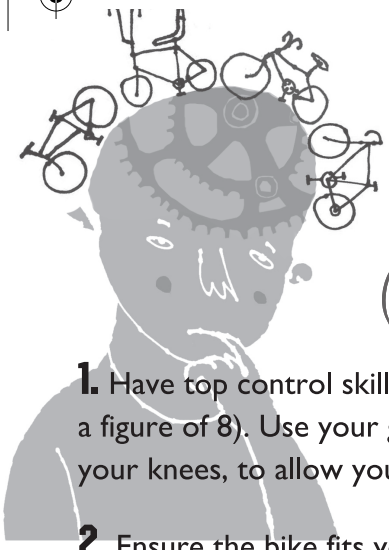


Think once, Think twice, Think Bicycology top-tips!

(it's not rocket science, thankfully!)

1. Have top control skills...become expert at riding one-handed (practice a figure of 8). Use your gears efficiently to prolong their life, and that of your knees, to allow you to zip away from stationary positions.

2. Ensure the bike fits you well; slight bend in leg when pedal at longest extension, brake levers in a position so your hands rest comfortably on them (be kind to your wrists!) and if you choose to wear a helmet make sure it is fitted correctly. Inform yourself about the pros and cons of wearing a helmet (see: www.cycletraining.co.uk for links to the arguments).

3. Plan for any manoeuvres well in advance to allow plenty of time to get in the right position and scan the road for potholes etc. to avoid sudden swerves.

4. See, be seen, communicate! Ride in a good visible position (at least a car door distance from parked cars), don't weave into gaps (you disappear), and get good eye contact with other road users (it humanises them and you know if they have seen you). At junctions, either make sure you can get to the front of the traffic and be visible, or remain in your place in the queue – in the centre of the lane.

5. Before turning, look, signal (if there is someone to signal to) and look again in the direction that you are turning to see that your signal has been accepted. Again, give yourself plenty of time to do all this.

6. Get into the habit of overtaking traffic on the right-hand-side. It is just as fast and you'll avoid being cut up by left turning vehicles. This is one of the most common causes of serious accidents, as drivers are not always in the habit of using their left mirror, and larger vehicles such as lorries have a substantial blind spot.

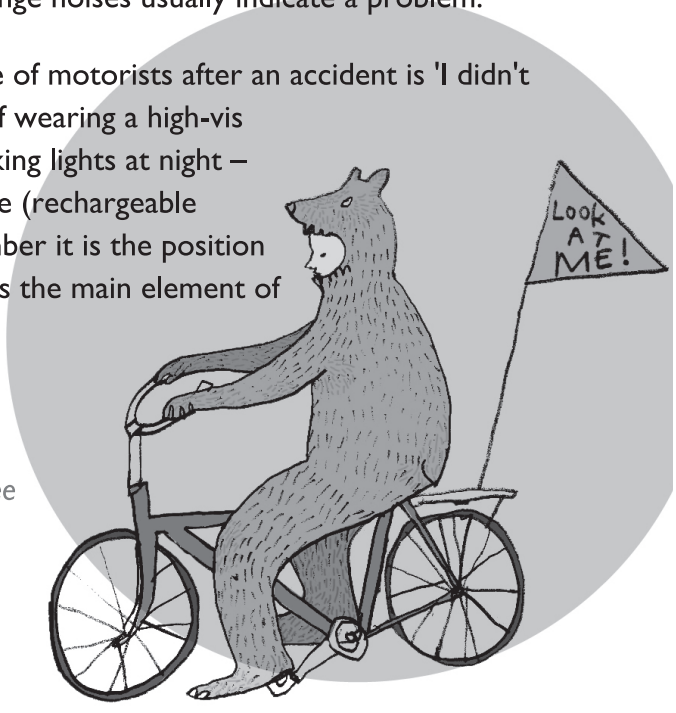
7. In wet weather person-hole covers (a.k.a. man-hole covers pre political correctness!) and drains become very slippery. Avoid turning on them and if you do ride over them do so confidently and in a straight line.

8. If you are involved in an accident, the adrenalin often prevents rational thinking.
Remember to;
- Take witnesses details
- Take details of driver and vehicle
- Report any accident resulting in injury to the police (it is illegal not to)
- Take time to check yourself and your bike for damage (it may not be immediately apparent)

Membership of organisations such as the C.T.C (www.ctc.org.uk) provides free access to legal advice and may include 3rd party insurance.

9. Keep tyres pumped nice and hard (less punctures, more energy efficient, faster, steering more responsive, tyres last longer), check your brakes, use a bell, and listen to your bike; strange noises usually indicate a problem.

10. The most common response of motorists after an accident is 'I didn't see you'. To combat this think of wearing a high-vis waistcoat or suchlike, have working lights at night – flashing mode doubles battery life (rechargeable batteries, of course). But remember it is the position that you ride in the road which is the main element of being seen (see point 4).



Consider complementing these tips through some on road training – see **www.ctc.org.uk** *for National Standard accredited instructors in your area.*

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How to carry anything on your bicycle!

If you want to speed along and carry the bare necessities…

Bike frames often include "braze-ons" (screw holes) to which carriers such as bottle cages and pump holders can be attached and you can be inventive with what you use these for. Items such as a puncture repair kit, mini multi-tool, and/or cagoule (raincoats that fold into their own small bag) can be carried in bags which attach under the saddle or to its stem (these cost about £10).

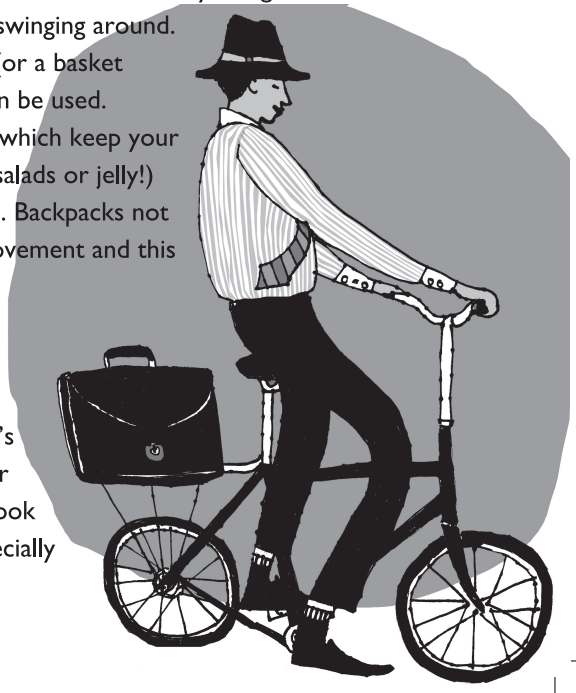
If you're not sure what you may be bringing back…

Trying to blag even a short distance with an object grasped tentatively in your hands can be very distracting from the road you need to pay attention to, and will most probably interfere with your ability to steer and brake effectively.

Bungees are marvellous stretchy thingys that, like gaffa tape, hold the universe together! You can attach one to your rack and not even notice you're carrying it around, then jam stuff under as you go (bungee nets are more versatile still). You can even recycle your own from old inner tubes (cut out the valve area first). Always ensure that any object you bungee onto your bike is well secured and cannot interfere with your bike's moving parts or your comfort.

If you're just nipping to the shop to get a pack of biscuits…

Small amounts of shopping can be put in a satchel or courier-style bag with a shoulder-strap which can be adjusted to stop the bag swinging around. Alternatively, a traditional handlebar basket (or a basket secured to a pannier rack using a bungee) can be used. There are also handlebar and rack-top bags, which keep your goods horizontal in transit (perfect for fruit salads or jelly!) For larger loads, you will want other options. Backpacks not only give you a sweaty back, they restrict movement and this can lead to back pain…



If you need to appear smart or sophisticated!

If you're cycling to work or a posh do, there's even more reason to swap your backpack for panniers. These days you can get ones that look exactly like a normal office briefcase, and specially padded ones to protect and disguise laptops.

If you are doing your weekly grocery shop…

Panniers are ideal for carrying large amounts of shopping. They come in varying sizes between 18 and 54 litres capacity per pair to suit your needs (costing £25 to £150 depending on size and quality – or ask in a second-hand bike shop). They clip easily onto a pannier rack, an essential addition to your bike's frame if you are thinking of using it as a utility vehicle (racks cost approx. £20). Panniers are usually sold in pairs, and though it is perfectly possible to use only one, heavy panniers will affect your bike's handling, so it's worth spreading items between two to aid balance (and practising before using them on a long journey). Also, consider distinguishing the panniers if they are a matching pair – you'll save a lot of time looking for your stuff!

Though some of the more expensive panniers have inbuilt rucksack or courier style straps, they are usually uncomfortable to carry by hand. It is best to take a re-usable bag along with you and to decant your stuff into your panniers when you cycle home. Considering polythene bags can take up to 1000 years to degrade it's best to avoid them anyway.

If you are going on a long distance ride and need to carry supplies, tents, sleeping bags, cricket bats, etc...

Larger capacity rear panniers can easily support a long distance journey by bike, and lets face it, if you can't carry it, you don't need it! For those who require the extra carrying capacity (or prefer weight on the front of the bicycle), there are front racks and panniers. For longer trips it is essential that your gear is kept dry so ensure your panniers are storm-proof (best to test this before you leave). Some come with raincovers - kept in a pocket, and taken out when it rains - others are manufactured to be 100% waterproof and secure in such a way that prevents rain oozing in. If you're paranoid about the effect of wet socks on morale, line your panniers with rubble sacks. And don't forget to pack your waterproofs!

If you don't want everything on the bike itself…

Trailers are another (slightly more expensive) option. They come in a wide variety of styles – from flat-beds, to soft- and hard-top containers on one or two wheels, usually attaching to the rear axle of your bike somehow (costing £75 to £400). Some are specially designed to carry children, and even dogs, and some can be folded flat if needed. They can be picked up cheaper second-hand or you can contact mechanics / bike-recycling projects about custom building you one.

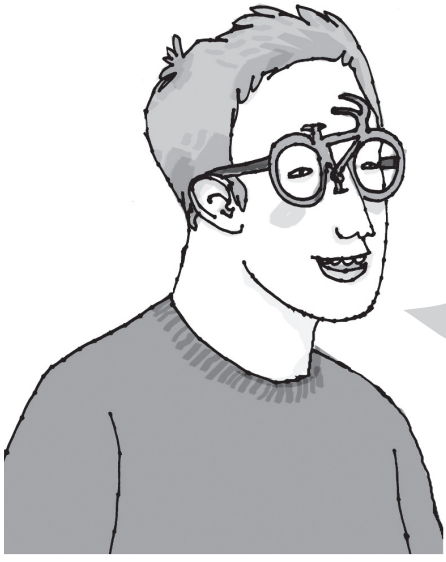
If you want to carry big, heavy things on a regular basis…

There are a few companies in the UK who specialise in building load-carrying bicycles. Cycles Maximus (www.cyclesmaximus.com) hand-build Pedicab Rickshaws (up to 3 adult passengers) and cargo trikes (250kg max payload!). These can have inbuilt (even solar-powered) electric-assist .

www.bicycology.org.uk

"Be the inferior to no one, nor of any one be the superior." *William Saroyan*

OK, in case you're wondering how come you'd never heard of Bicycology before, we'll come clean. We made it up. Well, we made the word up - the ideas behind Bicycology have existed for a long long time. Sometimes, the reverse of this happens. Sometimes a word exists, and people make up their own meaning for it. Like George Bush has done with the word 'freedom'. The same has happened with the word anarchy – and the problem here is that so many people have misused the word that its original meaning has largely been forgotten. Ask most people in Britain today what they think of when they think of anarchy, and they'll probably picture either the Sex Pistols or a man dressed in black throwing bricks at the police. So what is anarchism, and what does it have to do with Bicycology?



Anarchism is about getting rid of leaders, doing away with the idea that some people can tell others what to do. This doesn't mean (and this is where lots of the confusion comes from) that anarchists think they can do whatever they want. Just because anarchists don't blindly follow orders doesn't mean that anarchy is about disorder and chaos. Far from it. Anarchy means negotiating to find an order that is acceptable to all. It is about debate and consensus, not orders issued from above and carried out 'or else'…

In fact, anarchists have strong ethical beliefs about care and respect, cooperation and freedom. But they believe that people are more likely to be caring, respectful, cooperative and free if they are able to make important decisions themselves. And it works in practice. Bicycology works along anarchist principles. There is no Bicycology Boss – all decisions are made collectively, and if someone is unhappy about something, the group discusses it until a satisfactory solution – satisfactory to everyone – is found. All our activities are organised along these principles. This piece of text was edited with these principles. And anarchists - and Bicycologists – believe the whole world could and should be run on these principles.

Sound naive? You might ask, "If anarchism existed, how would the trains run on time?" We tend to find problems we might face with proposed solutions, and to forget about the problems we already face today, with this system that is supposed to offer us so much. Our trains don't run on time now!

This isn't an isolated example. Our elderly aren't properly cared for. Our communities are sacrificed so friends of important people can build more supermarkets and roads. The world we live in is run by a tiny minority of people, and, of course, they run it the way they want it, so they profit off the backs of everyone else. They impose their will on the rest of us and we have no say in what happens to the world that we all inhabit: how is that so great? Anarchy offers everyone the chance to get involved in the decisions that affect them. It offers us the chance to build a free and equal society. In short, anarchy is democracy taken seriously: rule by the people. This is why it is sometimes called Direct Democracy.

"Wouldn't we all just kill each other, without rulers and the authority they impose?" is another question people often ask. Well, it's hard to imagine that there would be more death and destruction in an anarchist society than there is now. For a start, there couldn't be war in the way we have it today because there would be no armies, generals or politicians giving the orders to kill. In the trenches of World War I there were times when the fighting stopped and both sides decided to communicate (famously to play a game of football in no-man's land on Christmas day but this was far from a one-off). What kept the mass slaughter going were the orders from the generals, miles behind the battlelines, to keep killing (and behind them the orders of their political masters).

Our 'civilisation' has supported slavery and genocide, environmental destruction and extremes of inequality. Why are we so keen to defend it?

We are told 'There Is No Alternative'. But there is, and across the world millions of people are not just thinking this... they're doing it. Anarchy isn't about waiting for some far-off revolution, but about taking action now to build a better world. Thousands of small communities, social centres, projects, groups and individuals live daily according to the principle that everyone has the right to be their own representative. Anarchy is not about everyone for themselves, it is about everyone together.

Of course, the fact that anarchism threatens those in power – those who give out orders backed up by violence – by taking away their power and daring to question their authority, perhaps goes some of the way to explaining why politicians and those in the media are so keen to dismiss the term without discussion.

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Auto-mobility
a manifesto for bicycology

Bicycology is a living alternative to automobility. Many people in the UK today assume that there is no alternative to the automobile. People assume that the car is the only way to get around, even for short trips to the shops or a friend's house. Cars – along with the roads, car-parks, driveways and garages they bring with them – dictate the structure of our cities and countryside. Car-culture shapes our physical environment by demanding ever more multiple lane motorways and bypasses, out-of-town super-markets and retail-parks and in-town car-parks. These changes have also changed our psychological environment. From a place of community and play the street has become a place of danger and violence. Compare the small residential road of today with that of 30 years ago. Just one generation ago kids still played in the street. Today the roads are given over to cars and parents fear to let their children out of the back garden (if they are fortunate enough to have one).

What used to be a short walk to the local shops, where you might bump into a neighbour and catch up on local gossip, is often no longer possible. Many local shops have been forced to close because of competition from large supermarkets like Tesco. Most of these are hard, if not impossible, to reach without a car and they encourage you to buy more on each trip so that a car is necessary to take all of the BOGOF's ('buy-one-get-one-free's) home. With the loss of the local shop and the street, people are increasingly imprisoned in their houses and cars. Many people today live their lives in small, self-contained boxes as they move from home to work to Tesco to home, each journey made in a car that gives its passengers an illusion of separation from the outside world.

But the separation is an illusion. The automobile was supposed to make people more independent, more autonomous, more free. The reality is that cars make us ever more dependent on big-government and big-business. Cars need roads. They need car-parks, traffic lights, transport police and the DVLA to ensure that they can get from A to B without crashing too often.They need congestion charges and toll-motorways to prevent gridlock from rendering the automobile immobile. They need large corporations to make the cars in the first place, to refine the oil to keep them running, to build the supermarkets and retail-parks with car-parks big enough to cope with them.

They need wars to secure access to diminishing oil-reserves and to politically 'stabilise' areas where the pipelines will pass through. Given free reign the automobile has taken less than 100 years to completely transform our lives and our environment, from the daily experience of feeding ourselves and getting to work to the global sphere of politics and economics, and the eco-system.

Compare this state of helpless dependency with the images you see in automobile adverts. TV screens show fast cars on beautiful empty mountain roads but as soon as we leave the showroom we find ourselves on a congested ring-road, closing the windows against the pollution and wondering how long it will take us to get home.

To a world ruled by 'automobility' we offer the alternative of 'bicycology'. Automobility offers the illusion of autonomy and independence but ties us closer to big business and central government which come to dominate our lives and take away our freedom and autonomy. Bicycology offers a different kind of freedom. The semi-amputated existence of the car dweller (a twitch of the foot; a light pressure applied to the power-assisted steering wheel; a flicker of the eyes to the mirror), separated from the world 'outside' by a glass and steel cage is replaced with a full-bodied experience: our physical strength, the sensation of speed, the smells of the wheat-fields as we ride past (or the stink of the BMW trapped in a traffic-jam as we pass by), the feeling of the sun, wind and rain on our faces.

Bicycology reconnects us to the environment we live in, and help to shape by our transport decisions. Automobility communicates with red brake lights and amber indicators whilst actual people remain hidden behind a screen. Bicycology communicates with a wave, an arm, a smile (or frown). Bicycology stops at the side of the road for a chat with a passing friend because it doesn't have to worry about slowing down 'the traffic'. With bicycology the illusion of autonomy can't be maintained: we have to recognise others on the road. If we have an accident we might be hurt as well. Whilst the driver of an SUV can speed through residential areas at 40mph and assume that kids will get out of their way ('or else...') the bicycologist stays below 20 mph with their ears and eyes open to the lives going on around them. Bicycology has no screen with which to insulate itself from the outside. Bicycology lives in, and takes responsibility for, the world it inhabits and moves through.

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A few convenient myths...

Climate change cannot be denied any more, and governments, politicians and business have been forced to acknowledge the problem and offer various 'solutions'. But their solutions follow the very same rationale that brought about climate change in the first place, and support the biggest myth of our times: that 'business as usual' can continue and that technological fixes and minor changes to the way we live and organise our society will be enough to solve the problem. This irresponsible way of dealing with the great threat of climate change has made many people believe a few very dangerous but convenient myths. Here are just a few we want to expose, but we urge you to think seriously next time some one proposes any quick fix solution. Remember, if it sounds too easy to be true... it's probably a convenient myth!

'Green' cars

Cars are problematic not only due to the energy they use but also because of the destructive consequences of a car-dependent culture. A so called 'efficient' car, like the Prius or a car that uses biofuels (see side two), like the Focus Flexi-fuel, might use less energy or a different kind of energy than the standard car, but: how much energy goes into producing these cars in the first place, and how much energy or emissions do they really save? Taking into account that in order to tackle climate change we need to reduce our emissions drastically, does the difference between using one kind of car and the other really make a difference? Moreover, would 'green' cars help to stop road building and congestion? The only viable solution to the destruction that our car-dependent culture has brought and is still bringing about is not to 'fix' the cars but to get rid of them: produce fewer and fewer cars and stop building roads. Why do we keep alive the myth of the 'green' car instead of embracing the pleasure of a world without cars, in which bicycles, pedestrians and public transport become the priority and in which congestion, pollution and road-building are drastically reduced?

Biofuels

Biofuels are increasingly mentioned as a great new weapon in the fight against climate change. But do they live up to their promise? Actually, the truth is that biofuels aren't just not that great, they're really pretty terrible. Here's why: Biofuels are made from plants. These plants need to be grown, harvested, transported, turned into fuel, and finally delivered to a filling station. So intensive is this process that according to a recent BBC article it uses "30% more energy than the finished fuel produces". In other words, we're using fuel (and much of this is currently fossil fuel) to make... less fuel! And that's not all. The article continues: "The grain required to fill the petrol tank of a Range Rover with ethanol is sufficient to feed one person per year". Where, we may ask, is all this fuel going to come from? Well, Africa and South America, of course. And if you're thinking, surely that means more starving Africans, more rainforest destruction... then you're starting to agree with us that Biofuels get a big thumbs down (for more information see www.biofuelwatch.org.uk).

Carbon off-setting

Carbon off-setting enables you to reduce your guilt... but does it really reduce your contribution to destroying the planet? Climate change is real, and the threat it poses to life on this planet is really unimaginable. So unimaginable in fact, that it seems we just can't take it seriously. Which is why we're playing around with it like it was a diet; save a few calories here, then treat yourself to a little biscuit. Change a light bulb or two: wonderful, now I can fly to Greece for the weekend! Sadly, it doesn't work like that. The atmosphere already has 36% too much CO_2, so things like tree planting are needed to try and repair – over a long period of time – some of the damage that's already been done. Carbon off-setting can not be used to justify doing more damage.

We're sorry to appear to be the bearers of bad news... but the way we look at it, it isn't bad news at all. We now have the opportunity to rebuild our world in a way that treats individuals, species and the environment with care and respect. And that means a much more pleasant world generally. It's a bit like giving up smoking; at first it seems like you'll miss it for ever, then you realise you can walk without panting. Can you imagine how good a world without cars, pollution and destruction would be?

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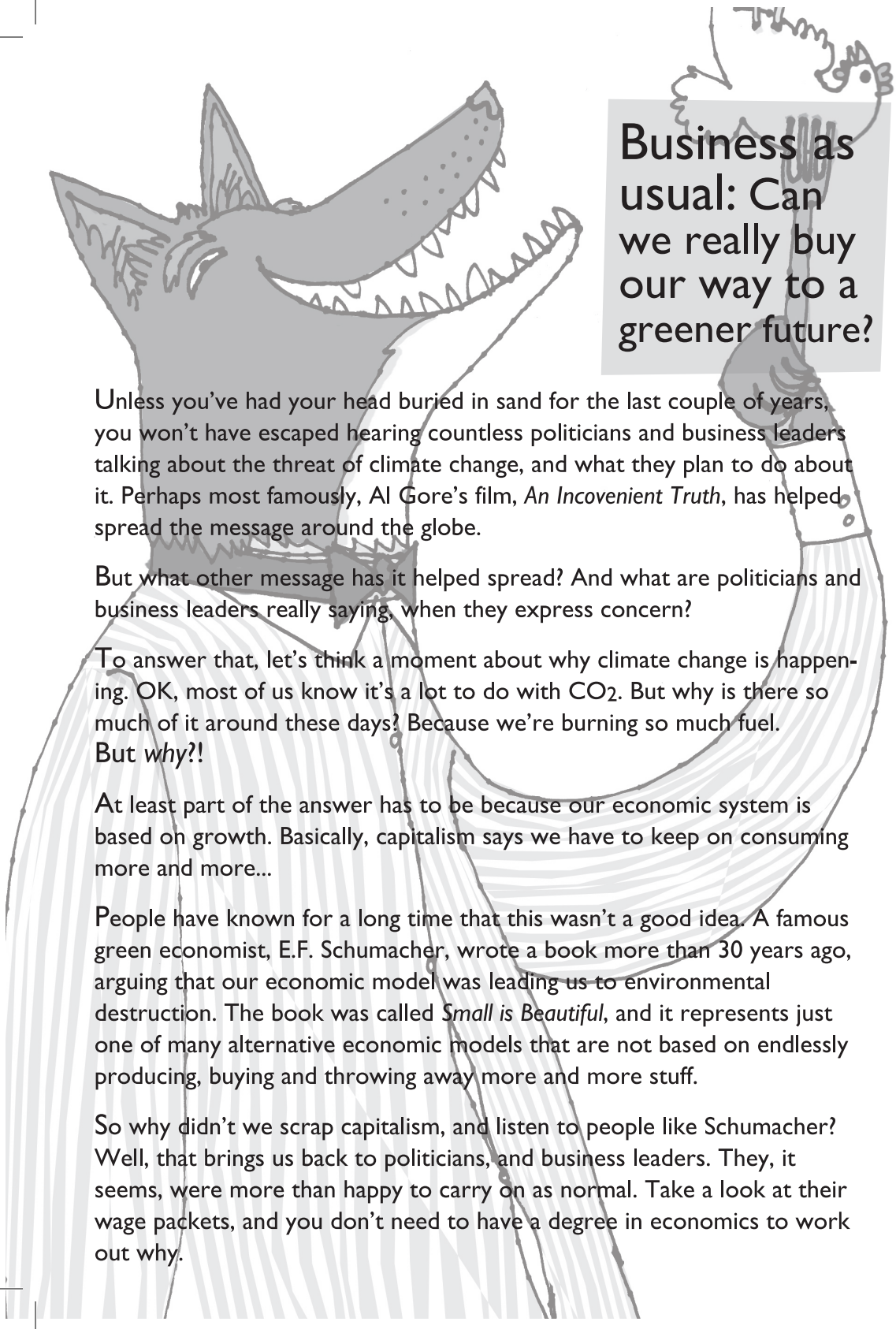

Business as usual: Can we really buy our way to a greener future?

Unless you've had your head buried in sand for the last couple of years, you won't have escaped hearing countless politicians and business leaders talking about the threat of climate change, and what they plan to do about it. Perhaps most famously, Al Gore's film, *An Incovenient Truth*, has helped spread the message around the globe.

But what other message has it helped spread? And what are politicians and business leaders really saying, when they express concern?

To answer that, let's think a moment about why climate change is happening. OK, most of us know it's a lot to do with CO_2. But why is there so much of it around these days? Because we're burning so much fuel. But *why*?!

At least part of the answer has to be because our economic system is based on growth. Basically, capitalism says we have to keep on consuming more and more...

People have known for a long time that this wasn't a good idea. A famous green economist, E.F. Schumacher, wrote a book more than 30 years ago, arguing that our economic model was leading us to environmental destruction. The book was called *Small is Beautiful*, and it represents just one of many alternative economic models that are not based on endlessly producing, buying and throwing away more and more stuff.

So why didn't we scrap capitalism, and listen to people like Schumacher? Well, that brings us back to politicians, and business leaders. They, it seems, were more than happy to carry on as normal. Take a look at their wage packets, and you don't need to have a degree in economics to work out why.

So, what should we think now that these people are finally starting to talk about climate change. Sadly, we think a little caution is needed. Because the message that's coming from people like Al Gore is not only that climate change is happening. It's also that the same economics, the same politics, and even the same corporations that caused climate change through their greed and disrespect are... *wait for it*... the ones who are going to save us from it!

We only need to look at what's being proposed by such people, to see where their priorities really lie. Instead of demanding a massive reduction in car use and a shift of economic models, we hear about pumping up our tyres, buying more 'green' products, giving politicians more power, and so on.

And at the same time, governments are continuing to promote more road building, more airport expansion, more supermarket developments...more, more more. Because that's what lies at the heart of our economic system, and politicians who support it are of course caught up promoting what's good for the economy.

But it's time we asked ourselves if our needs and those of the economy are compatible. There are some people who think they can be. Green capitalists argue that the market can be tamed, and made sustainable. But can we rely on ideologies and individuals that have up until now made such a mess of everything? Can we rely on an economy that promotes growth, and that demands that we cut costs whenever possible, to treat people and the planet as though they are more than commoditites? We don't think so. And there are millions who agree. All over the world, people are thinking about – and in some cases putting into practice – alternative ways of organsing work and exchange.

And if politicians aren't interested, maybe it's about time we started taking care of things ourselves. It's up to us; corruption, capitalism and climate change...or a genuinely new way of organising our lives, based on people, not profit.

We don't trust the fox to fix the chicken fence...do you?

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"Climate change is the *most severe* problem that we are facing today, more serious even than the threat of terrorism"

Sir David King,
Government chief scientific adviser

Global warming is now rarely out of the news and scientists are in agreement about the basic facts: Climate change is happening and it is related to greenhouse gas emissions (particularly carbon dioxide). The 1990s was the warmest decade on record, and freak weather events like floods and hurricanes have been increasing. After years of denying its existence and importance, even world leaders and businessmen now acknowledge the threat of climate change as the biggest that the world and humanity face. They are doing little to fix the problem, however. In fact, they are making the problem worse.

Low taxes on aviation fuel, subsidised road-building programmes, cuts in funding to public transport and the lack of investment in walking and cycling infrastructure have made transport the fastest growing source of greenhouse gases: emissions have increased by over 13% between 1990 and 2002, despite emissions from public transport falling. Transport now accounts for over a quarter of all emissions in the UK (26%): cars, road-freight and air-travel are the main culprits.

People often assume that global warming won't be so bad because everyone likes warmer weather. The problem is that though the earth's atmosphere is warming on average globally, what we are really faced with is climate chaos – increased instability in the climate system meaning more extreme weather events (droughts, floods, heatwaves, storms, hurricanes and blizzards). Already, according to the World Health Organisation, 150,000 people are dying every year as a result of climate change. The effects fall hardest on those least able to prepare and respond to abrupt or dramatic changes in climate or natural disasters – the poorest people, and wildlife.

The cost of climate chaos is not only environmental and social however, it has financial implications too. The United Nations Environment Programme estimates that direct financial losses could reach £213 billion a year by 2050. Money spent now will ultimately be money saved.

What is being done? Under the 1997 Kyoto Protocol most industrialised countries have pledged to an average cut in greenhouse gas emissions of 5.2% below 1990 levels by 2012. In reality, loopholes, and the refusal of America to take part, mean the cut will be only 2%. Meanwhile, the UN's group of scientific experts the Intergovernmental Panel on Climate Change (IPCC) recommend 60-90% cuts…
So what can we do? Well, we cannot rely on governments and corporations to solve climate chaos out of goodwill, when their interests are in power and profit. We must take action ourselves to pressure governments and companies, and to change our own lifestyles.

On average, Britons travelled 5354 miles by car per year during 1999-2001, with around a quarter of all car trips being under 2 miles in length – an easy distance for walking or cycling – and traffic is increasing (Department for Transport/National Statistics 2005/ National Travel Survey 2001). The response of the government is to build more roads – despite its rhetoric on tackling climate change, and the fact that it has been repeatedly shown that more roads merely lead to more traffic. The road-building budget was nearly doubled to £1046 million in 2006-7. The simplest way to reduce traffic and road-building is to reduce your car use: walk, cycle, or take a train. You will not only help to reduce greenhouse gas emissions but will arrive feeling more relaxed: you can enjoy looking at the world around you, and on a train you can read a book, write a letter to an old friend or have a nap! Better than a traffic jam, eh?

Greenhouse gas emissions from UK air travel doubled between 1990 and 2003 (Office of National Statistics 2005). Again, the government is making the problem worse, by promoting expansion of airports around the country. The plans threaten to damage or destroy 44 Sites of Special Scientific Interest, 7 Areas of Outstanding Natural Beauty and 8 registered parks and gardens (Campaign to Protect Rural England). Furthermore, the Government offers tax-breaks equating to over £9 billion of subsidy, while bus services in the UK receive fewer subsidies than in any other EU country. A simple solution is to try to travel less often and less far. Why not holiday in the UK? Much of it is beautiful and not covered in concrete (yet!). If you really need to travel long distance, consider trains and boats.

Changing transportation and opposing locally damaging developments are crucial, but there are lots of actions we can take. Taking action can be fun rather than a chore, and though individually we might not be able to change much, acting together can make messages hard to ignore. Talking about the problem and possible solutions can help build a movement that really can make a difference.

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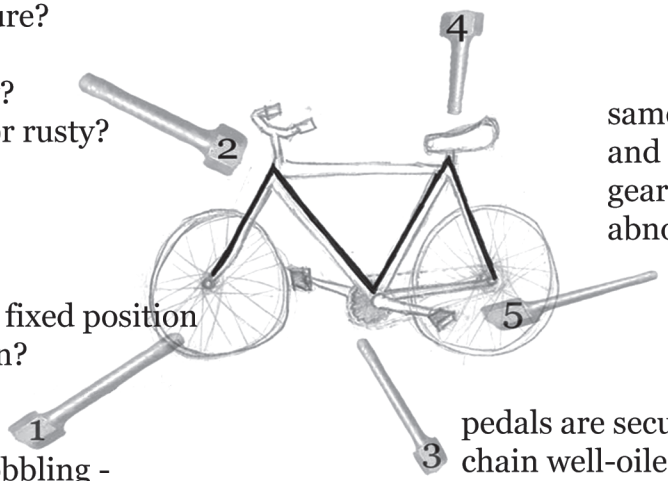
The beautifully basic M-check

Here's the commonly used and cleverly named 'M-check' to help you remember all the things you should check regularly on your bike:

seat in comfortable, fixed position (fully tightened)?
seat at ideal height (are you on tip toes when seated)?

handlebars fixed and secure?
... and in line with wheel?
both brakes working fully?
brake cables not fraying or rusty?



same checks as front wheel and you could also check the gears and chain here for any abnormalities.

spokes tight?
tyre has good tread?
brake pads in correct & fixed position
... and in good condition?
tyre fully pumped up?
wheel nuts tight?
wheel turns without wobbling -
(ie. buckled rim or loose cones)?

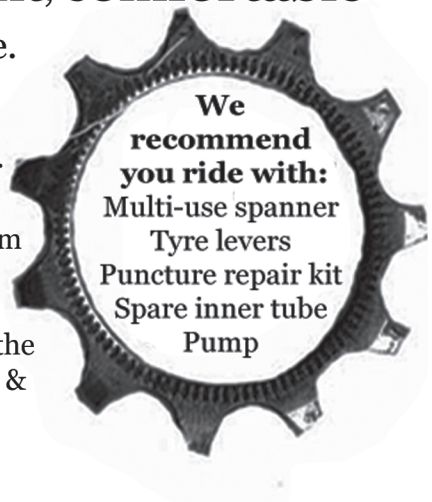
pedals are securely fixed to crank and axle?
chain well-oiled?
chain slackness minimal?

If the answer to any of these questions is no, then tighten it, heighten it, lower it, pump it... if you're not sure, or don't have the tools, take it to your local friendly bike shop or make friends with a Bicycologist.

If the answer is yes, then pedal away, but don't forget to keep on M-checking...

Beautifully basic bicycological bike maintenance

If your bike is **well-made**,
regularly checked for problems and **well-looked after**:
it can last more than a human **lifetime**;
you'll discover minor problems before they become major,
so you can **fix them yourself**, more cheaply,
using **less material** and without having to pay for an expert;
and you'll have a **safer**, more **efficient**, **comfortable**
and **smooth** ride.



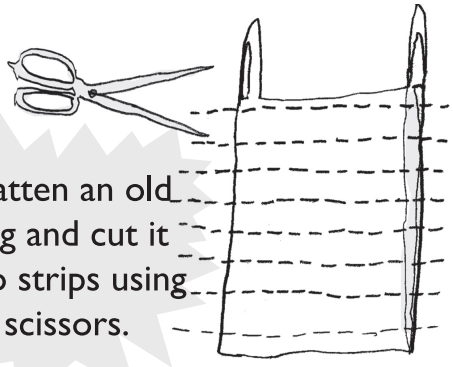
Here's some eco-friendly bike maintenance tips:

Reduce the amount of new materials you buy by taking good care of your bike, re-using working parts from condemned bikes, e.g. inner tubes, nuts, screws, reflectors, derailleurs etc. You can recycle broken parts by taking them to a scrap metal yard, or getting creative – have you tried bike jewellery?!

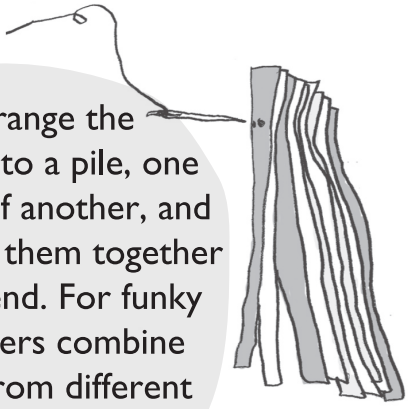
Try to reduce the heavy chemicals you use on your bike. Always look for the environmentally-friendly alternatives, for example using water, natural soap & an old rag instead of a chemical bike cleaner, and use a biodegradable degreaser, such as Ecotech (ask in your local bike shop or try the internet).

Make your own streamers from old plastic bags!

Every year, an estimated 17 billion plastic bags are given away by supermarkets – equivalent to over 290 bags for every person in the UK. Bags and other plastic packaging create the majority of the 3 million tonnes of plastic waste a year in the UK, and landfill remains the main form of waste management in this country. This destroys countryside and, as it rots, produces the green-house gas methane. The simple solution? Reduce consumption, Reuse and Repair, or Recycle.



Flatten an old bag and cut it into strips using scissors.



Arrange the strips into a pile, one on top of another, and then sew them together at one end. For funky streamers combine strips from different coloured bags.

Secure them to the end of your handlebars using string

Enjoy!

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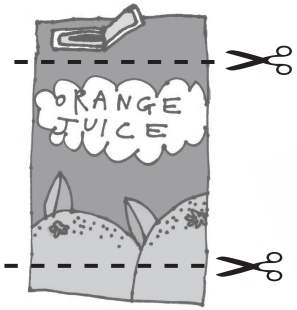
How to make a tetra-pak wallet.

You will need…

Tetra-pak, sharp scissors, soapy water, tea-towel, stapler and an elastic band.

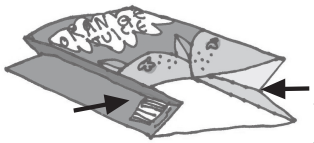
1. When you have finished the contents of your tetra-pak, fill it with soapy water and give it a shake, then rinse it out.

2. Top-and-tail your tetra-pak using sharp scissors *(be careful!)* Now you can see inside check it's properly clean, and if not, give it a wipe and dry it with a tea towel.



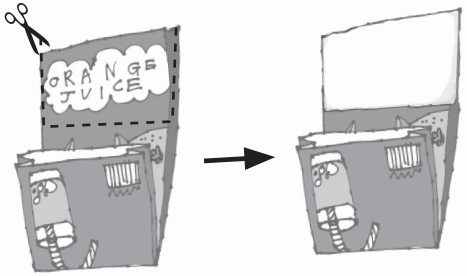
3. Flatten your tetra pack, on a hard surface, creasing the long sides.

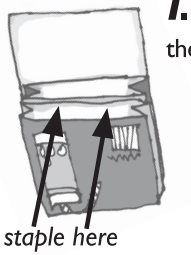
4. Un-flatten your tetra pack and push the two long sides inwards,then flatten it again.



5. Now fold the bottom three inches of your tetrapak upwards, and crease it firmly on a hard suface.

6. The remaining top part of you tetra-pak will form the front flap of the wallet. On this section cut away the front and sides of the tetra, leaving a single piece of card.



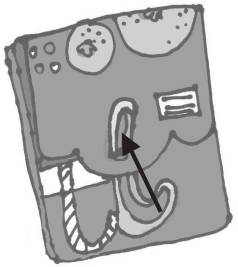


7. Your tetra-pak should now roughly resemble a wallet! Next staple the inner pieces of card from the two compartments together.

8. The front flap can be cut into any shape you wish. It can have rounded corners or zig-zag edges – whatever you feel like having! So trim appropriately and then cut a small hole in the centre of the flap.

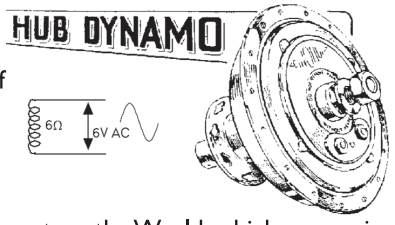
9. Fold the front flap down over the wallet and again crease well.

10. Get your elastic band, poke one end through the hole so you can see a small loop. Then thread the other end of the elastic band through the loop and pull tight. You should now have a larger loop of elastic band which is secured onto the front flap. This can be stretched over the body of the wallet to hold it shut.



Alternative Technology and Renewable Energy

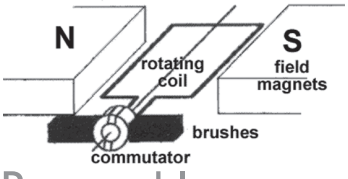
Why?



We take energy and technology for granted. We plug in our TVs. We jump in cars to go shopping. We jet off on holiday. But all of this has a cost. Environmental destruction and climate change caused by industrial society is threatening the future of the earth and all living things. We need to take responsibility for our impact on the World, which means, in part, reclaiming science and technology from corporate control. It also means developing grassroots technologies based on recycling and repairing the scrap that industrial society leaves in its wake, in order to make useful and inspiring devices that address people's real needs, whilst respecting the environment.

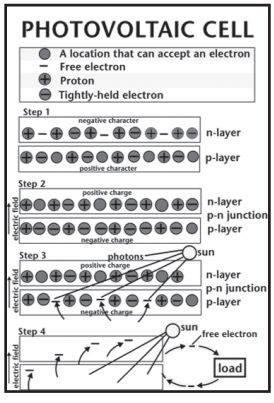
Pedal generators

By attaching an electrical generator to a bicycle or an exercise bike, you can generate electricity. A car windscreen wiper motor makes an ideal generator and you can get them free or cheap from scrap-yards. The voltage varies depending on the speed, and that can be a problem. An old car stereo can run directly from a pedal generator, as long as the voltage doesn't go higher than about 18 volts, but most devices need some form of voltage regulation. A gameboy, for example, needs a steady 3 volts. Bicycology uses an axle stand generator, which clamps the back wheel up off the ground, allowing any normal bike to become a pedal generator. An adult cycling can produce 50 watts of power quite easily. That's enough to light a conventional light bulb, or five low energy bulbs. Top racing cyclists can produce up to 1000 watts in a sprint!



Renewable energy

Solar (photo-voltaic) panels generate electricity from sunlight. A small panel, suitable for a bike trailer, will produce 5 or 10 watts at 12 volts. They are useful for charging batteries or for powering small devices directly. Bicycology powers a bubble machine from a 5 watt solar panel. However, PV panels are quite expensive, and you can't make them yourself. Some argue that their manufacture causes a lot of harm to the environment because of the chemicals and energy used.

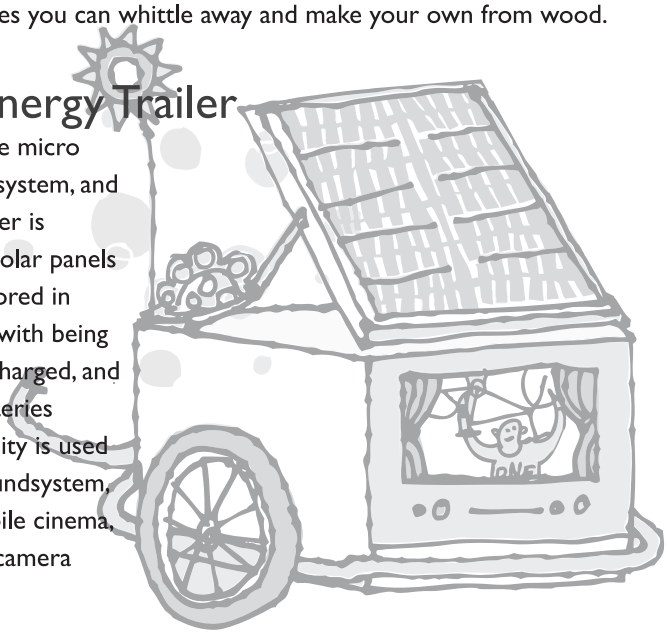


We can also make use of the sun's heating power. Solar water heating isn't too difficult to do DIY, and can be as simple as black painted radiators on your roof. Other ideas are passive solar building design, in which the sun's heat is captured by south-facing walls and windows, and solar cookers for the summer.

Simple wind turbines are something that you can make yourself. Stepper motors from old printers and photocopiers are good generators for wind power because they produce electricity even when turning slowly. The downside is that you need to use diodes in a simple circuit to rectify the alternating current, and they don't produce very much power - a few Watts at best – although with bigger stepper motors, eg from old photocopiers, you can produce useful power. For the blades of a small wind turbine you can use an old extractor fan, but for bigger ones you can whittle away and make your own from wood.

The Bicycology Energy Trailer

The Energy Trailer is a complete micro power generation and storage system, and a mobile mini-cinema too! Power is produced by a bike generator, solar panels and a small wind turbine. It's stored in special batteries that can cope with being repeatedly drained low and recharged, and a regulator makes sure the batteries aren't overcharged. The electricity is used to power things like a small soundsystem, a portable DVD player for mobile cinema, a gameboy, and charging video camera batteries and mobile phones.



For further information:

Campaign for Real Events: *www.c-realevents.demon.co.uk*

Centre for Alternative Technology: *www.cat.org.uk*

Otherpower: *www.otherpower.com*

Scientists for Global Responsibility: *www.sgr.org.uk*

South East Alternative Science Network: *uk.geocities.com/seasonscience*

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family cycling

Starting a family doesn't mean that you have to stop cycling. There is a wide range of options for getting your whole family pedalling. Having children might even be an inspiration to think more about the kind of world you want for them, and whether cars should play such a dominant role in that world, given their contribution to asthma-inducing pollution, global warming and the shrinking of safe places for kids to play.

By far the easiest, cheapest and most common solution to getting small children on a bike is the ***child-seat***. Usually mounted on a rear pannier-rack, these are quick and easy to fit and are fine for children as soon as their necks are strong enough to hold up their heads and cope with the wobbling, which can be as young as 6 months. A rear-mounted seat should fit up to the age of about 4½, whilst front mounted seats might be outgrown by 3½. Front mounted seats can, however, be a little more stable as the child's weight is more firmly between the wheels. You'll also find it easier to talk to your child when they are in front of you, but if the seat is mounted on the top-tube of your frame you may find that they get in the way of your knees and make pedalling a little more awkward. A rear mounted seat, on the other hand, means you can't use regular panniers, so carrying shopping, or even spare nappies etc, can be a bit tricky. As is often the case, the best bet is to try before you buy and make sure that whatever you get is compatible with your bike. If in any doubt, have it fitted at your local bike-shop. Expect to pay anywhere between £30 and £120, depending on quality and whether you need a special rack to fit it. Reclining seats can offer more comfort, particularly for younger children in rear-mounted seats. Whatever you choose, make sure you do a test ride with a bag of potatoes in the seat before riding with a child, just to get used to the extra weight! It is also worth remembering that whilst you might feel quite warm while cycling, even in the cold, your child isn't doing any work and will need wrapping up warm to protect them from the wind and cold.

A popular, more versatile, alternative to seats is the ***trailer***. Available for either one or two children, a trailer can cope with a growing family and with a specially fitted sling some can take children as young as 3 weeks old; it's quite possible to squeeze a 6 or even 7 year old into a trailer along with a younger sibling and still have room for shopping in the back. The main problem will be towing it up the hills! Some of the more versatile trailers can also be converted into strollers, so once you reach your destination you can push the trailer around like a pram. Trailers do have a couple of disadvantages though.You will need somewhere to store them and although most will fold down fairly small, having to do this each time can be inconvenient.

Trailers are also wider on the road, so some cycle paths can be impractical, particularly if they have barriers to prevent motorcycles using them. The extra size also means that they take a little getting used to when you first ride with them. As with a child-seat, it is worth practising with a small sack of potatoes before loading up the kids. The extra size does mean that you are usually given a wider berth by passing cars, however, so there are advantages. For a new trailer you can pay anything from £60 to £500, depending on build quality and extras like suspension and stroller attachments but there are many second-hand bargains around. Buy spare hitches when you buy the trailer if you want to use it with more than one bike.

Some Pros & Cons

	Pros	Cons
Child seat	• *Easy & quick to fit and remove* • *Small and easy to store* • *Can ride the bike as normal*	• *Exposed to the weather* • *Can't be used with regular panniers*
Trailer	• *Can carry kids, shopping, tents, toys etc.* • *Protected from cold and rain* • *Easy to attach to a number of bikes*	• *Bulky and may need a garage or shed to store* • *Wider than normal so limits cycle-path use*

Once your children are about 4-5 years old, they'll probably want a bit more independence and you'll probably want them to start pulling their weight a bit. At this age children are big enough to ride a ***tagalong*** or a ***tandem***. There are many ***child-back tandems*** available and they can often be found quite cheap second-hand through the websites of the Tandem Club *(www.tandem-club.org.uk)* and the Cycle Touring Club *(www.ctc.org.uk)*. More versatile and easier to store is a tagalong. A tagalong is like a child's bike with the front wheel replaced by a hitch which attaches it to the back of an adult's bike. The best tagalongs attach to the rear rack which gives much more stability than a seat-post mounting. Many also have independent brakes and gears, so your child is getting used to basic bike controls.

Either a tandem or a tagalong will give your child a chance to feel how a bike handles and balances, so makes it easier for them to learn to ride their own bike. You will, however, need to be careful with younger children to ensure that they don't fall asleep and fall off. Toe-clips can help with this, and you can get seat-backs that allow you to strap your child in, but the best measure is to keep within your child's limits and not go for really long rides without having lots of stops to rest and plenty of snacks to keep them going.

Whatever system you choose, it is easy to keep even a large family cycling. As well as keeping fit, enjoying yourself and introducing your kids to the pleasure of riding a bike, you're also helping to reduce carbon emissions and making the world a safer place for them. Before you know it, they'll be wanting their own bike and racing off while you struggle to keep up!

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FOOD glorious FOOD

What we eat is usually the single biggest contributor to our carbon footprint, so it's worth thinking about.

It's really important to check where your food's come from and cut down your 'food miles'. When Peak Oil hits you'll be glad you kept your local farmer in business.

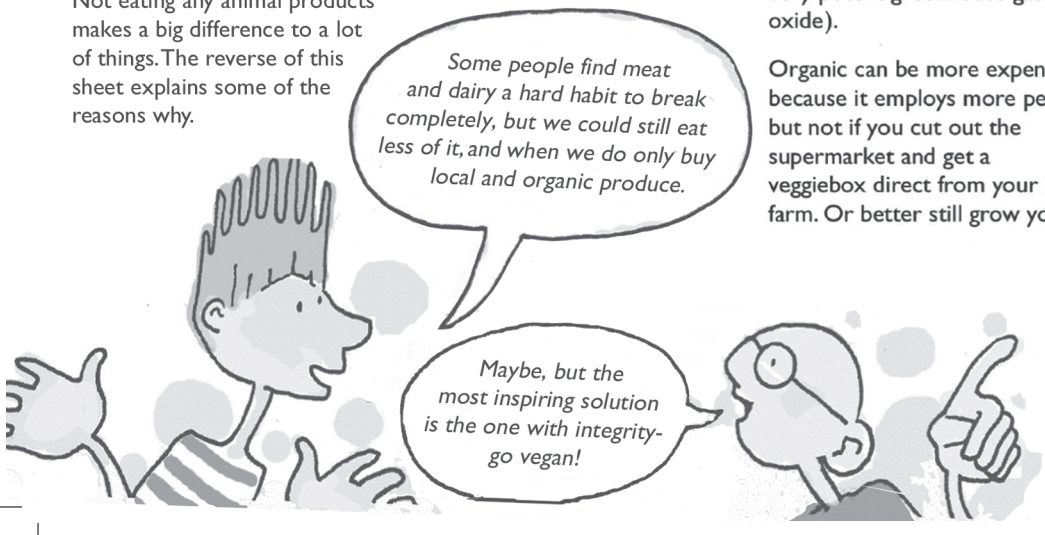
Buying half your bodyweight in air freighted mangetout and blueberries every year is likely to offset any other virtuous behaviour you may be undertaking.

Try and keep your fruit and veg purchases seasonal, the artificial climates created to give you strawberries in November are really wasteful.

Organic agriculture reduces CO_2 emissions by not relying on the production and import of artificial herbicides and nitrogen based fertilisers (which release another very potent greenhouse gas - nitrous oxide).

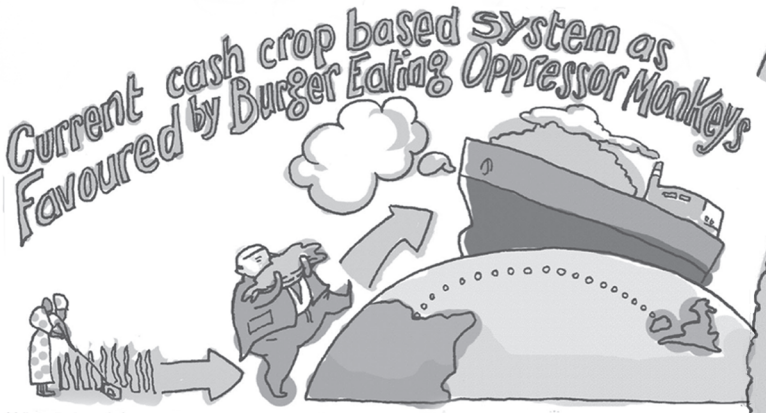
Organic can be more expensive, because it employs more people, but not if you cut out the supermarket and get a veggiebox direct from your local farm. Or better still grow your own.

Not eating any animal products makes a big difference to a lot of things. The reverse of this sheet explains some of the reasons why.



Industrial farming is pretty nasty. Even if you're vegetarian you're still responsible for bad stuff happening to fluffy things; Cows are made pregnant every year to ensure the milk supply. Their calves are taken away from them at one day old, and the males are disposed of. Females are exhausted by the high outputs extracted from them, and killed at 5 years old. Their normal lifespan would be 25 years.

the trouble with cows...



While Bob and the gang were strumming against famine for Live Aid in '84, Ethiopia was exporting food crops to supply the European animal feed market. In 1900 just over 10% of global grain was for animal feed. By the late '90s it was 45% and increasing...

An area of Brazilian Rainforest the size of Wales is bulldozed every year to make way for the soya plantations that feed British chickens and cows. The crops are increasingly genetically engineered varieties- animal feed is the anonymous backdoor sustaining the biotech industry.

To add insult to injury cow farts send up lots of methane - a gas 21 times more effective at global warming than CO_2. Bovine bottom burps are the main source of human-induced methane emissions.

Resources are wasted because it takes a lot of energy for animals to live while they're growing. 70% of Europe's animal feed protien is imported. The transporting and processing require a lot of fossil fuel.

Energy- One unit of energy used to make corn creates 5 units of food energy. But one unit of beef uses up 3 times the energy it yields in food energy.

Water- Beef requires 36 times as much water per calorie as wheat.

Land- A typical European diet requires 5 times the land required for a vegan diet. The UK imports the equivalent of over 4.1 million hectares of other peoples land this way.

This is the slightly complicated bit. For centuries sustainable agriculture in the UK has been based on animal poo. There are vegan fertilizers, but these haven't yet been tried on a large scale. Any transition could take a while to implement, but wouldn't be unprecedented-in Japan for example they dealt with their own shit, literally. 'Nightsoil' was collected from peoples homes to make compost.