



Linking UN Sustainable Development Goals to waste and recycling. Activity plans and discussions, that can developed to suit various age groups.



SUSTAINABLE DEVELOPMENT GOAL 1 End poverty in all its forms everywhere



What is poverty? Poverty is when someone is extremely poor and doesn't make enough money to feed themselves sufficiently or house themselves with basic amenities such as running water.

Sometimes people find themselves in a life-cycle of poverty, their grandparents were poor, their parents were poor and now they themselves are poor and cannot afford food, education or shelter.

So how can waste and recycling help end poverty? By thinking innovatively we can help towards the UN goal of ending poverty in all forms.



Activity 1

Rather than using brand new materials what about re-using and recycling old materials.

Why not design a house made out of reused and recycled materials - you could even make a small model. By utilising existing materials, people can learn new skills and be sustainable.

Activity 2

Learning new skills and then using them to help make money. It has now become rather fashionable to upcycle items or to repurpose them. The photo example shows old tyres turning into a flower display. What items or furniture could you turn into something new? It could be a classroom project to transform the school gardens.



SUSTAINABLE DEVELOPMENT GOAL 2 End hunger, achieve food security and improved nutrition and promote

sustainable agriculture

The way we deal with food in the UK is having an impact that's being felt right around the world.

We live in a global community where what we do affects people in many other countries. So saving food really is everybody's responsibility, and there are lots of small things we can all do every day to make a pretty big difference.

Food miles and miles

Keeping Britain fed is big business. From the veg fields of Norfolk to the air freight terminal at Heathrow, it's complex and interconnected. Chances are the green beans on your plate could be from Kenya and your grapes have been flown here from Greece or Egypt. The whole process of growing, making, distributing, storing and cooking our food all uses a lot of energy, fuel and water.

Seeing beyond the bin

Going from field to fork is only part of the story: it accounts for just a fraction of your food's impacts. What happens after left-over food leaves your plate is just as important.

What can we do?

By changing the way we look at food and how we handle it can make a huge difference.

Activity 1

The weekly food waste challenge - is something that can be done at home or even in the school kitchen with the help of the kitchen staff.

Keep a food waste diary from day one of your shop – you can download and print Love Food Hates Wastes one for <u>free</u> – and every day over the next seven days. Write down every item of food you throw away and how much it cost. At the end of the week, review what you have thrown away and see where you could make changes to prevent this.



Activity 2

Knowing correct portion sizes not only helps prevent waste but also helps maintain a balanced diet. Why not draw out a portion planner? Or even make a spaghetti measurer.





More information can be found at the Love Food Hate Waste website.

SUSTAINABLE DEVELOPMENT GOAL 3 Ensure healthy lives and promote well-being for all at all ages





Whilst waste and recycling does not really fit into this category—we can all help by reusing water bottles and making sure that we drink plenty of water throughout the day.

If we have finished with our plastic bottles—remember to recycle them so that they can be turned into something else.

SUSTAINABLE DEVELOPMENT GOAL 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Whilst we are privileged to have access to a good education this is not the case for many children and teenagers around the world.

To make sure that we do not waste the resources we have—why not after you have finished with them why not donate them or even hold book swaps?

Suggested Activities

Outlined below are some examples of how you can get involved:

<u>https://books2africa.org/donate/</u> - This organisation donates new and used textbooks and books to schoolchildren in Africa.

<u>http://www.schoolinabag.org/schools.php</u>—This organisation donates backpacks with pens, pencils, notebooks and much more. There are also suggestions on how your school can get involved.

You could also run a swap shop at school, where pupils can swap books—more information can be found <u>here</u>



SUSTAINABLE DEVELOPMENT GOAL 5 Achieve gender equality and empower all women and girls

Whilst undertaking the various other goals, ensure that there is equal participation from both girls and boys in the activities.



Ensure availability and sustainable management of water and sanitation for all

Water is a valuable resource that many of us take for granted—yet there are things we can do to preserve water.

When rinsing your recycling—use washing up water—don't let the tap run.

Install a water butt to help water plants outside. There are fun projects where you can make your own water butts.

Suggested Activities

Converting a wheelie bin into a water butt-Suggested You Tube video



Ensure access to affordable, reliable, sustainable and modern energy for all



Renewable energy is slowly becoming more mainstream. There are many examples of small scale projects that can be undertaken in the classroom. Outlined below is an example of how to make a small wind turbine—why not think about using some recyclable materials when building it.

What You Need:

- Card
- Pencil with eraser
- Straight pin or thumbtack
- Small electric motor (check the science department or hobby store)
- Alligator clip leads or insulated copper wire
- 1.5 volt bulb and a bulb holder (check the science department or hobby store)
- Strong fan

What to do

Part 1 - Pinwheel

- Cut a piece of cardstock into a 4' square. (If you're only doing this part of the project, you can make it bigger if you like.) Look at the <u>pinwheel pattern</u> to do the following steps.
- 1. Use a ruler to draw diagonal lines from corner to corner. Make a small mark along each line 3/4 of an inch from the centre of the square.
- 2. Cut along the diagonal lines toward the centre until you reach the 3/4-inch mark.
- 3. Fold the corners marked with circles on the pattern into the centre and staple the layers together. (You'll probably need to use at least two staples, but make sure to leave space between staples in the very centre). When all four 'blades' are folded in, stick a straight pin or thumbtack through all the layers at the centre. Push the pin through the eraser on the pencil to finish the pinwheel.
- 4. Hold the pinwheel in front of a fan and watch it spin. The currents of air coming from the fan catch the curved part of the blades, causing them to spin.

Part 2 - Generator

- Remove the pinwheel from the pencil and punch the shaft of the motor through the centre. (Try
 putting a couple strips of masking tape on the back of the pinwheel before you punch it through this
 will make a tighter fit on the motor shaft.) If your motor came with a little cap for the end of the
 shaft, put that on to hold the pinwheel in place. If you don't have a cap, use a piece of clay or cork.
- 2. Use the alligator clip leads to connect the motors wires to the light bulb.
- Now hold the motor/pinwheel close in front of the fan again. Does the bulb light up? Look closely you should at least see the filament begin to glow. The brightness of the bulb will depend on how much voltage your turbine is producing, which can change with the size of the pinwheel and the strength of the fan.

Ensure access to affordable, reliable, sustainable and modern energy for all



What Happened:

When you attached the motor to the pinwheel and put it in front of the fan, you transformed the motor into a **generator**, which converts mechanical force (the spinning of the pinwheel) to electricity. It does this with the help of a magnet inside the motor. When you connected the wires of the motor to the light bulb, you made a complete electrical circuit, allowing the electricity to flow from the motor through the bulb and back again.

One way to measure power is in **volts**. A volt measures the amount of electricity flowing through a circuit. The faster a generator spins, the more volts it will produce. With our simple wind turbine, a smaller pinwheel will produce more volts because it can spin faster. To fully power the bulb, your turbine would need to produce 1.5 volts. If the bulb just glows dimly, it means the turbine is producing less than 1.5 volts.

Real wind turbines have very large blades, so they have gear boxes that increase the rotational speed (how fast the shaft spins). For example, the main shaft might turn only 22 times per minute, but the gears in the gearbox can use that power to make a smaller shaft turn up to 1500 times per minute, creating a lot more voltage!

More information can be found here



SUSTAINABLE DEVELOPMENT GOAL 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



What is sustainable development? Sustainable development is about societies and communities creating conditions that allow people to have quality jobs that increase the economy while not harming the environment. Job opportunities and decent working conditions are also required for the whole working age population.

This goal is linked to goal number 1 — by expanding the activity you could cover both goals.



SUSTAINABLE DEVELOPMENT GOAL 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



This goal is linked to goal number 1 — by expanding the activity you could cover both goals.



Reduce inequality within and among countries



What is inequality? Inequality is when there are not the same opportunities offered. Economic growth alone is not enough to reduce poverty if it does not involve sustainable economic, environmental and social development.

This goal is link to goal 1, goal 4 and goal 7.



SUSTAINABLE DEVELOPMENT GOAL 11 Make cities and human settlements inclusive, safe, resilient and sustainable



This goal is linked to goal number 1 — by expanding the activity you could cover both goals.



SUSTAINABLE DEVELOPMENT GOAL 12 Ensure sustainable consumption and production patterns

tion patterns

Designing products that eliminate waste or ensures that the product can be fully recycled. It is sometimes referred to as the circular economy. The diagram below is from WRAP.

What is a circular economy?

A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life.

Why a circular economy is important?

As well as creating new opportunities for growth, a more circular economy will:

- reduce waste
- drive greater resource productivity
- deliver a more competitive UK economy.
- position the UK to better address emerging resource security/scarcity issues in the future.

help reduce the environmental impacts of our production and consumption in both the UK and abroad.



Activity

Look at some of the food products we buy— how would you design the packaging? Can you reduce it? Can it be recycled?

SUSTAINABLE DEVELOPMENT GOAL 13 Take urgent action to combat climate change and its impacts*

Managing waste and recycling effectively can contribute towards tacking climate change. Outlined below are some of the areas where waste and recycling can contribute:

- Lean production—looking at more lightweight materials for packaging i.e. being able to fit more on delivery trucks
- Material substitution—rather than using resource intense materials such as virgin plastic—looking at more sustainably resourced materials such as cardboard
- Waste reduction—actively looking at ways in which can be reduced not just in business but at household levels as well.
- Waste recycling—being able to recycle more materials—ensuing that there is the right infrastructure in place
- Reusing items or renting items instead of buying items
- Reducing food waste

Activity

What could you do at home to help reduce the amount of waste that you throw away? Is there more that you could recycle?

Conserve and sustainably use the oceans, seas and marine resources for sustainable development





The UN state;

"The world's oceans – their temperature, chemistry, currents and life – drive global systems that make the Earth habitable for humankind.

Our rainwater, drinking water, weather, climate, coastlines, much of our food, and even the oxygen in the air we breathe, are all ultimately provided and regulated by the sea. Throughout history, oceans and seas have been vital conduits for trade and transportation.

Careful management of this essential global resource is a key feature of a sustainable future."

Activity

We all waste some water as part of our daily lives - why not think of ways in which you can preserve water and reuse it? Can we also repurpose other items to help us achieve this?

What effect could this potentially have on the seas and oceans?

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss





We tend to use a wide range of paper based materials on a daily basis.; but do we ever stop and think about the impact this has on the natural ecosystems and whether vast areas of forests are being deforested and becoming subject to desertification?

Activity

What can we do differently at home or at school or even in business to reduce the impact of relying so heavily on paper bases products? What can we do once we have finished with them?

Are there alternatives such as sustainable forestry?

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

This goal is dedicated to the promotion of peaceful and inclusive societies for sustainable development, the provision of access to justice for all, and building effective, accountable institutions at all levels.

This is a running theme throughout the other goals.

Strengthen the means of implementation and revitalize the global partnership for sustainable development



In order to achieve these goals partnership working is vital across all types of organisations, whether it is public agencies, communities.

Activity

Throughout the various activities—why not think about which agencies can work together to achieve the goals.