Wasted food = wasted carbon = expensive costs for my family

## Stimulus

**IPCC says we need to cut food waste to help fight climate change but how do we do it?**

<https://www.abc.net.au/news/science/2019-08-14/food-waste-climate-change-emissions/11399448>

An estimated 7.3 million tonnes of food is wasted in Australia each year, according to the [**National Food Baseline report**](https://www.environment.gov.au/system/files/pages/25e36a8c-3a9c-487c-a9cb-66ec15ba61d0/files/national-food-waste-baseline-executive-summary.pdf), which amounts to an average of nearly 300 kilograms per person.

A third of that waste occurs on the farm, a third through handling and manufacturing, and a third in households or at the consumer level, said Steven Lapidge CEO of the [**Fight Food Waste Cooperative Research Centre.**](https://fightfoodwastecrc.com.au/)

"That's probably a cost of around $18-20 billion each year," Dr Lapidge said.

## Key Questions

* Do we really throw out 100kg per person per year? Using some simple leading digit approximation, that means that for 50 weeks in year, we waste 2kg of food per person. Do we really throw away that much waste per week?
* What is meant by wasted food (note: it includes peelings and seeds due to the carbon cost to produce those parts of the food and get them to us)? This also means food that we compost. It is looking at the carbon cost to produce the food, therefore includes the amount that “has to be wasted” and the amount that “does not have to be wasted”.
* Let’s check if that is true for our own families. Collect information each day in two categories: “has to be wasted” and “does not have to be wasted”. Clean out the fridge at the end of the week! Remember the amount in your lunch box.

## Reacting to the challenge

We want to limit the carbon wasted by our own families. To do this we are going to produce a school recipe book that will include recipes that:

* Result in limited wasted food (e.g., freezing leftovers, using all parts of the vegetable across different recipes, limiting the wasted carbon from lunch boxes)
* Limit the carbon cost of transporting food (choosing food by the season, choosing food that has been grown locally or that we can grow ourselves, choosing frozen vegetables instead of fresh where appropriate)
* Limiting the processing of food

We also want to choose foods that will appeal to families. The recipes need to be:

* Food kids in my family will enjoy
* Meals that do not take more than 20 minutes at night to finish preparing
* Meals that do not cost too much to make
* Meals that meet the dietary requirements of my family
* Meals that feed the right number of people in my family, or can be frozen for left overs

## Student tasks

1. Read the report and define wasted food.
2. Consider ways to reduce the carbon cost of their meals.
3. Collect data over the course of one week on the wasted food from their household. Estimate the cost of this food. Consider central tendency. Use appropriate displays to show how much food is wasted.
4. Everyone lists 4 meals that their family cooks that they like to eat. Bring recipes. Categorise by dietary requirements, time taken and ingredients used. Use two-way tables.
5. Decide on a number of people to select recipes for and the dietary requirements (e.g., family of 5 and needs to be vegetarian).
6. Select 3 recipes that appeal, are quick to make and will limit the carbon waste. Adjust to suit the right number of people and dietary requirements.
7. Justify selection of recipes and explain how they minimise the carbon cost.

## Achievement standard content other than modelling tasks

* They use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies.
* Students choose between equivalent representations of rational numbers and percentages to assist in calculations.
* They use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios in financial and other applied contexts, justifying choices of representation.
* They plan and conduct statistical investigations involving discrete and continuous numerical data, using appropriate displays.

Incidental areas:

* Students use algebraic expressions to represent situations, describe the relationships between variables from authentic data and substitute values into formulas to determine unknown values.
* They decide which measure of central tendency is most suitable and explain their reasoning.
* Students interpret data in terms of the shape of distribution and summary statistics, identifying possible outliers.