



RACE OF THE POTS

Goal(s):

The pupils become aware of the influence of behaviour on energy consumption.

General description of the activity:

Heating up water is an everyday activity (for tea, potatoes, pasta ...). Often simple changes in behaviour can bring about energy savings as well as save money and time.

The importance of energy efficient behaviour is relayed to the pupils through a competition where they have to heat up a pot of water.



Required materials:

- Two separate and identical electric cook plates
- Two identical pots
- A lid
- A stop watch
- Electricity price

Required pupil skills:

Use a stop watch, measure volume and time, mathematic arithmetic (subtraction, addition, multiplication)



How does this activity fit into the curriculum:

This activity is well suited for lessons in Science, Physics, Food Technology and Mathematics.

Safety:

The pupils should be briefed about safety rules when working with hot plates, pots and water.

Individual steps of the activity:

Required time:

<ol style="list-style-type: none"> 1. Explain the exercise to the pupils and go through safety procedures. 2. Form two teams – Team A and Team B. 3. Team A is responsible for the pot without the cover (at least five pupils) and consists of <ul style="list-style-type: none"> • a water person, • a pot mover, • a heater, • a time counter, and • a scribe. 4. Team B (at least six pupils) consisting of the same experts plus a “lid up and down” person. 5. Each “scribe” notes down the energy consumption level indicated on the label of the plates. 	<p>Introduction and preparation – 10 minutes of a lesson</p>
<ol style="list-style-type: none"> 6. The “water persons” pours 30 centilitres of water in each their pot. You make sure that the water has the same temperature by using water from the same container. 7. The “pot movers” place their pot on their coking plate – both groups). 8. Team B’s “lid up and down person” places the lid on their pot. 9. Ready steady go!! Both “heaters” turn on their hot plate to the maximum level. 10. At the same time the “time counters” start the stop watch. The “time counters” stop time counting when the first bubbles appear in their own pot. Team B has to listen for the noise of bubbles forming if the lid is not transparent. 	<p>Experimentation – 20 minutes</p>
<ol style="list-style-type: none"> 11. What can be observed? Who is the winner and why? 12. The focus is then turned to the energy consumption (calculation). Together the class calculates the difference in energy consumption between the two teams. 13. The energy consumption level of the plate was read by the scribes before the experiment (= while the plates were 	<p>Reflection and discussion – ½ lesson</p>



<p>cold). Multiply it by the time measured for the slow pot (value A in Wh).</p> <p>14. Do the same for the quick pot (value B in Wh).</p> <p>15. Subtracting A from B gives the energy saved.</p> <p>16. Using the price of electricity per kWh, the pupils can then calculate the money saved.</p> <p>17. Discuss what else the pupils can do to save energy at home (and in school).</p>	
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Suggestions for combination with other AL activities:

“Energy label detectives” – Investigation of the difference between the energy consumption of the best and worst available product in the shops

“Electricity counts” – Can you save 500 Watt of electricity?

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

Variations:

Expanding the topic: The exercise can be used as starting point for various discussions related to energy efficiency and sustainable living or even safety at home.

Available aids:

None

Search words:

Energy end-use	Generic topic	Educational subject	Age level
Transport Space heating & cooling Hot & cold water Lighting Electric appliances	General sustainable development Renewable energy Energy efficiency (saving) CO2 wise transport	Mathematics Physics Science Food technology Etc.	6-8 years 9-10 years 11-12 years