



Active Learning ABEA, Belgium The Energy Round Tour at "Gouden Regen School"

Summary

The Active Learning project (2006-2008) is an education project partly financed by the EIE programme. It was carried out by a consortium consisting of 16 organisations from 14 countries, including both energy and educational experts. One of the key outputs of the project is a toolbox containing hands-on fun activities for active learning about sustainable energy and energy efficiency (www.teachers4energy.eu). More than 160 champion schools that have used and incorporated these activities in their teaching plans. The main philosophy is to get children to learn while having fun, and to pave the way for curricula integration of this approach.

In Brussels, 12 schools got involved in Active Learning project, and among these Gouden Regen school in Ganshoren. The pupils of the fifth and sixth year (10-12 years) went on a «Energy Round Tour». Supported by ABEA, the children explored the building in order to make an energetic reading of the school, observe whether there was some wasting, and giving advice to improve it. This activity was filmed by the European Commission that referred to it as an «exemplary experience»!



Let's give a look at the project in the details !

This project has been made possible thanks to the cooperation of the headmaster of the school, the teachers, the pupils, but also thanks to the technical support of MOS and ABEA (Agence Bruxelloise de l'Energie, partner of the project) and to the support of European Commission.

End-user area

- New buildings
- Refurbishment of buildings
- Transport and mobility
- Financial instruments
- Industry
- Legal initiatives (regulations, directives, etc)
- Planning issues
- Sustainable communities
- User behavior
- X Education
- Other

Target Audience

- Citizens
- Households
- Property owners
- X Schools and universities
- Decision makers
- Local and regional authorities
- Transport companies
- Utilities
- ESCOs
- Architects and engineers
- Financial institutions
- Other

Technical

- X Energy efficiency
- Heating
- Cooling
- Appliances
- Lighting
- CHP
- District Heating
- Solar energy
- Biomass
- Wind
- Geothermal
- Hydro power
- Other

Context

A survey on education carried out by ManagEnergy in 2004 recommended that in order to achieve cost-effective sustainable development, the education system needs training of teachers, active involvement of



students through experimental or hands-on approach, and integration of energy into curricula to create room (time) for energy issues which in turn requires cooperation with education authorities. The recommendations were also supported by the EU 'Reflection Document on Sustainable Energy Education'.

Active Learning is a pedagogical principle based on the idea that students learn more and their knowledge is retained longer if they carry out hands-on and fun experiments to which they can relate.

The aim of the Energy Round Tour is to reduce the consumption of energy in schools! In fact, just thanks to a different behaviour and without modifying anything in the structure, there's the chance to reduce the energetic consumptions by 30%.

For that, the children had to read the school boiler meters and compared them with the readings of the previous year, during the same season. The children also measured the outdoor temperature, to compare the collected data correctly.

After the experience they inserted the data of their school on the web site sustain.no. It's a site that allows to compare the data of all subscribed schools and to calculate the saving of energy realized.

Objectives

The objectives we wanted to reach through this activity were:

- teaching to the pupils how to calculate the energetic consumptions of a building, using a « toolbox » with some measuring equipment, such as digital thermometers, light meters, energy meters, to make the Energy Round Tour more fun;
- teaching to the pupils how to observe our daily acts in order to understand how much they influence the energy bill.
- And also... to have fun!

Process



The strategy we used was that of making an Energy Round Tour, that is a visit of the school-building, helped by the headmaster, the responsible heating and/or the caretaker of the school, as it was a game, an investigation of energy consumption by the « pupils-detectives » at school. It wasn't a real « energy audit » but a « mini-audit ».

The class was divided in four groups, each one with a different task: Heating, Insulation, Classroom, Lighting.

- The heating group had to collect information and observe the heating management of the school: which energy source uses the boiler? Is the boiler maintained every year? Is it a high output kettle? Does the housekeeper take regularly the meter cog? Once a week, once a month or once a year?

- The Insulation group cared about the insulation of the school, th double glazing and observed if doors and windows closed completely.

- The classroom group had to observe the temperature of the room and the use of radiators

- Finally, he lighting group had to examine the brightness of the room, the kind of bulbs used, and in particular they had to make sure to turn the light off leaving the room.

To do that the pupils could use a « toolbox » with some measuring equipment, such as digital thermometers, light meters, energy meters, to make the Energy Round Tour more fun.

The teachers and all the school staff were trained by the Energy Agency, that had the role of technical advisor during the project.



The toolbox provided was gradually integrated by teachers, who had been trained in energy.

Financial resources and partners

This project was mostly financed by the European Commission. It's a three years project. ABEA received an amount of €35328. Vlaamse Gemeenschapscommissie also financed the project about 2500€ .

The local partners that supported us are the city council of Ganshoren, that transmitted us the energetic readings of the school, MOS, that introduced these data on the web site, the headmaster and the teachers that sensitized and motivated the children, ABEA that coordinated this action.

Results

Gouden Regen school worked as a pilot-school for this project. It tested this activity in order to evaluate it and extend it to other schools for the next years.

This project resulted really positive on many levels.

Firstly, the children became aware of the fact that in many other countries in Europe some children just like them have the same worrying: saving the planet.

Secondly, at a local level, it allowed the meeting among different kinds of actors (pupils, technicians, energy agencies) and allowed to focus on the fact that our behaviour influences energy bills.

The film realized by the European Commission was a positive experience too, since it highlighted the role of the children and allowed to explain in a more visual and vivid way how to save energy having fun!

Lessons learned and repeatability

This project showed that teamworking is fundamental. All members are important. It's important to put people in contact, so that everyone can make an effort: the energy agency explaining the working of the boiler, the pupils listing their daily gestures and thinking of how improve them, the city council responsables listening to the children's projects and answering to their questions.

This project is currently on in a school in Anderlecht (*school n°16 du Petit Bois*) and in Tivoli school in Brussels. *Each school works as mouth piece so that other schools get involved and committ to realize some energy saving with the support of the energy agencies and of children.*



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Printed reports or other literature available: 1. The site teachers4energy.eu where you can find 23 activity sheets about energy in 14 languages. 2. The European Commission film « Europe's children, Learn to fight



Case Study #: <Name of Promoter>, <Country>

climate change » where you can find the pupils of Gouden Regen school during their Energy Round Tour, but also the pupils of two schools, one from England and one from Slovenia.

Language version : DE, EN, ES, FR, IT,PL

Duration : long version : 10'33 short version : 3'53

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For your information. To be taken into account when filling in the template

Criteria for selection of Good Practice Case Studies

Energy effective (Weight factor: 2)

The activity should result in quantified energy savings and/or in energy produced from renewable energy sources in a definable period of time. If not applicable (e.g. education or information) give potential benefits in the long term.

Environmentally benign (Weight factor: 1)

The activity should result in a reduction of greenhouse gases emission, lower local pollution, higher air quality and saving of natural resources.

Adequacy of techniques and tools used (Weight factor: 1)

The activity should not use techniques that are not viable or that present high technical risks. The complexity of the technologies and tools used should be adequate to the role of a local or regional energy agency. An activity with limited technical content (e.g. information sessions for children) would perform well according to this criterion. Integration of technologies will also be evaluated under this criterion.

Economically viable (Weight factor: 2)

The project should be economically attractive for the society as a whole, and involve reasonable costs for a local/regional agency. Quantitative results are required using indicators adequate to the type of project. For projects predominantly "technical", life-cycle cost is preferred, but other economic indicators can be used. For other projects, indicators can be audience reached, participation rate, number of meetings etc. Other non-energy benefits should be mentioned. The use of subsidies should be clearly stated.

Socially and politically acceptable (Weight factor: 1)

The socio-economic benefits and acceptance issues of the activity should be described. Regarding acceptance, positive aspects (e.g. the project has become a landmark or is used for education purposes) as well as negative aspects (e.g. opposition from local actors) should be mentioned.

Replicability (Weight factor: 3)

The success factors and the specific conditions needed for repeating the activity in a different context should be described. The action should present a high potential of replicability.