

# Why is wasting food wrong?

## In a nutshell

This lesson introduces learners to food waste - a current, real world environmental issue. It encourages learners to consider the time, energy and resources which are wasted when they waste food.

## Core Learning

We are learning why it is important to not waste food. We understand the time, money and effort that goes into producing food.

## Preparation

This lesson takes 40 minutes and can be held at any time of day.

### Equipment needed:

- One apple, a knife, food handling gloves and a chopping board
- Apple supply chain activity - printed out and cut up. One copy per group.
- Apple inputs activity - printed out and cut up. One copy per group.
- PowerPoint presentation

These resources can be downloaded here:

[bit.ly/LFHW-ppt](https://bit.ly/LFHW-ppt)

## Starter

**Ask the learners** how much land do we need to grow food?

**Ask the learners** how much land does the world have to grow food?

Put on the food handling gloves then take a whole apple and cut it up as per the instructions below.

APPLE	THE EARTH	EXPLANATION FOR LEARNERS
Whole apple	Planet Earth	<b>1. Hold the apple out so the class can see it.</b> "This apple represents our planet."
3/4	Water	<b>2. Cut the apple into quarters. Hold out 3/4 in one hand. Ask the class:</b> "What do these 3/4's represent?" (Water.)
1/4	Land	<b>3. Set the three "water" sections aside and hold out the remaining quarter. Ask the class:</b> "What fraction of the apple remains?" (1/4.) This 1/4 represents the total land surface."

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1/8	Land where people can't live and grow food	<b>4. Slice the land (the remaining 1/4) in half, lengthwise. Hold out one of the pieces. Ask the class:</b> "What fraction of the apple is this?" "This 1/8 represents the half of the Earth's surface where people can't live and grow food e.g. Antarctica where it is too cold or deserts where it is too hot or mountains where it is too rocky."
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1/8	Land where people live and can potentially grow food	<b>5. Set that 1/8 aside and hold out the other.</b> "This 1/8 represents the other half of the Earth's surface. These are the areas on which people can live, but they can't always grow food on it."
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3/32	Land where people live where we can't grow food	<b>6. Slice this 1/8 crosswise into four equal pieces. Hold out 3/32 in one hand.</b> "These 3/32 represents land on which people can live, but cannot grow food. Some of it is too rocky, wet, cold, steep or has soil too poor to produce food. Some of it has been turned into cities, suburbs, highways, etc., so it can no longer be farmed."
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1/32	Land where people live where we can grow food	<b>7. Set 3/32 aside and hold out 1/32.</b> "So, only 1/32 of the Earth's surface has the potential to grow the food needed to feed all of the people on Earth."
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Is wasting food wrong? If so, why? Why shouldn't we waste food?

Answers might include

- It wastes land
- It wastes money
- It wastes time
- It wastes energy/ water
- It's unfair as other people are going hungry

If learners don't mention all these ideas talk them through

What is the impact on the environment if we waste food?

Answers might include

- It uses up water - as water is needed to grow food
- It causes greenhouse gases - which are caused by food rotting in landfills
- It causes deforestation - trees are chopped down to grow more food

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If learners don't mention these ideas, leave them until after the next activity.

Note: don't waste the apple from this activity. You could hand out a piece of apple to every learner or feed the pieces to the school worm farm or feed the pieces to ducks.



## Main

Ask learners how apples get from the tree to the supermarket to their lunchboxes.

Prompt with what people or steps might be involved to get the apples off the tree to the supermarket then into their lunchboxes.

Form groups of 4-6 learners. Hand out the apple supply chain activity and ask the learners to put the steps in sequence.

Then discuss as a class what the correct steps are using the PowerPoint.

Note: for the next activity learners need to match the resources wasted with the stage in the process. For older learners this could be done before the PowerPoint. For younger learners this could be done after the PowerPoint as a review activity.

Match the cards showing the resources wasted to each step of the process.

Using the PowerPoint for each step ask learners about what resources might be needed.

Note the PowerPoint slide includes some short videos which show

How apples are picked

[bit.ly/LFHW-3-picked](https://bit.ly/LFHW-3-picked)

How apples are graded

[bit.ly/LFHW-3-graded](https://bit.ly/LFHW-3-graded)

A landfill in operation

[bit.ly/LFHW-3-landfill](https://bit.ly/LFHW-3-landfill)

How climate change occurs

[bit.ly/LFHW-3-climatechange](https://bit.ly/LFHW-3-climatechange)

Answers are in the notes field of the PowerPoint and listed below.

1. **Growing the trees**
  - You need land. In some countries native bush and forest is chopped down to make space for growing food.

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- You need water to water the trees. In some parts of New Zealand water can be scarce in summer time and there is not enough water to grow grass for the cows.
  - You need fertiliser. Some fertilisers use valuable resources which are mined out of the ground.
  - You need pesticides. These are chemicals which are used to protect the apples from bugs and insects.
2. **Harvesting the apples**
- You need people to harvest the apples.
  - You need ladders to reach the apples.
  - You need containers to pick the apples and bins to put them in.
  - You might need a tractor to move the bins.
  - Often apples get wasted at this stage as apples which are too small or a funny shape don't get picked, or because they have been partially eaten by birds or bugs.
3. **Grading the apples**
- You need a machine or sometimes you need people to grade the apples. This sorts the apples into the right size and shape. It also removes apples that are the wrong shape.
  - You need electricity to power the machines.
- Often apples can be wasted at this stage because they are the wrong shape and size and the growers are unable to sell them.
4. **Packing the apples**
- You need a machine or sometimes you need people to pack the apples.
  - Packaging such as cardboard and plastic wrap is also needed.
5. **Loading up the apples and driving the apples to the supermarket**
- A forklift driver picks up the boxes of apples and loads them onto the truck.
  - You need petrol to drive the forklift.
  - You need a truck and a truck driver.
  - You need diesel for the truck. The truck produces fumes which cause greenhouse gases.
6. **The supermarket**
- You need people to unload the boxes off the truck and put the apples on display.
  - You need people to operate the checkout so that you can buy the apples.
  - The apples need to be in an air conditioned environment so you need electricity to keep the store cool.

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- Often apples are wasted at this stage because when they arrive at the supermarket they are bumped or bruised. They are also wasted because shoppers only buy the perfect looking apples and don't buy the ugly ones.

## 7. Families

- You need money to buy the food.
- You need a fridge to keep food which uses electricity.

## 8. Me

- We have already talked about how we waste food. Remind learners; we buy too much, we don't eat food in time, we don't eat everything possible.

## 9. Disposal

- Our uneaten apples go into the rubbish bin. This then gets collected by a truck driver and taken to the landfill.
- The truck uses petrol to transport the rubbish to the landfill.
- A digger is used to push the rubbish into the right place.
- Once the apples are in the landfill they start to break down. This releases a gas called methane which is very bad for the environment. It is a greenhouse gas and too many greenhouses gases cause the earth to grow hotter and hotter.



## Dessert

**Ask learners** what we waste when we waste food

- The time and energy of all the people who have grown, picked, driven and sold the apples.
- The land used to grow the apples.
- The water and energy to grow the apples.
- The petrol and diesel needed to operate the machines and the truck.
- The money we spend to buy the apple and we miss out on eating something which is healthy and delicious.
- We also create methane, a gas which is bad for the environment.

If we continue to waste food what will happen?

- We won't be able to feed everyone on the planet.
- We may experience more droughts.
- Our soil may become less productive.
- Global warming may increase.

Explain to learners the concept of being a kaitiaki i.e. a guardian of the planet.

**Ask the learners** who would like to be a kaitiaki?

# Why is wasting food wrong?

What things can you do to help the planet?

Answers might include:

- Waste less food
- Eat all of your lunch
- Recycle more
- Set up a worm farm

## Extra helping

Ask learners to create a poster encouraging people to waste less food.

Or watch the Life and Times of Strawberry and ask the learners to describe what stages they can see.

[bit.ly/LFHW-3-strawberry](https://bit.ly/LFHW-3-strawberry)

Or watch this video which explains how climate change occurs

[bit.ly/LFHW-3-climatechange](https://bit.ly/LFHW-3-climatechange)

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## CURRICULUM AREA

## ACHIEVEMENT OBJECTIVES

## LEARNING INTENTION

### Science

#### Level 1 and 2 Planet Earth and Beyond

Learners will describe how natural features are changed and resources affected by natural events and human actions.

#### Level 3 and 4 Planet Earth and Beyond

Learners will appreciate that water, air, rocks and soil, and life forms make up our planet and recognise that these are also Earth's resources.

- We are learning about the environmental impacts of wasting food.
- We are learning how to save our earth's precious resources i.e. water