

MARK SCHEME for the October/November 2015 series

9694 THINKING SKILLS

9694/41

Paper 4 (Applied Reasoning), maximum raw mark 50

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2015 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2015	9694	41

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

1 mark for any of the following:

- Total number of crimes does not take into account population differences.
- Rate is used to compare UK with US and South Africa but total number is used to compare UK with Austria and France.
- Possible deliberate selection of two countries with relatively low rates of violent crime (Austria and France) to exaggerate levels.
- What constitutes a 'crime' varies from country to country.
- Different countries might have different definitions of 'violent'.
- The figures do not show how violent the crimes are – there may be more murders in South Africa.
- Different countries might have different crime reporting rates.

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

- The data are about violent crime so a link between social problems and violent crime needs to be assumed.
- No information about the trend for violent crime is given – the current figures could represent a significant decrease.
- There is no way of knowing what the figures would have been like without intervention by the government.

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

1 mark for each element (maximum 4 if MC not identified).

CA – we should source our food locally and cut down on the 'food miles' involved in getting food from producer to consumer.

MC – Throw your food mile calculator in the bin!

IC – What matters is *how* food is produced and not *where* it is produced.

IC – Buying food locally does not help save the planet.

IC – It is ludicrous to single food products out for special treatment.

CA – (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.

IC – (However,) this is not a good reason for being concerned about food miles.

CA – There are those who frown upon purchasing food from other countries.

IC – (However,) you need not feel guilty about eating food from thousands of miles away.

IC – (So) there is really no need to start growing your own vegetables.

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2015	9694	41

- 3 Give a critical evaluation of the argument in Document 2: *Don't bother about how far your food has travelled*, by identifying and explaining any flaws, implicit assumptions and other weaknesses. [9]

2 marks for a developed version of any of the following points.

1 mark for a weak or incomplete version of any of the following points.

Paragraph 1

Ad hominem – “tree huggers”

Paragraph 2

Assumption – that yield per acre is a sufficient criterion to judge carbon footprint.

Inconsistency – “What matters is...not where it is produced”; but the paragraph goes on to say that “where” i.e. New Zealand is precisely what does matter.

Paragraph 3

Assumption – that food is never transported by air.

Assumption – that ships used to transport food are modern ships.

Assumption – that energy used in refrigeration is included in carbon footprint calculation.

The conclusion about environmental impact cannot be drawn without knowing the amount transported by each mode of transport.

The comparison with air freight lacks relevance – the argument is about the environmental impact of importing food, not whether some things have more of an environmental impact than others.

Paragraph 4

Tu quoque – perhaps we should buy these other things locally as well.

Assumption – that it is just as easy to source technical goods like phones locally as it is food.

Assumption – that there is no relevant difference in the carbon footprints of transporting food and such technical goods.

Paragraph 5

Relevance – seasonality may not be of concern to those interested in the food miles issue alone.

Assumption – that variety of food is important.

Paragraph 6

Straw man – advocates of checking food miles do not believe that this alone will save the planet.

Assumption – that production of food in other countries does employ significant numbers of people.

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2015	9694	41

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]

Level	Structure	Max 8	Quality of argument	Max 8	Use of documents	Max 8	Treatment of counter positions	Max 6
4	<p>Precise conclusion and accomplished argument structure with consistent use of intermediate conclusions. Likely to include at least two of the following:</p> <ul style="list-style-type: none"> • strands of reasoning • suppositional reasoning • analogy • evidence • examples <p>Argument is structured so the thought process is made clear. Uses vocabulary of reasoning appropriately and effectively to support argument.</p>	7–8	<p>Cogent and convincing reasoning which answers the question which was asked. Subtle thinking about the issue. Use of relevant own ideas and ideas from documents. Very few significant gaps or flaws.</p>	7–8	<p>Perceptive, relevant and accurate use of documents to support reasoning. Sustained and confident evaluation of documents to support reasoning. (Two or more valid evaluative references to documents). Able to combine information from two or more documents and draw a precise inference.</p>	7–8	<p>Consideration of key counter arguments and effective response to these. Use of own ideas in response to counter arguments. Use of valid critical tools to respond to counter arguments. Effective use of appropriate terminology.</p>	5–6
3	<p>Clear conclusion that is more than "I agree". Clear argument structure, which may be simple and precise or attempt complexity with some success. Appropriate use of intermediate conclusions. Use of other argument elements to support reasoning. Generally makes thinking clear. Appropriate use of vocabulary of reasoning.</p>	5–6	<p>Effective and persuasive reasoning which answers the question which was asked. (Although there may be some irrelevance or reliance on dubious assumptions.) Use of own ideas and ideas from documents. Few significant gaps or flaws.</p>	5–6	<p>Relevant and accurate use of documents which supports reasoning. (Must reference 3+ documents.) Some evaluation and comparison of documents to support reasoning. Inference drawn from ≥ 1 document.</p>	5–6	<p>Consideration of key counter arguments and effective response to these. Some use of appropriate terminology.</p>	3–4

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2015	9694	41

Level	Structure	Max 8	Quality of argument	Max 8	Use of documents	Max 8	Treatment of counter positions	Max 6
2	Conclusion stated but may be “I agree”. Sufficient clarity for meaning to be clear throughout. Structure may be easy to follow but brief or a longer argument which has a less clear structure. Uses reasons. Some appropriate use of vocabulary of reasoning.	3–4	A reasoned stance which attempts to answer the question which was asked. Some support for the conclusion. (Although there may be considerable irrelevance or reliance on dubious assumptions.) Some thinking/own ideas about the issue. Use of rhetorical questions and emotive language. Some significant gaps or flaws.	3–4	Some relevant use of documents to support reasoning, but some documents used indiscriminately. Some (perhaps implicit) comparison of documents or some critical evaluation of documents.	3–4	Inclusion of counter argument or counter assertion but response to this is ineffective.	2
1	Attempt to construct an argument. Unclear conclusion, multiple conclusions or no conclusion. Disjointed, incoherent reasoning. Use of examples in place of reasoning. Possibly a discourse or a rant. Reasons presented with no logical connection. Documents considered sequentially. Substantial irrelevant material.	1–2	Attempt to answer the general thrust of the question. Attempt to support their view. Excessive use of rhetorical questions and emotive language. Ideas which are contradictory.	1–2	Some use, perhaps implicit, of documents. No attempt at critical evaluation. No comparison of documents.	1–2	Inclusion of counter argument or counter assertion with no response.	1

Page 6	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2015	9694	41

Example Level 4 Answers

Support (677 words)

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

As indicated in Document 1, the effort to save the planet has encouraged many futile gestures, of which this is one. Persuading people that by buying food locally they are doing something important diverts them from the sort of behaviour that is necessary. They can bury their heads in the sand and be lured into a false sense of security. They are like those people who legend has it re-arranged deck chairs on the Titanic. As indicated in Document 4, it may be that much more radical action is necessary, such as becoming vegan (or at least pescatarian) and cutting out any animal products from one's diet.

This point that it is what one eats rather than where it comes from is crucial. To eat locally grown food would be counterproductive for the environment if that food is more environmentally damaging than food brought in from elsewhere. The key determinant of the carbon footprint of food is how it is produced not where it is produced. There is a great deal of evidence in the documents that shows this. In Document 2, we see that production is far more important than transportation as regards food emissions. Growing tomatoes locally in Sweden produces an enormous carbon footprint because of the heating and lighting needed. So it makes much more sense for food to be imported from countries such as Spain where the climate allows tomatoes to be grown without the need for all this heating and lighting.

The key production factor in determining a low carbon footprint is yield. The evidence in Document 5 shows us that producing lamb in the UK produces around four times as much CO₂ emissions per carcass as producing lamb in New Zealand. This is likely to be because of the greater space and economies of scale that New Zealand affords and climatic factors as regards grass production. There is an attempt in Document 3 to suggest that high yield is due to environmentally damaging monoculture methods. However, evidence elsewhere suggests that, as in New Zealand, the greater yield is due to methods that are environmentally friendly. Document 2 suggests that food produced in Africa has less carbon intensity which offsets the carbon emissions through transport. A specific example of this is given in Document 4 where Professor Gareth Edwards says of bean production in Kenya "Beans there are grown using manual labour – nothing is mechanised, they don't use tractors, they use cow muck as fertiliser; and they have low-tech irrigation systems in Kenya." This means that buying your food from the farmer up the road who has used tractors, fertilisers and high-tech irrigation systems may be more environmentally damaging than buying imported food.

Document 3 is the only document which is not critical of the concept of food miles as a way of prompting environmentally-responsible behaviour. However, even here the author's main reference to carbon emissions is a relatively weak absolute statement about transport by sea which lacks comparison with local transport and production methods. Furthermore, the document then diverts attention from the carbon issue by introducing the ideas of community and local economies.

Advocates of food miles may still insist that transport is still, when all is said and done, a major source of the emissions that are causing global warming and damaging the planet. It has to be conceded that the most environmentally friendly food would be that which was produced locally with environmentally friendly high-yield production methods. However, this is a pipe-dream and ignores the realities of producing enough food for an increasing world population. It also ignores the economic and political realities of global capitalism – the planet will have long ago become uninhabitable if we put our faith in the emergence of some sort of low-tech agrarian socialism. This is why the concept of food miles is ineffective in encouraging people to behave in an environmentally responsible manner – it gives them a totally simplistic view of the problem and the solutions needed.

Page 7	Mark Scheme	Syllabus	Paper
	Cambridge International A Level – October/November 2015	9694	41

Challenge (604 words)

The criticism of the concept of food miles in some of the documents is overstated and unhelpful. The cynical dismissal of a concern about food miles as a ‘futile gesture’ in Document 1 fails to recognise the psychological value of actions such as this. Even if the practical effect of buying food locally is only marginal, it still functions as a way of heightening awareness and re-affirming the need to be environmentally aware. This means it is certainly not ineffective as suggested in the above statement.

Opponents of food miles misrepresent the pro-food-miles argument by presenting a ‘straw man’ position that being careful about how far food has travelled is seen as a sufficient condition for saving the planet. Rather it should be seen as one of a variety of measures that help preserve the environment. In Document 5, we can see that it does not make sense in the UK to buy local apples that have been stored in May because the New Zealand apples have a lower CO₂ emission per ton than those that have been stored. However this does mean that when local apples are in season, it will reduce one’s carbon footprint if one buys them. This means being aware of food miles is important along with the consideration of other factors.

However, Document 3 suggests that we need to look closely at the production methods that lie behind the high yields for some of these crops. Whilst Document 4 suggests that beans in Kenya are produced in an environmentally-friendly manner, this is only one example. We do not have sufficient evidence in the documents but it seems likely that food travels a great distance because of the general phenomenon of globalisation. Globalisation is generally recognised as an aspect of multinational capitalism and industrialised mass production systems such as monoculture are associated with this. By being unconcerned where food has come from and how far it has travelled, one is pandering to the globalised economic system with all the environmentally-damaging effects this implies.

Document 3 also suggests that low CO₂ emissions may not be the whole story as regards environmental impact. Even if it can be shown that food flown in has a low CO₂ factor, the high yield may involve other environmentally-damaging methods such as fertiliser or pesticide use. Pesticide use, in particular, has been associated with a decline in many species – insects and birds of prey especially.

Whilst Document 2 suggests problems with the concept of food miles, it does not support the notion that how far food has travelled is an unimportant consideration. One might reach the conclusion that it would be better not to eat tomatoes if one doesn’t live in Spain having looked at the data in Document 2. A concern with food miles would mean that the data on CO₂ emissions would persuade one to buy food that was brought in on long-haul flights as they (somewhat counter-intuitively) have a lower carbon footprint. Even if this only helps a little, it helps.

Documents 2 also suggests that eating locally combined with other factors such as seasonality does make a key contribution to reducing carbon footprint. Given the role of transport in creating carbon emissions, it could be argued that making sure food is locally produced is a necessary if not a sufficient condition of environmentally-aware behaviour. It would be mistaken to describe the concept of food miles as ineffective just because it isn’t a ‘magic bullet’ that would solve all environmental problems.

Therefore the concept of food miles has not been ineffective as a way of promoting environmentally-responsible behaviour.