

Doing the school run

A numeracy activity addressing key elements of the National Numeracy Strategy (NNS) while comparing children's actual and desired mode of transport to school

Relevant elements of the Year 6 NNS Teaching Programme (p 26-27)

Suggested focus for this activity:

Numbers and the number system

- Find simple percentages of small whole-number quantities

Handling data

- Solve a problem by representing, extracting and interpreting data in tables, graphs, charts and diagrams including those generated by a computer
- Begin to interpret simple pie charts, such as those showing the data in a computer database

Solving problems:

- Identify and use appropriate operations to solve word problems involving numbers and quantities based on 'real life', money or measures

Global Citizenship aims of the Travel to School survey

- ✓ To find and select evidence and begin to present a reasoned case
- ✓ To help children understand the relationship between people and the environment
- ✓ To recognise the consequences of choices on other people and the environment both locally and globally
- ✓ To foster a sense of responsibility for the environment and for the use of resources
- ✓ To equip children with the knowledge and understanding to empower them to take positive actions which ensure greater social justice and protect the environment

Many of these aims are based on the Oxfam Curriculum for Global Citizenship, available from Oxfam Education, 274 Banbury Road, Oxford, OX2 7DZ

QCA Scheme of Work for Geography

There are clear links between the aims of the activities in this leaflet and the activities identified in the QCA Geography scheme of work for Key Stages 1 and 2. In particular Year 5 Unit 12: *Should the high street be closed to traffic?* and Unit 20: *Local Traffic – an environmental issue*. This series of global citizenship leaflets provides an opportunity to focus on the contribution of traffic and transport to the quality of the local environment and provides a global perspective to the problems of traffic and transport.

Suggested lesson structure

Mental or oral work

The main activity assumes some previous knowledge of, and work with, percentages. The lesson could begin by asking children to find simple percentages of whole numbers as a way of consolidating previous learning. Pupils could be asked to recap different calculation strategies e.g. 10% of 240 is 24 so 20% must be double that (48) and 40% double again; 25% is a quarter, so divide by 4 (60) and 75% is three quarters which is one quarter X 3 etc. The more complex calculations that the main activity requires could then be explored, e.g. 36% of 300 could be calculated as $(10\% \times 3) + (1\% \times 6)$

The main teaching activity

The aim of the main activity is to apply percentage calculations to a real life survey comparing actual and desired mode of travel to and from a London primary school. The worksheet may be photocopied or turned into an overhead transparency.

Less able children could work on the activity with teacher support and focus on the first question applied to both pie charts.

More able children could focus on Questions 2 & 3 and in groups consider some of the points for discussion. They could then feed back their thoughts in the plenary session.

Plenary session

The main purpose of the plenary session will be to explore the calculation strategies used in the numeracy questions.

It is also important that there is an opportunity, either during the plenary session or at another time, to examine some of the points for discussion.

The main aims of this will be to examine:

- the restrictions and constraints to children travelling to school by their preferred mode of transport
- the benefits to the environment and to health through travelling to and from school by walking and cycling
- the dangers associated with walking and cycling due to heavy levels of fast moving traffic and the lack of adequate and safe features such as pedestrian routes, road crossings, speed restrictions, traffic calming and segregated cycle lanes
- The environmental and social benefits of travelling to school by public transport rather than by car

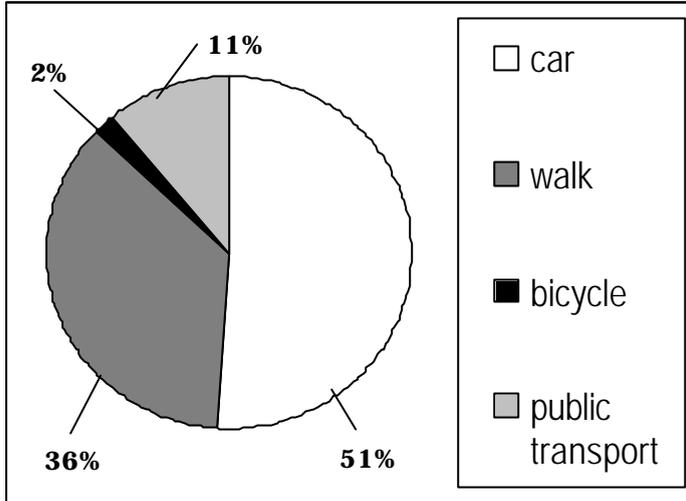
For rural schools with wide catchment areas walking and cycling may not be feasible. However, the discussion could still explore ways of reducing car journeys - by car sharing or through providing a school bus for example. It would also be a good opportunity to inform children that many children in the countries of the South walk long distances to and from school: it is not unusual for children to walk 10 km each way.

The results of any survey carried out in your school many of course be different from the results of the London school. More children may reveal a preference for travelling by car than actually do, for example. A full school survey may reveal differences of preference between classes and age groups. Such information will provide an ideal opportunity for challenging children, encouraging them to think critically and raising with them the health, environmental and social implications of the way we choose to travel.

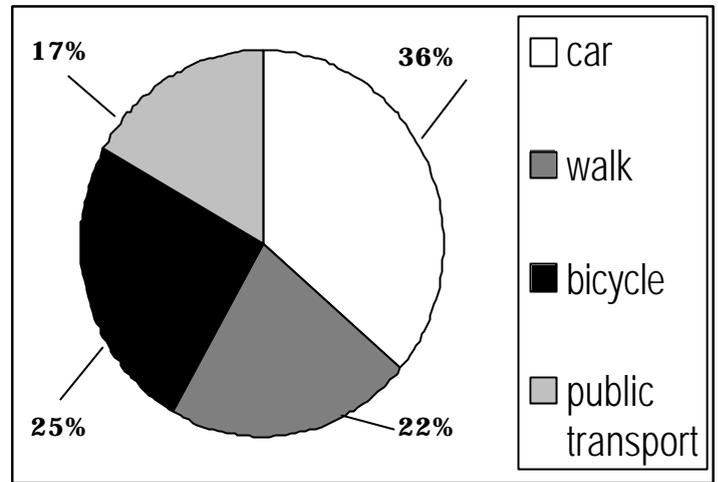
Do we get to school the way we want to?

The pie charts below show information collected from a real London school. They compare how children would like to travel to school with how they actually travel to school.

Actual travel to school



How children would like to travel to school



Questions based on the pie charts

1. This school in London has 200 pupils.

Using the pie charts above, calculate how many children:

- Travel to school by car
- Travel to school by public transport
- Travel to school by bicycle or on foot

2. How many more children would like to come to school by bicycle than actually do come to school by bicycle?

3. What is the difference between the number of children travelling to school by car and those who would like to travel to school by car?

Extension activity

Survey one class in your school to compare how children actually travel to school and how they would like to travel to school. Use a computer to produce two pie charts to show the results of your survey. What conclusions can be drawn from the charts?

Points for discussion

With a partner or in a small group discuss the following:

- What reasons do you think may prevent more children coming to school by bicycle?
- List the changes you think would be necessary before more children are able to travel to school by bicycle.
- List some reasons why you think fewer children would like to walk to school than actually do?
- List some reasons why you think fewer children would like to travel to school by car than actually do?
- If a pie chart were drawn for how children travel to a village school in Africa, how different do you think it would look from the one for the school in London?
- If children could travel to this London school the way they wanted, would it be better or worse for the environment? Explain why.

Further resources

The following is a list of titles which will offer information and opportunities for further activities on issues of Transport for KS2. Most should be available through your local Development Education Centre (DEC).

Green Transport Pack (WWF/Environmental Transport Association 1993) A pack full of information on current attitudes to travel, changing travel patterns and ideas for action both within and outside the classroom on how to reduce car dependency

Global Express Edition 23 on Climate Change, produced by Development Education Project, Manchester, Tel: 0161 445 2495 email:depman@gn.apc.org www.dep.org.uk/globalexpress

Primary topic posters: Transport (Oxfam) contains a set of posters and teachers notes with activities. aimed at KS1 but some activities and information relevant to KS2

A safer Journey to School: A guide to school travel plans for parents, teachers and governors available free from DfEE Publications PO Box 5050, Annesley, Nottingham NG15 0DJ Tel: 0845 602 2260 Fax: 0845 603 3360

On the Road - one of *The Green Detective* series, John Barnes (Wayland 1992). Examines how different forms of transport affect the environment and poses a series of problems and issues for children to investigate

Transport by Polly Goodman, part of the *Earth in Danger!* series (Hodder Wayland 2001). Examines a range of problems caused by transport from the local to the global as well as case studies from around the world and activity ideas.

Feedback on these activity ideas would be much appreciated. Comments can be sent to HEC or your local DEC or via the Global Footprints website.

Further ideas, contacts and information

Recreating the Greenhouse Effect

This **science experiment** demonstrates the greenhouse effect caused by carbon dioxide (CO₂)

What you will need

- Two identical glass jars
- Cold water
- An even number of equally sized ice cubes
- One clear plastic bag, plastic cube/box, or larger jar
- Thermometer

What to discuss

- The aim of the experiment: to investigate whether the greenhouse effect can be created in the classroom
- How the experiment will be conducted
- The concept of a 'fair test' and the series of measures which need to be taken in order to ensure that the experiment is fair
- predictions and justifications: what will happen to each jar of water and why

What to do

- Fill the two identical jars with an equal amount of water, approximately half full
- Add an equal number of ice cubes to each jar
- Create a 'greenhouse' around one jar, by placing a clear plastic bag around it or by placing a larger jar upside down over the top of it, or transparent plastic cube etc.
- Leave both jars in the sunshine for one hour
- Observe how quickly the ice melts in each jar
- Measure the temperature of the water in each jar after an hour.

Follow up work

- ⇒ Draw a diagram to show how the greenhouse effect works. See suggested resources below for further details.
- ⇒ Explain that CO₂ creates a 'blanket' around the earth and is similar in its effect to a cover around the jar. The 'greenhouse jar' lets in the sun's light energy and some of its heat energy, heating the air around the jar. This heat is trapped by the cover and so heats the water quicker than in the jar with no cover to trap the heat.
- ⇒ Discuss the implications of the greenhouse effect on the climate, and the detrimental impacts scientists now believe this effect is having, e.g. more violent storms, floods, droughts, destruction of wildlife habitats, e.g. coral reefs, arctic regions etc.
- ⇒ Discuss the issues leading to the increase of CO₂ in the atmosphere and subsequently the greenhouse effect, i.e. the burning of fossil fuels such as coal, oil and natural gas.
- ⇒ Discuss what actions could be taken personally, locally and globally to reduce CO₂ emissions and therefore help to reduce the greenhouse effect.

Suggested resources to support work on the greenhouse effect

The Greenhouse Effect by M. Bright, part of the World About Us series. Clear simple language with good illustrations. Suitable for most Year 5 and 6 children

The Greenhouse Effect by Alex Edmons, part of the Close Look series. More complex and more detailed but with good illustrations. Suitable for more able children

Further information about transport

The following organisations will be able to provide details of their campaigning work on transport or climate change

Oxfam 274 Banbury Road, Oxford OX2 7DZ Tel:01865 313600
Produce a range of global citizenship education packs. Education catalogue contains extensive range of resources across the curriculum. To order phone 01202 712933. Also have a website dedicated to teachers and children which contains information and activities: www.oxfam.org.uk/coolplanet

Friends of the Earth 26-28 Underwood Street, London N1 7JQ

Tel: 020 7490 1555 www.foe.co.uk Produce information sheets and other resources suitable for young people on all environmental issues including transport

Transport 2000 The Impact Centre, 12-18 Hoxton Street, London N1 6NG Tel: 020 7613 0743 email: steve@transport2000.demon.co.uk

The national environmental transport campaign working for sustainable transport policies that reduce traffic, promote walking and cycling and improve bus and rail services.

Sustrans 35 King Street, Bristol BS14DZ Tel: 0117 929 0888 email: info@nationalcyclenetwork.org.uk website: www.sustrans.org.uk For information on Safe Routes To School Tel: 0117 915 0100 Sustrans works on practical projects to encourage people to cycle and walk and is behind two flagship projects: the National Cycle Network - 5000 miles of on-road and traffic-free cycle routes - and Safe Routes To School, encouraging schools, parents and local Councils to support the implementation of safe walking and cycling routes to and from school.

Development Education Centres (DECs)

This resource has been produced by the Humanities Education Centre, a DEC in Tower Hamlets, with contributions from other DECs. Your local DEC will be able to provide a range of exciting resource ideas for the teaching of Global Citizenship. To find your nearest DEC contact:

Development Education Association,
29-31 Cowper Street, London, EC2A 4AP
☎ 020 7490 8108 e-mail devedeassoc@gn.apc.org

Your local DEC :