

# Lego helps build on children's interest in energy

From wind to water to solar power, a technology course with experts has P5 pupils enthralled

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"THERE IS a bit that goes in there," says Chloe Brown, 10.

"Ah," says Shana Murray, 10, as realisation hits. "Look, there's a piece there with two short bits," she adds excitedly.

P5 pupils at Dykehead Primary in Shotts, North Lanarkshire, are building water turbines. Already today, they have tested the wind turbines they built last week, with teams competing on who has generated the most electricity.

Help is on hand from John McGill, director of Computer Xplorers, and technology instructor Duncan McNeil. But there is not much physical strength required. The turbines, generators and other parts are all made of Lego.

ComputerXplorers is a provider of technology education, visiting schools and nurseries with programmes for children aged three to 13. Today, they are delivering the second of four sessions entitled Alternative Energy Engineering, using special eLab Lego kits to teach the children about energy, in particular, renewable energy.

What is energy? What are the different types of energy? The children begin to think as they get working with the Lego.

"Some of the kids have made

mistakes in the building," says Mr McGill. "But we keep them as they are, to explain how they work. The pupils learn more from the mistakes."

Testing of the wind turbines invites discussion about why it is harder to blow on the sails when the generator is attached, and why small mistakes in the build can make the turbine less efficient.

Mr McNeil is impressed by how much some of the children have learned. "They seem to have taken a shine to the word 'kinetic'," he says. "Not only do they understand, they know what it means."

Four weekly three-hour sessions allow the pupils to cover different types of energy with separate sessions for wind, water and solar. Each week, there are homework tasks encouraging them to investigate electricity in the home.

They all receive a "Thinking about Energy" project folder, which is filled out during class and has investigation sheets added from the practical exercises. The intention is to build up the folder for use after the programme.

While the sessions are structured, the programme allows the children time to ask their own questions. Mr McNeil says: "When we were talking about types of energy, one boy mentioned heat which comes from the ground - called geothermal energy. We talked about what it is, and discussed Iceland and how they use geothermal heating. It seems to have awakened their interest in science. One boy even asked about astronomy."

Despite having Higher physics, class teacher Christine Gardner has



By building turbines, pupils find out how they work. Photograph: Alamy

## Getting kitted out

- Each eLab Lego kit, suitable for three children working together, costs £170.
- The Alternative Energy Engineering programme from ComputerXplorers costs £1,500 for four half-day sessions. Costs include technology instructor, use of equipment, lesson plans, and additional learning material for use by the teacher after the sessions.
- The programme is suitable for P5 upwards.

[www.computerxplorers.co.uk](http://www.computerxplorers.co.uk)



appreciated having experts on site. She says: "My science of energy is better now, having spoken to the experts. I was going to cover renewable energy anyway. They have made it more science-based than I would have done, and brought in expert knowledge."

"The children have really enjoyed it and it has allowed the project to be more active. It would have been difficult for me, because of limited resources."

## TALKING ABOUT TYPES OF ENERGY, ONE BOY MENTIONED HEAT FROM THE GROUND - CALLED GEOTHERMAL ENERGY

The programme has been written with Curriculum for Excellence in mind. As an ex-teacher, Mr McNeil has been able to advise Mr McGill on this, which has impressed the teachers. "John identified the curriculum outcomes it satisfies and how it fits in," says Mrs Gardner.

Social and historical elements are also covered, as the class is encouraged to talk about their local areas. In a few weeks' time they will visit the wind farms at East Kilbride, as Mrs Gardner continues with the topic. "They have covered a lot of science, so we will be looking more at the environment," she says.

"We will talk about clean energy and how some people are against wind turbines. We may also work on an extended piece of writing, such as 'What do you think life would be like without energy?'"

Headteacher Maureen Grant sees long-term benefits in the programme. "We see it as a CPD opportunity for the teacher," she says. "She is there for the sessions and is left with tasks she can do with the class."

"It also benefits me, as I now have a teacher who has a good knowledge of energy. It ties in with the eco agenda and the sooner we get them thinking about what energy is, the better."

## In brief

### Flying the flags

The pupils of Hillhead Primary in Wick marked the beginning of the 2010 World Cup with a whole-school aerial photograph alongside the 32 flags of the countries which qualified for the finals in South Africa (right). The school council is to hold a World Cup Evening next week for pupils, staff and parents, with pupil art competitions and football-related activities, such as having your photograph taken with a World Cup replica, Wii football headers, designing your own football shirt fridge magnet and beat the goalie. Even the



school's vegetable plot will feature a scarecrow dressed in football kit for the duration of the competition. Hillhead's flagpole is

used to flying a number of national and fun-related flags throughout the year to mark specific events and celebrations.

### Festival fever

Since registration for the Scottish Learning Festival opened two weeks ago, 1,000 delegates have signed up and others are encouraged to do so fast, to avoid disappointment of overbooked seminars. This year's festival (September 22-23) is focusing on Curriculum for Excellence and any ideas, good practice and resources that can help teachers to implement it. In addition to Education Secretary Michael Russell and keynote speakers Eric Booth, Richard Gerver and Sugata Mitra, Stephen Heppell returns with a session on "Our Futures", in which he will discuss the future of learning with pupils

from schools across Scotland. The Scottish Arts Council's Travelling Gallery will be there for both days, and eight local authorities will showcase their work from a Citizenship through Visual Art project.

● [www.scottishlearningfestival.com](http://www.scottishlearningfestival.com)

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