Cambridge International A Level

Cambridge International Examinations
Cambridge International Advanced Level

THINKING SKILLS **9694/41**

Paper 4 Applied Reasoning **October/November 2015**

1 hour 30 minutes

No Additional Materials are required.

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READ THESE INSTRUCTIONS FIRST

An answer booklet is provided inside this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **all** the questions.

The number of marks is given in brackets [ ] at the end of each question.

This document consists of **8** printed pages and **1** insert.

CAMBRIDGE International Examinations

1 *Study the passage below and answer the questions that follow.*

Britain is the most violent country in Europe

The UK's violent crime record is worse than many other countries in the developed world, it has been revealed. Official crime figures show the UK has a worse rate for all types of violent crime than all other countries in the European Union, as well as the US and even South Africa – widely considered to be one of the world's most dangerous countries. The figures come on the day a Government minister makes his first major speech on crime, promising to be tough on loutish behaviour. In the UK, there were 1 158 957 violent offences last year, way ahead of France with 324 765 and Austria with 133 546.

(a) Make **three** criticisms of the statistics used in the passage. [3]

(b) On hearing of the figures, an Opposition politician stated, "This government has comprehensively failed to tackle the deep-rooted social problems in our society."

Give **one** reason why this inference cannot be drawn from the passage. Justify your answer briefly. [2]

Questions 2, 3 and 4 refer to Documents 1 to 5

2 Briefly analyse Jasper Smitt's argument in Document 1: *Don't bother about how far your food has travelled*, by identifying its main conclusion, intermediate conclusions and any counter-assertions. [6]

3 Give a critical evaluation of the strength of Jasper Smitt's argument in Document 1: *Don't bother about how far your food has travelled*, by identifying and explaining any flaws, implicit assumptions and other weaknesses. [9]

4 'The concept of food miles is not effective as a way of promoting environmentally responsible behaviour.'

Construct a reasoned argument to support **or** challenge this claim, commenting critically on some or all of Documents 1 to 5 and introducing ideas of your own. [30]

DOCUMENT 1

Don't bother about how far your food has travelled

Environmentalists have argued in recent years that we should source our food locally and cut down on the 'food miles' involved in getting food from producer to consumer. This is yet another example of the enthusiasm of such tree-huggers for futile gestures to save the planet from global warming. Throw your food mile calculator in the bin!

Only 2–4% of the 'carbon footprint' associated with food (i.e. the amount of CO_2 emitted into the atmosphere) comes from transporting food. What matters is *how* food is produced and not *where* it is produced. The yield per hectare of products like lamb and apples from places such as New Zealand is far higher than in most other countries. This means that the carbon footprint of rearing sheep or growing apples locally is likely to be far higher than it is in places like New Zealand. So although the food miles are less, the carbon footprint isn't.

Buying food locally does not help save the planet. The foodstuffs that are exported worldwide come in refrigerated container ships. A modern ship emits 10–40 g of CO_2 per metric tonne of freight per kilometre travelled. This compares with 500 g for an air cargo plane. This means that the environmental impact of transporting food is far less than that of transporting air freight.

In buying food that is exported from all over the world we are merely following the norm in a global economy. People do not necessarily try to buy locally produced phones or televisions, so why should they suddenly adopt a different mode of behaviour when buying food? It is ludicrous to single out food products for special treatment.

Some people suggest that, by eating only seasonal foods – those that grow naturally at certain times of year – one can avoid eating any imported food. However, this is not a good reason for being concerned about food miles. Some countries do not have seasons. People in such countries need to import food from elsewhere to achieve variety in their diet.

There are those who frown upon purchasing food from other countries. However, you need not feel guilty about eating food from thousands of miles away. You are not going to save the planet by eating locally produced food. You will be saving the jobs of people who produce such food in other countries. So there is really no need to start growing your own vegetables.

Jasper Smitt

[Turn over

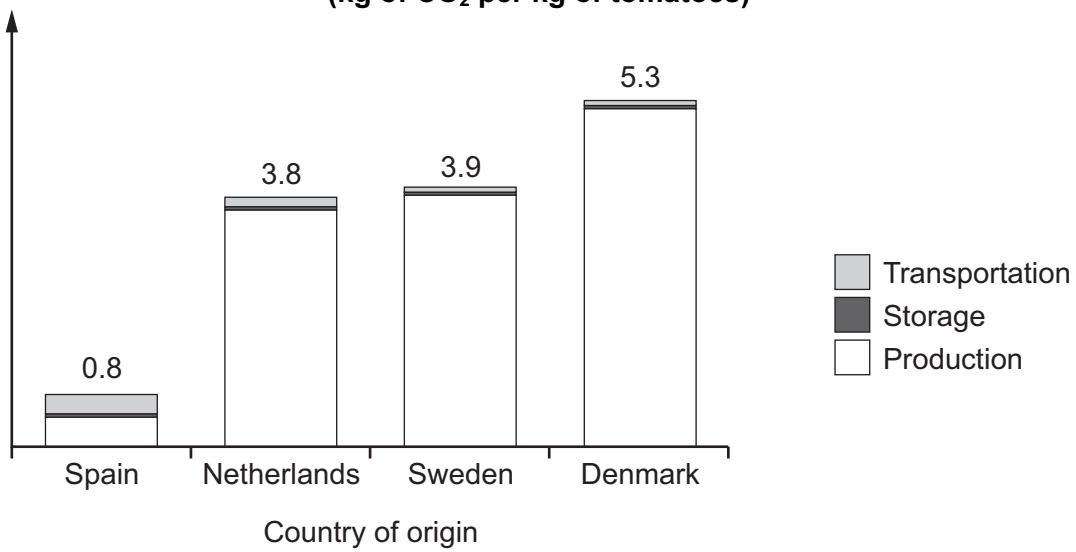
DOCUMENT 2

Food miles in perspective

At first glance, reducing food miles seems an excellent way to reduce carbon emissions, because it limits emissions caused by planes, trucks, boats and trains moving food. But if you're not careful, cutting food miles can easily increase your food's carbon footprint.

The most important thing to remember about food miles is that they are only part of the bigger food emissions story. A person's 'foodprint' (i.e. carbon footprint related to food consumption) is actually dominated by production emissions, and, in many cases, food transport makes up just one tenth of food emissions up to the point of sale. This point is illustrated with the example of tomatoes below.

Foodprint of tomatoes on sale in Sweden
(kg of CO_2 per kg of tomatoes)



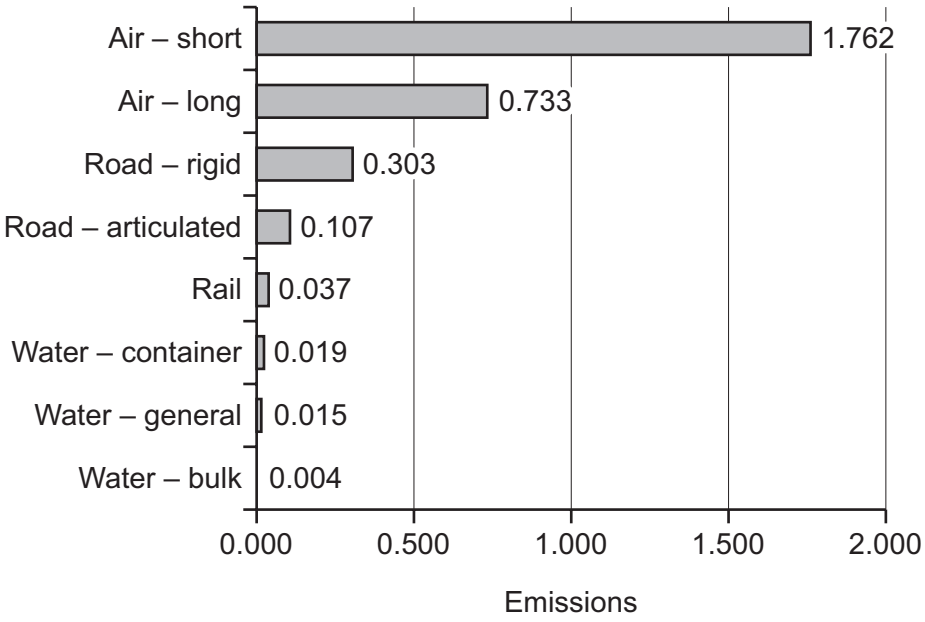
Despite travelling a greater distance, Spanish tomatoes imported to Sweden have a far smaller foodprint than locally grown ones. This is because the emissions generated by heating and lighting greenhouses in northern Europe far exceed the transport emissions of bringing tomatoes in from Spain.

So does this mean targeting food miles is a waste of time? Not completely. But if your motivation for eating more local food is to reduce carbon emissions, then it is better to try to eat seasonal local food. By eating food that is both in season and local you can be more certain that both production and transport emissions are limited. You can often avoid them being refrigerated in stores, too. Even more importantly, seasonal food just tastes so much better.

[Document 2 continues on page 5]

How the food is transported also matters. Food that is brought in by air can generate more than one hundred times the carbon emissions per kilometre of food that travels by ship. However, as can be seen in the table below, long-haul air freight has much less impact than short-haul and can often involve food brought in from places such as Africa, where less carbon-intensive production methods are used. So food miles should not be viewed in isolation from other factors.

Freight Transport Emissions
(kg of CO_2 per tonne per km)



Shrinkthatfootprint.com

DOCUMENT 3

A defence of buying food locally

In looking at food miles, it is important to understand the impact of transportation by sea, which is not the benign form of transport some have presented it as. Transportation by sea produces 1 billion tonnes of CO_2 emissions and uses 11 billion gallons of fuel per year internationally. In fact, the amount of sulphur oxide pollution that comes from the 15 largest ships equals the combined amount from all the cars in the world.

However, there are good reasons to buy locally-produced food other than cutting down on carbon emissions. Freshness is one. Knowing how the food is produced is another (a recent scandal in Europe revealed that many products labelled as beef contained horsemeat). You will also be supporting local farmers and helping to create financially sustainable local economies.

The emphasis on yield, which is a key aspect of the anti-food-miles argument, is also misplaced, as such high yields are based on a system of monoculture. This modern form of agriculture is as bad for the environment as the effects of food transportation. Monocultures are large areas of land cultivated with a single crop, using methods that have a high use of chemicals toxic to plants and animals and a great use of machinery.

The social impacts of large-scale monocultures are often disastrous for communities which continue to grow local foods using sustainable practices. Small-scale farmers often cultivate local species, which not only contain important minerals for the soils and for human health, but also have adapted to the local environment over many years. When small-scale farmers are confronted with large-scale industrial monocultures in their area, they are faced with shortage of water and other resources and contamination from pesticide spraying and from GM crops.

The takeover of land by monocultures also causes rural depopulation, destroying local community life and local economies. Monoculture plantations usually provide only temporary labour, for which workers are often hired from outside the region.

Fife Diet

DOCUMENT 4

How the myth of food miles hurts the planet

Many people have decided to reject foods that have been transported to their dinner plates over long distances by road, air or sea. They even have their own name for themselves – 'locavores' – and insist that their way is the only one to save the planet.

But the idea that 'only local is good' has come under attack. For a start, food grown locally in areas where there is high use of fertilisers and tractors is likely to be anything but carbon-friendly. By contrast, beans in, for example, Kenya are produced in a highly environmentally-friendly manner. "Beans there are grown using manual labour – nothing is mechanised," says Professor Gareth Edwards-Jones of Bangor University, an expert on African agriculture. "They don't use tractors, they use cow muck as fertiliser; and they have low-tech irrigation systems in Kenya."

It is not that the concept of food miles is wrong; it is just simplistic. For example, locally-grown apples that have been stored for several months may produce more carbon as a result of the storage process than those that have been shipped in, or even flown in. However, if eaten when in season then their carbon footprint will be lower. "Working out carbon footprints is horribly complicated," says an expert. "It is not just where something is grown and how far it has to travel, but also how it is grown, how it is stored, how it is prepared."

A more extreme position suggests that the only way of being sure that you cut down on your carbon emissions when buying food is to stop eating meat, milk, butter and cheese. These come from ruminants (sheep and cattle) that produce a great deal of harmful methane. Moreover, the longer the food chain, the more energy is lost. Food chains involving animals are inherently longer (plant–animal–human, as opposed to plant–human). This means there are more energy losses. Therefore one needs a larger area of land in order to feed the same number of people. In other words, it is not how far the food travels that matters, but the kind of food you eat.

The Guardian

DOCUMENT 5

Total carbon emissions for products on sale in the UK

Lamb
UK: 2849 kg CO_2 per tonne
New Zealand: 688 kg CO_2 per tonne

Lettuce (in winter when off-season in UK)
UK: 3720 kg CO_2 per tonne (indoor production)
Spain: 3560 kg CO_2 per tonne

Apples (in May when off-season in UK)
UK: 271 kg CO_2 per tonne
New Zealand: 185 kg CO_2 per tonne

Roses
Netherlands: 35 000 kg CO_2 per 12 000 stems
Kenya: 6000 kg CO_2 per 12 000 stems

The Telegraph