

local  
paper  
for surrey



# Paper & the environment education pack



**cut out  
waste paper**

Using paper means less rubbish to dispose of, reduced pressure on forests for produce new paper, and lower office costs.

Here's how to help the environment and save money:

- get plenty on both sides
- use both pages for notes
- check a single copy before bag out

Send paper for recycling - as office waste paper collector and bag both sides. Recycle used office paper to the local and take it back as a quality office paper.

Ring BioRegional on 020 8324 4000 or email [info@paper4surrey.com](mailto:info@paper4surrey.com) for the advice.



**BioRegional**

[www.bioregional.com](http://www.bioregional.com)

## **Local Paper for Surrey - Paper and the Environment Education Pack**

Produced by

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Registered charity no 1041486. A company limited by guarantee. Registered in England and Wales no. 2973226 VAT no. 7069040 45

Published May 2003

Printed on *BioRegional* Local Paper for Surrey: 100% recycled *Evolve* paper 80gsm

# Local Paper for Surrey

Local Paper for Surrey is a project run by environmental charity BioRegional, and funded by SITA Environmental Trust and The Naturesave Trust. By providing free advice and support materials, we make it easy for you to 'close the loop' creating a sustainable paper cycle in your organisation. By doing so you will reduce pressure on landfill and forests, and so reduce your organisation's environmental impact – perhaps save some money too! There are three ways to join Local Paper for Surrey:

- Recycle your office paper
- Buy it back as a locally produced UK recycled paper product
- Reduce your paper consumption

If you are interested in finding out more about the scheme contact us on:  
**020 8404 4886** or **surreypaper@bioregional.com**.

## Education Pack

BioRegional have developed this education pack to National Curriculum standards, to accompany the Local Paper for Surrey scheme. It is suitable for Key Stages 2 (ages 7-11) and Key Stages 3 (ages 11-14) classes in Geography, PSE/ Citizenship, Design and Technology, Literacy and Numeracy.

The aim of this pack is to provide ideas and suggestions to incorporate learning about recycling into the school curriculum. The pack includes lesson suggestions and resource sheets for teachers to use.

We developed this pack in collaboration with teachers to ensure that the content fits with the National Curriculum. We hope that you find it useful, and if you have any comments or suggestions, please get in touch with us, using the contact details above.

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# 1. Introduction

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This pack is full of ideas and suggestions of ways to incorporate learning about recycling into the school curriculum. We hope that you will find the lesson suggestions and information sheets useful in a range of different subject areas.

## **Key Objectives of this resource pack, using 'ASK'.**

**Attitudes:** To develop a positive and enquiring attitude towards recycling.

**Skills:** To teach children how to analyse the use of resources and enable them to organise recycling in school.

**Knowledge:** To teach children the key principles, reasons for and methods of recycling.

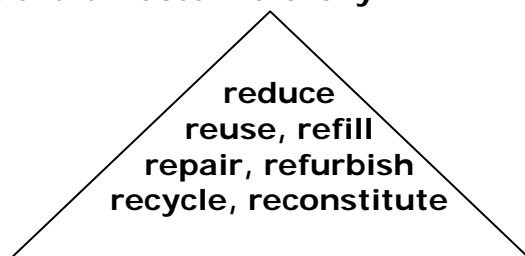
Please look through the pack and use it as you see fit, but before you do, it is worth bearing in mind a few key points about recycling and about education:

## **Why recycle?**

It may seem like an unnecessary question, but it is worth thinking about before you start asking students to do it. Recycling is a good way to:

- **save money**
- **conserve resources**
- **use less energy**
- **live a more ecologically-friendly life**
- **learn more about environmental issues**

**but** remember that recycling is only a partial solution to the problem of waste – it should always be thought of as part of the **waste hierarchy**:



**Also,** it should be carried out in tandem with efforts to

## **reduce consumption of resources**

overall, right from the outset.

Teachers should emphasise the point that the problem of waste needs to be tackled *at source*, systematically.

Although we have created educational materials that support our aims of increased paper recycling, we believe that the best way to reduce resource consumption is through approaching the topic of waste in a much more holistic way.

Recycling needs to be taught alongside a broader respect for ecological values and an awareness of the interconnections between all ecological, social and economic issues.

So rather than simply seeing scrap paper as a resource to be recycled, students are aware of its links to forestry, biodiversity, pollution, climate change and fuel use. For example, by recycling a sheet of paper ...

- less rainforest is cut down which is home to valuable animals and plants,
- less fuel is used to transport the paper as it can be recycled at a local factory...
- so less CO<sub>2</sub> is put into the atmosphere...
- so global warming is reduced...
- so people's homes don't get flooded or their crops ruined.

..... a sheet of paper has a lot of power!

### **Take learning outside**

Furthermore, this understanding of the interconnectedness of issues should ideally not just be acquired in a classroom, but learned through research and discovery outdoors and out of school. David Orr<sup>1</sup> suggests that before any learning of ecological facts and figures can take place, a basic sense of respect for ecosystems needs to be instilled in students. He suggests, therefore, that all students should spend time immersed in a particular environment, finding out about all its facets and learning about it through direct experience before doing any academic learning. Then, the 'book knowledge' becomes relevant and meaningful to students, rather than seeming unconnected to their real lives. So teachers should build in trips out of school: an afternoon in a wood; a morning spent with the local borough's recycling team; a day in a recycling plant.

### **Give students power**

Students should also be given responsibility or power over their own classroom environment (this works particularly well in schools where each class has its own room). There is a direct, logical extension to the wider world: if students see the impacts of their own actions or inactions in school, they will find it easier to imagine the impacts of those actions in the world outside. So, for example,

- keep the cleaners out of the form room for a week, to see how much mess is made
- keep a week's rubbish
- get students to tidy up each morning and evening
- get children to set up paper collection schemes at school

### **Make connections**

Although the lesson plans on recycling that we offer in this resource pack are tailored to link to specific subject areas in the National Curriculum, it is important to bear in mind at all times the cross-curricular nature of **ecological** or **sustainable** thinking. Recycling is a practical response to the problem of waste, but successfully teaching students about it requires that we as teachers inspire them to connect imaginatively and broadly with the whole complex web of ecological issues and stories.

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<sup>1</sup> 'Here is What We Know - Measured against the agenda of human survival, we must rethink education', article by David Orr, March 2003 edition of *adbusters*. (Original source: 'Earth in Mind: On Education, Environment, and the Human Prospect' by David Orr, 1994.)

## 2. Summary of Key Questions, Tasks & Resources

Theme and age group	Key questions	Subject areas	Activities	Resource sheet
Intro: resource use and sustainability <b>(KS 2&amp;3)</b>	How do people's use of resources differ globally? Why do we need to think about the future? Why do we need to live sustainably? How are distant eco-systems connected?	Geography Literacy Citizenship Geography	a. Show pictures of Thai and American families (on OHP or copied to students). Discuss. b. Read and discuss poem 'nostalgia' c. Imagine you live on desert island...	Sheet A Sheet B
The story of paper <b>(KS 3)</b>	Where does paper come from? Where does waste go? What is recycling? Why recycle?	Geography (industrial activities) ICT	Ordering pictures of the life of paper (with and without recycling). Impact of deforestation	Sheet C & D Sheet E
Paper audit <b>(KS 2&amp;3)</b>	How much paper is used in school? How can we reduce, reuse and recycle it?	Numeracy (handling data) Geography (mapping)	a. Brainstorm uses of paper in school. Suggest ways of reusing this paper. b. Homework: extension of school exercise. c. Investigating and Mapping	Sheet F
Using waste paper <b>(KS 3)</b>	How is waste paper best used? Burning for energy vs recycling into new paper	Literacy (comprehension) (arguments)	Text analysis and discussion	Sheets G, H, I & J
Recycling debate <b>(KS 3)</b>	What are the opinions of different groups of people about recycling?	PSE/Citizenship	Group work – pupils take on roles of various people.	Sheet K & L
Recycling in school <b>(KS 2&amp;3)</b>	What are existing recycling facilities in school? How can they be improved?	Design and Technology	Construct and carry out a survey of existing recycling facilities. Plan paper collection system. Design envelope re-use label for school office.	
<i>Making recycled paper (additional)</i> <b>(KS 2)</b>	<i>How can you make your own recycled paper?</i>	<i>Design and Tech. and Art</i>	<i>Make your own recycled paper!</i>	<i>Sheet 6 (please request)</i>

### 3. Introduction to resource use and sustainable living

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Use any or all of the three activities below to introduce the theme of sustainability.

Key questions

How do people's use of resources differ globally?

Why do we need to think about the future?

Why do we need to live sustainably?

Subject areas

Geography

Literacy

Citizenship

Geography

Activities

#### **Pictures of Thai and American families with their possessions (Resource Sheet A)**

**Discuss**, possibly using these questions:

- What is the photographer trying to show?
- What do you think about this situation?
- Which picture do you think is closest to your life?
- How do think the families feel about their situations?
- How may the two families affect the environment differently?

#### **Poem - Nostalgia by Bernard Young (Resource Sheet B)**

**Learning objectives:**

Reading a poem for meaning

Working productively in small groups, listening to each other

Connecting imaginatively with a poetic text

Seeing that actions have consequences

**Read** the poem together.

**Questions and tasks:**

- Look up the definition of *nostalgia* in the dictionary. Write it out.
- Why do you think this poem is called *Nostalgia*?
- Talk about the meaning 'the grass is always greener on the other side'. What other common sayings do you know? Write them out/ make a list on the board, with their meanings.
- What does the poem say about human nature?
- When is this poem set? How do you know?
- In the poem, who do you think is speaking? To whom might they be speaking?
- What kind of a world do you think they are living in? If there is no grass, only concrete, what else might have disappeared? What might have replaced it?  
*Why?*

**Group work:**

Imagine your town or your favourite place in eighty years' time.

Present your ideas to the whole class. Explain why you came to these conclusions.

**Conclusion:**

Teacher to draw out the reasons *why* students think the place will change in particular ways. For example, *why* might trees disappear and be replaced by lamp posts?

Teacher to point out links to actual ecological phenomena like climate change and urban growth, as well as letting students' imaginations get to work.

Talk about how actions have consequences: some short-term and immediate, others long-term and more difficult to imagine. Make connections between individual actions and wider impacts.

**Homework:** Write a paragraph or draw a picture describing your home town eighty years in the future. Explain why it looks like this.

**Desert island scenario (no resource sheet)****Discussion:**

Ask the class to imagine they have to live on a desert island. Where they would get their resources from and where they would dispose of their waste to. Instruct them to imagine they want to live for as long as possible and in the most comfortable way.

**Questions:**

- What do you need to live? e.g. water, food, shelter, heat etc.
- How would you use the resources of the island to provide these?
- What would happen if they endlessly cut down trees, let waste build up etc?
- Would this be pleasant? Would they be able to live like this forever?
- What could they do to prolong their survival on the island with the limited resources?
- How will your children manage if you have used up all their resources?

Generally try to build up idea of the need for sustainable use of resources.

Now that the background to resource use has been introduced, this pack now focuses on one resource: PAPER

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## 4. The Story of paper

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### Key questions

- Where does paper come from?
- Where does waste go to?
- What is recycling?
- Why recycle?

### Subject areas

- Geography (industrial activities)
- Information and Communication Technology

### Activities

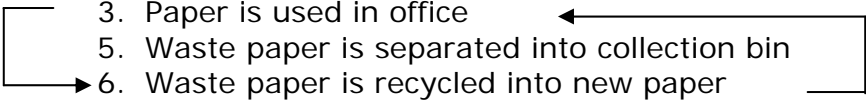
#### **Picture ordering of the life of paper (Resource Sheet C and D)**

**(Use caption cards after trying to order pictures without knowledge of exactly what each is meant to show)**

Photocopy Resource Sheet C and D and cut up the photos and captions into cards. Hand out pictures 1,2,3 and 4. Ask pupils to arrange the cards in the order that the events occur to make and use paper:

1. Trees cut down
2. Taken to paper mill to make paper
3. Paper is used in office
4. Waste paper is taken to landfill

Add pictures 5 and 6 (what happens to paper when it recycled). Ask pupils to add these into their arrangement. Recycling the waste paper back to the mill changes the arrangement from a line to a cycle:

1. Trees cut down
  2. Taken to paper mill to make paper
  3. Paper is used in office
  5. Waste paper is separated into collection bin
  6. Waste paper is recycled into new paper
- 

By making the paper process into a cycle i.e. recycling, instead of line nose diving from trees to landfill, we can reduce use of natural resources and reduce landfill space.

#### **Why recycle? – ICT search**

Use the internet to search established sources and new sources for possible arguments for recycling.

Possible websites include:

[www.foe.co.uk](http://www.foe.co.uk)

[www.greenpeace.co.uk](http://www.greenpeace.co.uk)

[www.wastebusters.co.uk](http://www.wastebusters.co.uk)

[www.shanks.co.uk](http://www.shanks.co.uk) or another waste company

[www.ny.gov](http://www.ny.gov) - american websites are often good environmental resources and this has a link to a live landfill (called freshkills landfill site) webcam (!)

Extension exercise for gifted and talented members of the class – try to find some arguments against recycling or some disadvantages of it. Are there other ways of dealing with resources better than recycling?

### **Environmental impact of deforestation (Resource Sheet E)**

Instruct the class to read the Chico Mendez article. Then divide the class into groups and instruct them to discuss the following points:

- how does paper manufacture effect the worlds forests?
- what are some of the social impacts of deforestation?
- does it seem from the article that the author has a strong opinion about deforestation and environmental damage?
- how does the damage to the amazon rainforest effect people in the UK?

Then instruct all the groups to discuss the final question in a whole class exercise.

## 5. Paper Audit

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Key questions

How much paper is used in school?

How can we reduce, reuse and recycle it?

Learning Objective:

To solve a problem by collecting, organising and representing data.

Can also involve: estimation, prediction, multiplication and division.

Subject Areas

Numeracy

Activities

### **Uses of paper in school (Resource Sheet F)**

**Brainstorm** in groups or individuals children think of all the different types of paper (exercise books, different art papers, text books, teacher's register, card, toilet paper, envelopes etc.) used in schools, then try identify whether these can be recycled or re-used.

**Research:** The children could also investigate which of the types of paper might be available as recycled products (e.g. using a stationery catalogue from the school office)

NB: This session is a good time to reinforce the concept of re-use being even better than recycling (the children will find that both are possible for many paper types).

### **Collecting data on paper use in school**

**Discuss:** what data groups will collect and how.

Each group chooses a different type of paper (identified in the brainstorm) and find out how much the class uses in one day or week. (For a more complex activity, each group could collect data from a different classroom, the office, etc.)

**Design:** Groups design their own survey forms to collect the data from other classes e.g. using a tally chart.

#### **Gather data:**

Classes, the office etc. could be asked to gather all their waste paper on one day for groups to classify and count.

#### **Present data**

Groups decide how best to represent their data and how to present accompanying text to interpret the graph.

e.g. Produce a bar graph of the tallies for each type of paper,

Put different paper types into recycling or reuse categories (or both)

Draw pie chart from, showing what proportions of all the paper used could be re-used/recycled.

## Extension activities

- Before collecting data, children could be asked to make **predictions** (e.g. which type of paper they think will be used the most) to compare to their results at the interpretation stage.
- Children could **estimate** for instance how many sheets of a given type of paper a class used in a specified time period.
- Children could be asked to mentally **estimate** weekly, monthly and yearly figures then check this estimate against **calculations**, multiplying data for one day by the appropriate scale factor. The classes' paper use could be surveyed for a whole week for comparison.
- The scaled up weekly/monthly/yearly figures could be converted from numbers of sheets to reams (i.e. 500 sheets) and/or mass, area, even trees! Children could weigh a ream or use the information on the ream label (mass given in grams per square metre e.g. "80 GSM"). A4 sheets measure 210 x 297 mm. It takes 17 trees to make a tonne (1000 kg) of paper.

## Geographical activities to link to the Paper Audit

The Paper Audit is compatible with Unit 8 of the *QCA Scheme of Work for Geography*, so the audit could for instance be used to build on work done on that unit in Year 4.

**1. Investigating and mapping** where to take paper at school for re-use and recycling (including new collection facilities which children could plan in **Design Technology**)

### **2. Investigating the local paper cycle**

Use maps of the local area and Southeast England to identify the route of the school's recycled paper:

- ➔ used paper taken to the school recycling bank
- ➔ the waste paper merchants collect the used paper and take it to their depot
- ➔ used paper transported from there to the paper mill at Sittingbourne, Kent
- ➔ new recycled paper sent to paper merchants in London
- ➔ new recycled paper delivered to the school

Groups could measure approximate distances of the various stages of the journey using string, rulers and the scale given on the map.

A display could be developed with a map (or maps) of the route, with coloured pins at the significant locations, linked with lines of thread or wool to annotated illustrations of the stages of the cycle.

***BioRegional's free "Local Paper for Surrey" leaflet has a nice diagram of this 'paper cycle' with photos*** (for copies contact: [surreypaper@bioregional.com](mailto:surreypaper@bioregional.com))

## 6. Using waste paper

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### Key Question

How is waste paper best used?

- Burning for energy vs recycling into new paper

### Subject Areas

Literacy: ARGUMENTS

- To recognise how arguments are constructed to be effective.
- To write a balanced report of a controversial issue.

### Activities

#### **Arguments for and against recycling (Resource Sheets G, H, I + J)**

#### **Comprehension exercise (Sheets G & H):**

In pairs, hand out 11 'Burn me, Don't burn me' cards. Don't tell the pupils what the two sides of the argument are, just ask them to sort them into two groups and come up with a heading for each. If groups other than 'Burn or Recycle' are identified, discuss the pupil's reasoning for these.

#### **Construct an effective argument (sheets I & J):**

Photocopy texts I and J onto OHTs or enlarged (200% works well: each half of a page fills an A3 sheet - landscape orientation - join the halves and stick up on the board!)

#### **Read and then discuss:**

- a) how arguments are constructed to be effective, through
    - expression, sequencing and linking of points
    - provision of examples/evidence to illustrate a point
  - b) how balanced the argument is
    - identifying points on the different sides of the argument
    - identifying the strengths and weakness of the different points
- An argument could be constructed to support the view "Why we should reduce, re-use and recycle the paper we use"
  - Begin by helping the children to collect points in favour of their argument.
  - This raw material could then be assembled into an argument to explore
    - developing the points logically and effectively
    - supporting and illustrating a point persuasively
    - anticipating possible objections (some opposing points are included below)

#### **Write a balanced report of a controversial issue**

- Having collected the points for the above argument, the class could collate points on the opposite side. The class could then discuss the strengths and weaknesses of the different positions, before summarising the competing views, to form the basis of a balanced report.

## 7. Recycling debate

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### Key Objectives

To develop understanding of different perspectives on recycling.

To allow pupils to construct arguments and discuss the merits of these.

### Subjects areas

Geography – Resources and sustainability

Citezenship – Recognising and valuing a diversity of views and thinking about pupil's own values.

### Activities

#### Recycling Debate using 'The Dustbin Pack': Sheet K + L

From "The Dustbin Pack" © Waste Watch, Europa House, Ground Floor, 13-17 Ironmonger Row, London, EC1V 3QG

- **Sheet K** Split the class into groups to develop a debate about recycling facilities based on a range of opinions provided on the activity sheet. Instruct pupils to think about what the person is like. Would they be polite, angry, upset, loud, quiet, argumentative or confused? Write down what they are going to say, and the reasons why they think there should or should not be a recycling centre.
- **Sheet L** lists a range of points from arguments about waste paper. These may be useful if the children need help to develop their own arguments. The sheet could be displayed (e.g. on OHP), so children could select any points relevant to the opinion they are representing. It could also help them to anticipate points on the other side of the argument.

It would be good to include **local paper** and **reducing consumption** in the debate, to help children think about what happens to paper *before* and *after* it enters the recycling bin! To do this, a group could represent BioRegional, developing the opinion suggested below. For background material, the group could be shown the diagram of the paper cycle in our leaflet "Local Paper for Surrey" (free copies: tel. 020 8404 4886 or [surreypaper@bioregional.com](mailto:surreypaper@bioregional.com))

## 8. Recycling in school

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### Key Questions

What are existing recycling facilities in school?  
How can they be improved?

### Subject Areas

Design and Technology

### Activities

#### **Designing paper re-use and recycling facilities for use in the school**

##### a. Survey existing facilities

Instruct the class to find out what re-use and recycling is currently operating in the school, how well this works and how people think this could be improved.

##### b. Identifying requirements

Instruct the class to think about which types of paper can be re-used and which need to be recycled e.g.

- white A4 paper printed on one side (e.g. from photocopiers, computer printers)
- envelopes for re-use (e.g. office)
- scraps of paper from art lessons

##### c. Design new facilities for...

###### i) Recycling

**Paper collection and storage facilities** for use inside school could be designed as a re-use of cardboard boxes. Other paper could be re-used in the design in the form of **papier mâché**. Images and words from newspapers and magazines could be incorporated to emphasise the re-use message in a visually attractive way. (Favourite characters from comics could be included, with their speech bubbles altered to include appropriate slogans!).

###### ii) Re-use

Design a school **envelope re-use label** for use in the office (an efficient way to re-use paper and advertise the school's green credentials). This could be produced on computer and printed directly onto sheets of sticky labels. Alternatively a design could be reproduced several times on a sheet, to be photocopied and cut up, ready for gluing onto envelopes as required. (The standard size for labels seems to be quarter A4 size, but the class could look at used envelopes to see how much space they needed to cover on average).

### Design posters:

to advertise and explain the school's recycling facilities

to promote and explain reducing consumption, re-use and recycling of paper

## 9. Resource sheets

### Resource Sheet A - GLOBAL DIFFERENCES IN CONSUMPTION



These photos from photographer Peter Menzel's innovative work *Material World* show two families, one from Thailand and one from the US, in front of their homes with all of their possessions on display. Americans represent 5% of the world's population but consume 30% of the world's resources, producing more waste per capita than any other country. **Photos to be used for educational purposes only.**

## Resource Sheet B - NOSTALGIA BY BERNARD YOUNG

'The other man's grass is always greener.'  
That takes me back.

We used to say  
'The other man's grass is always greener'

or we would say  
'The grass is always greener on the other side'  
when we were feeling envious or dissatisfied.

We meant that,  
even if our plates were piled up  
with glorious food,  
the person at the next table  
always seemed to be eating something tastier  
or however fast our car would go,  
our neighbour's car would go faster.

That was the trouble –  
we were never satisfied.  
We always wanted more.  
We always wanted to go faster.

Anyway, off you go.  
I can see that you're bored.

Tell you what though,  
before you come  
to visit me again  
I'll find my photo album:  
show you some pictures of me  
when I was your age.

Pictures of me standing, not on concrete,  
but on grass.

I'll expect you'll find it hard to believe  
that there was such stuff

and how green it was.

# Resource Sheet C - THE STORY OF PAPER

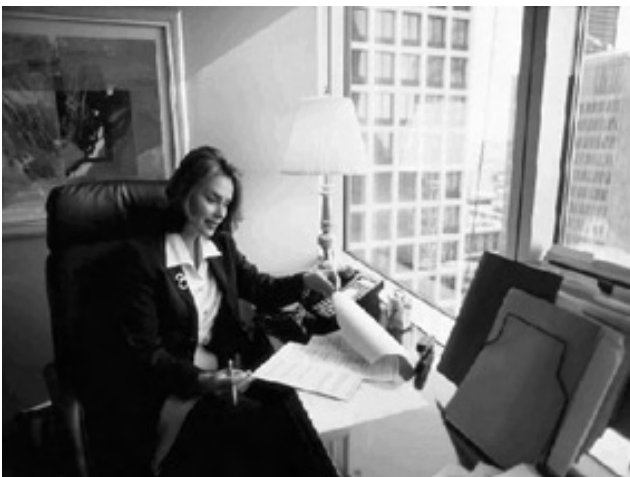
1.



2.



3.



4.



5.



6.



**Trees are cut down**

**Trees are taken to paper mill to make paper**

**Paper is used in an office or a school**

**Waste paper is taken to landfill**

**Waste paper is separated into collection bin**

**Waste paper is recycled into new paper**

by Jeff Trussell



Born on December 15, 1944 in Brazil, Chico Mendes grew up in a family of rubber tappers. Rubber tapping has been practiced by families in the Amazon for generations. It is the harmless removal of sap from rubber trees. The sap is then used in products such as car tires and rubbers. Rubber tapping is one of the many ways in which the resources of the Amazon are exploited without permanently harming the ecosystem. It is a sustainable agricultural system and Chico Mendes followed in his father's footsteps in becoming a rubber tapper.

For the cattle ranchers and mining interests in Brazil, "sustainable agriculture" reduces their profits. Much money can be made by tearing down the forest as fast as possible. They replace it with grassland for cows or mines to get bauxite to make aluminium. What the ranchers and miners leave behind is a shattered wasteland, a ruined desert where once stood a forest more than 180 million years old.



Not surprisingly, Mendes encountered a great deal of opposition from industrialists and corrupt government officials who were profiting from the tearing down of the Amazon. He was threatened, fined and even jailed, but nothing could deter him from his mission to save his beloved jungle.

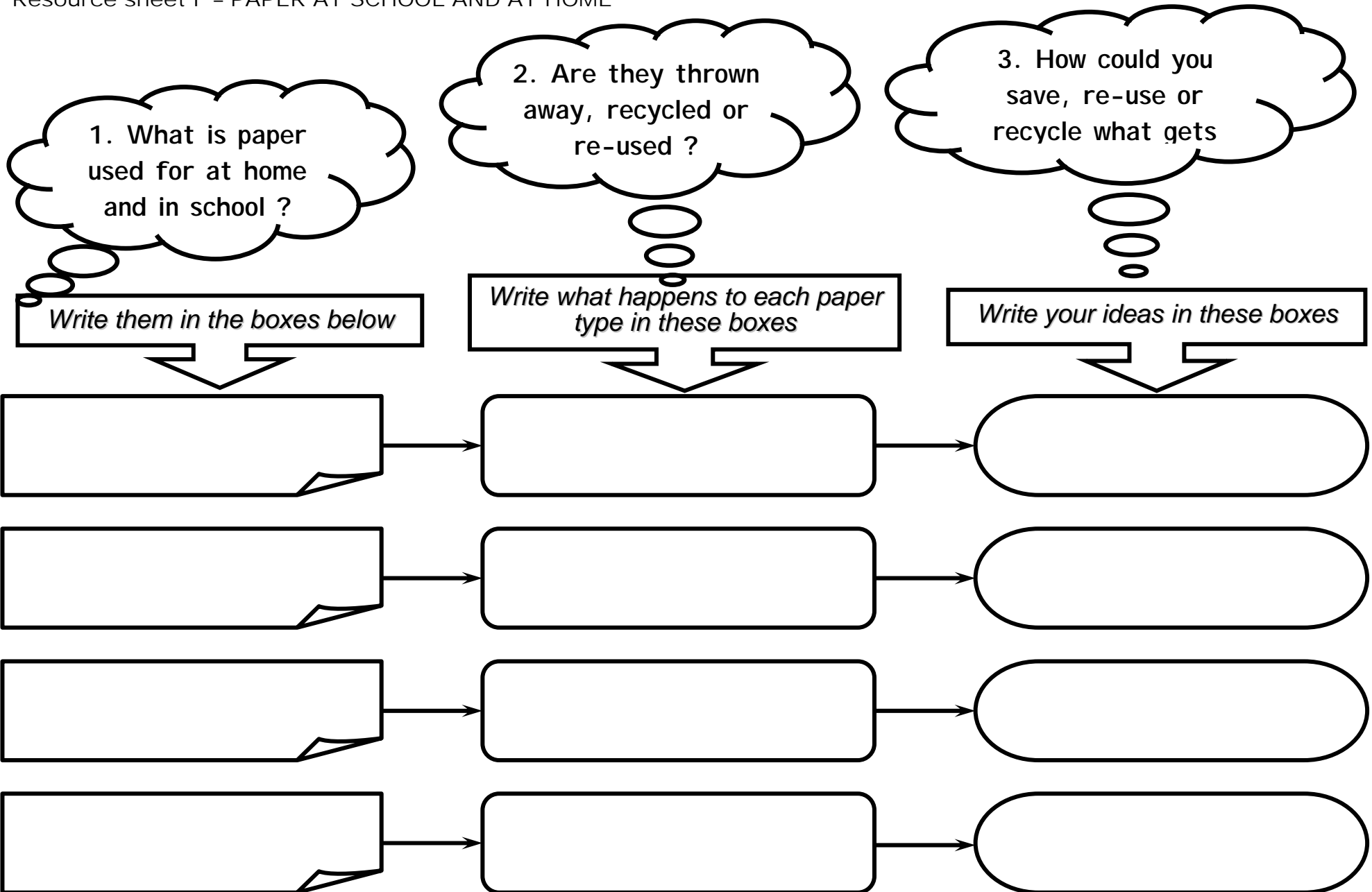
Mendes fought courageously to oppose the destructive practices of such large companies and individuals. He advocated a return to sustainable agricultural systems and urged his fellow Brazilians to do peaceful protests against corporations that would rob them of their livelihoods.



In 1988, a rancher named Alves de Silva ordered Mendes to be killed. The outcry following his murder was deafening. It marked a turning point in the fight to save the Amazon. A human face could be connected to the cause: money and support from all over the world poured in to help complete Mendes' work. Many far reaching reforms have happened since his death to ensure the future of this eco-friendly industry.

Chico Mendes is not just a hero of the Amazon, he is a hero of the entire planet. The burning of the Amazon is a burning that impacts every forest and city and village on Earth. The fires that Chico Mendes fought to put out threatened more than just a few strange and exotic locations thousands of miles away.

On a planet where the giant chain of life stretches from continent to continent, the flames of their endless burning continue to lick at the very edges of our own homes and backyards.



**Burning paper in an incinerator produces valuable energy. There is an incinerator in north London that produces electricity for the national grid.**

**Recycling paper uses energy in the paper mill.**

**If you value your environment, don't put this magazine in the paper bank once you have read it. The green option is to burn it!**

**When lorries drive the paper to the recycling factory, this uses petrol which gives off pollution. For example, a recycling mill in Kent receives 30,000 truck deliveries of waste paper a year from right across England, altogether covering more than 4 million kilometres.**

**Incinerating waste paper to produce energy does cause pollution, but overall it helps the environment, because it causes less pollution than burning fossil fuels, such as coal and gas.**

**Contrary to popular myth, only 1 per cent of paper worldwide comes from tropical rainforests.**

**If you value your environment, don't burn this magazine - put it in the paper bank!**

**Burning paper wastes valuable paper fibres which could have been recycled instead of cutting down more forests make new paper.**

**A recycling mill in Kent receiving truck deliveries of waste paper a year from right across England. But this causes less pollution than transporting trees or woodpulp from forests, that are thousands of miles away from the UK.**

**Incinerating waste paper to produce energy creates pollution, and is not liked by people who live near incinerators.**

**1 per cent of paper worldwide comes from tropical rainforests- it's a disgrace that this still occurs: 1% of paper use world-wide is a massive figure and contributes to the daily figure of the extinction of three species.**

## Resource Sheet I - BURN ME

If you value your environment, don't put this magazine in the paper bank once you have read it. The green option is to burn it!

One reason for this surprising news is that burning paper in an incinerator produces valuable energy. Another is that recycling uses large amounts of energy and causes pollution, especially when waste paper is transported to recycling mills.

For example, a recycling mill in Kent receives 30,000 truck deliveries of waste paper a year from right across England, altogether covering more than 4 million kilometres.

Then there are the trips made by individual recyclers from their homes to the local recycling bin. One study in Norfolk found that cars travelled 270 kilometres for every tonne of waste posted in local bins.

On top of all the motor fuel, the recycling itself uses energy. The mill in Kent for instance, used 4,000 tonnes of oil last year. The de-inking process is particularly energy-hungry and produces a toxic sludge, which must be dumped in landfill sites.

Incineration, by contrast, generates energy. An incinerator in north London produces electricity for the national grid. Some incinerators in Scandinavia also supply waste heat to local offices, homes or factories. As with recycling plants, waste is mostly delivered to incinerators by road, but they are usually closer to the waste source and so cause far less traffic.

True, incinerating waste paper to produce energy creates pollution, but overall it helps the environment, because it causes less pollution than burning fossil fuels, such as coal and gas.

Set against that, recycling old paper saves about a quarter of the energy needed to make new paper. But the mills in Scandinavia from which we get most of our new paper, do not burn fossil fuels to get energy. They burn wood chips and bark from locally grown trees.

Contrary to popular myth, only 1 per cent of paper worldwide comes from tropical rainforests. If new trees replaced the wood from which the paper was originally made, then those trees would suck up the same amount of carbon dioxide as is released when the paper is burnt.

## Resource Sheet J - DON'T BURN ME

If you value your environment, don't burn this magazine - put it in the paper bank!

Although burning paper in an incinerator produces valuable energy, it wastes valuable paper fibres which could have been recycled instead of cutting down more forests to make new paper. Recycling does use energy and causes some pollution, but less than cutting, transporting and processing wood-pulp from trees into paper. The recycling option is the most environmentally sound one.

For example, whilst a recycling mill in Kent receives 30,000 truck deliveries of waste paper a year from right across England, the alternatives are to grow eucalyptus trees on cleared rainforest land and ship the pulp thousands of miles to the UK, or indeed to clear wildlife-rich Scandinavian 'snowforests' to create plantations, with the resultant loss of biodiversity.

Although it's indisputable that incineration produces energy, it is often the case that this energy is not turned into electricity but wasted - being simply released into the atmosphere. Recycling, as with any technology, of course, also has by-products. But the de-inking process produces no toxic sludge. Some of the waste can be re-used as fertiliser to spread on farm fields. It's also argued that small improvements to the present methods of recycling could result in great increases in efficiency.

Incinerating waste paper to produce energy creates pollution, is resisted by local communities, and uses around 3 to 5 times more energy than would be saved if the paper were recycled.

Some say that the mills in Scandinavia, from which we get most of our new paper, do not burn fossil fuels to get energy. However, figures freely available show that the pulp producers do use a gargantuan amount of electricity generated from fossil fuels. The main component of the paper Finland supplies to magazines like the New Scientist is mechanical pulp. For every kilo of mechanical pulp, around 2 kilowatt-hours of electricity is needed. By contrast, making recycled pulp needs only about 0.2-0.3 kilowatt-hours per kilogram.

1 per cent of paper worldwide comes from tropical rainforests- it's a disgrace that this still occurs: 1% of paper use world-wide is a massive figure and contributes to the daily figure of the extinction of three species. At the same time this ignores the loss of temperate forests around the world (such as the Scandinavian 'snowforests') which are just as important for biodiversity as rainforests.

## Resource Sheet K - RECYCLING DEBATE

(From "The Dustbin Pack" © Waste Watch 1993)

Recycling can:

Save money; reduce pollution; save energy; and therefore help the environment.

However, if recycling schemes are going to be successful, money has to be spent to buy the recycling banks and pay people to collect the waste. If the scheme is going to make money, the materials collected have to be sold to a merchant, for more money than was spent collecting them.

Here are some opinions that groups might have if a recycling centre was going to be set up in your neighbourhood:

**MERCHANT:**

"I want to buy the waste collected, but it has to be properly sorted, and I can't pay too much for it".

**LOCAL SUPERMARKET:**

"Here at Cheapo's we care about the environment and would be delighted to have facilities, but we don't have enough room for recycling banks in our car park".

**SCHOOLCHILD:**

"Recycling helps the environment - we need to invest in my future".

**LOCAL RESIDENT:**

"I don't want a recycling centre if it's going to cause lots of noise and litter".

**BIOREGIONAL:**

"As well as recycling we can buy back locally recycled paper and reduce how much we consume in the first place. It's important to think about the whole paper cycle".

**LOCAL POLITICIAN:**

"I want to see recycling happen, but if the council has to invest money it means we can't spend it on a new school".

**WASTE WATCH:**

"We must have more recycling facilities to save the earth's natural resources and to reduce pollution".

Split into different groups and imagine you represent the people above. Think about what the person is like. Would they be polite, angry, upset, loud, quiet, argumentative or confused? Write down what they are going to say, and the reasons why you think there should or should not be a recycling centre. Have a debate.

## Resource Sheet L - ARGUMENTS ABOUT WASTE PAPER

- If paper can be saved for recycling then we should do it to help the environment.
- Recycling is a hassle – it's easier to throw paper in the bin.
- Although trees are cut down to make paper, more are planted in new plantations.
- New tree plantations created for making paper do not support the rich variety of species which old, natural forests can.
- A school recycling bank is a useful facility for the whole community.
- Recycling banks can be messy and noisy – making the environment worse. This may not be popular with the school's neighbours.
- If people get into the habit of recycling, they are less likely to drop litter.
- At present, Britain recycles about 35 percent of its paper. Holland, by contrast, recycles 53 percent. However, white paper is often 'downgraded'.
- Schools use a lot of high quality paper which is often simply thrown away.
- Recycled paper can be used to make a range of goods used in schools from exercise books to paper towels.
- Re-using paper is even better than recycling.
- Many kinds of paper can be re-used for other purposes.
- A great deal of paper, such as envelopes, is used just once then thrown away.
- Paper put in ordinary bins will be buried in the ground in landfill sites.
- The more we recycle the less need for landfill.
- Landfill sites can pollute the environment with gases that are produced when the rubbish rots. The waste can also pollute water under the ground and rivers.
- Using paper which has been recycled locally supports the local economy and saves long-distance transport.
- The further paper is transported, the more pollution is caused.
- Recycling uses energy. It's better to produce energy by burning waste paper in incinerators.
- Burning waste paper in incinerators produces carbon dioxide, contributing to the Greenhouse Effect.

## 10. Useful contacts for further environmental information

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**BioRegional**, BedZED Centre, 24 Helios Road, Wallington, Surrey SM6 7BZ  
T: 020 8404 4886 E: [surreypaper@bioregional.com](mailto:surreypaper@bioregional.com) W: [www.bioregional.com](http://www.bioregional.com)

Join our **local paper for surrey** scheme! Your school can be part of a sustainable local paper cycle by doing one, two or all of the following:

- Buying local recycled paper for photocopiers and printers,
- Buying local recycled paper for photocopiers and printers,
- Using paper wisely e.g. using both sides of each sheet.

Call us for more details, free advice and a free pack to get you started.

**Friends of the Earth**, 26-28 Underwood St, London, N1 7JQ.  
T: 020 7490 1555 E: [info@foe.co.uk](mailto:info@foe.co.uk) W: [www.foe.co.uk](http://www.foe.co.uk)

**WWF**, Panda House, Weyside Park, Godalming, Surrey GU7 1XR.  
T: 01483 426444 W: [www.wwf-uk.org](http://www.wwf-uk.org)

- Wide range of education materials available.
- **Lifelines**, a free termly publication with news and ideas for teachers. Summer 2003 issue provides useful suggestions for covering Sustainable Development throughout the curriculum.

**ENCAMS**, Elizabeth House, The Pier, Wigan WN3 4EX.  
T: 01942 612621 W: [www.eco-schools.org.uk](http://www.eco-schools.org.uk)

- Eco-schools programme on the **environmental impact of schools** – European Award Scheme meriting waste and energy management and others.
- Green code programme for schools, using ICT:
  - Interactive website [www.greencode.org.uk](http://www.greencode.org.uk)
  - CD ROMs
  - Teacher support materials

**Paper & Pulp Information Centre**, Papermakers House, Rivenhall Road, Westlea, Swindon, SN5 7BD. Tel: 01793 889600.

School links programme and range of education materials, including new packs for KS2, 3 and 4.

**Waste Watch**, Europa House, Ground Floor, 13-17 Ironmonger Row, London EC1V 3DG.  
T: 0171 253 6266 W: [www.wastewatch.org.uk](http://www.wastewatch.org.uk)

Waste Watch *Wasteline* - a free information service on all aspects of reducing, re-using and recycling waste.