we really need a day? How is drinking water prepared and treated?

Field trip: The activity could be followed by a visit to the local water station or water sewage treatment facility to learn about the supply of water and sewage treatment.

Available aids:

Aid 1 – Background information on water consumption and savings possibilities

Aid 2 – Table for calculation of water waste





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]



Tiny drops but a huge water of water – Aid 2



Table for calculation of water waste

Location of tap	Volume of wasted water in a minute (ml/minute)	Volume of wasted water in an hour (ml/hour)	Volume of wasted water in a day (litres/day)	Volume of wasted water in a year (litres/year)	Price of water (EUR/m ³)	Yearly cost of wasted water (EUR)
	(A)	(B=A*60)	(C=B*24/1,000)	(D=C*365)	(E)	(E*D/1,000)
All taps in school						

1 m³ water = 1,000 litres water

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Search words:

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