

NOURISHED^{ed}



The facts about
food waste and
sustainable
solutions

Key Stage 3 Education Pack



UKHarvest

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FOOD WASTE REDUCTION

Food Waste occurs throughout the whole food system, from the point of growing or the rearing of food through to the final waste point, **often within our households, most food waste in the UK comes from our homes!** The impacts of food waste are far reaching and extend through economic, environmental and social needs. The depletion of food production resources can lead to Food Insecurity, meaning that not enough people have physical, economic or social access to sufficient safe and nutritious food. Food waste must therefore be prevented to protect and preserve our economy, environment and social needs.

The UK definition of food waste, as defined by the Waste and Resources Action Programme (WRAP), is any food and inedible parts sent to waste destinations, where “food” is defined as any substance that was at some stage intended for human consumption.

According to WRAP, the key to reducing food waste is to target the items that can be reduced through the changing of behaviours. When thinking about household food waste it is helpful to distinguish between different categories of waste

Categories of Waste

- Avoidable Food Waste – Food and drink that, was at some point prior to disposal, edible (e.g sliced bread, sprouting potatoes, brown bananas)
- Possibly Avoidable – Food and drink that some people eat and others don't (e.g bread crusts), or that can be eaten when a food is prepared in one way but not in another (e.g raw v's cooked potato skins), or people choose not to eat due to preference at the time (e.g a person that likes baked beans but decides after food is prepared that they don't fancy eating baked beans)
- Unavoidable Waste – Waste arising from the preparation of food and drinks that is not or has not been edible in normal circumstances at any time (e.g meat bones, eggs shells or pineapple skins)





Activity - What Are You Wasting?

Think about the last week in your household. **Identify** three different items that could be placed in each of the relevant boxes for waste types in your household.

Avoidable



Possibly Avoidable



Unavoidable



1

1

1

2

2

2

3

3

3

Having completed this “what are you wasting” sheet it’s time to explain what could have been done to reduce or remove this waste?

For each of the items you have identified, create a solution to reduce or remove this waste e.g. was too much purchased leading to Avoidable Waste so a change in shopping method could help reduce the waste.

Avoidable Waste Items

Solution to reduce or remove waste

Possibly Avoidable Items

Solution to reduce or remove waste

We have not covered unavoidable waste as this type of waste cannot be avoided.

Meat bones and shells will always be classed as unavoidable waste.

The only way to reduce this waste stream is to replace the products that we purchase by buying alternatives. Don’t forget if you have food waste collection at home you can always recycle the unavoidable waste.

If you need to use additional sheets to capture the whole week then add your own pages or copy and attach the table provided.

When the diary is completed, look at what you have thrown away, and evaluate the following questions

Did the amount of waste surprise you? Why were you surprised or why were you not?

Empty rounded rectangular box for response.

What foods and drinks were most wasted during the week?

Empty rounded rectangular box for response.

What do you think could be done to reduce this waste?

Empty rounded rectangular box for response.

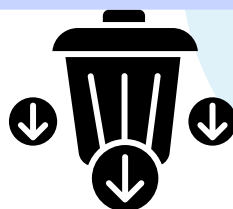
Next try to work out the potential waste produced by your class/school

1 pupil waste x number people in class = estimated class waste

Empty rounded rectangular box for calculation.

1 pupil waste x number people in school = estimated school waste

Empty rounded rectangular box for calculation.





What do we waste the most?

The top 10 wasted foods in the UK are listed below, can you think of any reasons why these foods may end up as waste?

Food Most Wasted

- Potatoes (fresh)
- Meals (home cooked) e.g spaghetti bolognaise
- Bread
- Milk
- Poultry
- Mixed Vegetables
- Cakes and Desserts
- Pork/ham/bacon
- Potatoes (processed) e.g oven chips
- Lettuce and Leafy Greens

Reasons for Wasting

-
-
-
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-

Why do you think these products are the most wasted?

Is there anything that we can do to reduce the waste on these products?

NOTES PAGE



CREATE ACTIVITY



Choose one of the following activities to share your new found knowledge



It's Quiz Night



Now it's time to create your own quiz show based on your knowledge that you can use with your household to help them reduce food waste.



If your favourite gameshow is Catchphrase why not draw pictures for the household to guess the facts, if its Deal or No Deal then why not set up 22 questions, or if you like Who Wants To Be A Millionaire why not make your quiz multiple choice?



Breaking News - Read all about it



Write a newspaper article, maximum 800 words, that highlights why food waste is of world wide concern and some of the best ways that households can reduce their waste.

Include some of the top facts and your own favourite top tips. Remember that food waste not only costs the household money but also has an environmental impact.



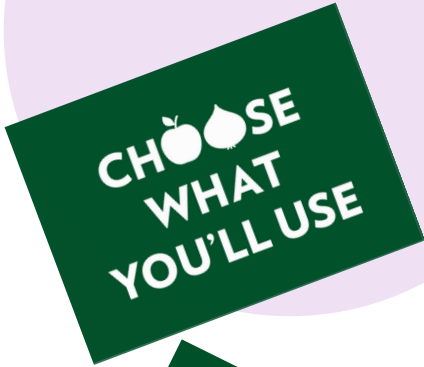
Create Activity - Continued



Picture This



Design a poster that can be put up around your school to encourage everyone to reduce their food waste. This could highlight smart food choices, hints or tips or be one big message. Some examples are below from a recent campaign run by WRAP and Love Food Hate Waste.



Let's Go Viral!



Time to create your very own social media post. Take your knowledge of food waste facts and find 1 or 2 things that you were totally surprised about. Create a social media post to tell all your contacts what the fact was, also let them know what they can do to change this from happening. For example

“Did you know that UK households waste over 2.9 million potatoes every single day.....by storing them correctly we can all extend the life of the potato Store in a fridge away from the onions! It's that simple”

“Everybody get loose ... food loose! There are many benefits to shopping loose; whether it 's reducing the amount of plastic waste ending up in the bin or the freedom to choose exactly what you want. Like your bananas over -ripe? Like your apples extra red? Buy loose and get exactly what you fancy.

#LoveFoodHateWaste @ukharvest

Don't forget to add pictures to your post for extra likes, and share all your posts @ukharvest



GLOBAL AMBITION



It is estimated that 840 million people in the world are food insecure.

The United Nations have set Sustainable Development Goals for the world to help reduce the problems.

From the 17 goals set



Goal 1 is NO POVERTY

and

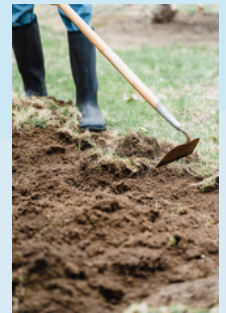
Goal 2 is ZERO HUNGER



Different people hold different views on the best ways to increase food security for our growing world population.

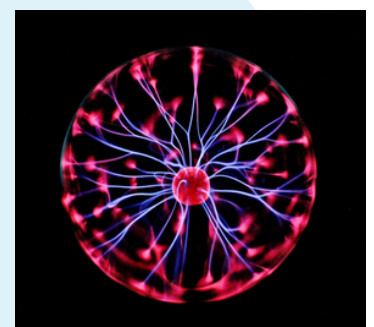
Food security is not just an issue in the economically developing world but is an issue for the whole world. Whilst specific ways to make each country more food secure through it's own production are key it is also important to recognise 3 key focusses for world change.

Organic Farming – Organic farming is seen as a healthier and more sustainable way to feed our growing population with a smaller impact on our wider environment. Organic agriculture generally creates less soil and water pollution and lower greenhouse gas emissions, and is more energy efficient. Organic agriculture is also associated with greater biodiversity of plants, animals, insects and microbes as well as genetic diversity. Through reducing the use of chemicals, fertilisers and growth additives in organic farming methods, the impact of pollution and spoilage is lowered making this a vital way to increase our long term production, therefore, raising food security worldwide.



Fairtrade – Fairtrade is all about paying a fair price for the things that we buy. This will help people become food secure by ensuring that growers receive better prices for their crops, allowing them to support the workforce with better conditions and rates of pay. Money through fairtrade is also used to improve local communities with transport or access to clean water. Fairtrade products support over 1 million farmers and workers in 74 countries worldwide. By supporting Fairtrade producers we can directly support people have the money to afford nutritious foods.

Science – Scientific developments will allow for the world to move into a more food secure space. From crop modification to allow growers to produce food in times of drought, to GPS driven machines to enhance crop yield, science is playing a large role in the movement towards global food security. Organisations like Practical Action are helping people directly to improve food security, 1 project is in Bangladesh where they have helped families to grow crops and keep ducks on “raft like” floating gardens on flooded rivers. This has enabled people to have food security even during the flooding season.



Extension Activity

Scenario - A country is looking at ways that it can increase food security for it's entire population. You have been asked, as a student ambassador, to identify the positive impacts a food secure population would have on society, economics and the environment.

The benefits gained by having a food secure nation are wide and varied. These benefits can be easily split into 3 main headings –

Social Impacts – Those positive impacts on people and the population.

Economic Impacts – Positive impacts on personal, business and national finances.

Environmental Impacts – Positive impacts on the environment.

For each of the headings describe different positive impacts that food security would have.

Social Impacts

Economic Impacts

Environmental Impacts



Activity - How Far Has Your Food Travelled?

This activity can be done by writing down all of the food that you consume in 1 day or in 1 meal. Make a list of all the ingredients required to make your meal or meals.

Where did the ingredients come from?

How many miles has that ingredient travelled?

What is your total food miles distance?

To do this you will need to look at the product packaging information. Find the country or region of production or origin. This is sometimes shown as “Country of Origin” or “Produced In”.

Be aware that some prepared foods may have ingredients that could have come from other countries to be put together more locally. For example some pasta will have a packet showing :

Produced in the UK using EU and Non-EU durum wheat. So finding the exact source of the durum wheat may be hard and need further investigation.

Example -

You live in London and have eaten sausage, mash and gravy. What is the combined travel miles for that 1 meal?

Ingredient	Country/Area of Origin	Miles Travelled
Sausages	Lincoln, UK	160
Potatoes	Cork, Republic of Ireland	440
Gravy	Dublin, Republic of Ireland	375
	Total Miles	975





Activity - How Far Has Your Food Travelled?

My meal choice is -

Ingredient	Country/Area of Origin	Miles Travelled
	Total Miles	

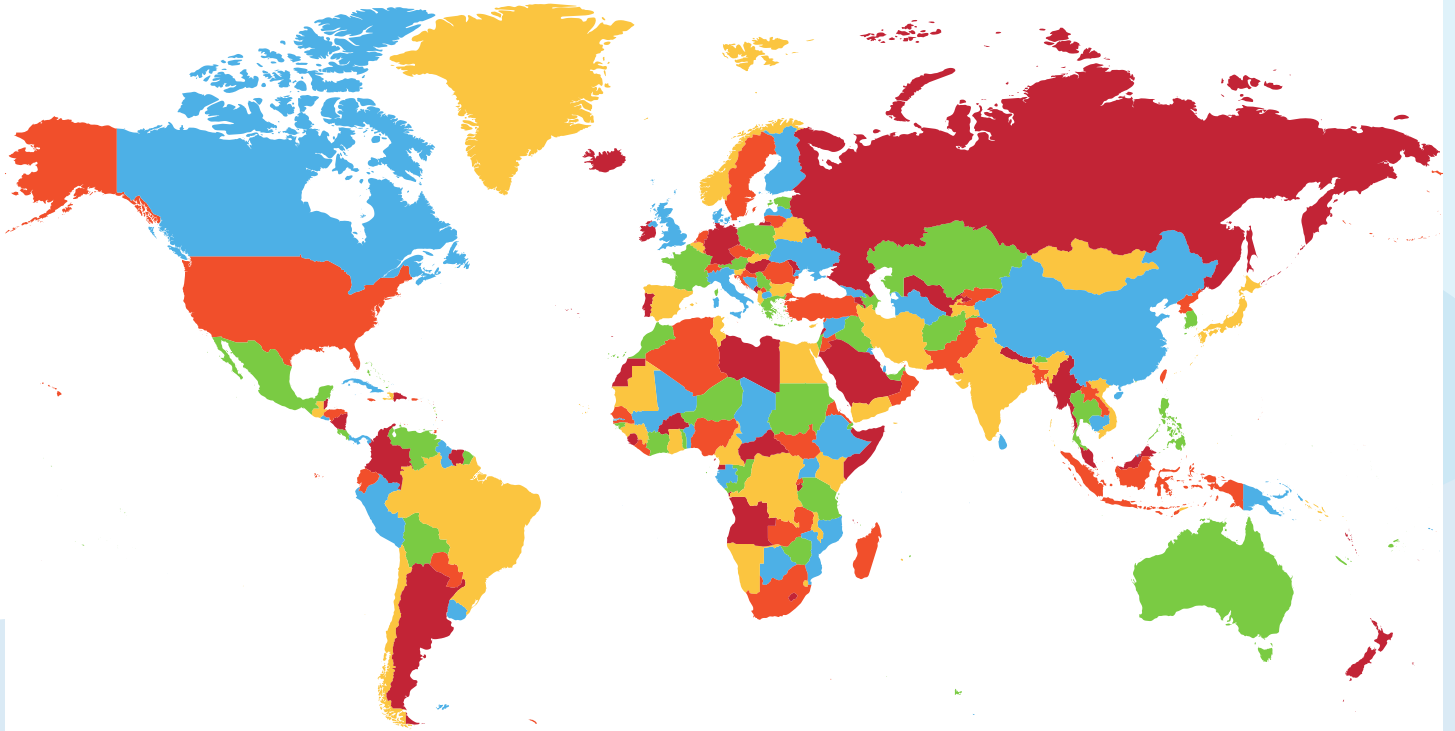
How far did your meal travel before you could eat it?

Could you swap any ingredients to reduce the miles travelled? (if yes which ones?)



Activity - Where in the World?

Over the next week collect some empty food packets, packaging or labels for food that your household has bought. Look at the country of origin for those products and mark them on the world map below. After you have identified the country and marked the map, identify the product that has travelled the furthest to get to you.



Product	Country of Origin	Miles

Which product travelled furthest?

Consider which items you could swap to reduce miles?

NOTES PAGE



HOW CAN WE REDUCE OUR COST TO COOK

Why is cost to cook important?

Although people may have access to healthy, nutritious and affordable food the costs incurred to prepare and cook the food are often a barrier to good nutritional intake.

Identifying different cooking methods and appliances can vastly reduce the household costs incurred and promote a healthier nation.

It's important to know what your appliances can and can't do, but more important is to understand what they cost to run. By understanding this cost, we can all make changes to the way we cook and how much we are spending on fuel to power our cooking habits and needs. How do we work out how much things cost?

How do we work out how much things cost?

Following our research and based on the average appliances in the UK we have been able to show how much we spend on our appliances when cooking. Remember the cost is from the second we turn our appliances on to the time we turn them off. Below is our table of average indicative costs based on the average appliance and the power it consumes.

Appliance	£/Minute	£/Hour
Fan Oven (180 degrees C)	£0.006	£0.34
Hob (electric single)	£0.006	£0.34
Air Fryer	£0.003	£0.19
Microwave	£0.004	£0.24
Slow Cooker	£0.001	£0.05
Induction Hob (single)	£0.011	£0.66
Gas Hob (single)	£0.003	£0.20
Grill (Electric)	£0.006	£0.36



Activity

Cost To Cook Calculation 1

How cost effective is it to cook in the microwave compared to other cooking methods?

Below is our pricing grid to help everyone understand the cost of cooking. These figures are indicative figures based on the average UK appliance, and average cost per unit of electric and gas.



Appliance	Cost per Hour
Air Fryer	£0.19
Electric Hob	£0.34
Microwave	£0.24
Electric Oven	£0.34
Slow Cooker	£0.05
Gas Hob	£0.20



To calculate how much it costs for other times the sum below will help;
(1Hour Cost/60) X Number of minutes cooking time

You have decided to make some chocolate brownies for your family. You want to see which appliance has the lowest cost to cook. The ingredients needed to make the brownies are butter, sugar, vanilla extract, cocoa powder, eggs flour, and chocolate chips. These ingredients are the same for all cooking appliances.

In a Microwave you need to melt the butter for 1 minute and the cooking time for the brownies is 5 minutes

Cost to Cook in the Microwave is £.....

In the Air Fryer you need to preheat for 5 minutes and the baking time is another 15 minutes

Cost to Cook in the Air Fryer is £.....

In the Electric Oven you need to preheat for 15 minutes and the baking time is another 30 minutes

Cost to Cook in the Electric Oven is £.....

What is the most cost effective way to cook your delicious chocolate brownies?



Activity

Cost To Cook Calculation 2

How cost effective is it to cook in the microwave compared to other cooking methods?

Below is our pricing grid to help everyone understand the cost of cooking. These figures are indicative figures based on the average UK appliance, and average cost per unit of electric and gas.

Appliance	Cost per Hour
Air Fryer	£0.19
Electric Hob	£0.34
Microwave	£0.24
Electric Oven	£0.34
Slow Cooker	£0.05
Gas Hob	£0.20

Soup
of the
DAY

Soup
of the
DAY

To calculate how much it costs for other times the sum below will help;
 $(1\text{Hour Cost}/60) \times \text{Number of minutes cooking time}$

You have decided to make some Minestrone Soup for you and your family. You are going to use the slow cooker as you think this is the cheapest way to cook it, but is it? The ingredients for the soup are the same for all cooking methods and include onions, garlic, courgettes, celery, carrots, tinned tomatoes, oregano, vegetable stock and pasta.

In a Microwave you need to cook the soup for 15 minutes and let it stand for 3 further minutes

Cost to Cook in the Microwave is £.....

In the Slow Cooker the soup takes 5 hours to cook. No other pre-cooking is required

Cost to Cook in the Slow Cooker is £.....

On the Electric Hob you need to soften the onion for 5 minutes and then cook the soup for a further 35 minutes

Cost to Cook on the Electric Hob is £.....

What is the most cost effective way to cook your delicious soup?

Are you still going to choose to use the slow cooker?

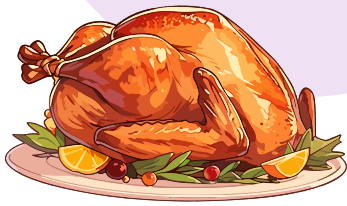


Activity

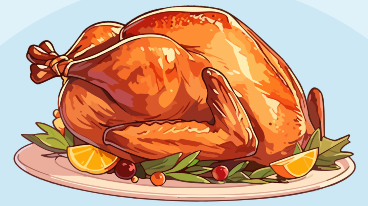
Cost To Cook Calculation 3

How cost effective is it to cook in the microwave compared to other cooking methods?

Below is our pricing grid to help everyone understand the cost of cooking. These figures are indicative figures based on the average UK appliance, and average cost per unit of electric and gas.



Appliance	Cost per Hour
Air Fryer	£0.19
Electric Hob	£0.34
Microwave	£0.24
Electric Oven	£0.34
Slow Cooker	£0.05
Gas Hob	£0.20



To calculate how much it costs for other times the sum below will help;
 $(1\text{Hour Cost}/60) \times \text{Number of minutes cooking time}$

You have decided to cook a whole chicken for your household to enjoy. The chicken is of average size and weight, about 1.2kg. You have recently seen a video online showing a chicken being cooked in a slow cooker and thought you would give it a try, but is it the cheapest way?

In an Air Fryer, you need to pre-heat the Air Fryer for 3 minutes and then cook the chicken for a further 55 minutes

Cost to Cook in the Air Fryer is £.....

In the Slow Cooker the chicken takes 4 hours to cook. No other pre-cooking is required

Cost to Cook in the Slow Cooker is £.....

In the Electric Oven you need to pre-heat the oven for 10 minutes and then cook for a further 1.5 hours

Cost to Cook in the Electric Oven is £.....

What is the most cost effective way to cook your chicken?

Are you still going to choose to use the slow cooker?

NOTES PAGE



MAKING THIS PROJECT POSSIBLE

UKHarvest would like to recognise the following organisations for their input into these resources and for making the whole project possible



www.tescostrongerstarts.org.uk



www.wrap.ngo

<https://data.wrap.ngo/story/the-household-food-waste-study>



www.lovefoodhatewaste.com



www.bbcgoodfood.com



United Nations

www.un.org

sdgs.un.org



foodfoundation.org.uk

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