

Design a Renewable Future Competition **SCHOOL INFORMATION PACK**

New and Renewable energy, sustainability and low carbon technologies are part of the national curriculum and offers opportunities for children to learn:

- that renewable energy resources include wind, waves, running water, sunlight, biomass and some geothermal sources
- how a device works using a renewable energy resource
- that renewable energy resources can be used to generate electricity

and that they should be able to

- demonstrate the use of a device and discuss the role of the renewable resource, *eg solar cells transform solar energy into electrical energy by driving a small motor, solar panels transfer solar energy to water, running water on a turbine, etc.*

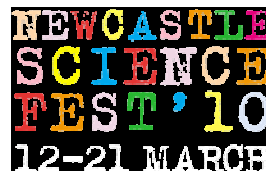
Narec, AV Festival, Newcastle Science Fest and Newcastle Science City would like to invite schools to participate in a New and Renewable themed competition.

The energy of the future is being generated in North East England. With expertise in the areas of low carbon technologies and the oil & gas sector, the energy market in the region is worth £900m and employs around 8,000 people, and this is set to increase. Nationally, UK Government policies are creating lucrative business opportunities in the energy and low carbon technology sector. The Energy Bill 2007-2008 (and associated Renewables Obligation) has targeted 10% of the country's energy to come from renewable sources by 2010 and 20% by 2020. The North East is one of the most famous locations in the world for energy and is a major player in the drive towards a low carbon economy.

North East England is home to leading edge research in wind and solar power, co-ordinated by the New and Renewable Energy Centre (Narec) in Blyth, a major player helping the UK to achieve its ambitious renewable energy targets. Narec is a national centre for the UK dedicated to accelerating the deployment and grid integration of renewable energy and low carbon generation technologies, utilising wind, wave, tidal, solar PV and thermal power.

All areas of New and Renewable energy are being explored:

- Narec has helped facilitate the expansion of some of the world's leading low emission technology suppliers,
 - US energy giant Clipper Windpower located its European R&D facility in North East England to develop the world's largest offshore wind turbine in collaboration with Narec
 - Japanese market leaders Yanmar chose the North East to develop its 100% biodiesel heat and power system at the Narec testing facilities
 - the region contains the UK's biggest biomass power station, at Wilton International on Teesside, which generates 30MW of power
 - Durham University is currently leading a £6.3 million programme to develop affordable solar panels from sustainable materials
 - In 2007, South Gare lighthouse in Redcar, originally built in 1884, became the first hydrogen fuel cell-powered lighthouse in the UK and lights a major shipping lane into Teesport.
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The Competition Brief:

We are looking for **teams of up to 5 Key Stage 3** students to develop a way of encouraging society to think about the importance of renewable energy and of the reduction of mains power.

Students are invited to either:

- **Produce a piece of literature which promotes the importance of renewable energy to society, or**
- **Design a new product which uses a renewable energy source**

Schools can encourage as many teams as possible to **design either a product or literature**, however, as there can only be **one entry to the competition from each school**, schools must choose their top entry and submit their literature/design to Newcastle Science City by **Friday 14th May 2010**. Schools may wish to hold an internal competition so that fellow students can help to select the final entry for each school.

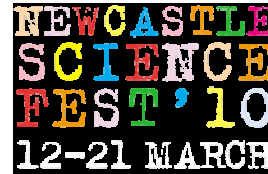
Judges will then whittle down all of the school entries to create a top 10 short list of finalists. We are working with local and regional press and the top ten finalists will be featured in the local press during June and yet more coverage will be given to the final winning team and the runners up in July at the regional Engineering Show. The winning team and runners up will invited to attend the VIP night of the North East Engineering Show and will be presented with their prizes at the show.

Team Entry Requirements:

- Teams must be made up of **up to 5 Key Stage 3 students** who are studying at schools in the Region.
- Although only one entry from one team from each school can be submitted to the competition, schools are encouraged to work with classes or year groups to integrate the competition as a cross curricular activity. Schools can use the competition to help students to show an understanding of renewable energy. Whilst many teams may form within schools to develop products and pieces of literature, only **one entry** per school is allowed to be forwarded to the competition.
- There should be a maximum of **5 members per team**

Timescales:

Date	Stage
14/05/10	Submission of entries – entries to be submitted either electronically to Newcastle Science City (on a dedicated area of their website) or by post or in person to Karen Marshall, Newcastle Science City, 4 th Floor Time Central, 32 Gallowgate, Newcastle Upon Tyne, NE1 4SN
21/06/10	Top Ten finalists announced, schools notified, press coverage
28/05/10	Judges announce Winning and Runners up, schools notified, press coverage
w/c 31/06/10	Winners and Runners up presented with prizes at the VIP show of the NorthEast Engineering Show. All 10 finalists entries will be displayed at this show. Press coverage.



The Prizes:

Each member of the winning team will win a **4GB iPod Shuffle.**

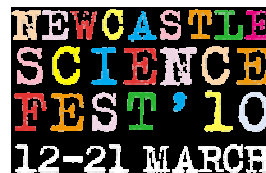
Each member of the team of runners up will win a **2GB iPod Shuffle**



Thanks to Fenwick, Newcastle for supporting the team prizes for the competition

The winning school will win an **Energy Audit of the School** carried out by Narec





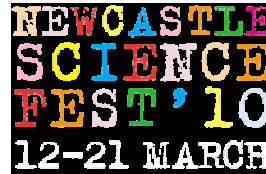
School Entry Form

Name of School	
Contact Member of Staff	
Team Members	
Email Address	
Contact Number	

This form must be submitted with the school entry to: Newcastle Science City, entries may be uploaded to the Newcastle Science City website (www.newcastlesciencecity.com) or posted/delivered to:

Karen Marshall,
Newcastle Science City,
4th Floor, Time Central,
32 Gallowgate,
Newcastle Upon Tyne,
NE1 4SN

on or before **Friday 14th May 2010.**



Design a Renewable Future – Key Stage 3 Competition
STUDENT INFORMATION PACK

Student Brief:

We are looking for teams of students to develop a way of encouraging society to think about the importance of renewable energy and of the reduction of mains power. Students should either:

- Produce a piece of literature which promotes the importance of renewable energy to society
- Design a new product which uses a renewable energy

Things to think about:

- What aspect of renewable energy do you think is the most important and why?
- How can you encourage society to think about the importance of renewable energy and why should you?
- In what way can you encourage society to use renewable energy more or reduce reliance on mains power?
- Have you thought about an original way to encourage people to think about renewable energy?
- Why have you submitted your entry in the format you have? (Eg Why did you produce a poster over designing a new product?)

Below are a few examples for entries to the competition, although you are encouraged to be creative in your entry:

- Design a product which uses renewable energy
- Produce a performance, this can be videoed
- Design a leaflet
- Make a Poster

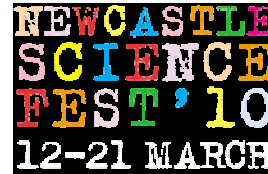
ALL team entries MUST be submitted by:

Friday 14th May 2010

JUDGING CRITERIA

Judges will be scoring based on the following areas:

Category	What are the Judges Marking?	Total Marks Available
Creative Idea	<ul style="list-style-type: none"> • How unique is the idea to promote renewables? 	15
Renewable Energy Knowledge	<ul style="list-style-type: none"> • Do students understand what renewable energy is? 	15
Presentation	<ul style="list-style-type: none"> • How informative is the entry? • Is the entry visually pleasing/easy to understand? 	10
Technology	<ul style="list-style-type: none"> • Have students demonstrated an understanding of new and renewable energy? 	10



Information about the Competition Sponsors

What is Narec:

Narec (New and Renewable Energy Centre) is increasingly recognized as the national centre for the UK dedicated to accelerating the development and commercialisation of renewable energy technologies.

We help technology developers to utilise offshore wind, wave and tidal power and then connect their generating devices to the grid. We also work with businesses and communities to assemble distributed energy systems which incorporate micro renewables and low carbon technologies to reduce their carbon impact.

More information about Narec can be found on their website: www.narec.co.uk

What is Newcastle Science City:

In December 2004, Newcastle was designated as one of six English Science Cities, by the then Chancellor, Gordon Brown. The Science Cities were tasked with leading the development of deeper links between business and the science base, and to ensure that science, technology and innovation succeed in becoming the engine of economic growth.

Newcastle Science City has grasped this accolade firmly with both hands, and has made great headway in its ambition to enhance prosperity from science for Newcastle.

In 2005, Newcastle City Council, Newcastle University and One NorthEast formed a partnership to develop the strategic vision and objectives of Newcastle as a world class Science City, as it plays a key part in their respective ambitions and strategies.

More information can be found on the website www.newcastlesciencecity.com

What is Newcastle Science Festival:

Newcastle ScienceFest is a 10 day celebration of science at venues across NewcastleGateshead, with the principal aim of increasing the North East's enthusiasm for science and encouraging young people to consider a career in this area.

The festival is funded by One NorthEast and is delivered in partnership with the Centre for Life, Tyne and Wear Museums, Newcastle Science City, Newcastle University, Newcastle City Council and culture10 as part of NewcastleGateshead's world-class programme of festivals and events.

More information can be found at the Festival website www.newcastlesciencefest.co.uk

What is the AV Festival:

AV Festival is an international festival of electronic arts, featuring visual art, music and moving image. A biennial event, the festival takes place in the urban centres of Newcastle, Gateshead, Sunderland and Middlesbrough in the North East of England. The festival consists of commissions, exhibitions, concerts, performances, film screenings, workshops and debate at many of the region's outstanding cultural venues and public sites.

The next AV Festival will take place in March 2010, and will be based around the central theme of Energy. It will explore energy as a force through which all of life is connected, transformed, renewed and destroyed.

More information about the festival can be found at the AV website www.avfestival.co.uk
