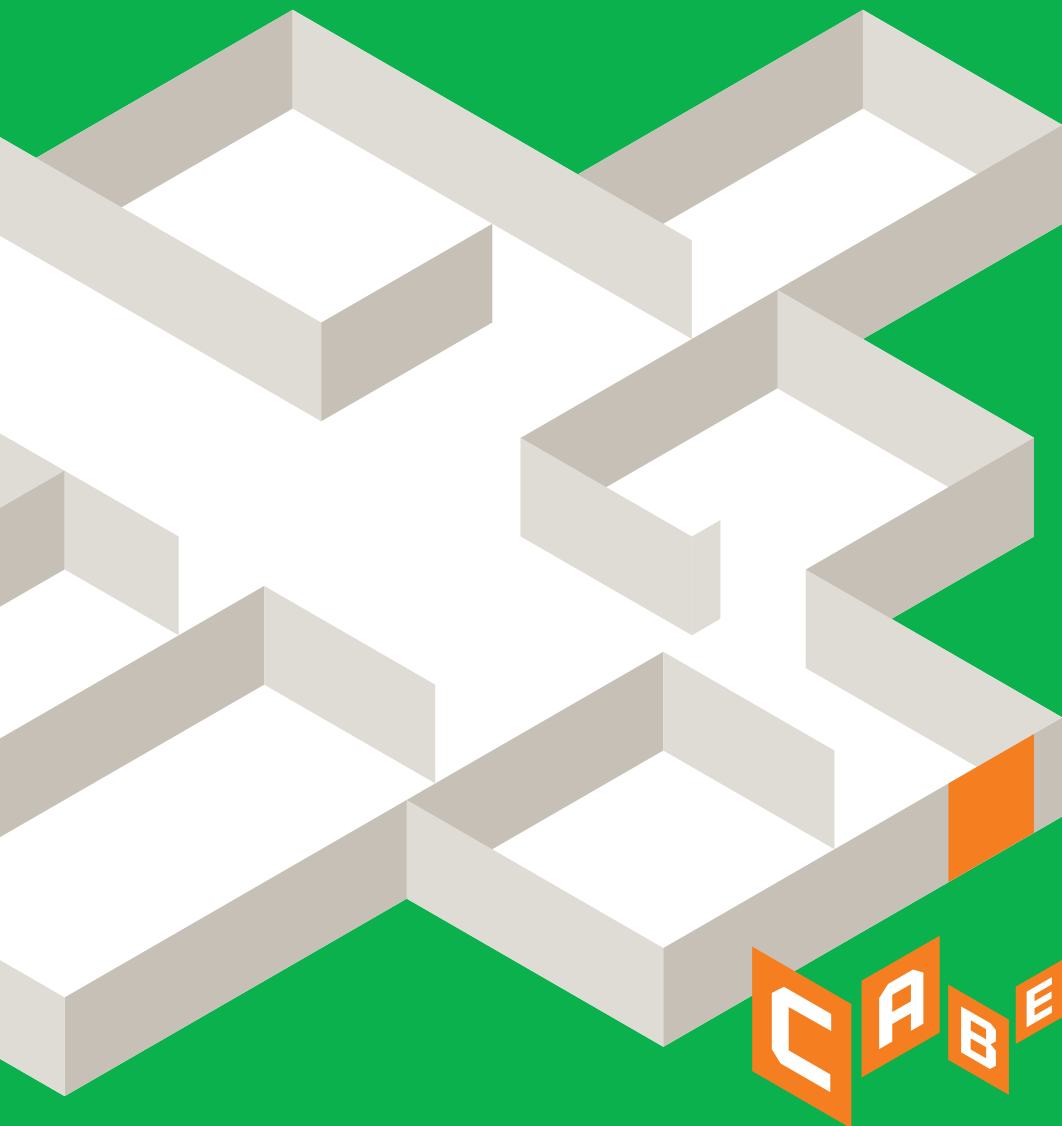


THIRD EDITION

Green Day

A climate change
activity kit for schools





What is Green Day?

Green Day is an event that helps to make schools sustainable. It will inspire pupils and colleagues in your school to learn about climate change and how it relates to the buildings and spaces around them.

Green Day is a fun way to learn serious lessons. It helps you explore the connections between sustainability and the places we live and learn, incorporating these themes into lessons and whole-school activities.

Although it begins with a single day of your choosing, Green Day should not be treated as an isolated event. It acts as a springboard for long-term action which could transform your school and the community around it.

Green Day is led by CABE, the government's independent advisor on architecture, urban design and public space.

For further information visit www.cabe.org.uk/greenday

Sustainable schools

There is real urgency. Schools in England generate roughly the same amount of greenhouse gas emissions as all the energy and transport of Birmingham and Manchester put together. Changing this is now the law.

Local authorities have to monitor the energy performance of individual schools and publicly report under the Carbon Reduction Commitment. There should be a culture of sustainable development embedded into all areas of school life. Making a school sustainable is partly about the smart application of technological solutions, but it's overwhelmingly about the ethos and ambitions of a school.

To get informed visit www.teachernet.gov.uk/sustainableschools







Tony High School, Bradford by Arnhem + Allen © Tim Soar

CABE, education and climate change

A major part of CABE's work involves inspiring young people to value and enjoy the buildings and spaces around them. The built environment is a free, local resource that can support both the curriculum and informal learning. We want to get young people excited about the built environment, help them understand the value of well-designed places, and support them to play an active role in improving all our cities, towns and villages.

Tackling climate change involves thinking hard about the design of places and how we live our lives in them. The global environmental crisis is, in large part, a planning and design crisis. It is a consequence of how things are made, resources are used, land is developed, buildings are constructed, services are supplied and places are connected. These are things pupils need to understand and feel they can change for the better.

-  **KS1** Suitable for key stage 1 pupils
-  **KS2** Suitable for key stage 2 pupils
-  **KS3** Suitable for key stage 3 pupils
-  **SEN** Recommended for SEN pupils

About the Green Day activity kit

This activity kit provides ideas, activities and resources for holding a Green Day in your school, and making it a more sustainable place in which to work, play and learn. It is designed to work in both primary and secondary schools for key stages 1, 2 and 3.

The activities are organised by subject but many of them can be adapted to suit more than one subject. The kit is not prescriptive: it simply provides ideas to help teachers integrate the theme of climate change and the built environment into each subject area. We recommend that schools attend one of our free half-day workshops or look at our online information resources, to help staff prepare.

Teachers will need to consider their pupils' ages and abilities and adapt these activities accordingly. We suggest that teachers involve pupils in a short starter activity to provide background knowledge and put each lesson in the context of the wider global issue of climate change.

You can order further copies of this activity kit for free from www.cabe.org.uk/publications

Have an interactive Green Day with We Are What We Do

CABE has teamed up with the We Are What We Do campaign to offer schools the chance to launch campaigns, track their Green Day activities and compete to be the greenest school. See www.schools.wearewhatwedo.org/greenday for a chance to take part.

Climate change and the built environment

- Construction and use of the built environment accounts for around half of carbon emissions in the UK.
- The UK's homes consume three times more energy than the UK's private cars.
- Buildings make up the UK's fastest-growing source of CO₂ emissions.¹
- Energy use in non-domestic buildings is increasing as fast as the use of fuel in air travel.
- Schools are responsible for 25 per cent of public sector energy costs.
- UK emissions of CO₂ account for about 2 per cent of the global total.

For further information visit www.engagingplaces.org.uk or www.sustainablecities.org.uk

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Lanmeier and Spence Heath Primary School, Hammerwich by Studio B Architects © Kevin O'Sullivan

¹ Association of Environment Conscious Builders www.aecb.net

A Green Day in the life

How a typical school day could look...

4:10pm

At the end of the day, all pupils return to their form rooms to write a climate pledge on leaves made of green paper. As they leave school they attach their leaves to a pledge tree in the entrance hall for everyone to see.

See how Green Day 2009 unfolded in St Cleopas Primary School in Liverpool at www.cabeurl.com/4w and Guiseley Secondary School in Leeds at www.cabeurl.com/4x

2:45pm

The school's first eco-committee meeting is under way and pupils are discussing the school's environmental action plan. At next year's Green Day they will be working with other schools, helping them to do the same.

8:45am

Pupils are beginning to arrive at the school gate. It is no different to any other school day, except that there are fewer cars outside the school. The pupils are all in uniform but they have one distinctive feature. Almost all of them are wearing one green item of clothing – green hats, hoodies, socks, and even green hair – all visible in the gathering outside the assembly hall.

9:00am

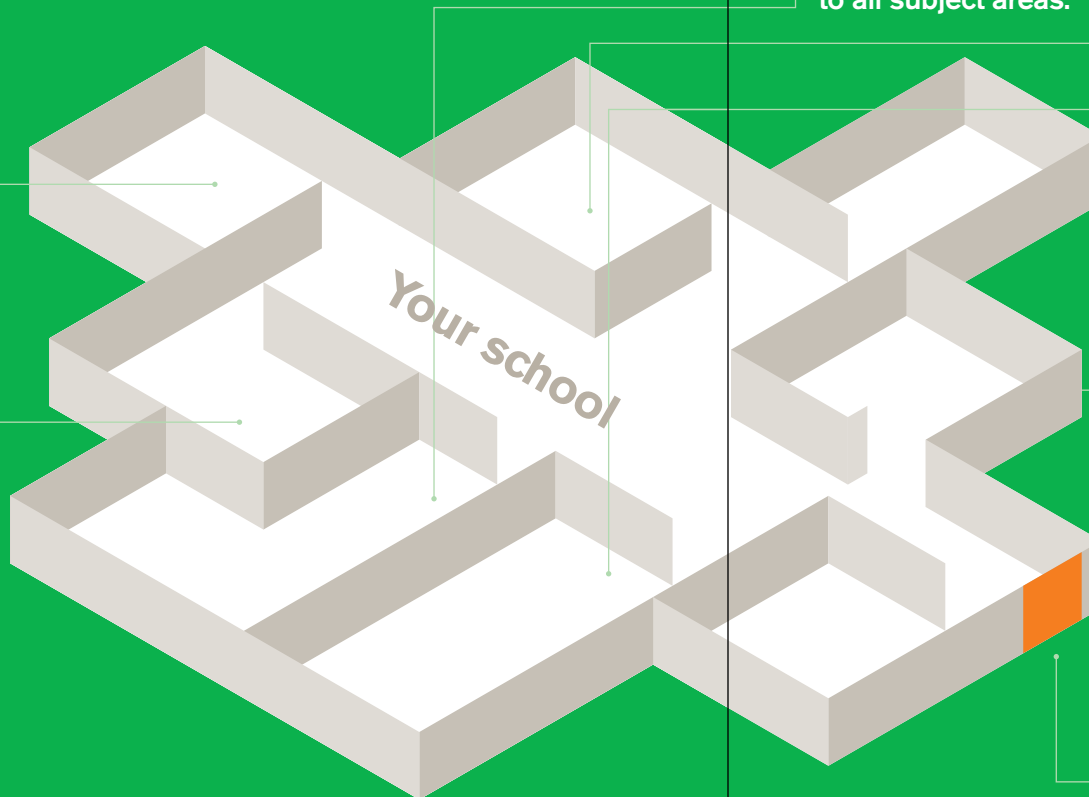
The head teacher welcomes the school to its first ever Green Day and shows a video clip about climate change. She explains how Green Day is a vital first step in the process of the school becoming sustainable. Reminding pupils of their environmental responsibilities in and out of school, she launches a new student eco-committee. She explains how climate change relates to all subject areas.

10:20am

It is period two and year 8 is in science. Having recently studied energy transfer, the class is working in groups analysing the insulating properties of materials and how they could be used to increase the school's energy efficiency. Across the corridor, in maths, Miss Coelho talks through statistics about school lunches and year 9 students are using a formula to work out their food miles and annual carbon footprint.

11:35am

Throughout the morning, issues of climate change and sustainability are applied to all lessons. In geography, pupils assess the likely environmental impact of building a new bike shed on the school grounds. In English they study persuasive writing, which they later use in ICT to create podcasts raising awareness of how local people could reduce their energy use.



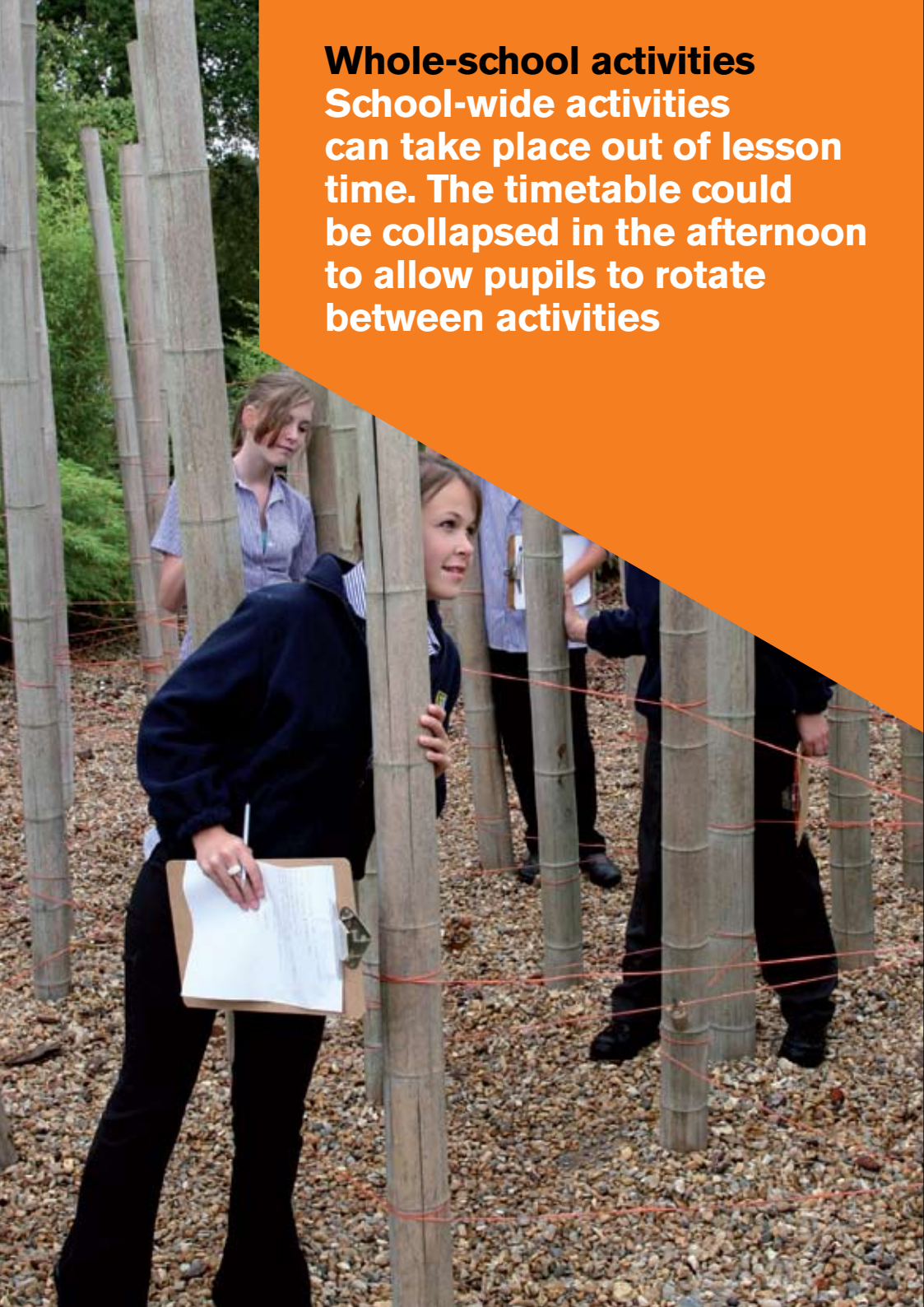
2:00pm

The afternoon's timetable is collapsed so pupils work in groups. Activities include storyboarding short films, creating awareness-raising leaflets, visiting a sustainability careers fair and designing clothes for an eco-fashion show at the end of term.

1:15pm

Locally produced food is served in the canteen at lunch. Mr Broderick, a local farmer, has agreed to deliver fresh vegetables twice a week. He has also helped develop an area of the school's grounds into a garden where pupils are learning to grow their own vegetables.

Whole-school activities
School-wide activities
can take place out of lesson
time. The timetable could
be collapsed in the afternoon
to allow pupils to rotate
between activities



KS1 KS2 KS3

Assembly

It is important to start the day by explaining what Green Day is about and why your school is taking part. To provide background, you should explain the basics of the greenhouse effect and how it is causing climate change. The head teacher or visiting specialist should lead the assembly, and this would also be an opportunity to announce new policies for making the school sustainable. As an alternative, each form tutor could introduce it to their form group.

KS1 KS2 KS3 SEN

Wear green clothes

An easy way to increase pupils' enthusiasm for the event is to encourage them to wear an item of green clothing. This can be anything from a green sock or hair clip to a

sweater or hat. To help, write a letter to parents telling them about Green Day at least a week in advance.

KS3

Find out your school's footprint

Encourage pupils, teachers and parents to calculate their carbon footprint. The carbon detectives' kit is an online carbon footprint calculator for schools in England

KS1 KS2 KS3

Start a green team

Establish a green team for the school. It could be modelled on the 'eco-schools' scheme, which sees pupils assemble their own eco-committees to audit the environmental performance of their school. Through consultation with the rest of the school and the wider community,

the pupils decide which environmental themes they want to address and how they are going to do this. Eco-schools is an international award programme that guides schools, providing a framework to help embed green principles into school life.

KS2 KS3

How green is your school?

Ask pupils to rate their school building and grounds and make a map to show its environmental credentials. They could use digital cameras to photograph the areas they think are green and those that aren't or they could vote on different areas using a traffic-light coloured card system. Recycling bins and the school allotment could be shown a green card, whereas an empty classroom with the heating and lights left on could be shown a red card. Amber voting cards could be used for areas pupils are

undecided about. The information could then be collated on a large map back in the classroom and this could be displayed later in the entrance hall.

KS1 KS2 KS3

Walk or cycle to school

Hold a walk or cycle to school campaign and provide incentives such as a cheap school bike rental scheme. Pupils could be given cards to be stamped every time they walk or cycle to school as part of an award system. They could be involved in designing and building a sustainable bike shed. Alternatively, you could encourage parents who have to drive to car share, or offset their carbon by contributing to the materials for the new bike shed

KS2 KS3 SEN

Eco day out

Take a group of pupils to a local eco-friendly house, building, business or recycling plant. Arrange for the architect or resident to show you round. Pupils

could develop what they learnt during the visit back in the classroom and the outcomes could be displayed around the school. Alternatively, pupils could share what they have learnt with the rest of the school in an assembly.

KS3

Green collar careers

Hold a careers fair so that pupils can explore careers that help the environment. Ask pupils to consider the skills and experience that organisations might be seeking. How could these skills apply to mainstream careers in the future? What questions could they be asked at interview? Local organisations could be invited in to go into more detail about what they do and the people they employ and they could hold mock interviews.

KS2 KS3

Eco uniform

Give pupils one minute to list all the materials that the clothes they are wearing are made from. Discuss the origins of these materials and how they can affect the environment. Place a set of household materials, including a plastic bottle in front of the class and ask the pupils to guess which one is used to create eco-uniforms, explaining their choice. Pupils can then search the web to find out the answer and what processes are used to turn plastic bottles into clothes.

KS1 KS2 KS3

Pledge tree

Encourage everyone in the school community to make a pledge about how they will use their building in a more sustainable way in future. Teachers should also make their own pledges and the head teacher can pledge a target for the whole school. The pledges

© iStock.com

could all be written on paper leaves and displayed on the pledge tree in the school entrance. Alternatively, they could be posted on the school website, then reviewed later.

KS1 KS2 KS3

Visiting speakers

Invite a speaker to give an inspiring talk to an assembly. This could be a local business person, architect, park ranger, politician or even an environmentally conscious celebrity. The talk could be on anything from building energy-efficient homes to the role of green

spaces in local communities.

Pupils could prepare questions to ask in advance. Your local authority planning, environment or parks department may be willing to provide a speaker. Alternatively, many companies and organisations offer free workshops for young people in schools. These could range from demonstrating

solar panels in science to getting a local bike shop in to run a cycle maintenance training session.



© Dave Morris

KS1 KS2 KS3

No-electricity day

Before the Green Day itself, discuss with pupils how to hold a no-energy day. What is electricity normally used for in the school?

In pairs, pupils could categorise which uses are essential and which are avoidable. Could the school function without electricity? How could energy use be cut? Consider with pupils what the obstacles would be and how they could be overcome. On Green Day hold a no-electricity (or reduced-electricity)

day (no lights, computers, bell, etc). Take a reading from the electricity meter to compare a normal day to a no-electricity day. How much electricity did you save? Think about how you could reduce your energy use every day.

SEN – highlight objects around the school and home that use electricity and teach pupils how to turn them off.

KS2 KS3

Test your teachers

Set up a TV-style quiz show for teachers in an assembly to find out who is 'the weakest link'. The questions could be written by the pupils, with one acting as the Anne Robinson character to test the teachers on how much they really know about climate change. While the teacher is in the spotlight, the pupil host should challenge them on what they do and how they could make their lives more sustainable.

KS2 KS3

Community competition

Encourage pupils to design a competition to interest the wider school community in helping to make the school or local area more sustainable. Pupils could come up with incentives for teachers to print less; ideas to encourage more parents to car share; or ways to encourage local businesses to become more environmentally friendly.

KS2

Bury a time capsule

For homework, ask pupils to bring one item into school that is not very environmentally friendly and would have no place in a low carbon future (eg an old phone charger or a styrofoam cup) and write about how it can damage the environment. As a

class, write a letter to future pupils of the school explaining why you have buried the items. Place all the items into a time capsule with a headstone asking future pupils to unearth and evaluate the contents in 2020 (the government's target date for schools to be sustainable). What will they learn from our present habits and how might their own everyday products be different?

KS1 KS2

Hold an eco-fair

Open the school for parents and their friends to celebrate your school's achievements. The school could hold a fair with stalls, games, food, second-hand sales or raffles, all with an environmental theme. Pupils' work on the theme could be displayed and performances could be held in the afternoon after a low-carbon picnic. The revenue from the event could be put towards making the school building more sustainable.

KS1 KS2 KS3 SEN

Building materials

Examine the building's materials. List the materials that make up the structures (eg concrete, brick, stone, wood or glass) and ask pupils to think about whether they have a positive or negative effect on the environment. Are they made of renewable or environmentally

friendly materials? Have any new and innovative materials been used? How do these materials affect the way the building is heated and cooled, or how much light it allows in? Perhaps there are older and newer parts of school that could be compared and contrasted.

KS1 or SEN – collect a sensory bag of building materials and encourage pupils to sort them, considering different characteristics, such as texture, temperature or colour. The more able could spot examples of each material on a range of images of buildings or their own school site. This information could be collated into a table.

KS3

Building Schools for the (sustainable) Future

Most secondary schools in England will be rebuilt or refurbished in the next 10 years. Building Schools for the Future is an opportunity to make schools more environmentally friendly (eg using renewable energy, improving insulation, collecting rainwater for re-use in grounds). Explain to pupils that this is a one-off chance to have a sustainable school and why the opportunity shouldn't be wasted.

If your school is being redesigned, invite the architect to a school assembly. Get pupil 'design advisors' to challenge them on the environmental credentials of the new building.

If your new school is already built, share experiences with other schools that are about to go through BSF.

KS1 KS2 KS3

Eco-fashion show

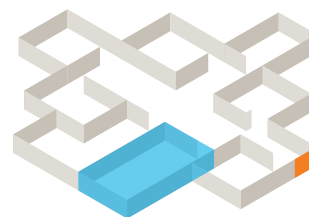
Pupils design their own fashion items from recycled materials and old clothes. Then an eco-fashion show could be held, with a catwalk and music. This could be performed for parents and would be a great opportunity for your school to share other outcomes of Green Day.

Maths

KS3

Create climate charts

Collect climate change statistics such as different countries' or cities' annual carbon emissions. Analyse the figures. Ask pupils to work out the total, average, median and mode. How does your local town or city compare to others in the UK or worldwide? Pie charts or bar charts could be created to present the information. These could later be displayed on the classroom walls. The Met Office provides climate statistics. www.metoffice.gov.uk/education/data



KS2 KS3

Work out your class's footprint

As homework, ask pupils to measure the volume of their houses and collect data on their energy and electricity bills at home. Then, together as a class, you could work out the average amount of energy used per year per student. This could later be worked out in carbon tonnes or displayed as graphs. A similar activity could be done with the school using the online carbon detectives' kit (computers and school energy figures required) www.carbon-detectives.org.uk or www.footprint.wwf.org.uk

KS1 KS2 SEN

Transport diary

Ask pupils to keep a diary of all the different journeys they do in a week, the type of transport they use (including walking) and the time each one takes. Younger or SEN pupils might enjoy recording this in pictures at www.travelbuster.org.uk Each individual can then calculate the total time they spent on each mode of transport over the week and the class total can be worked out. Pupils can use the results to draw graphs that represent the travel behaviour of the class. What does it show? How could

Ask pupils to design an environmentally sound classroom

Maths

carbon be reduced?
This could be an exercise that is revisited regularly as the class tries to reduce its total time spent in cars.

KS2 KS3

Draw a scale plan of an eco-classroom

Demonstrate how to draw a scale drawing of the classroom. Ask pupils to design an environmentally sound classroom of the future – you might want to list things to consider with the class first (eg materials, windows or lighting). This could be done individually, in pairs or in small groups. Older pupils could create scale architectural drawings and plans of an environmentally friendly school. The plans could be converted into 3D models in follow-up lessons.

KS1 KS2 KS3

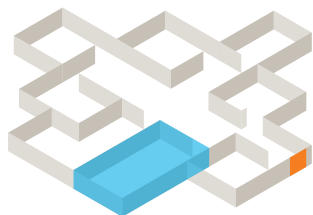
A waste audit

Find out how much waste the school generates in a day (general, paper and food waste). Ask pupils to calculate the total of each in a week, month and year. How much do they personally contribute? How much will they contribute over their lifetime in the school? Alternatively, pupils could measure waste over the Green Day week. They could weigh it each day and see if there is a difference on Green Day.

KS1 SEN

Take the temperature

Get pupils to rate areas of the school as either hot, cold or comfortable. They could do this as a written task or by using pictures. Then use a thermometer to add data to their assessments. This could be developed to help them think about why areas are particularly hot or cold. Where is the heat or cold coming from? How could the temperature be improved?



Use a plug-in electricity monitor to find out which machines are using the most energy

KS3

Calculate your energy use

Use a plug-in electricity monitor to find out which machines are using the most energy. Pupils can measure items around the school (TV, fridge, computers, phone chargers). Then do calculations for how much energy each uses in a day, week, month and year. How much do the pupils personally contribute? How much will they contribute over their lifetime in the school? Try to relate energy use to carbon: which appliances produce the most carbon? You can buy plugs to measure the energy output of appliances from www.alertme.com/energy-saving. The DCSF is providing schools with free energy display meters to help them measure their electricity use.

(this could relate to a physics project)

Alternatively, pupils could draw scale models of the buildings or consider the ratio of volume to surface area and design more energy efficient versions. For homework, they could do this for their own house. KS1, 2 – get small groups of children to measure different classrooms. Then ask them to compare the numbers of lights, windows or radiators used in their room with a room of a different size.

KS1 KS2 KS3

Measure!

Look at different types of home (houses, flats) using images or models.

Explain how to calculate the length, width and height of the walls and roof. Then work out the surface area of each. Older students could then calculate the volume of each building and work out where heat is lost and which buildings will waste the most energy

KS3

Community interview

Create a scenario in which various characters – for example, a grandmother, a businessman, a student, a married couple and an 11-year-old – visit a public event about climate change in their city centre. Select one reporter in each group to interview the others. Their opinions on climate change and the event will vary considerably and the role-plays could be interesting.

What will their village, town or city look like in 50 years' time?

KS2 KS3

Persuade them 'til they're green

Ask pupils to create an advertisement for a new ecological product for a billboard or a magazine, or storyboard a commercial for television. Their aim is to persuade other young people to adopt a more eco-conscious lifestyle. This could be done in pairs or small groups, and could be made into a competition. What will really make them change the way they live? What turns awareness into action? They will need to consider where and when these ads would be placed, and explain why. Look at www.dothegreenthing.com for ideas. For more tips and to share your work with other schools go to www.schools.wearewhatwedo.org/greenday

KS2 KS3

Local to global

How do students feel about their local environment? Have they thought about its elements and how any local problems relate it to the global environment? Devise a questionnaire, with open and closed questions, to find out what young people think about their own local environment.

KS2 KS3

Argue for change

Watch a short section from the start of the animated film *Wall E* focusing on the way the future of the earth is presented. Ask pupils to pick an aspect of human behaviour that could lead to this imagined future, and create a speech to convince people to change the way they live their life, to avoid it.

KS2 KS3

Script writing

Write a script for a film or a play with two main characters disagreeing about the future. One person is extremely optimistic that positive changes will happen. The other is more sceptical or perhaps doesn't think there's a problem that needs fixing. They could then swap roles or act out these roles in front of the class.

KS1 KS2 KS3

Life in the future

Encourage pupils to imagine what life in their village, town or city might look like in 50 years' time. They could write a story, poem or day in the life of a pupil of their age (possibly their grandchild) and describe how life could be very different.

KS1 KS2

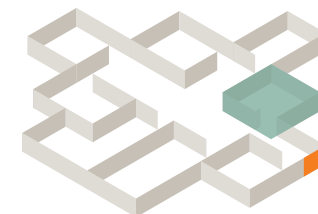
Green peace

Ask pupils to consider the value of the natural world and why it is important. Discuss 'biophilia' – the term used for the instinctive bond between humans and nature. Ask them to think of a relaxing natural place that is important to them and discuss it in pairs. Then ask them to write a story, poem or creative writing piece about that place. Younger pupils could bring in a photo of themselves in a particular place and talk about why that place is important www.bbc.co.uk/breathingplaces

KS2 KS3

Visions of the future

Show a scene from the film *An Inconvenient Truth* and highlight the fact that the climate is becoming more erratic and unpredictable. Alternatively, read or adapt a real-life story about places that have been flooded or have suffered from a drought or hurricane. Get the pupils to close their eyes as you set the scene. Stop the story abruptly at a key moment, for example 'you're trapped and the water is rising around the room.' Allow them to continue the stories in their heads for a minute or two. Then get them to discuss each of their versions.



English

KS1 KS2 KS3

Create a superhero

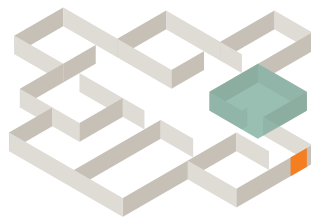
Imagine if one person could save the earth. What powers would he or she need to have? Ask the pupils to invent their own character and consider their special super features – can they spot carbon leaks, or see when lights are left on, or spot when cars have just one person in? Get the pupils to come up with a list of things that the character would need to do and, in teams, ask pupils to compare their characters and tasks. Teams could present their superheroes, design their clothes or even come dressed as them on Green Day.

KS2 KS3

Launch a campaign

Pupils should choose one green issue, such as transport, energy use or waste, and create a campaign to improve behaviour around this issue. Involve as many people as possible – peers, teachers or even the wider community. Make it appealing by using a wide range of media: print, film and internet

Get useful tips on how to campaign and share your work at www.schools.wearewhatwedo.org/greenday



KS2 KS3

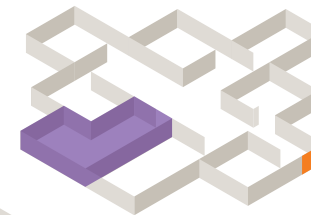
Next generation

Read the *Kids may pay for climate change* article (KS2) www.cabeurl.com/3q or *Climate change will cost the world more than \$300 billion*

Why is it important to invest now? Pupils should create a range of arguments to persuade adults to invest now to cut the damage in the future.

Get useful tips on how to campaign and share your work

Examine a building's materials. Do they benefit or harm the environment?



Sciences

KS3

Geoengineering

Pupils should work in pairs to research possible engineering solutions to climate change. Which do they think is the best and why? There are some ideas at www.ecogeek.org

KS3

Greenopoly

Discuss the different ways that electricity can be generated, and the positives and negatives of these methods. Pupils can play 'Energy Resources Monopoly'

to consolidate this knowledge, or use this to design their own game about energy.

KS2 KS3

Biosphere in a bottle

This activity demonstrates how our earth's biosphere works. Collect and prepare 10-15 large plastic bottles prior to the lesson. In pairs, pupils put water and various organic and inorganic materials into a bottle and seal it. Explain how it is a closed system just like earth – the biosphere bottle has its own climate, water and carbon cycles and can achieve a balance over time. Like the earth, the biosphere bottle responds to changes imposed on it, so there are numerous learning opportunities through studying it. www.bottlebiology.org

KS2 KS3 SEN

Mental materials

Collect a random selection of 20 building materials (stone, roof tile, wood, straw or steel). Cover them with a sheet before the lesson. Get pupils to sit around the sheet. Explain the activity. Remove the sheet and ask pupils to try to memorise the items. Cover them again after 30 seconds. Older pupils could list the items they remember in two columns – organic and inorganic. Alternatively, the items could be categorised under headings such as which can be reused

Sciences

or recycled. For less able or younger children, the items could be categorised according to their visual or tactile characteristics.

KS2 KS3

The burger tree

Show your class a picture of a burger. Ask pupils to list the different components (eg bread, beef, sauce or salad). Ask them what's needed to produce each component (eg eggs for mayonnaise, grain for cattle or yeast for bread). Then relate it to the energy needed to produce each ingredient (eg transporting tomatoes, manufacturing cattle feed or heating bread). Go into as much detail as possible. You could get them to represent this information as a tree with the burger as the trunk. Discuss with pupils the importance of considering their

food, where it comes from and the impact of their choices.

KS2 KS3

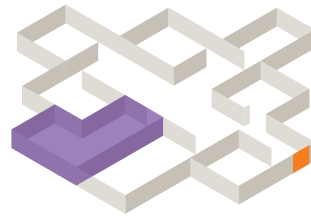
Which insulator?

Discuss the concept of insulation. Fill plastic bottles with hot water. Wrap each bottle in a different material (eg foam, paper, plastic, foil, wool or bubble wrap). Measure the change in temperature every two minutes. Compare the results, then draw a line graph to show the insulating properties of the different materials. Pupils could finish by writing a short paragraph explaining which material they would use to insulate their house.

KS1 KS2 KS3 SEN

Grow your own lunch

Plan to create an area of your school grounds where fruit and vegetables could be grown. Ask pupils to consider where the food they have at lunchtime might have originated. Is it locally grown or does it have to travel a long way? Then think about how



the school grounds could be adapted and used to produce food for the school kitchens. What could be grown there? How would this change from season to season and in differing weather? Why would locally grown food be better for the environment? Pupils could design their gardens in teams and present their plans to the class. www.teachernet.gov.uk/growingschools

KS3

Create your own bio diesel

Highlight the problems of using fossil fuels and discuss the potential of bio fuels. For example, you could demonstrate to the class how to make bio diesel. This can be made by reacting used vegetable oil, sodium hydroxide (soda lime) and methanol. Ensure adequate safety precautions are taken as these components are very hazardous. It will take a week to settle, and the by-product can be used to make soap. This is a dangerous experiment, and so for experienced chemists to demonstrate to older pupils only! Ensure that you have practised the demonstration well in advance.

KS2 KS3

Race solar cars

Get pupils to design their own cars to be powered by the sun. In teams, encourage them to consider weight, materials and aerodynamics.

(starting price around £31 + p&p). Alternatively, they could build solar-powered boats using bottles and attach turbines to power their rafts across a pond or lake

At the end of the project, you could race them to see which team's design is the most energy efficient.

KS2 KS3

We're in hot water

Using a few easy to get hold of and free materials, build a solar water heater with your pupils. Once it's working, explore the importance of insulation in energy generation.

Discuss the importance of considering food and the impact of their choices

Sciences

KS3

Devil's advocate

Start the lesson with a controversial statement like 'global warming isn't happening' or 'any changes in the climate will make life better'. Discuss what evidence could be collected to prove these statements wrong. Ask pupils to find examples of evidence using the internet.

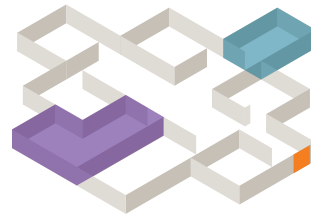
KS1 KS2 KS3

Where does our electricity come from?

Ask pupils to think in pairs about where electricity comes from (beyond the socket!). Give them a set of cards to put into a sequence (these might include a power station, a TV, coal, an electric socket and electricity cables). Show an animation of how a power station works

and ask them to draw a flow diagram to show the processes. What are the problems with burning coal? At what stages are energy or heat wasted? How can these problems be overcome?

KS1 and 2 – introduce pupils to the concept of energy generation



by looking at windmills or solar powered items like calculators. Pupils could try creating their own energy using a bike dynamo.

KS2

Animal antics

Discuss how animals have adapted to their surroundings. How might they evolve to cope with changing climates? Which ones might not survive as the climate becomes more extreme? Pupils could then design an animal and show how it might evolve to adapt to changes in climate, food and competitors

Citizenship

KS2

My school in the future

Ask pupils to imagine that they are at school in 2050. What will the physical building look like? What will their learning day consist of? How will they learn?

KS2 KS3

Class campaign

Encourage pupils to participate in and take responsibility for action to change their local surroundings. Organise a debate or campaign on a topic the class feels passionately about and ask them to come up with suggestions for improvements to a local space or place. They could tell the local newspaper about how buildings contribute to climate change or write to a local councillor to ask for action to improve

the area where they live.

KS2 KS3

Opinion poll

Conduct a poll showing people's different opinions on their local environment and how they feel climate change affects where they live. Pupils could interview their peers, teachers, parents, neighbours and members of the local community to gauge perception of how their local area is changing.

KS1 KS2 KS3 SEN

My living house

What goes in and out of a house over the period of a week? Give small groups sets of cards they can sort into things that go into a house, those that are taken out and those that come and go. Cards could include shopping, water, electricity, sewage, carbon, food, compost, rubbish, etc. Instead of

using cards you could get pupils to brainstorm this. Get them to draw a flow diagram of a house to represent the processes. Where do these things come from and where do they go to? Encourage the class to scale this up, through the number of houses in the neighbourhood and the city as a whole. SEN – use objects or pictures of simple items to consider what comes in and what goes out of a house, such as food going in and waste coming out.

KS3

Debate

Set up a debate around whose role it is to deal with climate change. The government, business, the public, architects, developers and young people should all be considered. How much ability does each one have to make a difference? Who blames who and why? Select a motion such as 'this house believes that it is the role of young people to drive us out of this mess.'

KS3

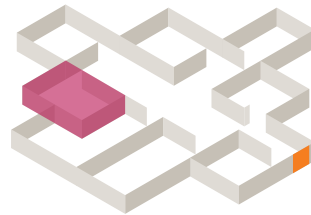
Trade carbon in Europe

Play the carbon game. This is a 30-minute online game in which pupils trade carbon with pupils from other schools around Europe. www.carbongame.org Explain the thinking behind carbon trading and research the game in advance.

KS3

The origins of your ICT room

As a class, make a spider diagram of five different items in your ICT room (eg a computer, book, chair or wall). Add to the diagram a few raw materials needed to create each (eg oil, clay, steel, copper or wood). Allow pupils to research the origins of each material on the internet. Their objective is to create a poster of a world map. On the map they should include images of each material with an arrow pointing to where it comes from. Older pupils could include further arrows to show where it has been manufactured. The posters could go on display.



KS2 KS3 SEN

Greener city

Demonstrate how to use Google Earth to look at your village, town or city and its layout at different scales. How much green space is there? Explain that green spaces are decreasing (eg in London, 12 square miles of front gardens have been concreted over for car parking). Relate green space and trees to biodiversity and people's health and quality of life. Their challenge is to redesign their local neighbourhood to be greener (eg using roof space, car parks, derelict areas or more cycle paths). This could be done using a paint programme to

overlay a map or satellite image of the neighbourhood. Get them to explain what they've done. Download Google Earth for free at www.earth.google.com SEN – print out an image taken from Google Earth and ask pupils to identify all the green areas. They could then consider different types of green spaces, such as grass, trees or flower beds.

KS1 KS2 KS3

Movie making

Hold a video competition about climate change and the local environment. This could be a great end-of-year project over a few weeks. Students could work in pairs or small groups to storyboard a 30-second film. Then, using digital cameras (perhaps in drama lessons), they could produce their own short films. These could be edited using basic video editing software and the best could be displayed publicly and uploaded to www.schools.weare

whatwedo.org/greenday or shown in a school assembly. KS1 – children could create a shared storyboard using photos or drawing and then film each other giving opinions about a studied local area.

KS2 KS3

Leaflets

Using desktop publishing software, get pupils to design a foldable leaflet about climate change. The leaflet could include a title/introduction page, and have a diagram and explanation of the greenhouse effect, key facts about climate change and the global impacts it may have. The back page could suggest steps to reduce your carbon footprint. Much of the research could be done on the internet.

KS2 KS3

Create a web page or podcast

Design a page or podcast for the school website exploring ways to make your school more sustainable. Pledges

and commitments to improving the sustainable actions of the school community could be posted and reviewed or blogs about Green Day could be posted before and after the event. More information about improving your school's carbon footprint can be found at www.google.co.uk/carbonfootprint/schools

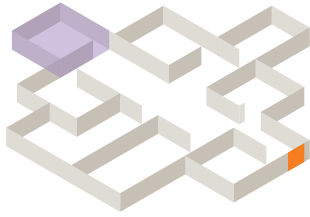
KS2

My Sust House

My Sust House is an interactive game that invites pupils to play at building a home that is ecologically sound. Pupils make choices between different design elements and aim to get a high sustainability rating while keeping within a budget. The game is a fun and accessible way for pupils to consider location, materials and sustainable features. Pupils must balance all the factors against a budget to reach a decision on what gets built www.mysusthouse.org

Hold a video competition about climate change and the local environment

Geography



KS3

Design a sustainable city

Show EfficienCity (a virtual and interactive sustainable city)

as a starter activity. Ask pupils to work in pairs or small groups to compare the EfficienCity to where they live, then design a sustainable city of the future. It could be their own city or town. They will need to consider buildings, energy and transport, and will need support with these initial ideas. At the end they can present their designs to the class and explain the thinking behind their designs.

KS2 KS3

Reading photos

Print from the internet 10 A4 colour images that represent climate change in some way. Write a letter (A–J) on the back of each image. Get pupils into 10 groups of two or

three. Explain that they are detectives searching for evidence. They have only one minute to consider and take notes on what each photo has to do with climate change. After a minute, the photos are passed on to the next group. After they've all seen 10 photos, discuss them as a class. Alternatively the images can be displayed as slides using a data projector.

KS3

Future housing

Ask the class what sort of homes they think they might be living in, in 2023. A house, flat, high-tech apartment, or period terrace? Will it be urban or rural? What technological advances, changes in lifestyle and environmental,

social and economic factors will affect housing in the future? Six different housing scenarios are presented to encourage classroom discussion of sustainability and future living. *Living futures: my home* is a resource designed to allow key stage 3 geography and citizenship students to engage in the housing debate.

KS2 KS3

Local controversy

Find out about an environmental controversy in your local area. This might be a plan for a bypass, a new airport runway, cycle paths, a power station, wind turbine installation or a green belt encroachment. Create a questionnaire to survey how the local community feels about this proposal and the impact on land use in their local area. This could develop into a project in which pupils develop their fieldwork

skills. For an example of an environmental controversy see www.notrag.org

KS3

Looking at landscapes

How does energy production shape the landscape? Investigate how energy is produced in your area, across the country and even across the world. What impact do mines, power stations and wind turbines have on physical geography? What are the debates around the aesthetics, health and pollution associated with living close to these various structures and production methods? www.yes2wind.com

KS2 KS3

The green mile

Get pupils to work in pairs to identify a list of places they regularly visit within their village, town or city. Ask them to locate where these activities take place on a local map. Then ask them to consider their

family's shopping habits. Locate the markets, local shops and supermarkets they visit each week on their map. They could draw arrows from their home and represent frequent visits with thicker lines. Get them to consider which journeys cause the most carbon and list different ways in which they could reduce their carbon emissions, either by changing the way they travel or by reducing the overall distance.

KS3

Sustainable communities

Explore concepts of place and sustainable communities with *Where will I live?*, a geography teacher's guide to exploring the key concept of place for key stage 3 and key stage 4 pupils

Design a sustainable city of the future

KS1 KS2 KS3

Create a small utopian world

Discuss what sort of town/street the pupils would ideally like to live in. Then use recycled materials to create a whole-class utopian world. Each pupil could take responsibility for a building or a space in the town/street, then the whole class could co-operate in their arrangement. The utopia can be used for many things once it's built, including creating stories or role play.

History

KS2

Hungry city

How have cities been shaped by food? Find out about streets named after food in your area. Ask the pupils to research how these names came about and how they have developed over time. How could the design and layout of cities help us live greener lives? Think about where you can buy food now (local shop, supermarket), where it is grown and how it is transported. www.incredible-edible-todmorden.co.uk

KS3

What has been done?

Provide the class with a brief history of the climate change debate

Ask students to research why it is that,

although we have been aware of the greenhouse effect for some time, very little has been done about it. This could lead on to a discussion about whose role it is to make changes. They could create imagined source material such as a poem, newspaper article or cartoon that might be helpful to a historian trying to answer these questions in 100 years' time.

KS2

Smoggy memories

Ask pupils to close their eyes and put their heads in their arms on their desks. Explain that you are going to read them a passage. Tell them not to look up at the end of the passage but just to imagine day-to-day life in the city. Read an extract from Dickens's *Coketown*

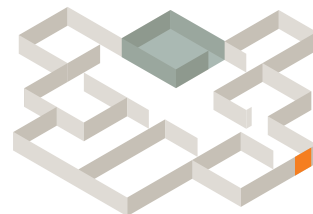
to them. When finished, allow pupils to let their imagination drift. After a couple of minutes allow them

to look up and share their thoughts with each other and the class. The second part of the lesson could focus on looking at other sources or how smog was eliminated from London.

KS1 KS2 KS3

Building history

Ask pupils to research the history of their school building. When was it built and in which historical period? Ask them to consider why it was designed that way



and how it would have been used in the past. Older pupils could consider changes in energy use of school buildings over time – how would they have been lit, heated, and cooled in the past? Younger pupils could consider the lifestyle of pupils in that period – how would they have travelled to school? KS1 – ask pupils to compare schools built now, 50 years ago and 100 years ago. They could also produce a timeline showing how their school has changed over the years.

KS2 KS3

The industrial revolution – a good thing?

Discuss, using pictures and old maps, how your local area grew during the industrial revolution and the effect this had on how people lived at the time (houses, neighbourhoods, transport, air quality). Provide relevant materials that will help pupils discuss how people coped with these developments. How have our lives improved? What can we learn from those experiences that will help us deal with today's situation?

KS3

The future is in your hands

In this online game, pupils become president of the fictional European Nations. They must tackle climate change while remaining popular enough with the voters to stay in office. This is a challenging activity for older pupils. You will need computers and plenty of preparation!

How could the design and layout of cities help us live greener lives?

Art, design & technology

KS1 KS2 KS3

Bottle greenhouse

Build the school a greenhouse using plastic bottles. Ask pupils to collect used two-litre plastic bottles in the weeks leading up to Green Day (you'll need at least a thousand). Explain how greenhouses work (could be related to the greenhouse effect). Get them to design their own greenhouse (on paper or using models) and decide where it should be located. Some designs can be found at www.sci-scotland.org.uk/bottle.shtml. The bottles will have to be cleaned and other materials may be necessary.

KS2 KS3 SEN

Picture this

Challenge pupils to depict climate change through art. They could choose to illustrate a real scenario or create an abstract picture about how climate change makes them feel. Ask them to experiment with various media and textures before trying to show how climate change is affecting the planet and people. Encourage pupils to be as creative as possible – it might help to read a real-life story before to help them focus on how the environment makes people feel.

SEN – encourage pupils to find images which show beautiful aspects and not so beautiful aspects of the world. The more able could then think about why it's important to save the world and how they might be able to do this.

Challenge pupils to depict climate change through art

KS1 KS2

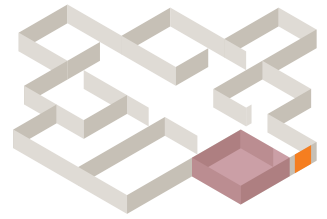
Waste city

Design and build an eco-city from waste. Collect a range of waste that could be useful (eg an empty tissue box could become a model stadium). Give different groups different areas of the model to work on. Get them to consider all aspects of a city – housing, transport, industry, education, shopping, parks and entertainment. Ensure that they write down how their creations might contribute to a more environmentally friendly city so that the exercise is not simply about making a pretty model.

KS3

Design an environmentally friendly building

Discuss ways that buildings can be powered with alternative energy sources. Consider different ways a building needs energy such as for lighting, heating, ventilation and insulation, and its water usage.



How could existing buildings be adapted to be more energy efficient and use different types of energy sources such as solar power, wind turbines, harvested rainwater or biomass fuels? Ask a local architect to come into school to talk about how buildings are powered and how they can be designed to be greener. Older pupils could start to develop 3D models of their designs

Art, design & technology

KS1 KS2 KS3 SEN

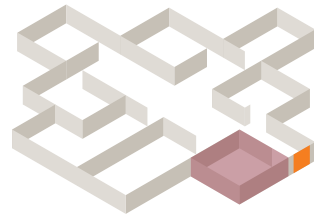
Lampshades

Design eco-lampshades or lanterns to go with energy-saving light bulbs. Collect bits of scrap coloured paper or cloth left over from art lessons or brought in from home. Ask pupils to design their lampshades. They can then shape them with wire and cover them with a cheap, light-weight material. Once this is done they can decorate them. Older pupils could use coloured glass that refracts the light in interesting ways. Light fittings and switches may need to be bought in advance.

KS3

Solar powered future

Show pupils the video on www.greatcell.com about new developments in the design of solar panels, mimicking the processes of photosynthesis. These new solar cells are thin, coloured, translucent and even flexible. How could these new cells change how solar panels are used? Ask pupils to design a product which incorporates these new solar energy cells. For some ideas, see what design students around the world came up with as part of the 'Sunny Memories' project



KS1 KS2 KS3 SEN

Sculptures and mosaics

Create a sculpture or mosaic from recycled materials such as bottle tops, drinks cans and egg boxes, to represent an environmental issue. Pupils could communicate their impressions of their local environment and the effects climate change might have. Introduce them to similar works that might inspire them

KS1 KS2 KS3

School mural

Ask pupils to design and produce a mural or large-scale painting around the theme of climate change and the local environment. Working in teams, pupils could design different sections of the picture. These can then be photocopied onto acetate and projected onto a large background so that a composite design can be organised. Pupils should also

Create a sculpture or mosaic from recycled materials

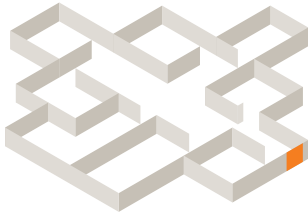
KS3

A picture paints a thousand words

Encourage your pupils to consider the power of pictures by creating a cartoon image to express their opinion about climate change.

consider where it might be placed and how it fits into its setting. If painted on plywood, it can be fixed on batons to a wall and easily maintained or changed.

Other subjects



KS3

Business studies – Green Dragons' den

Pupils, in pairs or small groups, create an ecological product or business. They need to consider its costs (financial and environmental), the potential revenue and how they will develop, produce, market and advertise their business. They then have to pitch their idea to an investor (perhaps the head teacher), who will decide which products they want to invest in.

KS1 KS2 KS3

Physical education – stay healthy

Highlight during the lesson how the environmental option is often also the healthy option. A discussion about the importance of walking or cycling to school or the shops, playing sport instead of video games, and eating healthily will help to reinforce their learning at other times of the day. An alternative would be to focus on play and games.

KS3

Drama – documentary about humans

Pupils work in pairs or small groups. One has to act out or mime the day-to-day life of a human – waking up, brushing teeth, eating breakfast, driving to school – and the other needs to do a voice-over (David Attenborough style) describing how the behaviour of this species is affecting the world. Once they have planned their sketches, they can act them out to the class.

Whose responsibility is it to act on climate change?

KS3

Religious education or PSHEE – eco-ethics

Discuss the ethical issues surrounding the climate change debate. Is it right that we consume so much? Do we have a duty to look after our planet for future generations? Do we need to shop to be happy? Is it right that the richer countries are polluting the most but it is the poorer ones that will suffer the most from climate change? What should be done? Whose responsibility is it to act on climate change – government, companies, scientists, consumers or voters? This could lead into a debate.

KS2 KS3

Modern foreign languages – write about Green Day

Provide pupils with key vocabulary (eg environment, energy). This will depend on their level. Then ask them to write a postcard to their penfriend telling them about their Green Day. Explain what you did and why it was important. If this is too challenging, create a letter/worksheet (before the lesson) and ask them to fill in the blank spaces with key words from a word bank. Even younger students could learn keywords from flash cards. Then, in pairs, they could play a memory game matching the cards.

KS1 KS2 KS3 SEN

Music – recycled orchestra

Pupils create their own musical instruments from recycled materials (boxes, bottles, tubes, elastic bands). This website provides ideas and instructions for building recycled instruments.



Green Day to Green Year

Use Green Day as a launch pad to turn the curriculum green all year long. Longer, cross-curricular projects are a great way to extend young people's learning about sustainability

KS1 KS2 KS3

Green champions

Elect green champions within each year group or class to identify places where changes could be made to save energy and regularly remind people of their green pledges. Hold an election campaign, with publicity and election hustings, and once the green champions are in place, allow regular chances for them to update the school on their progress.

KS1 KS2 KS3 SEN

Design and create

Choose an area of the school grounds and design a garden to grow fruit and vegetables which can later be eaten in the canteen. Alternatively, design a bike shed to encourage pupils to make more sustainable transport choices. You could hold a design competition, include pupils as much as possible in the construction process, promote the new resource

KS2 KS3

Spread the word

Encourage pupils to spread the word about sustainability. At school, they could liaise with non-teaching staff to help reduce the school's use of resources. For example they could speak to kitchen staff about conserving energy when preparing meals. At home, they could run Green Day activities with parents or carers to encourage them to think more about sustainability.

KS3

Get qualified

Get your students working towards a qualification that recognises their work in the environment. Developed by Eco schools and ASDAN, the environmental award is a stand-alone certificate of achievement that can contribute towards a certificate of personal effectiveness (CoPE) which has equivalence to GCSE and AS qualifications

KS1 KS2 KS3

Partner up!

Develop a partnership with a school in another country more affected by climate change than the UK, for example Bangladesh. Pupils could research their partner school's local area and any effects of climate change, compare their lives to those of their partner school's pupils and engage in cultural exchange activities

KS1 KS2 KS3

Monitor and reduce

Monitor your school's energy use for one day, and then see how much you can reduce this over the course of the year. Pupils could list all the equipment in the school which uses energy, and calculate the quantity used by different items. Encourage them to experiment with different patterns of use, and small changes in behaviour and log the effect on energy usage. Set energy targets and see if the school can

meet them. Display the results in a meaningful and fun way. www.carbondetectives.org.uk provides a user-friendly resource to monitor energy use. DCSF are distributing free energy display meters for schools which allow the easy monitoring of electricity use. www.energydisplaymeter.co.uk

KS2 KS3

The water's rising

Pupils could investigate the different reasons why flooding occurs, and why each type of flood could be caused by climate change. They could explore the possible engineering solutions to limit the impact of floods and the advantages and disadvantages of these; or consider different people's views about rising water levels. Images of flooding both within the UK and other areas of the world can help to bring the topic alive and encourage creative responses

Organisations

Architecture Centre Network
www.architecturecentre.net
Educational projects to develop greater public understanding of architecture, design and public space.

CABE

Free resources to inspire young people to get more out of the buildings and spaces around them.

Create from the Centre for Research, Education and Training in Energy

www.cabeurl.com/52

Free downloadable resources and interactive websites about energy.

Eco-schools

www.eco-schools.org.uk

An international award programme that guides schools on their sustainable journey.

Environment Agency

www.environment-agency.gov.uk

Information and case studies by region.

Friends of the Earth

www.cabeurl.com/bb

Free teaching resources and information about national campaigns.

Geographical Association
www.geography.org.uk/resources
Free teaching resources and information.

Learning through Landscapes

www.ltl.org.uk

Helps schools and early years settings make the most of their outdoor spaces for play and learning.

Sustainable Learning

www.sustainablelearning.info

An energy and water management programme for schools.

Sustainable Schools

www.teachernet.gov.uk/sustainableschools

Information on the government's sustainable schools agenda.

Young People's Trust for the Environment

www.ypte.org.uk

A charity that aims to encourage young people's understanding of the environment and the need for sustainability.





Elm Court School, London by JM Architects © www.jmarchitects.com

Resources

Carbon detectives

www.carbondetectives.org.uk

An interactive website that allows pupils/schools to monitor their use of energy and resources.

Cities of today, cities of tomorrow

A United Nations project about urban development including teaching resources.

Climate chaos

A week of activities about climate change for KS2 from Oxfam.

Climate choices – children’s voices

www.climatechoices.org.uk

A range of materials, information and links aimed at KS2.

Development Education Project

www.teachclimatechange.org/

Comprehensive list of recommended resources.

Energy matters

Free resources from the Centre for Sustainable Energy.

Engaging Places

www.engagingplaces.org.uk

An online guide to using buildings and places in teaching and learning, including support for schools running a Green Day event.

Global energy consumption

Table showing 1990, 2000 and 2005 per capita figures for individual countries.

Google UK school resources

www.google.co.uk/schools

How to use Google searches, maps, earth, images and news to support the curriculum.

Grasping of climate: an inspirational guidebook for teachers

An EU-funded project exploring how to engage pupils in climate change activities in England, France and Sweden.

Greener futures

www.greenerfutures.com

A range of resources and games for KS1-3.

nD game

A downloadable game which explores the design and construction process by facilitating the creation of the best school in the world.

Resources

Operation Climate Control

www.operationclimatecontrol.co.uk

A game exploring climate change suitable for KS3 and 4 (although primarily aimed at KS4).

Plan-Ed

www.plan-ed.org

A range of educational resources from Plan UK on the theme of development education.

Renewable world

www.renewableworld.org.uk

Interactive site facilitating exploration of the diversity of renewable materials and their role in building a sustainable future.

Royal Geographical Society and DEFRA

www.yourclimateyourlife.org.uk/teachers.html

Interactive website with resources and information aimed at KS3.

Shout about climate solutions KS3 activity pack from Friends of the Earth

Information and activities produced to support teaching.

Think energy

www.think-energy.co.uk

On-line activities for KS2 and up.

We Are What We Do

www.schools.wearewhatwedo.org

A global campaign seeking to inspire people to use their everyday behaviour to change the world.

WMnet climate change resources

Interactive resources for all key stages exploring aspects of climate change.

Financial support

Organisations providing funding for environmental education initiatives:

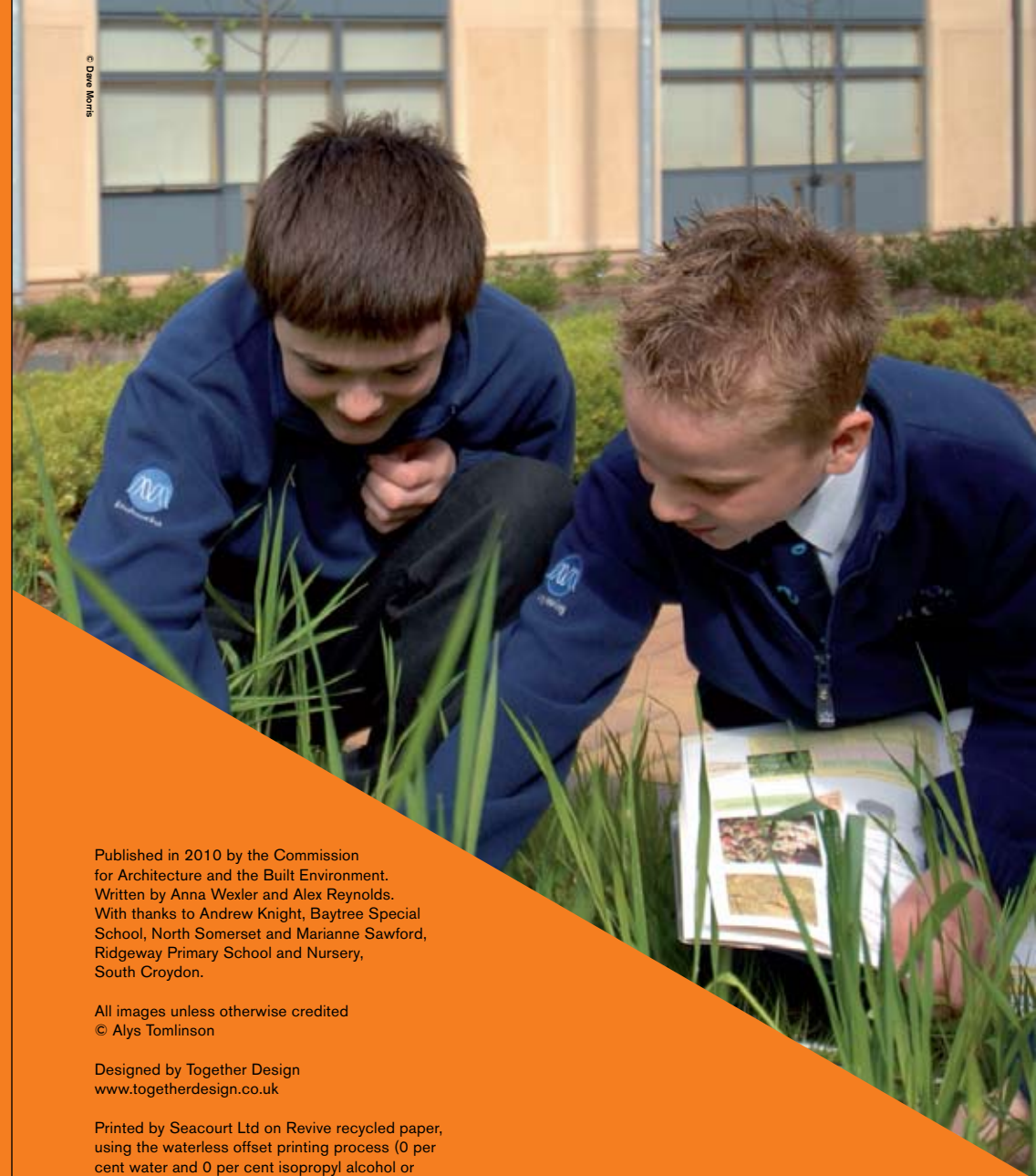
The Environmental Funder's Network

www.greenfunders.org/whosinvolved

Sustainable Schools

www.cabeurl.com/56

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Green Day is an event for schools about climate change, sustainability and the built environment. It is a fun and flexible way to integrate these serious themes into lessons and whole-school activities. Green Day is not an isolated event – rather, it should act as a springboard for action to make schools more sustainable in the long term. This activity kit is crammed with more than 100 lesson ideas for teachers and pupils at key stages 1 to 3.

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Commission for Architecture
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