

newsletter GREENZINE



CON tents

Welcome to the first newsletter for this year's Big Green Challenge! The big green challenge is a debating competition for 1st to 3rd years across the Highlands and Islands. We want you to think about renewable energy and how it fits in with your life and Scotland's future. We're going to give you the chance to debate the hot topics and win some seriously cool prizes!

placed team will get a trip to the Eden Project in Cornwall, and there are prizes for the runners-up too.

Last year's winners said the Big Green Challenge was a "wonderful experience...relevant and worthwhile" and we're sure this year's competition will be even bigger and better. So make sure your team is registered by 19th September to take part - you can register online at

www.thebiggreenchallenge.co.uk

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To enter, you'll need a team of three people, and you'll need to arm yourselves with knowledge of the issues around renewable energy. Your school should have received competition packs to help you get started, and we'll be updating you with newsletters packed with more information every few months.

The debates will happen in three rounds, with the first kicking off in October. There are prizes at every stage, leading up to the grand prize – a fantastic trip to Iceland. The second-

- **FOCUS ON RENEWABLES**
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ISSUE 01



FOCUS ON RENEWABLES



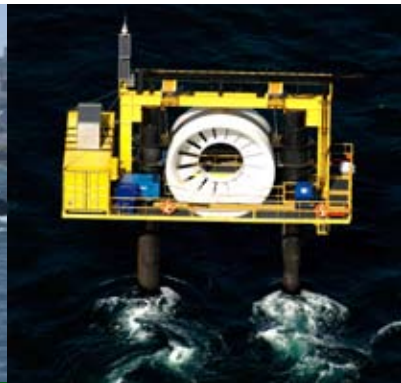
MARINE & WAVE POWER

Marine power is generated from the tides and from waves. Tidal energy is captured by placing turbines below the water, which are turned by the movement of the water caused by tides. Energy from tides can also be harnessed by barrages, from the changing height of the sea between low and high tide. Tidal power requires particularly strong or high tides.

Wave power works by capturing the up-and-down movement of waves on the surface of the sea. Scotland is currently leading the way in wave technology - but marine energy is still behind other forms of renewable energy, and while tidal power is predictable, wave power isn't. Scientific studies on how these devices affect marine life are still ongoing.

wind and marine power are two forms of renewable energy that scotland is well able to provide.

Below: OpenHydro tidal energy turbine in Orkney



Above: The Pelamis project is just one of the wave power devices being tested in Scottish waters

WIND POWER



Wind power, which uses turbines to convert wind into electricity, is abundant in the Highlands and Islands. However, some people say wind farms spoil the look of the countryside, and long lines of pylons are needed to connect remote windfarms with the main electricity grid. But others argue that most of the countryside is already man-made, and that it's worth getting used to windfarms.

Left: Novar wind farm in Easter Ross



Solar & Geothermal POWER

Solar power and **geothermal** power both come from heat. Solar panels can capture heat from the sun - believe it or not, they do work in Scotland! Even on cloudy days, diffuse solar radiation can be captured and converted to heat. Geothermal energy is heat from the ground. In some countries, big geothermal power stations get heat from hot rocks below the surface. In the Highlands and Islands, homes can be fitted with geothermal heat pumps, which tap into the heat below the ground. Because they capture heat which is already around us, solar and geothermal are both very clean forms of energy.

Biomass POWER

Energy from **biomass** comes from recently dead biological material, like crops and wood. These can often be burnt without producing harmful carbon emissions that fossil fuels like coal produce. When biomass is burnt, it's called a biofuel. Biofuels are currently in the news, though not always for the right reasons. Biofuels are a clean energy, with abundant materials available to create them, and

can also be mixed with fossil fuels to make them less damaging. On the other hand, some countries have started growing crops for biofuels instead of for food, and this is making life harder for people in third world countries where food is scarce. However, there are ways of using biofuels at a smaller scale without having to set aside fields for crops.



Top Left: Homes fitted with solar panels

Above: Geothermal heat pump

Left: Biofuel containers



THE 12 ELEMENTS OF PUBLIC SPEAKING

Taking part in the Big Green Challenge may be your first experience of public speaking. Award-winning public speaker Alex Blyth describes a foolproof way of becoming a confident public speaker.

Speaking well in front of an audience is a life skill that can only be mastered by frequent practice over many years. By learning the 12 elements of public speaking – and practising them regularly – you'll find that you can quickly become a better public speaker.

1) STRONG, CONFIDENT POSTURE

Be steady and confident and stand with a calm and strong pose. This reassures your audience, and yourself, that your speech isn't going to be affected by nerves. Audiences feed off a speaker's nerves, so start as you mean to carry on – body straight, shoulders back, chest out, chin up and breathe deeply.

2) WHAT TO DO WITH YOUR HANDS

People are often unsure what to do with their hands. The answer is simple – keep them down by your sides. It doesn't look as odd as you think it does. As you become more confident, use your hands to make definite, clear gestures that support what you're saying.

3) SMILE!

When you smile, your body releases dopamine, a chemical that makes you feel happy and relaxed. It also shows other people that you are relaxed, and makes them feel that way too. So, even if you feel tense and nervous, force yourself to smile. Prepare something that makes you feel happy or amuses you whenever you think of it. Then think of it and start to smile.

4) MAKE EYE CONTACT

Eye contact is a great way to get and keep the audience's attention, and it encourages them to trust you and your words. Don't stare at one person, and don't methodically scan the audience row by row. Move your gaze naturally between people in different sections, perhaps moving on to the next person as you move onto your next point. Don't forget to include the people at the edges of the room.

5) WAKE UP THE AUDIENCE

Audience interest goes up and down, so when you notice people becoming distracted, you need to perk them back up. Facts and figures have their place, but don't drone on – spread surprising facts or appropriate humour through your speech, and your audience will stay with you.

6) THINK ABOUT EMPHASIS AND TONE

You can dramatically change the meaning of a sentence by the words you emphasise and your tone of voice. If possible, practise your speech, or parts of it, with someone you trust, to give you honest constructive criticism.

7) PROJECT YOUR VOICE

There's no point speaking if your audience can't hear you. Focus on projecting your voice to the back of the audience. Don't shout. Breathe in deeply and let the air that becomes your voice come from deep down.

8) SLOW DOWN!

Almost everybody speaks too fast when addressing an audience. Remember your listeners need time to process what you're telling them. Slow down to a point where you think it's probably too slow, and chances are it's about the right speed. Consider also how you can use pauses to good effect.

9) SIMPLE, SHORT WORDS AND SENTENCES

Too many people think that jargon and complex technical language impresses people. It doesn't. It bores them. Speaking, even more than writing, benefits from simple words and sentences.

10) A COMPELLING OPENING

Make sure your audience knows you've started. You might want to use a formula such as "Ladies and gentlemen....", or you might want to use your own version. Whatever you do, make it clear that you have begun. Then grab the audience's attention. In the first 30 seconds you need to tell them what you're going to cover and why they should be interested.

11) USE REAL LIFE EXAMPLES

Nothing brings a speech to life like real life examples. Tell a story that demonstrates the point you are trying to make. The audience will understand you more clearly, they will care more passionately about what you're saying, and, best of all, you'll find it easier to remember.

12) GIVE THEM AN ENDING TO REMEMBER

If you only memorise one part of your speech, make it your final sentence. It's what people will remember most of all from your speech, so make it the best part. Depending on the speech, finish with a stirring call to action, or a hilarious joke, or a poignant last thought. Whatever it is, make it clear to your audience that you have ended and that it's time to for them to start applauding!

Science and Technology

MAKE YOUR MARK

Get the most out of the Big Green Challenge this year by involving your whole class - or even your whole year - in bringing together research on renewable energy. Speak to your teachers to see if you could get a school debate going - for example, on the pros and cons of wind farms, or on the growth of biofuel crops instead of food crops. There are loads of films and pictures about renewable energy sources on sites such as YouTube and Wikipedia.

Learning Teaching Scotland (www.ltsotland.org.uk) also has links to many other websites which will be useful to you. Just type Renewable Energy into the search box on their site.

How we generate energy in the coming decades will affect all of us. Scientists and engineers across the world are working on new ideas to solve our growing energy needs. Generating power from renewable sources, as well as working on energy efficiency options, will be big areas of employment in the future, so when you're doing your research for the Big Green Challenge, you should consider whether some of the energy jobs you come across might be something you would like to do.

The Big Green Challenge will kick off with the first round of regional heats on Monday 6th October. In those schools where this falls in the October break, the first round will take place instead commencing Monday 20th October. The semi-finals will be on Friday 28th November, and the Grand Final will be held on Friday 30th January 2009.

Times, locations and judges will be announced to schools in due course.



COMPETITION HEATS