

<http://www.carboschools.org>



Five-a-day, how far away

Summary

This activity looks at the concept of 'food miles' or 'food kilometres' and links neatly with the idea of people adopting healthier lifestyles. In the UK, we are encouraged to try to eat 5 'portions' of fruit and vegetables daily -

<http://www.nhs.uk/livewell/5aday/pages/5adayhome.aspx>

A similar programme exists in the USA and probably elsewhere around the developed world. But what to eat and when and where does it come from? These questions form the basis of this activity.

This activity aims to help young people to think about the environmental impact of the food they and their families buy and eat. It starts from the now widely-used concept of 'food miles/kilometres' or the distance food travels from 'plot to plate'. It then goes on to consider other aspects of food production and processing that contribute to a food's 'carbon footprint' (how much CO_2 is emitted during its production and distribution). We have deliberately chosen to restrict the analysis to fruit and vegetables because of the added complexities of vegetarian/meat-eating diets and consider the over-arching principle of 5-a-day sufficiently widespread to be a unifying theme.

Materials Needed



This activity can involve the pupils gathering resources for the activity (to save you, the teacher, spending weeks doing it!).

Each young person brings from home 5 pieces of packaging (or labels from the fruit/vegetables itself) - the packaging needs to display clearly the name of the product, its country of origin, and its cost and weight (eg. Tomatoes, Holland, 1 euro/200g). If you 'grow your own' some additional pictures of these can add to the learning.

- A collection of food labels, enough to ensure that each person in your class can pick their own 5-a-day. Knowledge of the cost of these items is also required.
- World maps (to scale)
- Device for measuring distances on a map (rulers / strips of adhesive tape that can be measured after placing between 2 points on a map).
- Internet access may be helpful, distance data can be gathered from <http://www.timeanddate.com/worldclock/distanceresult.html>

Duration

30 mins. although follow-up discussion may be extensive.

Procedure

Each young person selects 5 samples of fruit or vegetables that they would like to eat. They note the country of origin of the food and the cost. These are recorded in a simple table and pupils need to record within the table the distance that each item has travelled and the total cost of their purchases.

Note: this distance does not include the often lengthy distance travelled from point of entry (seaport/airport) to the supermarket distribution centre and then on to the supermarket itself; a point for onward discussion. The distance travelled by the shopper to and from the supermarket is yet another factor for consideration.

A sample student worksheet can also be downloaded from the CS-library; the questions appear below. They cover the following topics: food miles, seasonality, where food is bought, growing your own food, organic food, Fairtrade food, the processes involved in food production and methods of food preservation.



The activity is concluded by asking each group of young people to produce a combined list of five points to help reduce the environmental impact of their food choices.

Extension/homework activity

Ask young people to record the ingredients of their evening meal, and the source of these ingredients, if possible. Encourage them to think about how they could have reduced the carbon footprint of this meal and what problems they might encounter in doing so. A similar activity could be carried out on the food items eaten for lunch. Students who bring a

packed lunch could compare the 'carbon footprint' of their food with that of a typical lunch served in the school canteen.

From learning to action

Can the food in the canteen be improved and if so, how? What proportion of food offered is local to the region or at least your home country? Can the young people work with senior management at the school to improve both the healthiness of the meals and the proportion of local produce.

Questions on Student Worksheet

1. As part of a healthy diet, we are all encouraged to eat at least 5 portions of different fruit and vegetables every day.
 - Make your own choice of 5 fruit and vegetables from the photographs provided.
 - Check the countries of origin of each of your choices from the labels on the food. Find the countries on the map and work out the distance each of your choices have travelled, using the data sheet to help you.
 - Write down your choices and the total number of 'food miles' involved in getting them to you.
2. Now look at the photographs again and try to choose 5 items that you would eat (be honest!) and that have the lowest possible 'food miles' score.
 - Make a note of your new choices and score
 - Challenge the other members of your group to come up with a lower score
 - Which of your favourite fruits or vegetables might you have to give up eating to keep your 'food miles' score low?
3. How might the produce available and the countries of origin differ if these labels had been collected 6 months ago? Can you explain these differences?
4. Make a list of all the places where you can buy fruit and vegetables (you should be able to think of at least 3). For each one, give at least one advantage and one disadvantage of shopping there. Write your answers in a table.
5. One way of cutting down the distance travelled by your food is to grow it yourself in your garden or on an allotment.
 - Does your family already grow any of its own food? If so, what items?
 - Can you think of any advantages to growing your own food other than reducing the number of food miles?

- What are the possible problems involved in growing your own food?
6. As well as looking at the country of origin of food, you may want to consider whether the food is **organically-produced** or **Fair trade**.
- Write a short explanation of each of these terms
 - How do you decide whether to buy an organic, Fair trade item from abroad or the same item produced non-organically in the UK? What sort of factors might affect your decision?
7. The term 'food miles' or 'food kilometres' - the distance travelled by food from field to plate - was first coined in the 1990s. It is now generally agreed that many other processes contribute to the 'carbon footprint' of our food (how much CO_2 is given off at every stage of production). For the 2 examples given below, try to make a list of all the processes involved in the production and distribution of the food item that will emit CO_2 into the atmosphere.
- A mango produced non-organically in Gambia, transported by sea to the UK and then by lorry to your local supermarket.
 - A strawberry produced non-organically in heated greenhouses in Spain, transported by air to the UK and then by lorry to your local supermarket.
8. One way of avoiding having to transport 'unseasonal' food large distances is to preserve seasonal food for use at other times of the year. Make a list of all the ways you can think of for preserving food
- How do you think these processes might contribute to CO_2 emissions?
9. The Carbon Trust and other organisations are helping organisations to reduce the impact of food production on climate change by working out a way of measuring how much CO_2 is given off at every stage of production. The following label is now appearing on packets of crisps in the UK manufactured by Walkers



Once this information is available for a wider variety of food, shoppers will be able to choose food with a low carbon footprint. Is this a good thing?

In the meantime, shoppers have to make choices without this information. Write a list of 5 points to help people choose their '5 A Day' whilst doing the least possible damage to the environment.

Developed for CarboSchools by Phil Smith and Carol Hince, Teacher Scientist Network, Norwich, UK
ts.network@bbsrc.ac.uk (last change: 1st-Dec-10)

This publication has received funding from the European Community's Seventh Framework programme under grant agreement number 217751. It is licensed under Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.

For details see <http://creativecommons.org/licenses/by-nc-sa/3.0>