



PLANET
CHANGE

Air pollution:

List of daily polluting actions and sustainable alternatives



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Planet change is the short name of an EU Erasmus+ project aimed at VET teachers and their students. With small activities, the idea is to create awareness about sustainability and acquire 21st century skills. All this is done in a technical context, mostly from space technology.

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List of daily polluting actions and sustainable alternatives

Action		Explanation of how it can be a source of air pollution	Pollution points (added)	Possible sustainable alternative	Sustainable points (subtracted)
Personal care and hygiene	Taking a hot shower	<i>If the shower uses energy that comes from gas, it produces carbon dioxide (CO₂), a greenhouse gas, as well as other pollutants such as nitrogen oxides (NO_x), carbon monoxide (CO), and trace amounts of sulphur dioxide (SO₂). These pollutants contribute to air pollution and can have harmful health effects.</i>	+3 (for using gas)	While it might be difficult to change the source of energy of your house, you can still try (what about talking to your family about a solar water heater.	-3
		<i>If you take longer showers, this means more consumption of energy and water, which implies more emissions of the gases mentioned and requires more energy for water treatment and distribution, increasing the problem.</i>	+3 (more emissions and more energy spent on water treatment and distribution: it aggravates the problem mentioned above)	Take shorter showers (tip: put a song playing (no more than 5 minutes) and compromise to be finished by the time the song also stops). See if you are able to complete this mission in the next shower. If so, you can count that	-2



				has a successful alternative.	
		<i>If you like the water really, really hot, it might be a problem, because more energy is needed to maintain the hot water temperature.</i>	+2 (more energy spent)	While you are waiting for the water to be hot, don't waste it - use a bucket to collect the running water and use it afterwards for other purposes.	-2
	Using hygiene products that use chemicals	<i>During or after a shower, using products with strong fragrances, irritants and flammable ingredients release dangerous chemicals, including volatile organic compounds (VOCs), which are harmful to the environment and your health.</i>	+3 (for each product used)	Try to read all products' labels before you buy them (or ask your family to do so). Choose products that do not contain or have reduced amounts of VOCs, fragrances, irritants, and flammable ingredients. You can pay attention to strong fragrances, and ingredient lists that include "fragrance" or	-2 (for each product replacement)



				"parfum".	
	Using hygiene products with aerosol sprays*	<p><i>Using products with sprays and aerosols has a significant impact on air pollution due to the release of additional pollutants. These products often contain volatile organic compounds (VOCs) and other harmful chemicals that contribute to air pollution but also propellants (such as hydrocarbons or compressed gases). These substances not only contribute to outdoor air pollution but also degrade indoor air quality, posing health risks such as respiratory issues and other health problems. They can also have an even further impact, damaging the ozone layer.</i></p> <p><i>Many aerosols contain chlorofluorocarbons (CFCs) or other ozone-depleting substances</i></p>	+3 (for each product used)	Avoid using air fresheners and sprays altogether. Try to find sustainable alternatives.	-3 (for each one of the products replaced)



		<i>(ODS) such as hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs). When these chemicals are released into the atmosphere, they eventually rise to the stratosphere, and through some chemical reactions, contribute to causing the depletion of the ozone layer.</i>			
	Painting your nails	<i>Seems harmless, but many nail polishes and removers contain VOCs and other harmful chemicals that evaporate into the air, contributing to indoor air pollution.</i>	+2	There are already a lot of non-toxic, water-based nail polishes brands. Look for them!	-2
	Blow-dry your hair or using hairstyling tools too often	<i>Using heat-styling tools and blow dryers consumes significant energy, contributing to air pollution if the electricity comes from fossil fuels (which normally does).</i>	+2	Let it air dry as much as possible!	-1 (for each time you do it in the assigned days)



				Buy a microfiber towel, which will absorb much more water than the traditional ones, and then let the rest dry in the sun/air.	-1 (for switching the towel)
	Using electric or battery-powered toothbrushes	<i>These devices consume electricity and batteries, contributing to air pollution if the energy source is fossil fuels and improper battery disposal.</i>	+1	Nothing wrong in using a normal toothbrush!	-1 (for using a regular brush)
				If it is a recycled one, or a reusable – where you just change the brush handle or head – even better!	-2 (for using a reusable or recycled brush)
Cooking and eating	Preparing food (breakfast, lunch, etc.)	<i>The source of energy used (cooking with gas stoves, burning wood)</i>	+3	Probably, you are not the one doing the cooking at home, but you can talk to the person doing it about the possibility of switching to electric or induction cooktops, and ensure your electricity comes from renewable sources if	-3 (Switching the method used)



				possible. Also, modern electric cooking appliances (like slow cookers, pressure cookers, and air fryers) can use less energy than traditional methods.	
		<i>The packages of the food used (if they are packaged in single-use plastics, they are more pollutant; also, if they come from very far places or are ultra-processed)</i>	+2	Regarding plastic packages, there is a lot to do, for example: 1. reuse your bags and containers when buying and storing food 2. try to buy fresh foods, which normally come with less plastic 3. shop in farmers' markets and buy local and seasonal foods.	-2 (for each action performed)
	Eating a lot of animal-based products	<i>If you are eating meat, you should know that large-scale farming operations often rely on the use of synthetic fertilisers and pesticides, which release nitrous oxide (a potent greenhouse gas) and VOCs into the air.</i>	+3	Try to reduce meat consumption, especially red meat, and choose plant-based or sustainably sourced meat	-3 (for each plant-based meal you do during the assigned period)



		<i>Also, the production of meat, especially beef, involves significant greenhouse gas emissions, including methane from cattle and CO2 from the energy-intensive processes of feeding, slaughtering, and processing meat.</i>		alternatives;	
	Eating fast food and eating very processed foods	<i>Processed foods (ex. chips, store-bought cakes and cookies, soda drinks like Coca-Cola, frozen meals, like lasagna, pizza, hot dogs, sausages, ham, bacon, and processed fast food like what you eat at McDonald's) involve energy-intensive machinery and chemical preservatives, both of which contribute to air pollution. Factories may release VOCs, particulate matter, and other pollutants.</i>	+3	Avoid fast food (it's not good for you or the planet!)	- 1
				Try to eat more "natural," home-cooked meals, less processed foods and with few chemicals;	-3 (for each processed food you cut out of your diet (ex. cookies, sodas) and replace with alternatives
	Frequent use of plastic wrap for food storage	<i>When you take your lunch or snacks to school or another place, what do you use to</i>	+2	Introduce more fruits, vegetables in your diet, whole grains, and lean proteins, which typically have lower environmental impacts.	-3 for each new ingredient of food added to your meals
				Use beeswax wraps, reusable silicone bags,	-2 (for each replacement)



		<i>package them? Normally, plastic, right? However, production and disposal of plastic wrap release VOCs and other pollutants, so it's not ideal.</i>		or glass containers.	
	Microwaving food in plastic containers	<i>We've all done it. We rewarm our pizza slices in plastic containers. Why shouldn't we do it? Well, microwaving plastic can release harmful chemicals into the air and food, contributing to indoor air pollution.</i>	+2	There are safer containers that you can use on the microwave, such as microwave-safe glass or ceramic containers.	-2 (for replacing the containers)
	Using conventional charcoal for grilling	<i>We all love a good barbecue. But the charcoal that normally is used releases CO₂, CO, and other pollutants into the air.</i>	+2 (for each action mentioned)	Dry wood, eco logs, briquettes and lump charcoal are good options!	-2 (for each one of the alternatives implemented)
Transportation	Moving around using a car	<i>Cars burn fuel (gasoline or diesel) to power their engines. This combustion process produces harmful pollutants, such as Carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), hydrocarbons (HC), and particulate matter (PM).</i>	+3 (for each action mentioned)	1. Try, at least some days per week, to move around walking, cycling, or using public transportation. 2. You can also make arrangements with your friends to share the car with them - one day it can be your parents' driving, the next day theirs.	-3 (for each one of the alternatives implemented)



Home maintenance	Cleaning the house	<p><i>Using cleaning with products that release chemicals. Some of these products are aerosol spray products, including health, beauty and cleaning products; air fresheners; chlorine bleach; detergent and dishwashing liquid; dry cleaning chemicals; rug and upholstery cleaners; furniture and floor polish; and oven cleaners. When looking at the label, try to look for reduced amounts of VOCs, fragrances, irritants, and flammable ingredients. Avoid using air fresheners altogether. Try to ask the help of someone to help you search for greener and more natural cleaning products.</i></p>	+3 (for each product used)	<p>1. Try to look for eco-friendlier, non-toxic products, which are formulated without harmful chemicals such as VOCs, synthetic fragrances, irritants, and flammable ingredients. As mentioned, reading how to read the labels can be extremely useful.</p> <p>2. Also, there are a lot of homemade cleaning solutions that can be made from natural ingredients like vinegar, baking soda, lemon juice, and essential oils. Using simple products you have in your kitchen, you can make soap, natural air fresheners, and a</p>	-3 (for each product replaced)
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				<p>“all-purpose cleaner” – the famous combination between equal parts of water and vinegar with a few drops of essential oil (e.g., lemon or tea tree) in a spray bottle, or the paste with baking soda and water.</p>	
	<p>Taking care of the garbage</p>	<p><i>When you take the trash out, you should be aware of how you are disposing of it. Trash is often taken to landfills where it is buried, and, as waste decomposes, it produces methane (a potent greenhouse gas) and carbon dioxide. Landfills can also release volatile organic compounds (VOCs) and other pollutants. Some trash is also burned, leading to emissions of gases like carbon dioxide (CO₂), and nitrogen oxides (NO_x).</i></p>	<p>+3</p>	<ul style="list-style-type: none"> - Reducing waste and avoiding single-use items. - Reusing items (reusable bags, containers, and utensils) or donating or repurposing items instead of throwing them away. - Recycling. - Composting organic waste (like food scraps and yard waste) reduces landfill waste and produces valuable 	<p>-3 (for each one of the habits adopted)</p>



				compost for gardening.	
	Lighting up the fireplace or the wood stoves	<i>Burning wood, for fires, fireplaces or stoves, emits carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), particulate matter (PM), and polycyclic aromatic hydrocarbons (PAHs). This is not only harmful to the environment but to human health, as these pollutants can have an impact on respiratory issues and cardiovascular diseases.</i>	+3 (for each action mentioned)	If possible, talk to the adults in your house about switching to electric heating, using certified wood stoves, or considering pellet stoves that are less pollutant. It's very important to ensure proper ventilation and use seasoned, dry wood to reduce emissions.	-2 (if an alternative is used)
	Lightening candles	<i>Burning a candle when you need to relax after a long day or to make your room smell good might not seem a problem, but candles, especially those made from paraffin wax, release several harmful substances (similar to those of fires).</i>	+1 (for each action mentioned)	When it comes to candles, try to look for some made from natural materials like beeswax or soy wax, which burn cleaner. Opt for LED candles or essential oil diffusers for fragrance without combustion. You can also search on the	-1 (for each replaced candle)



				Internet how to make your own non-toxic candle!	
Electronic devices	Leaving electronic devices on	<i>Everyone knows this, and yet – we still do it. Electronics left plugged in consume "phantom" power, increasing overall energy consumption and emissions from power plants.</i>	+2 (for each device)	<ul style="list-style-type: none"> Well, turn off everything you are not using. Write notes in post its near the devices so you don't forget next time! U 	-2 (for each turned off equipment by the end of the day)
				Use power strips to easily switch off multiple devices at once	-2 (installing power strips and turning them off)
	Using the internet or just the computer/tablet	<i>If you are using a computer or tablet for a long time, you are consuming more energy. If the electricity comes from fossil fuels (coal, natural gas, oil), burning these fuels releases carbon dioxide (CO2), nitrogen oxides (NOx), sulphur dioxide (SO2), and particulate matter (PM).</i>	+2	<ul style="list-style-type: none"> Set the computer to enter sleep or hibernate mode after a period of inactivity. Enable energy-saving settings for monitors and other devices. Turn off the computer, monitor, and other electronic devices when they are not 	-2



				needed, especially overnight or during long breaks.	
	Printing a lot of documents	<p><i>If you are printing a lot of documents, it might be a problem, because producing paper requires a lot of energy and resources, and the process also emits a lot of pollutant gases. Then, printing also requires electricity, and the disposal of used paper and ink cartridges contributes to waste in landfills or incinerators.</i></p>	+2	<ul style="list-style-type: none"> If possible, use digital resources or print only what you really need. Choose the settings for double-Sided Printing, to reduce the amount of paper used in half 	-2
				Try, if possible, to choose a printer with energy-efficient ratings and turn off printers when not in use;	-2
				Use recycled paper, which reduces the demand for new paper, decreasing deforestation and the associated emissions	-2
				Recycle used paper and ink cartridges;	-2



				Reuse single-sided printed paper for drafts or notes.	-2
Shopping	Buying things that come wrapped in plastic	<i>Production and disposal of plastic wrapping or packages release VOCs and other pollutants.</i>	+2	<ul style="list-style-type: none"> First, try to think if you need to buy that thing, and if you can buy it without coming with so much plastic. If it is not possible, reuse the package or recycle it. 	-2 (for each one of the alternatives implemented)
	Ordering products online	<p><i>When you are scrolling and see that incredible ad that leads you to buy that amazing shirt that comes all the way from China to your faraway country, it can be a problem.</i></p> <ul style="list-style-type: none"> Online orders often involve excessive packaging, including cardboard boxes, plastic wraps, and cushioning materials. Also, transportation has a high impact on pollution - products ordered online are transported from warehouses to distribution centres and finally to consumers, often involving multiple shipping methods (trucks, planes, ships), and then, at last, delivery from local distribution centres to customers' homes 	+3 (for each action mentioned)	<ul style="list-style-type: none"> Try to think if you really need to buy something and try to reduce your consumption habits. Before ordering it online, try to search for a similar product locally or nationally. 	-3 (for each one of the alternatives implemented)



		<i>usually involves vans or trucks.</i>			
	Buying fast-fashion products	<i>Most often than not, when you buy from well-known stores or brands, you are buying fast fashion. Fast fashion relies on the rapid production of large quantities of clothing, often using synthetic materials (like polyester, which is derived from petroleum), and energy-intensive processes that produce a lot of pollutants - from producing the piece, dyeing it and so on. Also, these types of products are usually produced in one country and shipped to others, often requiring long-distance transportation.</i>	+3 (for each action mentioned)	<ul style="list-style-type: none"> - Research and buy from brands committed to sustainability, fair labour practices, and eco-friendly materials. - Go to second-hand, thrift shops or platforms - you will not only reduce pollution but spend less money and find unique pieces. - If a piece of clothing is too old or has some issue, ask someone older (or learn how to do it) to teach you how to repair or repurpose it. 	-3 (for each one of the alternatives implemented)
Digital hobbies	Using electronics for long periods (e.g., watching TV, playing video games, scrolling through social media)	<i>Prolonged use of electronic devices consumes significant energy. If the electricity comes from fossil fuels, this increases emissions of CO₂, NO_x, and other pollutants from power plants.</i>	+2 (for each action mentioned)	<ul style="list-style-type: none"> - Set limits on screen time and take regular breaks to reduce energy consumption. - Use energy-efficient 	-1 (for each one of the alternatives implemented)



				<p>devices and power settings.</p> <p>Also, why not try to find new hobbies? You can make a calendar of new (offline) things you would like to experiment and make a commitment to it.</p>	
	<p>Using high-power gaming consoles and computers</p>	<p><i>It is of course much cooler to play on devices like this, but we have to warn you that high-performance gaming consoles and computers use more electricity, contributing to higher emissions from power plants if the energy source is fossil fuels.</i></p>	<p>+2 (for each action mentioned)</p>	<p>The same as before!</p>	<p>-2 (for each one of the alternatives implemented)</p>
	<p>Streaming videos and music for long periods</p>	<p><i>Streaming services require substantial data processing and storage in data centres, which consume large amounts of electricity and generate significant CO2 emissions.</i></p>	<p>+3 (for each action mentioned)</p>	<p>Download content for offline use to reduce data streaming. Limit streaming time and choose energy-efficient devices for playback.</p>	<p>-2 (for each one of the alternatives implemented)</p>



Note: The presence of aerosol sprays at our houses is very common, much more than we often think of. In the table, we mentioned sprays for hygiene purposes and cleaning, but these can also be:

- Hair sprays, for styling and maintaining hairdo stability.
- Deodorant sprays, offering freshness and odour control.
- Oven cleaners, designed to tackle tough grease and burnt food residues.
- Vegetable oil sprays, providing a non-stick solution for cooking and baking.
- Medicinal sprays, used for delivering medications through inhalation.
- Insect sprays, effective for repelling or killing unwanted pests.

So, if you use any of these products, you can also add it to the table and mark it with an **+3** (and if you replace any of them: **-3**)





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