## Recycling of paper

## ASSIGN BUSTER

[pic] Recycling one tonne of paper saves 17 average sized trees Paper is usually made from trees. We would need a forest more than three times the size of Devon to give us all the paper we use in Britain in one year. Try to buy things made from recycled paper, e. g. writing paper, envelopes, and even toilet rolls! Look for the recycling logo next time you go shopping. You buy something made of recycled paper. You put your old paper into your recycling box/bin at home, or take it to a paper bank. The paper is taken to a factory to be recycled. The paper is shredded.

The shredded paper has water added and is made into pulp (which looks a bit like porridge) and has the ink cleaned off. The paper goes through large rollers which squeeze out the water and flatten the paper into big sheets. The new sheets can then be made into new newspapers, books and magazines to be sold in shops. [pic] [pic][pic][pic] [pic][pic] Recycling wrapping paper and greeting cards If you're like me, you hate to throw out pretty wrapping paper. I use it as many times as I can to wrap gifts. I also save the fronts from old greeting cards.

Here's a few ideas to re-use them: Cover tissue boxes with old wrapping paper, and use the boxes as catch-alls. Cut out the pictures from the cards and hang with a ribbon as holiday decorations. Use the fronts of old cards as postcards. Cut out the flowers or objects from wrapping paper and cards to decorate a scrapbook with. Cover the outside of a sturdy cardboard box with wrapping paper, with the top flaps cut off. Use the box to fill as a " gift box" instead of a " gift basket". Send the card fronts to St. Jude's Ranch for children, where they make the cards into new cards.

Cut out the shapes and pictures from old greeting cards, and then cut-andpaste them onto sturdy paper with a child; make an entire scene. You are limited only by your imagination! Have fun! Paper recycling information sheet | [pic] why bother? |[pic] what the law says ||[pic] how's, what's and where's of recycling paper |[pic] sources of further information | The first piece of paper as we know it was produced from rags in AD 105 by Ts'ai Luin, who was part of the Eastern Han Court of the Chinese Emperor Ho Ti.

Paper is made from cellulose fibre, the source of which can be pulped wood, or a variety of other materials such as rags, cotton, grasses, sugar cane, straw, waste paper, or even elephant dung! In this country, wood pulp is the most common source material for the manufacture of virgin paper, i. e. paper which has no recycled content. In 2004 recycled paper and board provided about $74 \%$ of the source materials for the 6 . 2 million tonnes of paper manufactured in the UK's 76 paper and board mills. A further 7.7 million tonnes were imported.

There are different sources of waste fibre used as a source material for manufacturing recycled paper. Mill Broke is " waste" paper which has never been used, either printers' off cuts or rolls damaged during production. When mixed with water the fibres are freed into pulp. The National Association of Paper Manufacturers does not recognise a paper as recycled if it contains more than $25 \%$ mill broke and/or virgin wood pulp. The recycling of paper which has been printed on and used is known as " post-consumer waste".

It is more problematic, (see de-inking below), but it is still worthwhile. Paper cannot be recycled indefinitely, it can only be recycled 4-6 times, as the
fibres get shorter and weaker each time. Some virgin pulp must be introduced into the process to maintain the strength and quality of the fibre, so no matter how much we recycle we will never eradicate the need for virgin fibre. Why bother? In 2003/04, paper and card accounted for almost a third of all household waste collected for recycling, with almost 1.3 million tonnes being collected in England.

This means, however, that there is still a considerable amount that isn't recycled and is largely going to landfill or incineration. Although the raw material for making paper is predominantly trees, it is a common misconception that recycling waste paper saves trees. Trees are grown for commercial use and harvested as a long term crop with new trees planted to replace those cut down. In addition, papermakers are able to use the parts of the trees that cannot be used in other industries such as construction and furniture making. Different species of trees provide fibres that are used in different types of paper.

Coniferous softwoods such as spruce, pine birch and cedar produce fibres which are long (average fibre length is 3 mm ) and are used to make papers which have a lot of strength. Hardwoods such as birch and aspen do not grow as fast as softwoods and produce short fibres (average fibre length 1 mm ) which are used for bulky papers such as writing paper and fluting, which is the middle part of cardboard. Nearly all paper is made from wood grown in these " sustainable" forests. The more important environmental issues are: 1 . The nature of forests and where they are situated.

As the demand for paper has increased, more timber has been needed to meet the demand for wood pulp. In some cases this has meant the loss of valuable wildlife habitats and ecosystems, as old forests have been replaced by managed plantations, usually of fast-growing conifers. The lack of tree species diversity in managed forests has a direct impact on the biodiversity of the whole forest. 2. By using waste paper to produce new paper disposal problems are reduced. For every tonne of paper used for recycling the savings are: 2 at least 30000 litres of water $33000-4000$ KWh electricity (enough for an average 3 bedroom house for one year) $95 \%$ of air pollution. 3. Producing recycled paper involves between 28-70\% less energy consumption than virgin paper and uses less water. This is because most of the energy used in papermaking is the pulping needed to turn wood into paper. 4. Recycled paper produces fewer polluting emissions to air (95\% of air pollution) and water. Recycled paper is not usually re-bleached and where it is, oxygen rather than chlorine is usually used. This reduces the amount of dioxins which are released into the environment as a by-product of the chlorine bleaching processes. pic] 5. Paper is a biodegradable material. This means that when it goes to landfill, as it rots, it produces methane, which is a potent greenhouse gas (20 times more potent than carbon dioxide). It is becoming increasingly accepted that global warming is a reality, and that methane and carbon dioxide emissions have to be reduced to lessen its effects. Please see our energy information sheet for more information on this. 6. About one fifth of the contents of household dustbins consist of paper and card, of which half is newspapers and magazines.

This is equivalent to over 4 kg of waste paper per household in the UK each week. Source: Analysis of household waste composition and factors driving waste increases - Dr. J. Parfitt, WRAP, December 2002 How's, what's and where's of recycling paper What are the main types of paper in everyday use which can be recycled? 1. Office white paper 2. Newspapers, magazines, telephone directories and pamphlets 3. Cardboard 4. Mixed or coloured paper 5. Computer print out paper If you have junk mail, windowed envelopes, or Yellow Pages then please contact you local authority.

These materials can be more awkward to recycle, and the availability of recycling facilities varies around the country. There are also different grades of paper and board collected mainly from agricultural and industrial sources. There are actually about 50 different grades for paper recycling companies to grapple with! You can find details of the other grades here on this website: www. letsrecycle. com/materials/paper/specifications. jsp What can I do to reduce the amount of paper being wasted? 1 . Try not to use as much in the first place!

Use the back of sheets of paper as well as the front - look to see if that piece of paper you were going to put in the bin could be used as scrap paper for many uses eg to make a shopping list, to jot down your dental appointment or to leave a note for someone. 2. Buy recycled paper products wherever possible. Fibre from recycled telephone directories and yellow pages is being used to make egg cartons, cat litter, jiffy bags and animal bedding among other things! 3. Reuse envelopes - sticky labels to cover the old address and re-seal the envelope are widely available, also made from recycled paper.

Many charities sell them, so you can support them at the same time. 4. Playgroups and schools may appreciate being given odd rolls of wallpaper, or any other kind of paper, for painting on or for other uses in the classroom. They are also often glad to receive newspapers to cover the tables for craft activities. 5 . When you buy a pint of milk or a soft drink, think about the container it is in. Is there an accessible recycling bank for the packaging, or might you end up throwing it away? It would be better to choose the product in the container you know you can dispose of locally for recycling. 6.

Contact The Mailing Preference Service (details under further contacts) to avoid receiving unsolicited mail. 7. By putting a " no junk mail" sign by your letterbox you can cut junk mail such as pizza delivery leaflets by around 90\%. 8. Contact the BioRegional Development Group for information about paper made from fibres other than wood pulp. Where can I take paper for recycling? If your council doesn't pick up paper for recycling via a kerbside scheme, they may have some collection points for newspaper, magazines and telephone directories. For example, there may be paper banks at shopping centres and at civic amenity sites.

Go to http://www. recyclenow. com/. This website allows you to obtain a list of the nearest recycling banks to you. All you have to do is enter your postcode to find your nearest recycling banks! The Yellow Pages Directory Recycling Scheme offers a freephone recycling helpline - 0800671444 which provides advice on where and how to recycle old Yellow Pages directories. Opportunities to recycle the old Yellow Pages range from kerbside schemes and recycling banks at local supermarkets and bring sites, to schools recycling initiatives as part of the Yellow Woods Challenge -
http://www. yellow-woods. o. uk/. Please see the further information further information section for further details. If you do not have a kerbside collection, or local drop off scheme, then make your visits to collection points as you are passing - don't make a special journey in the car to take any materials for recycling - you could be using more energy and causing more atmospheric pollution than you are saving! What about large quantities of paper, such as that collected by offices? There are many waste paper merchants and national paper collection companies which will collect a quantity of paper for recycling.

In the first instance contact whoever is already dealing with your normal waste, as many waste management companies now also provide recycling services. Alternatively, a quick scan through the local business directory should provide some numbers for recycling collectors. What about milk and juice cartons made from paper? Can they be recycled? Cartons are not made from paper alone but comprise of about 75\% paper, 20\% plastic (polyethylene) and 5\% aluminium foil. As they are an amalgam of materials, they cannot be recycled along with ordinary paper. They can be reprocessed into other items or incinerated to produce energy, or landfilled.

There are very few collection points for the reprocessing of such cartons in this country, although a reprocessing plant was recently constructed in Scotland. Contact The Alliance for Beverage Cartons and the Environment for further details. Why should I buy recycled paper products? The future of recycling ultimately depends on there being a market for the materials collected. Recycling is not just collecting materials and taking them to the recycling bank, it is about " closing the loop" and buying recycled too. Paper
mills cannot continue to produce recycled paper if people do not buy items made from it.

Where can I buy recycled paper products? Recycled paper made up 75. 5\% of the raw materials for UK newspapers in 2004 Most supermarkets and high street stationers now sell a range of recycled products, such as writing paper, notebooks, file paper, diaries with recycled paper content, calendars, paper tablecloths and napkins, tissues, toilet rolls, kitchen paper and other items. If you cannot see the product you want and you think it could be available made from recycled materials, ask if the shop intends to stock such things in the future - if a lot of people ask, it may encourage the shop to add to its recycled range.

The retailer needs to have an incentive to stock the products. Some charities also sell recycled products such as greetings cards and stationery through their mail order catalogues. Contact the ones you would be interested in supporting and ask if they have a catalogue. Many printers and office stationery suppliers now use or sell recycled paper. You could ask your usual supplier to make it available, or look in the Yellow Pages for local suppliers. WRAP produces the Recycled Products Guide which lists recycled products available in this country. Visit the site at http://www. recycledproducts. org. k/ or call WRAP on 080801002040 for further details. What about the ink on the paper collected? How is it removed? Sometimes the ink is not removed from the paper when it is reprocessed. The ink is dispersed into the pulp, discolouring it slightly, which is why recycled paper can have a greyish tinge. If the paper is to be de-inked, this can be done in one of two ways, by washing or flotation. Washing - As the paper is pulped, chemicals can be
added which separate the ink from the paper and allow it to be washed away in the large amounts of water used. (The water can then be cleaned and reused. Flotation - Air can be passed through the pulp, producing foam which will hold at least half of the ink and can be skimmed off. Sometimes the pulp is also bleached; hydrogen peroxide and chlorine are commonly used bleaches, though the former is the more acceptable as it breaks down into water and oxygen on disposal. Chlorine can combine with organic matter under certain conditions to produce organo carbons, including dioxins, which are toxic pollutants. Although the de-inking process uses water and chemicals, it is still less harmful to the environment than the manufacturing process of new paper.

If you are buying paper in bulk for an office or business, it is worth looking for a supplier who can tell you what the recycled fibre content is, and whether it has been bleached using chlorine, as this is best avoided. Approximately $20 \%$ of waste paper is lost as ink or plastics or because fibres are too weak. What the law says top of page At present there are no laws directly targeting paper recycling. Paper, as a biodegradable material, is covered by the landfill directive, so there are targets for municipal waste as a whole, of which paper is a part.

The Household Waste Recycling Act 2003 states that every household (unless uneconomic, or alternatives are already in place) must have a kerbside collection of at least two materials by 2010. As paper is a relatively easy material to collect recycle it is likely that any new kerbside schemes introduced will include paper as one of the materials. Please see our information sheet for further detail on waste based legislation [pic] [pic] [pic]

Paper Recycling Facility Stacks of Cardboard to be Recycled paper shredder, [pic] [pic] Woman recycling in office Shredded paper in plastic bag pic] Mixed paper recycling Mixed paper recycling refers to the practice of collecting a variety of paper types in one bin or can. The paper types can include cardboard, telephone books, junk mail, office paper, construction paper and more Recycling wrapping paper and greeting cards If you're like me, you hate to throw out pretty wrapping paper. I use it as many times as I can to wrap gifts. I also save the fronts from old greeting cards. Here's a few ideas to re-use them: Cover tissue boxes with old wrapping paper, and use the boxes as catch-alls.

Cut out the pictures from the cards and hang with a ribbon as holiday decorations. Use the fronts of old cards as postcards. Cut out the flowers or objects from wrapping paper and cards to decorate a scrapbook with. Cover the outside of a sturdy cardboard box with wrapping paper, with the top flaps cut off. Use the box to fill as a " gift box" instead of a " gift basket". Send the card fronts to St. Jude's Ranch for children, where they make the cards into new cards. Cut out the shapes and pictures from old greeting cards, and then cut-and-paste them onto sturdy paper with a child; make an entire scene.

You are limited only by your imagination! Have fun! What is Other Paper? For Recyclable paper from books, third-class mail, commercial printing, paper towels, plates and cups; and other nonpackaging paper such as posters, photographic papers, cards and games, milk cartons, folding boxes, bags, wrapping paper, and paperboard. Does not include wrapping paper or shipping cartons. Old Holiday Greeting Cards As Gift Tags Don't throw out
your greetings cards once the holiday season is past. When you have sorted out the special ones you want to keep, go through the rest and save any with pictures that can be cut out (i. . no writing on the back) - which is usually most of them. The cut-out smaller cards you get can be used for gift tags next year. I had this tip from a friend years ago and have done it ever since. I rarely need to buy gift tags at Christmas and it's a good way of recycling those lovely cards we just otherwise throw away or recycle with the other waste paper. Crafts Using Greeting Cards Here are some of my ideas for reuses of pictured greeting cards. 1-carefully using small cookie cutters create jigsaw pieces leaving the rest of the card including the back intact and glues together for a frame. or you could just cut the card into small say 2 inch bye 1 inch panels all the same size). 2-cut out some of your favorite card pictures and paste them onto just regular plain gift boses and also add your own personal greeting with magic markers, 3- Make an inside door christmas cover using just the pictures of the cards and completely cover a piece of thick plastic. Stapling the cards would be best and frame them out with somekind of colorful material, . ( Saving this Door thing from year to year not likely but you can salvage the cards for other projects. -cut the characters out of the cards to use as and everchanging seasonal picture hung in your kitchen or close bye. I see a deer from a Christmas card walking by a pond with green trees around him and the sun a shining bright. Just use your immagination. You only have to please yourself. 5-I am looking at a card right now that aat the top is written especially for you. The otherside is blank so I just made a package tag attached to a ribbon fill out the recipents name and put from Mike. Some of the bigger sayiings could padsted and hung on doors windows mirrors whatever during the holiday. -I see
bookmarks coming from the longer cards with complete pictures intact 7Most cards leave one area with little or nothing oon it, this area can be ussed to create youur own card Artwork sayings whatever and stick glue it to anther side that is clean and do the same thing. 8-I have a religious card here that I am going to buy a plane cheap clear plastic frame that will set on a nightstand . for my wife. Can get the frame at most dollar stores. 9-Oh here is a neat idea the bigger cards can be made into fans just use an old plastic flyswater handle complete with hole to hand fan on a nail.

Hey the flies laugh at those plastic swaters anyway. Just attach about 3 bread wrapper ties to the back of the card then glue on another card scene to cover it, Stick glue the card and if you can hide them staple the card a few times. 10-Last I don't know if you are aware of this, but the paper sturdiness of these cards make them capable of being used for making paper houses I made a flying airplane out of one . No it didn't break any records bout it did fly across the room. There are many oother craft possibilities in those in Greeting cards Imagination is the key to unlocking them.

