

Devising a green transport plan

Topic: Sustainability

Lesson: Devising a green transport plan	KS or Year Group: Year 9
Resources: <ol style="list-style-type: none">1. Resource 1 – ‘Act on CO₂’ TV advert2. Resource 2 – Eco-towns: is there one near you?3. Resource 3 – Green Ville task sheet4. Resource 4 – Transport decision-making exercise5. Resource 5 – Write-up sheet	Objectives: <ul style="list-style-type: none">• Students will examine the causes of climate change.• Students will evaluate transport strategies.• Students will produce a sustainable transport plan for an eco-town.

National Curriculum

Key Concepts: 1.1a, 1.2a

Key Processes: 2.1b, 2.2c, 2.3a

Range and Content: 3a, 3e

Curriculum Opportunities: 4b, 4g, 4j

Lesson overview

This lesson will address climate change, focusing on sustainable transport. Students will examine what climate change is and why it is important to prevent the environment from being harmed in the future. Students will then design a sustainable transport plan for an imaginary eco-town by completing a decision-making exercise.

Starter

- Show the students **Resource 1 – ‘Act on CO₂’ TV advert** from the government site [ACT ON CO₂](http://campaigns2.direct.gov.uk/actonco2/home/campaign-advertising.html). Do this by going to <http://campaigns2.direct.gov.uk/actonco2/home/campaign-advertising.html> and clicking on the TV filler.
- Ask students what they already know about climate change.
- Hold a class discussion on ‘Why is it important to raise the profile of climate change?’.

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- Make reference to the problems associated with climate change (rising sea levels, flooding, skin cancer, extinction of animals, extreme weather conditions – hurricanes, tornadoes, droughts and forest fires). Explain how governments and individuals have a responsibility to protect the environment for future generations.
- Share the lesson objectives with the class

Main activity

Activity 1:

- Ask students to read **Resource 2 – Eco-towns: is there one near you?** to introduce the concept of eco-towns.
- Hand out **Resource 3 – Green Ville task sheet** and **Resource 4 – Transport decision-making exercise**.
- Define what sustainable development is (meeting the needs of today, without compromising the needs of future generations). Explain to students that fumes emitted from vehicles contribute to global warming and that measures need to be taken to reduce the environmental impact of vehicles.
- Ask students to devise a sustainable transport policy for an imaginary local eco-town. They should produce a plan that addresses road, rail, bus and general transport options. For each transport option, students must choose two of the five strategies provided. Students should also try to generate additional ideas for each transport category.
- Ask students to complete **Resource 5 – Write-up sheet** to justify their choices. Note: It is recommended that this resource is printed on A3 paper.

Extension task:

- Ask students to design a town plan showing the transport network for Green Ville.

Plenary

- Ask students to share their ideas with the class and justify their choices.
- Hold a class vote on which is the best option from each transport category.
- Ask students who have completed a town plan to present their ideas to the class.

Aim high

- Higher ability students should decide which strategy is the least effective for each transport option and explain why.
- Ask students to produce a list of non-transport options for Green Ville, e.g. wind turbines to generate electricity, recycling centres.

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Assessment

Resource 5 offers an opportunity for teacher and peer assessment.

Check the web

<http://campaigns2.direct.gov.uk/actonco2/home.html>

Act on CO₂

<http://www.generationgreen.co.uk/thinkenergy/>

Generation Green – British Gas

<http://www.green.tv/greenpeace>

Green TV – Environment Agency

<http://www.epa.gov/climatechange/kids/gw.html>

US Environmental Protection Agency

<http://www.defra.gov.uk/sustainable/government/>

Official UK Government website on sustainable development

<http://www.sd-commission.org.uk/>

Sustainable Development Commission

<http://www.ace.mmu.ac.uk/esd/menu.html>

Encyclopedia of sustainable development

Summary of key learning

- Students can understand the cause of climate change.
- Students appreciate why it is important to protect the environment.
- Students can evaluate sustainable transport options for an imaginary eco-town.

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Resource 2 – Eco-towns: is there one near you?

10:52am UK, Thursday April 03, 2008, Tess Chapman, Sky News reporter

The shortlist of sites for a series of ‘eco-towns’ has been unveiled by the Government.

The full shortlist, which will be whittled down to up to 10 towns which will finally get the go-ahead, is:

- Pennbury, Leicestershire
- Manby and Strubby, Lincolnshire
- Curborough, Staffordshire
- Middle Quinton, Warwickshire
- Bordon-Whitehill, Hampshire
- Weston Otmoor, Oxfordshire
- Ford, West Sussex
- Imerys China Clay Community, Cornwall
- Rossington, South Yorkshire
- Coltishall, Norfolk
- Hanley Grange, Cambridgeshire
- Marston Vale and New Marston, Bedfordshire
- Elsenham, Essex
- Rushcliffe, Nottinghamshire
- Leeds City Region, Yorkshire

Gordon Brown announced plans last year for a number of carbon-neutral, energy-saving housing developments, which would be the first new towns built since the 1960s.

The Prime Minister wants five new sustainable eco-towns by 2016 and up to 10 by 2020. Planners have been told towns should have an acre of parkland per 100 houses, good public transport and schools and shops within walking distance, making people far less reliant on cars.

Housing Minister Caroline Flint said: ‘Eco-towns give us a unique opportunity to tackle two of the greatest challenges facing the country in tandem – the pressing need to confront climate change and deliver more affordable housing.’

Arthur Jurgens from the Campaign to Protect Rural England says eco-towns could work – if the location is right: ‘In the right circumstances this can well be a very good idea. I think the right circumstances may well apply here in Carrington.’ Any proposals deemed unambitious or not green enough won't make the shortlist of 15. Members of the public will be consulted on those that do.

Source: Sky News

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Resource 3 – Green Ville task sheet

To combat climate change, the Government plan to build a series of **eco-towns** in the UK.

An eco-town called **Green Ville** is being built in your local area. You have been given the role of Transport Director and must decide how to develop a sustainable transport system for Green Ville.

You must submit a plan to the local council outlining your plans for **road**, **rail**, **bus** and **general transport** options.

You have been given five strategies for each form of transport option, but you can only choose **two** per category.

1. You must produce a slogan for your transport network and write up your ideas using Resource 5 – Write-up sheet.
2. You could design a town plan showing the transport network for Green Ville.
3. You could develop strategies for non-transport options in Green Ville, e.g. power generated from wind turbines.

You should consider the following when making your decisions:

- How much will it cost?
- Will people use it?
- Will it reduce air pollution?
- Is it practical?
- Is there time to build/implement it?
- What will it look like?

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Resource 4 – Transport decision-making exercise

Transport options	Strategies – you can only choose <i>two</i> per transport option				
Road	<p>High occupancy lane Only vehicles with more than one passenger are permitted to use the lane (into the town centre). Fines issued for single-occupancy vehicles</p>	<p>Congestion charge Drivers wanting to drive through the town centre must pay £5 per day</p>	<p>Ring road built around the edge of the town</p>	<p>Red route into the town centre. No stopping allowed on this road</p>	<p>Mileage metres in cars Vehicles charged a tax for the amount of miles they have covered</p>
Rail	<p>Overland high-speed train connecting the centre of the town to the surrounding towns and villages</p>	<p>Underground train system similar to the London Underground</p>	<p>Light railway system Raised mono-rail throughout the town centre that runs on electricity</p>	<p>Tram network</p>	<p>State-of-the art railway station which links to all other transport routes. Digital timetables/ maps for all connections</p>
Bus	<p>Bus lanes into the town centre</p>	<p>Traffic lights which turn green when the bus is approaching</p>	<p>Undercover bus stops every 200 metres with digital timetables</p>	<p>Bendi-buses holding up to 250 passengers</p>	<p>Park and ride bus schemes Park on the outskirts of the town for £1 and get a free bus into the town centre</p>
General transport	<p>Pedestrianised area in the core of the town centre so no cars are allowed</p>	<p>Cost of town centre parking increased</p>	<p>Cycle lanes running into the town centre</p>	<p>High-occupancy modern apartment blocks built to encourage inner-city living</p>	<p>Lorry drivers can only deliver goods at night</p>

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Resource 5 – Write-up sheet

Campaign slogan	e.g. Network Green Ville		
Road	Choice 1: Reasons:	Choice 2: Reasons:	Additional ideas:
Rail	Choice 1: Reasons	Choice 2: Reasons:	Additional ideas:
Bus	Choice 1: Reasons:	Choice 2: Reasons:	Additional ideas:
General transport	Choice 1: Reasons:	Choice 2: Reasons:	Additional ideas: