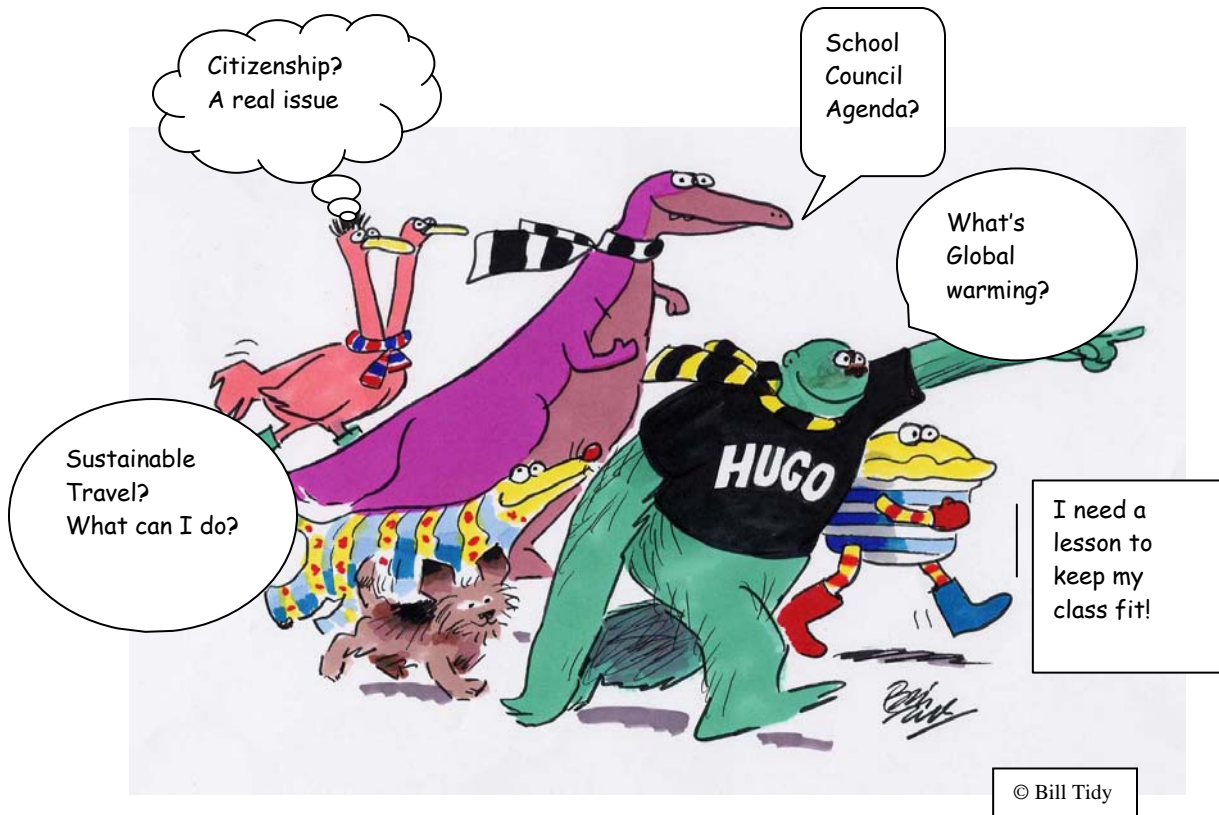


MAKE A DIFFERENCE



Sustainable School Travel activities to
motivate your pupils.

Four lessons and resources planned and ready to use.

Courtesy of:

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Background

The Travelling to School Initiative, jointly published by Department for Children Schools and Families (DCFS) and the Department for Transport (DfT) aims to develop a strategic approach to school travel issues promoting the use of walking, cycling and public transport and reducing car dependency for journeys to school. It has also set a target for all schools to develop a school travel plan by 2010.

In addition, The Education and Inspections Act 2006 states that local authorities now have a duty to promote sustainable school travel and consider and facilitate possible improvements to available infrastructure.

Also, by 2020 the government would like all schools to be models of sustainable travel. This follows the launching of the Sustainable Schools Framework, which has been designed to highlight to schools how all the broad issues of sustainability interlink through the whole school and the values that the school holds.

An integrated approach to the “doorway” of *Travel and Traffic* is suggested, to include:

Curriculum - Schools can use the curriculum to cultivate the knowledge, values and skills needed to address travel and traffic issues, and reinforce this through positive activities in the school and the local area.

Campus - Schools can review the impact of their travel behaviour and establish policies and facilities for promoting safe walking and cycling, car sharing and public transport to lessen their environmental impact and promote healthier lifestyles.

Community- Schools can use their communications, services, contracts and partnerships to promote awareness of travel decisions.

The Travel to School Initiative addresses the Campus and Community strands very well but it is more difficult to embed and develop the sustainability issues related to school travel in the curriculum.

As a result of these initiatives, the following lessons/activities have been designed by teachers, for teachers, to address this.

They are intended to be fun, interesting, relevant and easy to use!

Introduction



The lessons in this pack have been designed to heighten children's awareness of sustainable travel issues and encourage children and their families to choose sustainable travel modes whenever possible, **thus reducing car use to your school!**

The results and outcomes of these lessons can feed into your School Travel Plan and provide information for Local Authorities' Education and Inspections Act. **Pupils will see their work being used as a valuable and relevant resource.**

What are Sustainable School Travel modes?

Sustainable School Travel modes are modes of travel that the local authority considers may improve:

- Environmental well being e.g. a reduction in localised congestion and pollution.
- The physical well- being of those who use them e.g. in helping to reduce obesity and increase fitness in children.

For example, walking and cycling are likely to improve the health of those travelling on foot or by bicycle as well as bringing environmental benefits where those walking and cycling had transferred from using cars.

Similarly, bus use or car sharing might be considered to bring environmental benefits in comparison to individuals travelling by car.

The four following lessons have been developed:

1. Stepometers
2. Using map activities to promote sustainable travel to school.
3. Can your school council make a difference?
4. Climate Change Pack

USING STEPOMETERS TO PROMOTE SUSTAINABLE SCHOOL TRAVEL

Classroom Activity

Aims:

To increase the proportion of pupils travelling to school by sustainable means, leading to health and environmental benefits.

To encourage pupils to recognise the benefits of walking.

Reasons for doing a stepometer challenge in school:

- Pupils enjoy wearing a stepometer.
- Pupils are motivated to do more walking each day.
- Parents and teachers as well as pupils can get involved.
- Good links to the curriculum.
- Plenty of resource material available.
- Works well across all age groups from Foundation to Secondary pupils.
- Encourages sustainable travel.
- Good links to other initiatives such as Healthy Schools, Sports etc.

Activities:

- Counting steps
- How many steps in 1 minute, 2 minutes, 5 minutes...?
- How many steps taken each day?
- Keep a record of the number of steps taken.
- Display the results and compare with others.
- Analysis of data and discussion of results.
- Consider how to increase the number of steps taken.
- Link to other health promotion activity such as measuring pulse rate and healthy heart.
- Link to other travel to school initiative such as Walk to School Week or Walking Bus.
- Walk 10000 steps a day.



What is a stepometer?

Stepometers are special gadgets designed to count the number of steps we take. A stepometer can also be known as a pedometer. It is a simple battery powered digital device. The device is attached to the person's waist and uses motion sensors inside to count the number of steps taken. They are readily available from sports shops and educational suppliers.



Why wear a stepometer?

Most people are aware that walking each day has health benefits. Encouraging people to use their cars less and travel in more sustainable ways has many advantages such as cutting down pollution as well as social benefits.

Wearing a stepometer is an easy way of measuring how many steps each person does and recognizing the benefits of walking.



What about the 10,000 steps message?

You may have heard that the target number of steps per day is 10,000 steps. Whilst 10,000 steps was the common figure to aim for (it's a catchy, easy to remember target), research demonstrates that you will reach the recommended physical activity targets (30 minutes most days of the week) by working out how many steps you do on a normal day and then try to increase it gradually.



A 'step by step' guide to organising a stepometer activity in school

You will need:

Stopwatch or clock

Stepometers for each pupil

Record sheets

How many steps?

- Talk to the class about how many steps they walk each day:
How do they usually travel to school?
How many steps do they think they do when they do different activities (e.g. getting to school, playtime, after school clubs).
- Either outside or in a large indoor space, ask the children to predict how many steps they think they do in 1 minute. Then time them for 1 minute and get them to count their steps as they walk around.
- Repeat for 2 minutes.
- Discuss the results with the pupils (an average pupil will do around 100 steps per minute).
- You could record these results on a table.

Stepometer activity.

- Introduce the stepometers. Explain that they are special gadgets to count the number of steps we take.
- Explain how the stepometers work and that it is important to look after them.
- Explain that they will record how many steps they take.
- The pupils could now wear the stepometers around school or go out on an organised walk from school.
- At the end of the activity the pupils could compare the number of steps taken with the rest of the class, data can be collected and displayed and analysed.
- Discuss the benefits of walking for health and environmental reasons.
- Encourage the pupils to do more walking each day.

Stepometer challenge

- Ask the children how many steps they should do to keep fit and healthy? 10000
- Tell the pupils that you are setting them the challenge of doing 10000 steps per day
- Ask how they will achieve this? (Walking to school, at lunchtime, walking to a friends..)

- Give out the stepometers to be worn few days during which they keep a record of the number of steps taken. (See record card).
- At the end of the activity the pupils could compare the number of steps taken with the rest of the class, data can be collected and displayed and analysed.
- Discuss the benefits of walking for health and environmental reasons.
- Encourage the pupils to do more walking each day.

Follow up activities:

The number of steps taken can easily be converted into distances.

Measure stride length and multiply by number of steps.

To change km into miles remember that 5miles =8km

Pupils could then work out which town or city is situated the same distance away as the total number of miles that they walked in a week.

The total distance walked by a class could be added up towards a target e.g Lands End to John O'Groats is 960 miles.

A footprint could be stuck up in the hall or classroom for every 10 miles walked.

Add up miles for WOW or Walking Bus schemes.

- Stepometer activities can be used with other health promotions such as measuring pulse rate, keeping a record of physical activity,
- Useful links and websites:

www.schoolsonthemove.co.uk

www.wiredforhealth.gov.uk

www.teachernet.gov.uk/teachingandlearning/sd/focuson/sdtravel/

www.bhfactive.org.uk

<http://schools.becta.org.uk>

Step-o-meter Record Card

Name: _____

Class: _____

School: _____

Date: _____

Step-o-meter number:

Some points to remember

- ◆ ALWAYS wear you step-o-meter on your waist.
- ◆ Put it on every morning and take it off last thing at night.
- ◆ REMEMBER to check the steps each day and record on the chart.
- ◆ After you have recorded the number of steps RESET the step-o-meter by pressing the reset button. Check that the display has gone back to zero.
- ◆ Please look after your step-o-meter.
- ◆ Please do not put you step-o-meter into water.
- ◆ Thank you.

DATE	STEPS	WALKING ACTIVITIES
TOTALS FOR WEEK		
AVERAGE PER DAY		

Please remember to return the step-o-meter to school

Links to National Curriculum Key Stage 1 & 2

Physical Education

KS1

Knowledge and understanding of fitness & health.

Pupils should be taught:

- a) how important it is to be active.
- b) to recognise & describe how their bodies feel during different activities.

KS2

Knowledge and understanding of fitness & health.

Pupils should be taught:

- a) how exercise effects the body in the short term.
- b) why physical activity is good for their health & well being.

PHSE & Citizenship

KS1

Developing a healthy safer lifestyle.

Pupils should be taught:

- a) how to make simple choices that improve their health & wellbeing.

KS2

Developing a healthy safer lifestyle.

Pupils should be taught:

- a) what makes a healthy lifestyle, the benefits of exercise & how to make informed choices.

Science

KS1

Sc2 - life processes & living things humans and other animals.

Pupils should be taught that:

- 2c) taking exercise & eating the right types & amounts of food help humans to keep healthy.

Living things Pupils should be taught to:

5c) care for the environment

KS2

Sc2 - life processes & living things humans and other animals.

Pupils should be taught:

c) that the heart acts as a pump to circulate the blood through vessels around the body, including through the lungs.

d) about the effect of exercise and rest has on pulse rate.

h) about the importance of exercise for good health.

Geography

KS1

Knowledge & understanding of environmental change & sustainable development

Pupils should be taught to:

5b) recognise how the environment maybe improved & sustained.

KS2

Knowledge & understanding of environmental change & sustainable development

Pupils should be taught to:

5a) recognise how people can improve or damage the environment.

Maths

KS1 & 2

The step-o-meter lesson fits into the National Numeracy Strategy by covering the following:

- **Using & Applying Maths.**
- **Numbers & the Number System:** counting, reading & writing numbers, estimating, predicting, averages.
- **Calculations:** using a calculator, checking results are reasonable.
- **Solving Problems.**
- **Handling Data:** collecting, organising, presenting & interpreting data using graphs and charts.

The step-o-meters develop the following mathematical skills: Counting, Measuring, Calculating, Estimating, Recording in tables & graphs.

Mathematics

Ma2 Number and algebra.

1a select appropriate strategies to use for numerical problems.

1d select efficient techniques for numerical calculation.

1e use checking procedures to monitor accuracy of their results.

1f represent problems and solutions in graphical forms; move from one representation to another.

2a use their previous understanding of integers and place value to deal with arbitrarily large positive numbers.

3a add, subtract, multiply and divide integers.

3o use calculators effectively, know how to enter a range of calculations including those involving measures.

3q understand calculator display, interpreting it correctly.

4d give solutions in the context of the problem to an appropriate degree of accuracy, recognizing limitations on the accuracy of data and measurements.

Ma3 Shape space and measures

4a make sensible estimates of a range of measures in everyday settings. know rough metric equivalents of feet, miles.

4c understand and use compound measures including speed.

Ma4 Handling data

1a carryout each of the four aspects of the handling data cycle to solve problems.

1c select and organise the appropriate mathematics and resources for a task.

1e interpret, discuss and synthesise information presented in a variety of forms.

1f communicate mathematically, making use of diagrams and related explanatory text.

1I look for cause and effect when analysing data.

3a collect data using various methods including observation.

4a draw and produce, using paper and ICT. Pie charts and frequency diagrams.

5a relate summarized data to initial questions.

Breadth of study

Practical work in which they draw inferences from data and consider how statistics are used in real life to make informed decisions.

USING MAP ACTIVITIES (in and out of the classroom) TO PROMOTE SUSTAINABLE SCHOOL TRAVEL.

Aims:

To increase the proportion of pupils travelling to school by sustainable means, leading to health and environmental benefits.

To identify and address hazards, problems or difficulties encountered on the school journey, which can feed into the school travel plan and also feed in to your Local Authorities Education and Inspection Act Sustainable Travel Audit.

To identify ways in which walking or cycling to school could be made safer and more attractive.

Reasons for using maps:

Pupils find personal and local maps interesting and stimulating.

School Travel Advisers can help access large local maps for schools.

Maps are available on the internet and can be used effectively via an interactive whiteboard. e.g.

Google maps

www.maps.google.co.uk

Relief Web has some location maps of the more remote places
<http://www.reliefweb.int/mapc/index.html>

A great source of **clip art maps** for location and outline maps
<http://www.graphicmaps.com/>

Maps and aerial photos (although not brilliantly high resolution) for every school in the country!

<http://www.schoolsnet.com/cgi-bin/inetcgi/schoolsnet/scripts/national.jsp>

Enter your postcode and a map - not the best map in the world but good enough - you can even create your own how to get to your school using the zoom facility
<http://www.mapblast.com/mapblast/start.htm>

Interactive, fun and informative site for children from Ordnance Survey
www.mapzone.co.uk

Georesources satellite images. Click on thumbnails for a larger image.
<http://www.georesources.co.uk/sat%20images/sat%20countries.htm>

Viewfinder (some schools have access to this site)
www.viewfinder.infomapper.com

Interfact: Fully Interactive children's atlas <http://www.childrensatlas.com/atlas/index.html>

ACTIVITIES

Raising awareness of modes of travel:

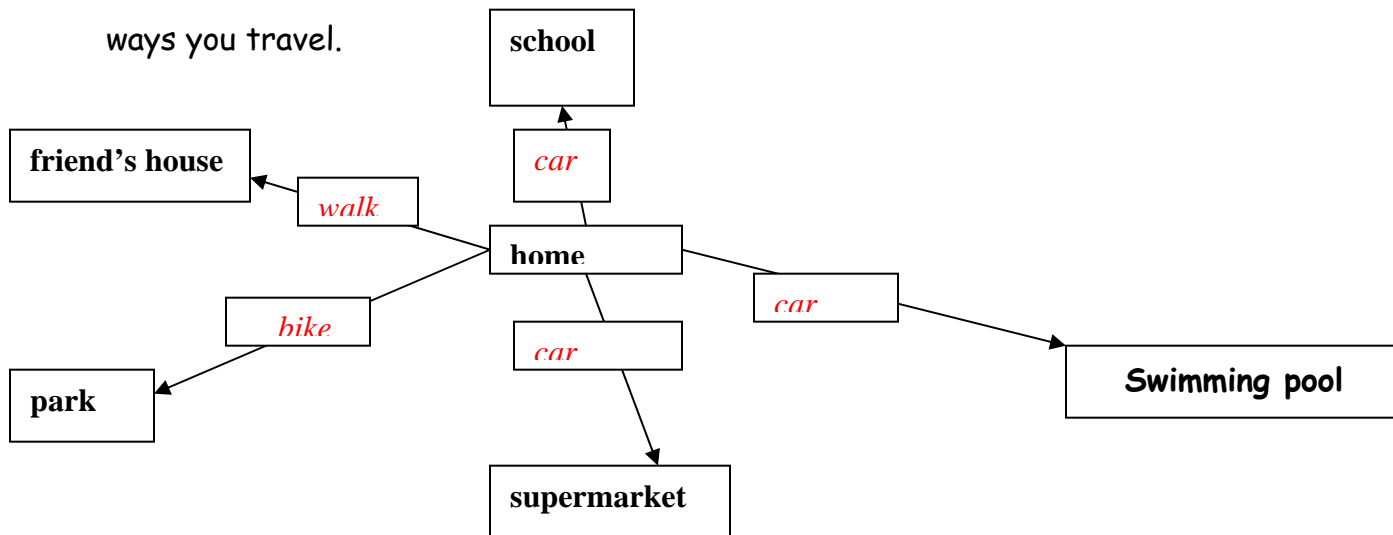
1. *Personal Thinking Map*

You will need:

????????????????

Draw a personal, "thinking map" of the journeys you make during the week and the

ways you travel.



Discuss your journeys with a partner:

- What influences the way we travel- distance/time of journey/weather/route/safety?
- Could you reduce car journeys by walking/cycling, car sharing, and using public transport?

2. Mapping of home to school journeys

You will need:

Very large (A0) map of school's local area and map of outlying area. (Provided by School Travel Advisor or Highways Engineer).

A3 paper for each pupil.

Labels

- Pupils fill in a label and mark their address on map- discuss which pupils live nearest/furthest from school/journey times/modes of travel/reasons for mode etc.
- Ask pupils to draw their personal journey map to school.
- Mark any things, which make their journey safe/unsafe pleasant/unpleasant easy/difficult.
- Use keys, symbols etc. (Discuss symbols and keys on Ordnance Survey maps).
- Using an interactive whiteboard and local map ask pupils to share their observations and mark them on the large map. Discuss and note pupils' comments and responses.

3. Using maps outside the classroom to improve the journey to school and promote Park and Stride/ 5 Minute Walking Zone/Walking Bus Route.

You will need:

Map of school's local area for each child.

Stepometers

Stopwatch

Ask pupils to set their stepometers at the start of the walk to see how far they can walk in 5 minutes.

Can they identify suitable places for cars to be left whilst parents and children walk the rest of the way to school? Mark on map.

Walk from school in different directions based on the routes the pupils use.

Identify and mark hazards and ask for suggested solutions to these problems, en route. Take photos of problem areas.

For example:

- traffic speed on roads near school (traffic calming/20mph zone).
- lack of safe crossing points (installing new road crossings /pedestrian training).
- unlit /overgrown etc. footpaths (improved lighting, clearance etc.)
- lack of cycle routes (installing cycle routes/cycle awareness training/encourage escorted cycling).

Who could we ask for help, to improve these things? -

Highways /Planning Engineers/Road Safety/School Travel Advisor)

Follow-up activities:

Discuss in more detail the findings on the routes walked.

What would make the journey better/safer/ more pleasant? Consider also, travelling with friends.

Would you be able/allowed to cycle to school escorted/on your own? Why or why not?

What do the routes need to make cycling a safe option?

Using a map of the routes walked, mark on the improvements you would like to see made for pedestrians and cyclists. Use symbols, keys, annotations etc.

Write letters to School Travel Advisors ,Highways/Engineers/ Local MP/Council/Road Safety etc. requesting a visit to school or help with suggested improvements. Include maps and comments identifying problems. The pupils' work can feed into the Local Authority Education and Inspections Act audit work, most probably via the School Travel Advisor.

The previous two suggestions should become part of the School Travel Plan, as they would provide valuable and relevant data to be used by the local authority to make better and safer routes to school.

Write letters to parents/governors explaining the setting up of Park and Stride /5 Minute Zones/ Walking Bus Route (School Travel Advisers /Road Safety Officers could help)

Presentation in school assembly explaining sustainable travel initiatives.

Persuasive posters requesting parents and pupils use sustainable travel initiatives, and why.

Pupils set up simple **reward incentives** for class improvement in walking/cycling/ use of zones. E.g. stickers, certificates, trophies, school rewards. (School Travel Advisers could help).

Design Park and Ride/5 minute Zone/Walking Bus Route markers to be placed on routes to school.

The suggestions above can be included in your school's School Travel Action Plan to be revisited and added to, when appropriate.

Curriculum Links

Geography

KS1&2

Unit 6: Investigating our local area

Section 1:

Where is the locality in relation to other places?

Where is our school?

Children should learn:

- to investigate places
- about the wider context of places
- to make maps and plans
- to use and interpret maps

QCA Unit 2: How can we make our local area safer?

QCA Unit 20: Local traffic - an environmental issue.

QCA Unit 1 : Making Connections.

QCA Unit 23 : Local action, global effects.

Citizenship

KS1&2

QCA Unit 01: Taking part - developing skills of communication and Participation.

Section 10: Years 5 and 6 - Working together - making decisions.

KS3

QCA Unit 23: People and the environment.

Science

KS1&2

QCA Unit 2A: Health and growth

Unit 5A: Keeping healthy

KS3

QCA Unit 9b: Fit and Healthy

Literacy

KS1,2&3

Speaking and Listening:

Listening and responding

Group interaction and discussion

Writing:

Persuasive writing

Formal letter writing

CAN YOUR SCHOOL COUNCIL MAKE A DIFFERENCE?

Aims:

- To encourage pupils to consider what would make it easier and safer to walk, cycle or use public transport to travel to school.
- To create a dialogue between the school council, other pupils and outside agencies (see **link with mapping activities lesson**).
- To involve pupils in active research on issues that affect them.
- To reduce traffic congestion outside school.

Reasons for completing the School Council Challenge:

- Most schools already have a School Council
- Travel and Traffic offers the opportunity for the School Council to get involved in a real issue.
- Gives pupils the opportunity to contribute towards the School Travel Planning process

School Council Meeting 1

You will need:

Survey sheet (included in pack).

Agenda:

- Discuss the reasons for coming to school by car instead of walking, cycling or using public transport.
- What are the local problems?
(Some pupils will have highlighted these in the mapping activity lesson)
- Discuss that everyone in school might not hold these views and that some real research would give a more accurate picture.



- Explain that the School Council could issue a survey to find out how pupils travel to school now and what changes would encourage people to use their cars less.
- Distribute *Survey Form* and discuss whether this format is relevant and suitable or if any changes need to be made.
- Decide how the survey is to be carried out and how the results will be collated.

If appropriate, additional or alternative methods can be used other than the survey form e.g. a graffiti wall posing questions where pupils record their views.



SURVEY FORM SHEET 1 What do you think?

1. How do you usually travel to school? (for the main part of the journey)	TICK 1
walk	
car	
bike	
school bus	
public transport	
other	

2. What would make walking to school better?	TICK 1
Improved pavements	
People to walk with	
Less /slower traffic	
Safer places to cross the road/more crossing patrols	
Nothing- it's too far to walk	
Nothing- my parents won't let me	
Other ideas:	

3. What would make cycling to school better? (Tick the three things that are most important)	TICK
More cycle lanes/people to cycle with	
Less/slower traffic	
A safer place to leave my bike and belongings	
Cycle training	
Nothing –I don’t have a bike	
Nothing –my parents won’t let me	
Other ideas:	

4.What would make using public transport better? (Tick the three things that are most important)	TICK
A bus stop closer to home/school	
Buses/trains running more often	
People to travel with	
A shelter at the bus stop	
A safer route to the bus stop/train station	
Nothing- I live too near school	
Nothing- my parents won’t let me	
Other ideas:	

PHOTOCOPIABLE AGE

School Council Meeting 2

Aims:

To make recommendations for change based on the survey results.
To prepare to present the recommendations to policy makers.

You will need:

Prompt Sheet (included in pack)

Agenda

- Discuss the results of the survey and the issues that significant numbers of the school community want to be changed or improved.
- Debate which issues are to be recommended (a small number, about three)- these must be realistic and feasible.
(Policy makers need to be identified by the teacher as appropriate to each school.) **see mapping lesson**
- Decide how to present the recommendations – letter/ presentation at a meeting etc.

- Decide how to organise an awareness raising campaign within school - see **prompt sheet Campaign Ideas**.
- Which of these would be most appropriate?
- Pupils will find helpful ideas and background information on the Sustrans websites:
- www.sustrans.org.uk
- www.saferoutestoschools.org.uk

Prompt sheet for possible solutions

Please consider the following suggestions and agree on which is the top priority for your school locality. Place the rest of the suggestions in order of importance, finishing with the lowest priority suggestion.

• 5 minute Walk Zone
• Park and Stride Scheme
• 20 mph zones around school
• Brightly coloured school uniforms visible to drivers.
• Car sharing to reduce the number of cars.
• Traffic calming devices to slow down the traffic
• Create a car-free school entrance
• A school shop selling reflective accessories and cycle helmets at discount prices.
• Cycle sheds where bikes can be stored securely.
• Posters in school showing bus routes, times and fares.
• Cycle lanes between school and housing areas
• More crossings
• More school crossing patrols
• Training courses for cyclists and pedestrians
• Posters around school showing the benefits of walking and cycling.
• PUFFIN Scheme (Park Up at a Friend's house and walk with them IN stead of driving all the way to school.)

Prompt Sheet Campaign Ideas

What do we need to tell people?

- Explain the issue of congestion, pollution and risk of accidents.
- Display the survey results:
 - How people travel to school
 - Changes/improvements that people want

Where could we present the information?

- Assemblies
- School notice board/website
- Special displays in foyer/hall/corridors
- School newsletter
- Local shop windows
- Local newspaper/radio
- Public meetings

How could we present the campaign information?

- Graphs and charts
- Photos
- Maps

- Speech bubbles/quotes
- Posters
- Letters
- Leaflets/articles

Curriculum Links

Citizenship

KS2

Taking part-developing skills of communication and participation. -

Pupils should:

- Make suggestions for dealing with a real-life issue, and cooperate with others in a group to reach a resolution.
- Contribute to a simple debate listening to the views of others.
- Make a decision and vote on an issue.
- Participate actively in a group discussion and problem-solving activity.
- Represent the views of others when sharing information.
- Understand how democratic decisions are taken and recognise the importance of participation and communication skills in this.

KS3

Pupils should learn:

- To reflect on ways in which the pupils are already citizens, participating in their school and communities.
- About democratic processes and how these help us to have our say.
- That having discussions and forming opinions about issues and current events are central to citizenship.
- That groups and individuals can make decisions in different ways within a democratic society.

KS4

Pupils should learn:

- About how to take part responsibly in aspects of policy making in their school and local community.

Climate Change Pack

Aims:

- To make pupils more aware of the influence that travel habits have on climate change.
- To develop a better understanding of the issues and terminology surrounding climate change.
- To increase the proportion of pupils travelling to school by sustainable means, leading to environmental benefits.

Reasons for doing a climate change activity in school:

- Climate change stories feature daily in the media and pupils need to be fully informed of the facts.
- Schools can develop positive activities to help combat climate change.
- Plenty of resource material available.

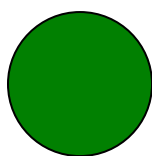
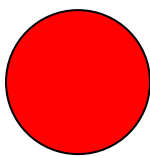
Activities:

- Finding out what pupils already know
- Finding out the facts.
- Using websites, DVDs, information sheets, calculating a global footprint.
- Finding out how using a car affects climate change.



Climate change- what do you know?

- Read out some of the words associated with climate change. Ask the children if they know what they mean? Get them to hold up a green circle if they can explain the meaning or a red circle if they don't know.



Or

- Matching exercise

Give out definitions of the main terms and match them up to the correct words

Or

- Give out a list of the main terms and ask the children to write down what they mean.

Or

- Get the children to make a poster or scene showing what they understand about Climate change and global warming

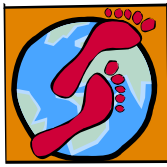
Climate change-finding out the facts

- Global footprint exercise enclosed in this pack
- Watch a DVD on climate change (Defra DVD on Climate challenge website)
- Log on to Carbon Detectives website to find out more and register your school to work out the carbon footprint.
- Look up books and other websites to find out more information

Climate change-How does using a car affect climate change?

- Look at the fact sheet for teachers and pupils in this pack
- Try some of the suggested activities

CO ₂	This is a gas called Carbon Dioxide. Carbon dioxide is a gas that is found in our atmosphere. Burning fossil fuels makes extra CO ₂ in the atmosphere.
Fossil fuels	Coal, gas and oil are known as fossil fuels. They occur naturally on the earth from the decomposition of animal and plant remains. They produce carbon dioxide when they are burnt.
Greenhouse gases	The earth is getting warmer because of a build up of greenhouse gases in the atmosphere. These gases trap heat from the sun. The most important greenhouse gas is carbon dioxide.
Carbon footprint	The words 'carbon footprint' is used to describe the amount of CO ₂ you produce and its impact on the environment. To measure your carbon footprint, you need information about what you use (water, energy, food, etc) and the waste you produce. Everyone has a carbon footprint - it's your own personal measure of how much carbon dioxide you create and how much you contribute to climate change.
Global warming	Global warming is a gradual rise in temperature all over the earth's surface. The earth is getting warmer because of a build up of greenhouse gases in the atmosphere. These gases trap heat from the sun. Global warming refers to an average increase in the Earth's temperature, which in turn causes changes in climate. A warmer Earth may lead to changes in rainfall patterns, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities.
Climate	Typical weather. The term 'climate' normally describes the average weather we get over a long period of time. When our climate changes, the weather we experience locally day to day can also change.
Atmosphere	It is like an invisible blanket that keeps the earth warm by trapping heat from the sun. The atmosphere is the mixture of gases surrounding the Earth. The Earth's atmosphere consists of about 79. % nitrogen 20.9% oxygen, 0.036% carbon dioxide and trace amounts of other gases. The atmosphere can be divided into a number of layers according to its mixing or chemical characteristics,
Ozone layer	A layer in the earth's atmosphere. The ozone layer protects the earth from the sun's harmful rays.
Climate change	Climate change has happened naturally many times before. The difference now is that the change is happening quickly and humans are speeding it up. A gradual change in the climate we experience. Climate Change is one of the most important issues facing the world today. There is strong evidence that human emissions of greenhouse gases are changing the world's climate.
Emissions	When the car drives it burns fuel and emits fumes that contain the gas carbon dioxide.
Sustainable	Something is sustainable when it can continue to be used in the future.



Global Footprint Activity

Aims:

- To introduce the concept of Global footprint
- To calculate individual footprints
- To begin thinking about ways that the global footprint can be reduce

Introduction

What does global and footprint mean?

What is a global footprint?

A footprint means pressing down and global means world, so 'global footprint' means pressing down on the world and we don't want to press too hard'

(Child's definition of a Global footprint).

We all make an Ecological footprint (or Global footprint). Show a picture of planet Earth or a globe. Ask if they know what the world population is? Answer six billion. Explain that if we share out the area of productive land and sea by the global population of six billion people then we each have around 2 hectares of land for to supply all our needs.



An Ecological footprint is the area of land and water that is needed for a person to sustain their particular standard of living. Each person has an allocation of 2 hectares.

Take an apple to represent the world. Cut it into quarters vertically. Put 3 aside, they represent the earth's surface covered by water. Slice the remaining quarter into 8 slithers and discard 7- these represent mountains, deserts etc Peel the remaining slither- the peel represents the earth's surface on which we depend upon for our food for survival. This show's that food production is a key component of the Global footprint.

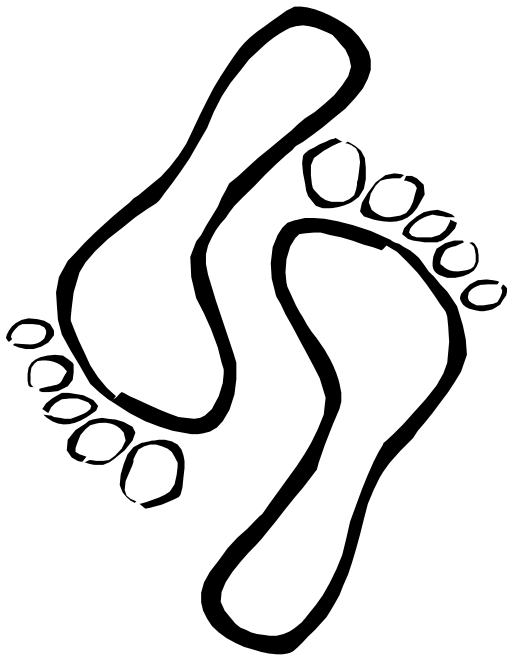
What are the other components?

Paper 2%, water 1%, heating 10%, holiday 14%, waste 22%, transport 17%, food 22%, electricity 11% for an unsustainable lifestyle.

Paper 5%, water 1%, heating 10%, holiday 10%, waste 30%, transport 10%, food 32%, electricity 2% for a more sustainable lifestyle.

Activity:

Calculate your global footprint using the guideline sheets.



Feedback scores

Dividing the total by 50 gives the approximate number of hectares needed to support that lifestyle.

(1 hectare is approximately 1 football pitch.)

In this country the average EF is 5 hectares.

In Africa and Asia it is only 1.5 hectares.

In USA it is 10 hectares.

Are we sharing out the earth's resources fairly?

Why do we have an EF of 5 hectares when each person's allocation is 2 hectares?

What can you do?



Global Footprints

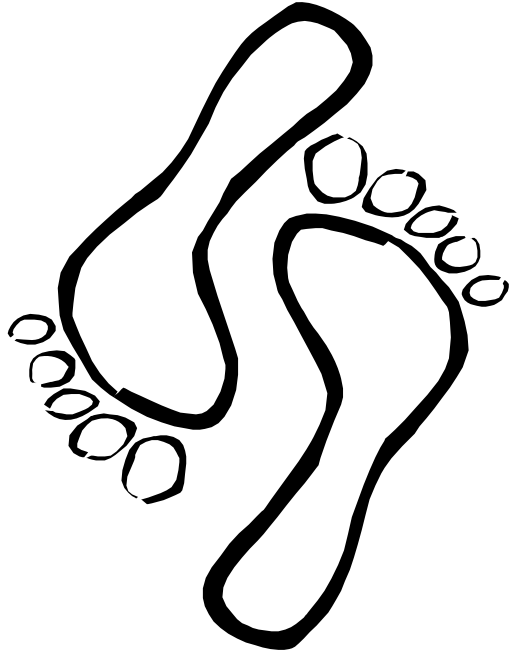
Item	Score range	Guidelines:
Paper	5-10	I use a small amount of paper each day. I use an average amount of paper each day. I use a large amount of paper each day.
Water	1-5	I do not use a washing machine or dishwasher daily. I shower instead of bath. I regularly use a dishwasher and washing machine. I bath daily.
Heating	10-45	I share a medium sized house with my family and the heating bills are average. I live in a large house, by myself and the heating bills are high.
Holiday	10-65	I usually holiday close to home I usually holiday in Europe and sometimes fly I usually holiday further a field and travel by plane.
Waste	30-100	I produce a below average amount of domestic waste which is recycled. I produce a large amount of domestic waste which is not recycled.
Transport	10-75	I usually walk or cycle. I travel mostly by bus or train. I travel mostly by car.
Food	32-100	I am a vegetarian and buy fresh locally grown produce. I am an occasional meat eater and eat mix of fresh and convenience food. I am a regular meat eater and eat a lot of convenience food.
Electricity	2-50	I tend to conserve energy and buy electricity from a renewable source. I tend not to conserve electricity and buy electricity from a non renewable source.
	Total	

	Global Footprints			Global Footprints	
Item	Score range	Your Score	Item	Score range	Your Score
Paper	5-10		Paper	5-10	
Water	1-5		Water	1-5	
Heating	10-45		Heating	10-45	
Holiday	10-65		Holiday	10-65	
Waste	30-100		Waste	30-100	
Transport	10-75		Transport	10-75	
Food	32-100		Food	32-100	
Electricity	2-50		Electricity	2-50	
	Total			Total	

Global footprint-extension ideas

Draw a footprint onto plain paper.

Divide into sections and decorate to show each aspect of the footprint: water, heating, paper, holiday, waste, transport, food, electricity.



Draw a footprint onto plain paper.

Divide into sections and decorate to show how you could reduce each aspect of your footprint e.g. water- turn the tap off when you brush your teeth, heating- turn the thermostat down, etc

Calculate % for each item.

E.g. Paper score/ Total x 100%

Which aspect of your *Global footprint* accounts for the greatest percentage of your score?

Why is this?

What can you do about it?

TEACHER'S FACT SHEET

How does using a car affect climate change?

Climate change has happened naturally many times before. The difference now is that the change is happening quickly and humans are speeding it up.

Climate change is one of the biggest threats to our environment. It will have a massive effect on how we live.

The earth is getting warmer because of a build up of greenhouse gases in the atmosphere. These gases trap heat from the sun. The most important greenhouse gas is carbon dioxide.

The symbol for carbon dioxide is CO_2 . The words 'carbon footprint' is used to describe the amount of CO_2 you produce and its impact on the environment. To measure your carbon footprint, you will need information about what you use (water, energy, food, etc) and the waste you produce.

Each thing you do produces different amounts of CO_2 . These measurements are used to calculate your carbon footprint.

In an increasingly car dependent culture it is easy to become relaxed about using our own private vehicles for any and every journey. This is compounded when there are localised problems of inadequate public transport and concerns over cyclist or pedestrian safety. Travel to and from school currently makes up a significant part of a school's carbon footprint. This is made worse when congestion lengthens journeys and increases fuel consumption. Nationally, transport now accounts for 26 per cent of emissions in the UK and is the fastest growing source of climate change gases.

Reducing carbon dioxide emissions from journeys associated with schools can be tackled in a number of ways. New green fuels such as biofuels (based on agricultural crops such as soybeans and rapeseed) and initiatives in vehicle design such as the G-Wiz (an electric car with no emissions) may offer part of the solution in the longer term. In the meantime the more that can be done to reduce individual car journeys the better. Using buses reduces the overall amount of carbon dioxide released, and both walking and cycling are emission free.

A large car produces 0.10 kg CO_2 per passenger km, whereas a bus produces 0.05 kg CO_2 per passenger km. Using this information the total CO_2 emissions for travel in a school are calculated.

Scientists have calculated that for temperature increases to be held to a maximum of 2 degrees by 2050 the average global emissions per person should be 2 tons. Currently the global average is around 4 tons per person. Climate change is not a small challenge. Big reductions are needed and schools have to play a part in this.

Travel facts and figures

- Transport accounts for 20 per cent of the average school's carbon footprint.
- Between 1992 and 2004 the number of journeys made to school by car rose by 31 per cent and the average journey length increased.
- Between 8am and 9am 18 per cent of cars on the road in urban areas are on the school run.
- Public transport uses as much as 50% less fuel per passenger than a private car.

What individual pupils can do

- Walk or cycle to school whenever possible.
- Use public transport / school bus services rather than traveling by car.
- Arrange to share lifts to cut down on the number of individual cars making the same journey.
- Be aware of the new, more environmentally friendly cars and discuss them as options with their family.

What a school community can do

- Develop a School Travel Plan to change the way the whole school travels.
- Encourage cycling to school by providing safe and plentiful bike sheds and lockers.
- Organise and promote cycling proficiency courses, helping to encourage more pupils to enjoy and feel safe using a bike. This may also help to ease parental concerns about safety issues.
- Organise safe walk-to-school alternatives such as 'walking buses' which will have added social and health benefits.
- Consider providing a breakfast club selling healthy food to replenish the energy used by pupils cycling or walking.
- Use biofuels in minibuses and consider transport emissions when planning school trips.

To influence government thinking and policy-making, pupils can:

- Write to their MP/MEP asking them to improve public transport provision in their area. This may also mean challenging them concerning cost, especially in rural areas where buses are often expensive to use even for short journeys.
- Support wider initiatives such as International Walk to School Week (www.iwalktoschool.org) to demonstrate the desire for change. This may include the need to target related issues such as ensuring streets are safe for pupils to walk along.

PUPIL'S FACT SHEET

How does using a car affect climate change?

Most cars use petrol to make the engine drive the car.

When the car drives it burns fuel and emits fumes that contain the gas carbon dioxide (CO₂).

Added together with CO₂ from other cars it has a major effect on the amount of CO₂ in the atmosphere.

Carbon dioxide is a gas that is found in our atmosphere. It is like an invisible blanket that keeps the earth warm by trapping heat from the sun.

We make extra CO₂, which makes the blanket strong. This extra heat warms the Earth. It can also cause changes in the weather. This is known as causing climate change.

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What individual pupils can do

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- Be aware of the new, more environmentally friendly cars and discuss them as options with their family.

For further information and data

www.carbondetectives.org.uk

Climate Change Activities

- How can I make the biggest difference?

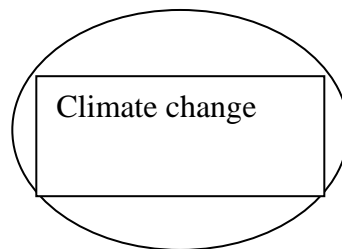
Think about journeys that you and your family make each week.

Look at the grid and fill in what you could do to use your car less and reduce the amount of CO₂ in the atmosphere.

	Easy to do	Hard to do	Very hard to do
Makes a bit of difference			
Makes a lot of difference			
Makes a really big difference			

- Mind maps

Put Climate change in the middle, place words and phrases on the branches. Place similar words or phrases on the same branch. Use lots of colour, symbols and drawings. Remember to include ideas for reducing your car use and cutting emissions.



- Word pictures

Draw a scene featuring the words you know to do with Climate Change. Label it with words and phrases. Use lots of colour and memorable pictures.



- Devise a 3-minute advert to persuade other people to use their cars less. You may use slogans, jingles, drama. Try to include some of the new terms you have learnt.
- Prepare a 5 minute presentation on the influence travel has on climate change. You may want to use drama or make posters. You could do this for the rest of your school.

How can I make the biggest difference?

	Easy to do	Hard to do	Very hard to do
Makes a bit of difference			
Makes a lot of difference			
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Climate Change Activities-Websites and Resources

<http://www.carbondetectives.org.uk/content/home/toolkit/traveltraffic>

All the facts you need for your lesson and more!

The website starts with a short animation which highlights for Key Stage 2 and 3 pupils the environmental state of the planet and the fact that schools contribute to climate change through their carbon emissions.

The animation aims to stimulate your pupils to use the Carbon Detectives' Kit to find out the carbon footprint of their school and work towards reducing it. Ideally they would be in charge of as much of the data collection and decision-making as possible but help from you and other staff in the school will be vital.

The carbon footprint calculator works by measuring components of the five DCSF Sustainable School Doorways in your school responsible for CO₂ emissions. Data about these Doorways is collected and entered onto the website and a school carbon footprint is calculated. On the website the Doorways are referred to as Assignments. The six assignments for the Carbon Detectives Team are:

- **Energy and water** - pupils discover how much water, electricity, gas and other energy the school uses in a year.
- **Food** - pupils find out about the food eaten in the school including school meals, packed lunches and snacks, plus drinks.
- **Waste and recycling** - pupils measure certain items of waste and how it is disposed.
- **Travel** - pupils investigate how people travel to and from school and the trips the school makes.
- **Purchasing** - pupils find out how much paper is used, and how many of certain items of equipment the school has and purchases each year.
- **Buildings and grounds** - pupils find out about the area of the school and the number of new trees planted each year.

www.climatechallenge.gov.uk

Tomorrow's Climate today's challenge

Ann Smallwood and Jane Macdonald

Regional School Travel Curriculum Advisors for Yorkshire and Humber Region.

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Defra climate change short film. This short film illustrates why climate change is happening, what it will mean and how we can all be part of the solution.

Climate change animation to aid children in learning about climate change we have developed a simple animation to explain the basics.

Lots of facts and explanations about climate change. Good sections on Understanding climate change and Communicating Climate Change

www.managenergy.net-kidscorner

European website has good resources for transport and climate change.

Downloadable pictures

WWF

www.wwf.org.uk

www.wwflearning.co.uk Dedicated teacher website

Climate Chaos information for teachers. Learning for Sustainability. An excellent booklet with explanations and activities. Has Curriculum links for KS2 and 3

The Best Eco Book Ever isbn0955311101

Film-An Inconvenient Truth by Al Gore

Sent to all secondary schools with Teacher Guidance Pack.

www.teachernet.gov.uk/sustainable-schools

Children's Minister Kevin Brennan said: "The judge's decision is clear that schools can continue to use An Inconvenient Truth as part of their teaching on climate change in accordance with the amended guidance

"Climate change is the greatest environmental challenge facing the world today. Schools have a special role to play in helping pupils understand its causes and in exploring if and how we should respond."

Climate Change film pack - Guidance for teachers

Submitted by: [Department for Children, Schools and Families](#)

This guidance accompanies the Climate Change Film Pack sent to all secondary schools in England including Al Gore's film, An Inconvenient Truth and a series of short films from

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Defra. The guidance is aimed at Key Stage 3 and 4 science, geography and citizenship teachers as an aid to teaching about climate change and includes:

- How scenes from the film, *An Inconvenient Truth* link to the science, geography and citizenship curriculum at Key Stages 3, 4 and A Level.
- Lesson ideas on teaching climate change in science and geography.
- Climate change debate topics for citizenship lessons.
- How to plan a whole day citizenship event on climate change.
- FAQs and further resources.

Film packs have been issued to secondary schools in England only.

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