



Cambridge International AS Level

ENGLISH GENERAL PAPER

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Paper 2 Comprehension

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INSERT

1 hour 45 minutes

INFORMATION

- This insert contains all the resources referred to in the questions.
- You may annotate this insert and use the blank spaces for planning. **Do not write your answers** on the insert.

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This document has **8** pages. Any blank pages are indicated.

Material for Section A

Introduction

Janita and Charles Morgan are a married couple and are both geologists working for the same large oil company. They have recently been offered jobs working together in a remote location in the tropical rainforest of Southeast Asia leading an operation to drill for oil. This is a great opportunity for both their careers and they are very keen to pursue it. The contract is for three years. The exploration site is large and well-equipped with temporary housing, washing and cooking facilities and some basic medical support, but is quite inaccessible. Supplies are brought in on a weekly basis.

Happily married for 12 years, they have three boys – Ricardo aged 15, Ethan aged 12 and Tino aged 6. As top graduate in her class, Janita has worked hard to juggle her career in geology and her family commitments. She knows that career opportunities such as this for a married couple do not come along very often and, after much thought, she and Charles have decided to accept the posts. They now have to consider what arrangements need to be put in place to ensure their children are safe, secure and well-looked-after during the school terms.

Janita and Charles have three options available to them:

Option 1

Send the children to a private boarding school not far from where they currently live

Abbeyvale School is for children aged 7–18 with a total pupil number of 350 boys and girls. The campus is extensive with a large wood and lake and many sports facilities, including artificial pitches, a swimming pool and tennis courts. Students live in a house with a house master and mistress who look after their welfare. Siblings are usually placed in the same house. Pastoral care has been highly commended by parents and external inspectors, who wrote recently that ‘children settle in quickly and much care is taken to ensure they have regular contact with their families by videophone, social media and email. Children are happy at this school’. The school holidays total 15 weeks.

Option 2

Take the children with them and set up a home school

This would involve the boys living alongside their parents on the exploration site in the tropical rainforest. They would have daily lessons in the morning and afternoon; each lesson would last two hours. Tutors would be arranged via videoconferencing for some subjects such as French. The internet could be used to stay in touch with teachers at their old school and access resources and lesson ideas. The rest of the time the boys would have to themselves; the oil company has suggested that Ricardo could have some work experience learning the business of oil extraction. There would be no official school holidays but time away from school would be decided by Janita and Charles.

Option 3

Continue to attend their current schools with Charles’s parents looking after the boys in term time.

The boys’ grandparents have offered to move into the Morgan family home and look after the children during the school terms. The boys would fly out to see their parents three times a year and

the parents would return home at other times to spend holidays with the children. The oil company would cover 50 per cent of the cost of the children's flights. The school holidays total 12 weeks.

Additional Information

1. Holiday is granted to each employee at the oil company for five weeks a year.
2. Grandparents Joseph and Ariadne, aged 68 and 70 respectively, live close to the Morgans' family home.
3. Ricardo is very sporty: he plays soccer at a high level and has a regular commitment to a local team.
4. Grandpa Joseph used to be a teacher.
5. Ethan is finding school hard at the moment and has made limited progress in his reading and mathematics. He is, however, a talented swimmer.
6. Ricardo has a girlfriend.
7. Charles Morgan has worked away from his family for up to six months at a time on several occasions. Janita has done this only once. Each time one parent has been away, the other has stayed at home.
8. Abbeyvale School has a good reputation for sports (one of its soccer teams recently won a national trophy) and an increasing reputation for good academic achievement. There are many children there with parents working abroad.
9. Grandma Ariadne, usually a very active lady, has recently recovered from illness; she has lost some of her energy but is feeling better as time goes on.
10. Tino can be anxious when his mother is not around and he worries about not being able to contact her regularly when she is at work. He is academically gifted and a keen cyclist.
11. Internet connection is of variable quality at the exploration site.
12. Janita has previous experience of teaching in a high school.
13. Both Janita's and Charles's jobs would require 12-hour shifts, including some night work.
14. The nearest settlement to the exploration site is 80 miles away by helicopter.
15. The oil company has been subject to large-scale protests by environmental groups at other locations.
16. Ricardo is due to sit national exams in two years and is interested in pursuing a career in medicine.

Material for Section B

The lionfish invasion

Beautiful, elegant, vibrant, graceful and unique ... but we shouldn't be admiring them in the Atlantic. The red lionfish (*Pterois volitans*) is native to the coral reefs of the South Pacific, but is now not a long-haul flight away. Lionfish in the Atlantic are termed an 'invasive species': a non-native organism that has intruded into an area and may have serious detrimental effects on native organisms, the local economy and human health.

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Unfortunate accidents in the early 1990s have led to their invasion and spread across much of the Caribbean Sea and as far north up the east coast of North America as Rhode Island, USA. They do not live long in our cooler waters, however, and are unable to survive the tougher winters. The cold water temperatures are keeping their numbers in check to the north, but this is not the case to the south where lionfish are spreading rapidly through the South Florida Estuaries, the Gulf of Mexico and the Caribbean Sea. Marine scientists believe lionfish will have established themselves as far south as Brazil within the next five to ten years according to the National Oceanic and Atmospheric Administration (NOAA).

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It is speculated that the root of the problem was only six lionfish accidentally released from an aquarium during Hurricane Andrew in 1992. Genetic research supports this accusation but it is likely that many more have been intentionally released by 'retired' aquarium enthusiasts. With no natural enemies and an extremely high reproductive rate of two million eggs a year from one female, unsurprisingly they have taken over rapidly.

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Surveys have found that lionfish are already as abundant as many native groupers, and second in abundance only to scamp, one such native fish. This is extremely concerning given the short time in which this population growth has occurred. Recent estimates of lionfish densities show the populations continuing to grow, with the highest estimates reporting over 1000 lionfish per acre in some locations (NOAA).

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Lionfish now occupy an extensive geographic range, and are able to survive in a range of habitats and depths (2–140 metres). Lionfish have now become established in Bermuda, the Bahamas, Colombia, Cuba, the Dominican Republic, Jamaica, Puerto Rico, Turks and Caicos and the Cayman Islands. There are also reported sightings in Belize, Haiti, US Virgin Islands, Mexico, Aruba, Curaçao and Bonaire (NOAA).

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Lionfish are voracious predators and are taking the already threatened Caribbean reefs by storm. Lionfish are non-selective feeders, and with virtually no natural enemies in the tropical western Atlantic, they've invited themselves to an all-you-can-eat seafood buffet. Lionfish have been observed consuming 20 small fish in a 30-minute period and prey up to two-thirds of their own length. Impressively, their stomachs can expand up to 30 times their normal size after a meal. Mark Hixon and others (2009) determined that a single lionfish can reduce juvenile fish populations by 79 per cent in just five weeks.

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Samples of lionfish stomach contents in the western Atlantic have shown that they consume more than 50 different species, many of which are overfished and diminished to already critical levels (Gupta, 2009). Given this extreme rate of feeding, lionfish are out-competing native predators for their food sources, as well as reducing fish populations through direct predation.

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Not only are they dangerous to the fragile ecosystems, but they can inflict an extremely painful sting to humans, not usually deadly, but it can make you quite sick. 45

Due to the extent of the lionfish invasion, control is now the only option as attempts to eradicate existing lionfish populations would be impractical and probably unsuccessful (NOAA).

In the Pacific, groupers, sharks and cornet fishes are known to prey on lionfish. In the Atlantic, groupers are severely overfished and struggling to fill this role. The first documented case of grouper predation was in the Bahamas in 2008, when several groupers were captured containing partially digested lionfish remains in their stomach (Maljkovic, 2008). For this, and many other reasons, predator populations need to be protected and allowed to recover. 50

Another method of control is something that humans are notoriously good at – let's eat them! Apparently, lionfish are tasty, with light, white and flaky meat, and have been received very well in some high-end New York, Washington and Chicago restaurants following the success of Bermuda's Eat 'Em to Beat 'Em campaign. Scientists from Roger Williams University, NOAA and the North Carolina Sea Grant (Morris *et al*, 2011) have just published a study detailing the nutritional benefits of lionfish consumption; lionfish have the highest concentration of omega-3 in their category, scoring above farmed tilapia, bluefin tuna, red snapper and grouper. Claimed to be the 'ultimate in guilt-free eating – delicious, nutritious and eco-conscious', lionfish is certainly in the ocean-friendly seafood choice list. How about some fluffy battered lionfish, lionfish sushi or lionfish fingers? 55
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Perhaps a more unique approach is being tried out by divers in Honduras who are trying to train local sharks to eat the invasive lionfish (National Geographic).

At the current rate of population growth, these measures are unlikely to be able to restore the ecosystem balance, but it is hoped they may perhaps slow the spread and buy a little more time for a solution. 70

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