Green Day

A climate change activity kit for schools

NEW EDITION

What is Green Day?

Green Day is a one-day event for schools about climate change, sustainability and the built environment. It is a fun and flexible way to integrate these themes into lessons and whole-school activities. It should not be an isolated event but aims to act as a springboard to make schools more sustainable in the long term. Green Day is promoted 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

By 2020, the government wants schools to be models of energy efficiency, renewable energy use and water management, with a culture of sustainable development embedded into all areas of school life. We think it's about the ethos and values of a school, allied with design and technology. For more information visit www.teachernet.gov.uk/sustainableschools

CABE, education and climate change

A major part of CABE's work is about inspiring young people to value and enjoy buildings and spaces. The built environment contains a wealth of learning opportunities that can support both the national curriculum and informal learning. The potential to get young people excited about the built environment is vast. Our educational work aims to ensure that young people understand the value of well-designed buildings and spaces, and play an active role in improving the cities, towns and villages we live in.

CABE believes that the global environment crisis we face 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. So tackling climate change involves thinking hard about the design of towns and cities and how we live our lives in them.

About the Green Day activity kit

This activity kit provides ideas, activities and resources for holding a Green Day in your school, 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 stage 2 and key stage 3.

The activities are written to fit certain subjects but many can be adapted to suit others. The kit is not prescriptive. It provides ideas to help teachers integrate the theme of climate change and the built environment into each subject area. We recommend that schools hold an INSET session to enable staff to prepare for the event.

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 the background knowledge and put each lesson in the context of the wider global issue.

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

KS2 Suitable for key stage 2 pupils

KS3 Suitable for key stage 3 pupils

KS2 KS3 Adaptable for both key stage 2 and key stage 3 pupils

Climate change and the built environment

- Construction and use of the built environment accounts for around 50 per cent 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 CO_2 emissions.[1]
- Energy use in non-domestic buildings is increasing as fast as the use of fuel in air travel.
- UK emissions of CO_2 account for about 2 per cent of the global total.

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

[1] Association of Environment Conscious Builders www.aecb.net

A Green Day in the life

How a typical school day could look…

8:45am
Students 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 students are all in uniform but have one distinctive feature. Almost all of them are wearing one green item of clothing, with green hats, hoodies, socks, and even green hair all visible in the gathering outside the assembly hall.

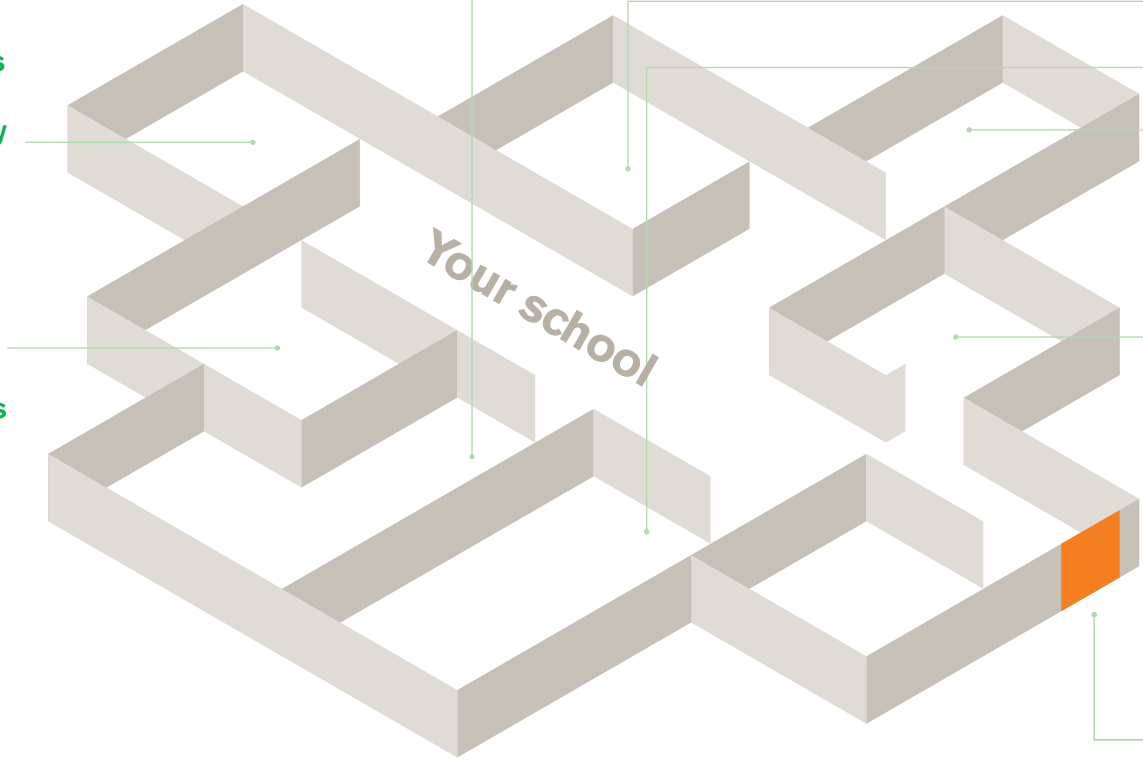
9:00am
The head teacher welcomes the school to its first-ever Green Day and starts with a climate change video clip. She explains how the Green Day will launch the student eco-committee and how it is a vital first step in the process of becoming a sustainable school. Reminding pupils of their environmental responsibilities in and out of school, she explains how climate change relates to all subject areas.

10:20am
It is period two and year 8 are in science. Having recently studied energy transfer, they are working in groups analysing the insulating properties of a number of materials and how they might be used to increase the school's energy efficiency. Across the corridor, in maths, Miss Coelho has developed 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 conduct an environmental impact assessment on 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 their city could reduce its energy use.

4:10pm
At the end of the day, all pupils return to their form rooms to write a climate pledge on green paper leaves. As they leave school they attach their leaves to a pledge tree in the entrance hall on display for everyone to see.

2:45pm
The school's first eco-committee meeting is under way and pupils are discussing the school's environmental action plan and the steps they need to take to achieve green flag status. At next year's Green Day they will be working with other schools helping them to do the same.



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 grounds into a garden where pupils are learning to grow their own vegetables.

2:00pm
The afternoon's timetable is collapsed so pupils work in assigned groups. Activities include painting recycling bins, storyboarding short films, creating awareness leaflets, visiting a sustainability careers fair and designing eco-clothes for an eco-fashion show at the end of term.

Whole-school activities

These are school-wide activities that can take place out of lesson time. For example, the timetable could be collapsed in the afternoon to allow pupils to rotate between activities.

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 a background understanding, it is vital to introduce the basics of the greenhouse effect and how it is causing climate change. For maximum impact, there should be an assembly held by the head teacher or visiting specialist. It would also be a great opportunity to announce any new sustainable schools policies. An alternative could be for each form tutor to introduce it to their form group. Assembly ideas can be found at tinyurl.com/c5qeg9 and tinyurl.com/ckbyrb Some short films and animations can be found at tinyurl.com/2p9e8l

KS2 KS3

Wear green clothes

An easy way to increase pupils' enthusiasm for the event is to encourage them to wear one item of green clothing. This can be anything from a green sock or hair clip to a sweater or hat. It would help if a letter were sent to parents about Green Day at least a week in advance.

KS3

Find out your school's footprint

Encourage all pupils, teachers and parents to calculate their carbon footprint at some point during the day. The carbon detectives' kit is an online carbon footprint calculator for schools in England and can be found at www.carbondetectives.org.uk Alternatively, pupils can work out their own footprint at www.carboncontrol.org.uk or www.footprint.wwf.org.uk They will need to collect data in advance for this activity.

KS2 KS3

Recycling champions

Organise a reduce, reuse, recycle system for your school. Pupils could paint recycling bins around the school with colourful messages on them, and one group could design recycling reminder signs to put on the regular bins. Set up paper recycling bins for each classroom. A group of students could have a meeting with the school cleaners to arrange for these paper bins to be emptied separately. See tinyurl.com/386rsn Alternatively you could set up a composting system that could be used to fertilise the school garden tinyurl.com/32rjey

KS2 KS3

Start a green team

Establish a school green team. 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, it is the pupils who 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 on their sustainable journey, providing a framework to help embed these principles into the heart of school life. For more information go to www.eco-schools.org.uk

KS2

How green is your school?

Ask the pupils to rate their school building and grounds and make a map to show its 'green' 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 a heated and lit empty classroom could be shown a red card. Amber voting cards could be used for areas pupils are undecided on. The information could then be collated on a large graphic map back in the classroom and this could later be displayed in the entrance hall.

KS2 KS3

Walk or cycle to school

Hold a walk or cycle to school campaign and provide incentives to do so 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, encourage parents who have to drive to car-share or offset their carbon by contributing to the materials for the new bike shed. www.walktoschool.org.uk

KS2 KS3

Eco day out

Take a group of pupils to a local eco-friendly house, building, business or recycling plant. Arrange for the architect or an employee to show you round and tell you about it. 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. For further ideas about how to run a visit go to www.engagingplaces.org.uk

KS3

Green collar careers

Hold a careers fair with information about how pupils can get into careers that help the environment. Ask pupils to consider the skills and experience organisations might be seeking. How might these skills apply to mainstream careers in the future? What questions might they be asked at interview? A few local organisations could be invited in to go into more detail about what they do and the people they employ and could hold mock interviews. For more information go to tinyurl.com/cll5fo

KS2 KS3

Eco uniform

Give pupils one minute to list all the materials that the clothes they are wearing are made from (cotton, rubber, brass, polyester, etc). 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 (others could be a dishcloth, aluminium drinks can, plastic bag, sponge, foil etc). Tell the pupils that one item is used to create recycled school uniforms and get them to discuss in pairs which item it might be. Encourage pairs to share their choice and their reasoning, and which part of their uniform they think it has become. Next, get pupils to search the web and see if they can find out which of the items is being used to make eco school uniforms. The answer is plastic bottles. See if they can find out what process is used to turn the plastic into clothes and how many bottles it takes to make one shirt.

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. Teachers will also have to make their own pledges and the head teacher can pledge a target for the whole school. The pledges could all be written on paper leaves and displayed on a pledge tree in the school entrance. Alternatively, they could be posted on the school website, then revisited later and reviewed.

KS2 KS3

Visiting speakers

Invite a speaker to give an inspiring talk or an assembly. They 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 housing to the role of green spaces in local communities. Pupils could prepare questions to ask them 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 bicycle maintenance training session. Your local architecture centre may be able to offer some guidance. tinyurl.com/d8h77e

KS2 KS3

Design a garden

Choose an area of the school grounds and design a garden to grow fruit and vegetables which can later be eaten in the canteen. You could hold a design competition or get together a design team to develop plans and ideas and then set about transforming part of the school grounds into a more sustainable place. www.teachernet.gov.uk/growingschools tinyurl.com/c7xp8u

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. Go to DCSF's www.carbondetectives.org.uk for ways of reducing your school's carbon emissions.

KS2 KS3

Bury a time capsule

For homework, ask pupils to bring one item into school that is not very environmentally friendly and will hopefully not exist in the 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 sustainable schools target). What will they learn from our present habits and how might their items be different?

KS2

Community competition

Encourage your pupils to design a competition to engage the wider school community in how 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 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 pupil 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. Take care which teachers you involve!

KS2 KS3

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 carb' picnic. The revenue from the event could be put towards making the school building more sustainable.

KS2 KS3

Building materials

Examine the building's materials. Do they benefit or harm the environment? Perhaps there are older and newer parts of the school that could be compared and contrasted. List the materials that make up these 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 resources or environmentally friendly materials? Have any new and innovative materials been used? How do these materials affect the way the building works in terms of it being heated and cooled or how much light it allows in?

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.

KS3

Building Schools for the (sustainable) Future

Most schools in England will be rebuilt or refurbished in the next ten years. BSF is an opportunity to make schools more environmentally friendly than ever before (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. Show them images of sustainable buildings tinyurl.com/bmpdqy

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. Go to tinyurl.com/avrlts for information and ideas about how pupils can contribute to the redesign of their school. If your school is already built, share experiences with other schools that are about to go through BSF. Cards to help young people think about BSF design are available from www.architecturecentre.org/publications

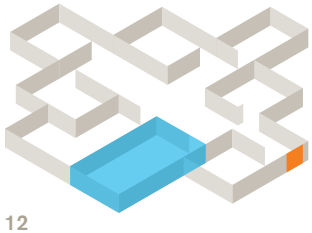
‘Ask pupils to design an environmentally sound classroom’

Maths

KS3

Create climate charts

Collect climate change statistics such as different countries’ or cities’ annual carbon emissions. Use these figures to develop information. 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 useful 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.carbondetectives.org.uk or www.footprint.wwf.org.uk

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.

KS3

Measure your house

Look at different housing types (houses, flats, terraced buildings) 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 from and which buildings will waste the most energy (this could relate to a physics project). tinyurl.com/bu5tmy 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.

KS2

Transport diary

Ask pupils to keep a diary of all the different journeys they do in a week, the type of transport used (including walking) and the time each one takes. 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 carbon be reduced? This could be an exercise that is revisited regularly as the class tries to reduce its total time in cars. For more ways to encourage walking to school go to tinyurl.com/7n9m32

KS3

Calculate your energy use

Use an electricity monitor plug 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, year. How much do they 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

KS2 KS3

A waste audit

Find out how much waste the school generates in a day (general, paper, food). 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. The waste could be publicly displayed in the school entrance.

English

KS2 KS3

Persuade them until they're green

Pupils create an advert for a new ecological product for television, for a billboard or for a magazine. 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 the best place to target these adverts would be and why. www.dothegreenthing.com

KS3

Community interview

Create a scenario in which various characters – like 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 very interesting.

KS2 KS3

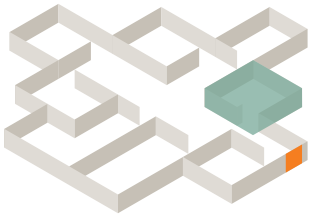
Local to global

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? Read the *Kids may pay for climate change* article (see tinyurl.com/3e2qcm).
Then pupils can devise a questionnaire, with open and closed questions, to find out what young people think about their own local environment.

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 might be very different.



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

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

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 to conclude the lesson. www.teachers.tv/video/1674

KS2 KS3

Visions of the future

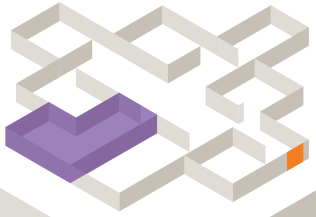
Show a scene from the film *An Inconvenient Truth* and highlight the fact that the climate is becoming much more erratic and unpredictable. Alternatively, read or adapt a real-life story about places that have been flooded or have suffered from a drought or hurricane. Get the pupils to close their eyes 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 'daydreams'. These could be a good basis for planning a short play. www.hhs.gov/katrina or www.nola.com/katrina

KS2

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, see when lights are left on, 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.

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



Sciences

KS2 KS3

Mental materials

Collect a random mix of 20 building materials (eg stone, roof tile, wood, straw, 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. Ask pupils to list the items they remember in two columns – organic and inorganic. Alternatively, the items could be categorised under different headings such as which can be reused or recycled.

KS2 KS3

Biosphere in a bottle

This activity demonstrates how our earth’s biosphere works. Collect and prepare some 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

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.

KS2 KS3

The burger tree

Show your class a picture of a burger. Ask pupils to list the different components (eg bread, beef, sauce, 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

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 opting for locally grown food be better for the environment? Pupils could design their gardens in teams and present how they plan to overcome these issues 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 for experienced chemists to demonstrate to older pupils only! Ensure that you have practised the demonstration well in advance. See tinyurl.com/33ovrn

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

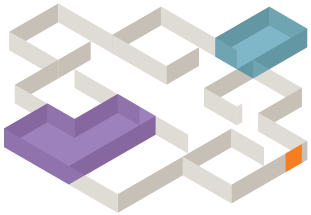
Sciences

and aerodynamics. You could use mini solar-powered motors tinyurl.com/alqscy You can also purchase pre-designed kits from tinyurl.com/deymgw Alternatively, they could build solar-powered boats using bottles and attach turbines to power their rafts across a pond or lake tinyurl.com/ctqnbt At the end of the project, you could race them to see which team's design is the most energy efficient. Further ideas can be found at tinyurl.com/asyjgz

KS3

Where does our electricity come from?

Ask pupils to think in pairs about where electricity comes from. Challenge them to think 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 tinyurl.com/y6qph5 and ask them to draw a flow diagram to show the processes. What are the problems with burning coal? At what stages is energy or heat wasted? How can these problems be overcome? tinyurl.com/d2928x



KS2

Animal antics

Discuss how animals have adapted to their surroundings. How might animals evolve to cope with changing climates? Which ones might not survive as the climate becomes more extreme? Pupils then design an animal and show how that animal might evolve to adapt to changes in climate, food and competitors. tinyurl.com/22wcx

Energy links and resources

Think energy
www.think-energy.co.uk
Energy Matters
tinyurl.com/yr2gsl

Citizenship

KS2

My school in the future

Develop a vision of the ideal school of the future from both individual and group perspectives. Ask pupils to imagine that they are at school in 2050. What will the physical building look like? What can they see? What will their learning day consist of? How will they learn? What will they learn? A guided script for running this activity is available at www.dep.org.uk/scities/activities.php

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 contact 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.

KS2 KS3

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 are both. Cards could include shopping, water, electricity, sewage, carbon, food, compost, rubbish, etc. Instead of using cards you could get pupils to brainstorm this themselves. Get them to draw a flow diagram of a house to represent these processes. Where do these things come from and where do they go to? Encourage the class to scale this up and consider the number of houses in the neighborhood and the city as a whole.

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.' tinyurl.com/cxckh5

ICT

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 Ensure plenty of time for planning and preparation.

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 spider 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 on the world map. Older pupils could include further arrows to show where it has been manufactured. The posters could then be displayed.

KS3

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, quality of life and health. 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

‘Hold a video competition about climate change and the local environment’

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 or in a school assembly. Ensure you have the right equipment and software first.

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, such as a diagram and explanation of the greenhouse effect, key facts and figures, the main causes of climate change, the global impacts it may have and a final page offering steps to reduce your carbon footprint. Much of the research could be done on the internet. These leaflets could also be created in a different lesson on paper or card.

KS2 KS3

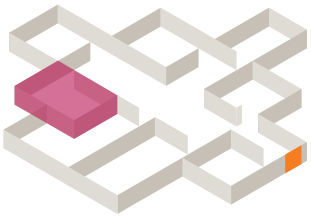
Create a web page or podcast

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 the 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

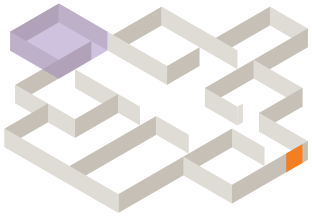
KS2

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



Geography



KS3

Design a sustainable city

Show EfficienCity (a virtual and interactive sustainable city). See www.greenpeace.org.uk/efficiencity/about as a starter activity. Allow pupils to consider how it might be different to their city (but do not go into too much detail). Ask them to work in pairs or small groups to 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 ten A4 colour images that represent climate change in some way. Write a letter (A–J) on the back of each image. Get pupils into ten groups of two or three. Explain 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 (make sure they're always passed in the same order). After they've all seen ten photos, discuss them as a class. Alternatively the images can be displayed as slides using a data projector. Some images can be found at tinyurl.com/cre3mk

KS3

Future housing

Ask the class what sort of housing they think they might be living in, in 2023. A house, flat, high-tech apartment, old 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. It can be downloaded at tinyurl.com/lzy3j

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 could 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
tinyurl.com/u446o

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 (park, school or friend's house). 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 then 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.

'Design a sustainable city of the future'

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. tinyurl.com/6swy8n

History

KS3

What has been done?

Provide the class with a brief history of the climate change debate. tinyurl.com/3a84t9 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

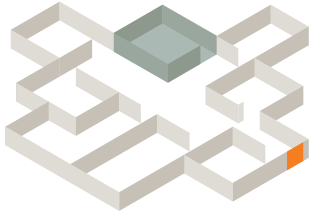
Smoggy memories

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* (tinyurl.com/38n9b9) 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 the great smog was overcome in London.

KS2 KS3

The industrial revolution – a good thing?

Discuss, using pictures and old maps, how your city 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? tinyurl.com/am5gxd



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, cooled in the past? Younger pupils could consider the lifestyle of pupils in that period – how would they have travelled to school?

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

The future is in your hands

This is an online game. Pupils become president of the 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! tinyurl.com/y839s3

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

Art, design & technology

KS2 KS3

Bottle greenhouse

Build the school a greenhouse using plastic bottles. Ask pupils to collect used 2 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. For practical guidance visit tinyurl.com/d6z8sj

KS2 KS3

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 our planet and us as individuals. Encourage the pupils to be as creative as possible – it might help to read a real life story beforehand to help them focus on how the environment makes people feel, for example read one of the case studies from tinyurl.com/cr46op or show a short video from tinyurl.com/d3698r

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 be a 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. Also, 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? Perhaps 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. tinyurl.com/2nptyv

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 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.

KS3

Lampshades

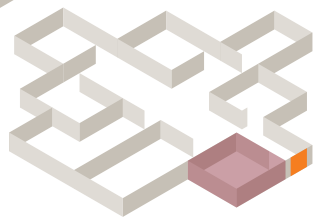
Design eco-lampshades or lanterns to go with energy-saving light bulbs. Collect bits of scrap coloured paper or cloth left over from art lessons or brought in from home. Ask the pupils to design their lampshades. They can then shape them with wire and cover them with a cheap, light-weight material. Once 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 purchased in advance.

KS2 KS3

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 may have. Introduce them to similar works that might inspire them. tinyurl.com/35sv84

'Consider different ways a building needs energy such as lighting, heating, ventilation, insulation and water usage'



Other subjects

KS3

Religious education or PSHE – 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

Class project – an outdoor learning space

Ask pupils to discuss the value of an outdoor learning area. Get them to consider all the different things a classroom has (seating, desks, displays, reading areas) and what they are made from. Could these be made naturally? What do you need to have in an outdoor 'classroom'? Get them to come up with their own ideas (eg willow walls or seats from tree trunks). Ask them to consider how they could access recycled materials to turn their ideas into a reality. Learning Through Landscapes can help with ideas, resources and funding for improving your school grounds. www.ltl.org.uk

KS2 KS3

Modern foreign languages – write about Green Day

Provide pupils with key vocabulary (eg recycling, 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 and then, in pairs, they could play a memory game matching the cards.

'Whose responsibility is it to act on climate change?'

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 he wants to invest in.

KS2 KS3

Physical education – stay healthy

Although it is difficult to spot the obvious links here, there are overlaps. It would be valuable to 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. See tinyurl.com/2j3jf5

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 our world. Once they have planned their sketches, they can act them out to the class.

KS2 KS3

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. tinyurl.com/35ubwe

Useful organisations

Architecture Centre Network
www.architecturecentre.net

Engaging Places
www.engagingplaces.org.uk

CABE
www.cabe.org.uk/
teachingresources

Create
tinyurl.com/cczltm

Eco-schools
www.eco-schools.org.uk

Environment Agency
www.environment-agency.gov.uk

Friends of the Earth
www.foe.co.uk/learning/
educators/resource

Geographical Association
www.geography.org.uk

Learning through Landscapes
www.ltl.org.uk

Sustainable Learning
www.sustainablelearning.info

Sustainable Schools
www.teachernet.gov.uk/
sustainableschools

Young People's Trust
for the Environment
www.ypte.org.uk

Useful resources

Engaging Places
www.engagingplaces.org.uk

Global CO2 map
tinyurl.com/29s5hq

Oxfam's Climate Chaos
tinyurl.com/bv2t5k

Cities of today, cities of tomorrow
tinyurl.com/cw48y9

Greener Futures
www.greenerfutures.com

nD game
www.ndgame.org

Learning for sustainable cities
project tinyurl.com/d97vw6

Google UK School Resources
www.google.co.uk/schools

Financial support

Numerous organisations provide funding for environmental education initiatives.

The Environmental Funder's Network (www.greenfunders.org/whos involved) and Sustainable Schools (tinyurl.com/c5o9xw) list some.

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naturallyresponsible

Green Day is a one-day event for schools about climate change, sustainability and the built environment. It is a fun and flexible way to integrate these themes into lessons and whole-school activities. It should not be an isolated event but aims to act as a springboard to make schools more sustainable in the long term. Green Day is promoted by CABE, the government's independent advisor on architecture, urban design and public space.

www.cabe.org.uk/greenday

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The government's advisor on architecture, urban design and public space