

Whole-school commitment to practical energy saving

Summary

Woodheys Primary School in Sale, Greater Manchester, is a fine example of a school that really educates pupils for sustainable development, with a varied and interesting curriculum. Having previously incorporated themes such as recycling and biodiversity into its curriculum, it has now established a programme of activities that ensures good management of energy within the school. Pupils take a leading role in this, with the Eco School Council involved in decision making, Eco-monitors in each class, the Energy Team responsible for meter reading, random checks on classrooms, and informing the whole school community at governors' meetings, school assemblies and in lesson time throughout the school.

Woodheys recognised the importance of reducing energy demand in 1999, when it commissioned an energy audit that assessed current energy use and the practical measures to improve efficiency. Since then it has worked through a planned programme of efficiency improvements, including insulation, draughtproofing, better controls on heating, and double glazing. These straightforward measures helped the school reduce gas consumption by 30% over seven years. Although measures were taken to reduce electricity use, demand increased because of the expansion in the use of IT equipment, but consumption is now nearly back to 1999 levels. This has partly been achieved by continued emphasis on low-energy lighting, and insistence on the most energy efficient equipment when the IT suite was refurbished. As a statement of its commitment to sustainable energy and reducing its carbon footprint, the school installed a 2 kWp photovoltaic array in 2005, and an electronic display unit that records the amount of electricity generated. Although only providing 3% of current electricity use, the array and monitoring display demonstrate to the community that solar PV is feasible in the UK, and also provide a valuable learning tool for the pupils.

Woodheys has achieved many accolades for its environmental activities, notably attaining Eco-Schools Green Flag status and winning an award for Environmental Cleanliness. Its work on education for sustainable development is highly rated by government inspectors and is used as a role model for other schools.

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The school

Woodheys Primary School in Sale, Cheshire has 353 pupils, 14 teachers and 25 non-teaching staff. The majority of pupils live close to the school in an area of mixed, middle class housing south of Manchester. A third of the pupils are from varying ethnic groups and 5% receive free school lunches.

Woodheys is an internationally recognised school for its environmental activities. As a Green Flag Eco School, it has been involved with WWF (Worldwide Fund for Nature), DfES and Manchester DEP (Development Education Project) sustainable development projects. In 2005 Woodheys came first in the country out of 400 schools, to win £8,000 in the 'David Bellamy Award for Environmental Cleanliness'. This prize enabled the school to establish a pond and wildlife area for scientific experimental work.

Woodheys has numerous environmental projects, including the development of two 'Outdoor Classrooms' for curriculum work to provide a stimulating learning environment for the pupils. The school has links with two schools in Durban, South Africa through the 'Africitwin Project' and is keen to develop similar links with schools in Europe.

Behavioural activities to promote sustainable energy use

Woodheys' Eco School Council, which has one girl and one boy from each Year 3 to Year 6 class, discusses energy concerns within the school and plans how to implement changes to address these concerns. The Council is supported by the Energy Team, comprising five pupils from Year 6 (10/11 year olds). The energy Team carries out a wide range of activities, including:

- Reading gas and electricity meters on a weekly basis.
- Keeping records of readings and forwarding them to Trafford local authority for analysis.
- Monitoring and recording electricity generated by the solar photovoltaic (PV) array.
- Checking the temperature in rooms and radiator settings.
- Randomly checking the housekeeping of individual classrooms – for example, monitoring whether lights have been left on and doors left open during lunchtime periods and during assemblies. The best-performing classes are rewarded by receiving a special certificate (designed by the Energy Team) on a weekly basis, and chocolates for the best class over a four-week period.
- Designing and installing 'Switch off' signs around the school.
- Daily monitoring of the local weather for reconciling with highs and lows in energy consumption.
- Meeting with the Eco School Council and the Governing Body Premises Committee to exchange ideas for saving energy, and to review progress.
- Preparing a PowerPoint slide show on climate change and sustainable energy to present to the rest of the school.
- Designing a competition for the infants to encourage energy saving and recycling at home.

The Building Services Manager of Trafford council supports the school in its energy work. He meets regularly with the Energy Team and helps them to produce graphs and other resources that can be used in curriculum time throughout the school.

The team also regularly meets up with the school's Environmental Projects Coordinator to discuss ideas. They have come up with some excellent suggestions for ways in which all classes can save energy and understand the wider issues of energy efficiency. For example, the Energy Team work closely with the school's paper monitors (the Paper Team) to make sure that paper is always used on both sides before being put into paper recycling bins; there are lots of different ways for the whole community to recycle clothes, shoes, mobile phones, computer cartridges; the caretaker and office staff now try, wherever possible, to order recycled paper and other supplies. Pupils have also designed posters that are displayed all around the school to remind everyone of good practice. A scrapbook for newspaper cuttings about topical energy-related issues such as climate change is displayed in the main corridor and pupils are encouraged to add items of interest to it.

Every class at Woodheys (from Year 1 to Year 6) also has two Eco Monitors, whose job it is to close doors and windows and turn off lights and appliances in their individual classrooms. They work closely with the Energy Team.

Regular newsletters to pupils and parents, which are posted on the school's website to cut down on the amount of paper used, have information and guidelines about what the school is doing to address the important issue of sustainable energy. They mention 'Eco-Tips' to inform and modify the behaviour of the wider community regarding energy awareness, and these are also clearly displayed around the school. The school also has an energy management notice board to keep everyone informed of the school's progress in reducing consumption.

Woodheys has also developed a Travel Plan to encourage pupils to walk or cycle to school, in order to decrease congestion and pollution and improve the fitness of pupils (and parents). 'Walk to School' weeks are carried out regularly throughout the year. A bicycle shed has been built for the children to safely store their bicycles and scooters, and a paved waiting and seating area for parents has been a great benefit.

Sustainable energy technology

Woodheys school commissioned an energy audit in 1999, which provided the information for it to implement changes in its monitoring systems and set clear ongoing targets for the school. In 2003, £30,000 was invested in measures to improve insulation and roofing of the external corridors. In 2004, a new urinal flushing system was installed within the boy's toilets, to reduce the amount of water used. Fluorescent energy efficient lights have been installed in every corridor, classroom and the school hall to reduce electricity use. The heating timers have been adjusted so that heating comes on only when pupils are in school. In 2004, the school started a programme of replacing all the windows with double glazed units. In 2005, all the computers were updated, incorporating auto switch-off mechanisms and flat screen energy efficient monitors which save power. A skylight has recently been installed to reduce the need for electric light in a corridor.

In 2005 with the help of a DTI Clear Skies grant, to which the school added its own funds, it was able to commission the installation of 12 x 155 Wp solar photovoltaic panels on a south-facing roof. An electronic display unit in one of the corridors keeps pupils and staff aware of the amount of electricity that has been generated by the panels. Between January 2005 and January 2007 3,093 kWh was generated, which is worth about £185 at the current price paid for electricity. Although this is a small percentage of the school's electricity needs, the panels make a highly visible statement of the school's commitment to sustainable energy.

Sustainable energy in the curriculum

Members of the teaching staff address energy matters through a wide range of curriculum subject areas, including science, maths, geography and citizenship, and pupils learn a great deal about energy sources and production, from a technical perspective, and also as a global concern. From Year 3 (age 7/8) onwards, pupils are introduced to the wider context of global issues such as fossil fuels and renewable energy sources, global warming, resource management and recycling. Teachers constantly reinforce the message about the importance of conserving energy and how, within the school and the wider community, everyone can make a difference.

The school uses a wide range of resources and expertise from local and national organisations to enrich its teaching and learning of energy. Specialists have been invited into the school to work with the older pupils, helping them to undertake an energy audit of the school, which involved heating and lighting surveys and an assessment of energy wastage in the school.

The work on Education for Sustainable Development has enabled the school to attain the Eco-School Green Flag award and it has received many other accolades for the quality of its environmental activities. The curriculum work on the environment is often highlighted by Government inspectors. In recognition of its achievements, Trafford LEA has awarded the school 'Centre of Excellence' status, and its work is promoted as a role model for other schools.

Benefits

The installation of the solar PV array serves as a constant reminder to the school and the wider community of the potential for using renewable energy and provides a small amount of locally generated electricity. Keeping a close watch on the heating and lighting levels makes the working environment within the school more comfortable for everyone, in that temperatures are more keenly tailored to daily requirements throughout the year, as are lighting levels. The control of heating and lighting ensures minimum wastage of energy use.

The efficiency measures introduced at Woodheys following its first energy audit (including insulation, heating timing, double glazing) reduced gas consumption for heating by over 30% from 445 MWh/year in 1999 to 303 MWh/year in 2005, which represents a financial saving of over £250/year. This shows clearly the effectiveness of a carefully prioritised programme of (perhaps unglamorous) measures. Unfortunately the energy monitoring showed a small increase in 2006, but when this was investigated there was found to be a fault on the boiler. This gave an excellent opportunity to turn information into practical action.

In contrast to gas, electricity use increased by 25% from 45 MWh/year in 1999 to 56 MWh/year in 2005, probably as a result of the significant expansion in the use of IT equipment. However there was a substantial decrease to 48 MWh/year in 2006, contributed in part by the PV electricity (about 1.5 MWh/year) and significantly from the computer and lighting upgrades.

The good housekeeping within the school involves the whole school community, and is reinforced by the school motto 'Together Everyone Achieves More' (TEAM). Pupils are actively engaged in helping the school to save energy and their activities are supported by an energy education programme that is embedded within the school's curriculum plans. Members of the Energy Team are gaining valuable experiences through their monitoring of energy consumption, liaison with the local authority's Building Services Manager and communication of their observations to fellow pupils. The school makes great efforts to influence energy use in pupils' homes and promotes its environmental best practices to other schools. This included involvement with the local 'Manchester is my Planet' to encourage personal commitment to reducing greenhouse gas emissions.

The school has attained the Eco-Schools Green Flag award and achieved Level 1 in the DfES Sustainable Learning programme.

Potential for replication

Woodheys has an excellent approach to education for sustainable development and citizenship. Caring for the environment is a key feature within the school's culture, and an important factor when recruiting new staff.

The use of an energy audit to identify current energy use and clarify what can be improved is a basic measure that all schools can undertake. It is unlikely that all worthwhile changes can be made immediately, and in order to ensure that they are carried out over time, it is essential that energy plans and targets are set within the annual School Improvement Plan. The Woodheys policy of ensuring best use of energy efficiency measures during refurbishment work is to be recommended to all schools. The PV array, although small, acts as stimulus for interest amongst pupils and teachers and is in keeping with the Government's policy of using schools to showcase local renewable technologies.

The Woodheys programme of engaging pupils in monitoring energy consumption and wastage in the school is one that can be employed anywhere, with interesting and varied activities. This supports behavioural change at home as well as at school.

Management, finance and partnerships

The sustainable energy initiatives have been ably managed by the Head Teacher and Environmental Projects Coordinator, with excellent support from the local authority, the school governors and the Parent's Association (PA). Collectively they were able to access a DTI Clear Skies grant for the PV array and electronic display panel. The grant only provided 50% of the total costs and the required matched funding was raised by the school itself, including PA fundraising. The school was given permission by the local authority to use devolved capital, as the project would be used as a teaching aid and be an example of good practice. The energy efficiency improvement work was financed by the school's capital budget with advice and support from the local authority.

The school actively encourages partnerships with a wide range of organisations, to provide pupils with a broad and balanced education. Experts are invited into the school to provide rich and rewarding experiences for the pupils, adding great value to the environmentally focused curriculum.

This report is based on information provided to the Ashden Awards judges by Woodheys Primary School, and findings from a visit by one of the judges to see their work.

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