



Work out the most carbon efficient way to travel to St Ives.



To reduce my carbon footprint I have decided to stay in the UK for my summer holiday.

I am planning to visit my friend who lives in St Ives in Cornwall. (Postcode **TR26 1SF**)

There is a station in St Ives so taking the train is an option.

I can drive but don't have my own car so I might hire a car for the week.

I could fly. The closest airport is Newquay and I'd need to travel to my local airport.

What advice can you give me?

Can you think of any other way to travel which might be better for the environment?

working at play



According to Friends of the Earth over a quarter of all the CO₂ produced in the UK is the result of transport.



Increasingly, when people are booking holidays, they ask travel agents about ecological aspects of their planned trip.

How much carbon dioxide (CO₂) would the travel for each of these holidays produce?



- A beach holiday in San Tropez in the south of France, travelling by car.
- A visit to Disney World, flying to Orlando in Florida, United States.
- A week on the Greek island of Corfu, flying to Corfu.
- A walking and cycling holiday in New Zealand, flying to Auckland.



Can you think of any other way to travel which might be better for the environment?

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Working at play : Eco-tourism

Description

These activities are designed to give pupils an insight into the relative cost to the environment of travel and to highlight ways in which an individual, or family, can reduce their 'carbon footprint'.

Activity 1: A holiday in Cornwall

Activity 2: Holidaying abroad

These are challenging activities which require significant problem solving skills. Pupils will need encouragement and support in working out the necessary research and the type of calculation required to complete the activities. However, you might choose to present **A holiday in Cornwall** in a more structured way, for example by providing the required information or by designing a suitable worksheet.

In **A holiday in Cornwall** pupils are asked to work out the most carbon efficient way to undertake a return journey to Cornwall. Begin by discussing the effect on the environment of carbon dioxide released through the use of energy sources such as petrol and an explanation of the term carbon footprint. Your pupils will need to research on the internet to find out the CO₂ ratings for flights in the UK, travel by car, rail, coach and so on. They will have to take care over which units the websites use and make appropriate selections in order to make meaningful calculations for the CO₂ produced for the whole journey. Estimates may need to be made at various stages, for example, some data may not be available for a journey many months ahead, so pupils may need to set a nearer date in order to allow a sequence of web pages to proceed. If the pupils live close to St Ives, you may wish to pick another destination.



Resources

Internet access. Useful websites include:

<http://www.vcacarfueldata.org.uk/search/search.asp>
or <http://www.carbonfootprint.com/calculator.aspx>)

<http://www.viamichelin.co.uk/viamichelin/gbr/tpl/hme/MaHomePage.htm>)

<http://www.carbonfootprint.com/>)

<http://www.climatecare.org/?gclid=COPagYm-jZYCFQuJ1Qod2iQDFQ>)



Holidaying abroad presents four alternative holidays and pupils are asked to work out the impact on the environment in terms of the carbon dioxide released into the atmosphere as a result of the travel involved. Remind your pupils about the effect on the environment of carbon dioxide released through the use of energy sources such as petrol to motivate the activity. You will need to enable access to the internet to research CO₂ figures for different cars, distance by road in Europe and flights from your local airport.

Pupils may work in small groups with each group working on all four options or with each group working together on one of the options. Tell the pupils to assume that the person is travelling alone. Pupils can also investigate how the impact changes if two people travel together and/or if a family of four travels together. They will have to consider a fair way to compare these different situations, for example, by expressing their results in terms of the carbon footprint per person.

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Approximate solutions for each option for one person travelling alone are:

	Transport	Return distance from Leeds + allow 400km for local journeys	Grams of CO ₂ per kilometre	Total CO ₂ produced for return journey
San Tropez	Car (Ford Focus 1.6)	$2 \times 1,605 + 400 = 3610\text{km}$	159gm/km	574kg

Total CO₂ for **San Tropez** 574kg



	Transport	CO ₂ produced for return journey
Orlando, Florida	Plane	1,577kg

PLUS CAR HIRE Chrysler Jeep Grand Voyager (Petrol)

Approximate mileage driving in Florida, USA	Grams of CO ₂ per kilometre	CO ₂ produced from car use in Florida
600km	304gm/km	182kg



Total CO₂ for holiday at Disney World, **Florida** 1759 kg

	Transport	CO ₂ for return journey
Corfu	Plane	640 kg

PLUS CAR HIRE Toyota Yaris 1.3

Approximate mileage driving around Corfu	Grams of CO ₂ per kilometre	CO ₂ produced from car use in Corfu
150km	141gm/km	21kg

Total CO₂ for holiday in **Corfu** 661kg

	Transport	CO ₂ produced for return journey
New Zealand	Plane	4,172kg

Total CO₂ for holiday in **New Zealand** 4,172kg



The mathematics

Both activities involve quite complex analysis of information, a variety of calculations and the need to handle mixture of units, moving between grams, kilograms and tonnes.