Recycling & Waste Minimisation

Time needed	Location:	Context:
Recycling Activity Section – 35 minutes Food Minimisation Session – 25 minutes	Classroom and school grounds	This lesson explores Recycling and Food waste minimisation. **Recycling** – What is Recycling / Why recycle / What can be recycles / How to recycle **Food Waste** - How rescuing food from the bin helps fight climate change, how to reduce food waste, and how recycling inedible food creates renewable energy. Energy from food waste task – A maths-based activity where pupils calculate how many inedible food items it takes to power electrical devices

LESSON PLAN

Please note – if you feel you have covered recycling content already, please focus on the Food Waste Minimisation Resource.

Introduction

This teacher's guide contains background information to help you deliver the recycling Lesson to your class. This lesson is intended for young people aged 10-14. The lesson has been designed to take approximately 45 minutes.

The aim of this lesson is to educate pupils on recycling. It intends support Wales' 'Towards Zero Waste' strategy and inform pupils of why we should recycle, what can be recycle and the recycling journey.

Recycling Lesson

Aspects in this lesson include:

- What is recycling?
- Why recycle?
- What can be recycled?
- How to recycle
- The recycling journey

Activities within the lesson are generally self-explanatory.

What is Recycling?

To recycle an item means to use the item to make something new.

Pupils may use words such as cycle, reduce, reuse, or compost to help in their definition. They may start to: apply concepts such as preventing rubbish (or waste

reduction); discuss the environmental benefits (e.g. saves energy) or identify recyclable items (glass, paper, cans, etc.)

Why Recycle?

This section provides background information on why we should recycle. Older or more able pupils may wish to discuss these in more detail.

Recycling conserves resources

When we recycle, used materials are converted into new products, reducing the need to consume natural resources. If used materials are not recycled, new products are made by extracting fresh, raw materials from the Earth, through mining and forestry.

Recycling helps conserve important raw materials and protects natural habitats for the future.

Recycling saves energy

Using recycled materials in the manufacturing process uses considerably less energy than that required for producing new products from raw materials – even when comparing all associated costs, like transport. Plus there are extra energy savings because more energy is required to extract, refine, transport and process raw materials ready for industry compared with providing industry-ready materials.

Recycling helps protect the environment

Recycling reduces the need for extracting (mining, quarrying, and logging), refining and processing raw materials all of which create substantial air and water pollution.

As recycling saves energy, it also reduces greenhouse gas emissions, which helps to tackle climate change.

Recycling reduces landfill & incineration

When we recycle, recyclable materials are reprocessed into new products, and as a result the amount of rubbish sent to landfill sites or for incineration reduces.

What can I recycle?

All the items pictured on slides 4 & 5 are all currently recyclable at home through Flintshire kerbside collections. Prior to the lesson it is suggested to ask pupils to find out for themselves what can be recycled at home by asking their parents/carers.

If possible, it will be useful to have a couple of recyclable items to be able to pass around the class e.g. plastic bottle, cardboard box etc.

Game: What can I recycle?

For this game split the class into two groups. For each room each group will write down as many

items as they can as well as the material it is made of e.g. Shampoo bottle, plastic. Use a timer to

give the groups one minute per room. Award one point for each room to the group with the most

correct answers. In the event of a tie award each group one point. The group with the most points at the end wins.

This activity focuses on items that can be recycled but the teacher may wish to discuss items that cannot be recycled with older or more able pupils.

(Further information on what can / cannot be recycled in Flintshire can be found on our website https://www.flintshire.gov.uk/en/Resident/Bins-Recycling-and-Waste/What-can-and-cannot-be-recycled.aspx)

Recycling in the Bathroom

There are lots of items in the bathroom that can be recycled, and this can make a huge difference. For example, if everyone in the UK recycled one toothpaste box, it would save enough energy to run a fridge in over 2,000 homes for a year. Here's a handy list to remind you:

✓ Toothpaste boxes

✓ Toilet roll tubes

✓ Plastic shampoo and conditioner bottles

✓ Shower gel containers

✓ Liquid soap bottles

✓ Bathroom cleaner bottles

Recycling in the Living Room

Did you know that it takes seven days for a recycled newspaper to come back as newspaper

again? You could be reading your favourite newspaper comic on recycled paper in no time at all!

In this room you can often find these items for recycling:

✓ Envelopes

✓ Newspapers

✓ Cardboard packaging from online shopping

✓ Cans

✓ Plastic bottles

✓ Glass bottles

✓ Greeting cards

✓ Paper

✓ Plastic cup

Recycling in the Bedroom

If everyone in the UK recycled one aluminium deodorant aerosol, enough energy would be saved to run a TV in over 151,000 homes for a year. Amazing isn't it? Items to look out for include:

✓ Empty tissue boxes

✓ Old magazines

✓ Empty deodorant aerosols and hairspray

✓ Old clothing - depending on the school's council area

Recycling in the Kitchen

Along with the usual drinks bottles in the kitchen, remember to check the cupboard under the sink! Items often forgotten include:

✓ Washing-up liquid bottles

✓ Surface cleaner bottles - just remember to remove the trigger top!

✓ Washing liquid and conditioner bottles

✓ Aerosols, tins of furniture polish and air fresheners - depending on the school's council area

✓ Empty dishwasher tablet boxes and kitchen wrap boxes/tubes

✓ Cereal boxes

✓ Plastic sauce bottles e.g. ketchup

✓ Cardboard egg cartons

✓ Plastic yoghurt pots - depending on the school's council area

✓ Plastic drink bottles

✓ Food tins e.g. baked beans

✓ Glass bottles and jars

✓ Drink cans

Recycling Journey

This section covers the recycling journey for tins and cans. Pupils will watch a video and then answer the question as a class. The video can be accessed by clicking on the video image on theslide when PowerPoint is viewed in 'Slide Show' mode; alternatively, the web address is linked below the video.

Aluminium cans

Aluminium cans are shredded, removing any coloured coating. They are then melted in a huge furnace and the molten metal is poured into ingot casts to set. Each ingot can be made into around 1.5 million cans.

Aluminium foil is a different alloy and is usually recycled separately with other aluminium scraps to make cast items such as engine components.

Steel cans

Steel cans are put into the furnace where molten iron is added. Oxygen is then blasted into the furnace which heats up to around 1700°C. The liquid metal is poured into a mould to form big slabs which are then rolled into coils. These coils are used to make all sorts of steel products.

Steel cans are processed with other steel scrap but not with aluminium cans.

How can I recycle?

This slide is easy tips for encouraging pupils to recycle at home. Encourage pupils to ask parents/carers to be involved and to learn their recycling processes at home.

Recycling Action

This task is to encourage pupils to help recycle more at home. Each pupil will complete an action card by writing at least one action. Examples of suitable actions are:

✓ Encourage my parents to recycle

✓ Find the recycling symbol on packaging

✓ Use more things that are recyclable

✓ Recycle my drink cans (or any other appropriate item)

Pupils should be encouraged to take these cards home to their parent(s)/carer(s). To follow up, pupils should be encouraged to discuss in class the following week how they are getting on with their actions.

Further resources

Further information regarding Flintshire kerbside recycling collections can be found here;

https://www.flintshire.gov.uk/en/Resident/Bins-Recycling-and-Waste/Home.aspx

More information on what happens to recyclable items can be found here;

https://www.walesrecycles.org.uk

FOOD WASTE MINIMISATION ACTIVITY

Use the resource Food Waste Mission Resource slides 16-27 to explore food waste minimisation with earners. Learners can:

- *Explain how food waste plays a part in climate change*
- *Give some examples of 'inedible food waste (food that can't be eaten)*
- *Describe how inedible food waste is used to generate renewable energy*

Learners explore the term sustainable, climate change and how food waste can generate power.

ADDITIONAL OR EXTENSION ACTIVITY:

If you feel that your class has a good understanding of recycling you may like to focus more on food waste minimisation using the Food Waste Mission Resource including the

This resource, Slides 28-38 where learners create a food waste fighting menu

PLAY ACTIVITY

Recycling Relay Bingo: For this activity you will need:

- A selection of recycled objects that can be sorted into correct recycling piles for up to four teams.
- Recycling Relay Bingo Cards (Adapt as necessary)
- A large space, hall or outside

Arrange the recycling items into piles at one end of the space being used. Split the class into groups and hand out the Recycling Relay Bingo cards.

Instruct the children and young people the aim of the game is for each team member to travel to collect an item and return to the team, placing the item in the appropriate pile. This needs to be repeated until a Bingo line has been achieved on the card.

Reduce, Reuse, Rethink:

A challenge to get the class thinking of creative ways to re-use old materials.

Learning Outcomes

- Utilise creative problem-solving skills to come up with new ways of re-using old materials.

- Improve both teamwork and presentation skills of the children.

How it works

1) Split the class into groups of approximately 5 individuals.
2) Give each group an item that is usually recycled or thrown away (some ideas below); task them with coming up with the most creative ways to re-use their item and turn them into something completely new.
    a. Cardboard cereal box
    b. Plastic bottle
    c. Aluminium can
    d. A single sock
    e. Toilet paper tube
    f. Old ripped t-shirt
3) Let each group present their ideas and see which came up with the most creative ideas.