



Exercise 6. [Scanning – Short answer questions] Read the paragraph A to D in exercise 5. Then read the questions.

A. Where can you find the information in the passage to answer the questions? Choose the correct paragraphs.

1. What geographical features have created the land of Ross Island? ____
2. How many Adélie penguin nests were counted at Cape Royds? ____
3. On what type of surface do Adélie penguins usually choose to build their nests? ____
4. What has, in the past, prevented penguins from reaching the open sea in the McMurdo Sound? ____
5. Approximately, what distance did Adélie penguins then have to walk to reach the sea? ____

B. Answer the questions. Choose NO MORE THAN TWO WORDS AND/OR A NUMBER from the passage for each answer.

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | |

Exercise 7. [Scanning – Sentence completion] Read the passage.

Elsewhere on Ross Island, in contrast to McMurdo Sound, the situation is more encouraging. At Cape Crozier, Adélie penguins are thriving. The colony is now thought to have an estimated 230,000 breeding pairs, an upturn of 20% over the last three decades. Penguins nesting on this part of Ross Island may actually be benefitting from human activity, scientists suspect. In 1996, a fishing company opened near the area, and started fishing for vast quantities of Chilean sea bass – otherwise known as the Patagonian toothfish. As both the Adélies and the sea bass eat silverfish, competition for this food source has now been dramatically reduced, and this may partly explain why penguin numbers have risen at Cape Crozier.

However, it isn't fish, but krill – tiny, shrimp-like creatures that live just below the pieces of ice that float on the sea – that form the largest part of an Adélie's diet. Unfortunately, krill numbers are also declining rapidly. Dr. So Kawaguchi, a biologist working for the Australian government's Antarctic Division, suspects he knows the main reason behind this. He accepts that commercial fishing is partly responsible for huge amounts of krill being removed from the sea, but he points to rising levels of carbon dioxide as the chief cause. It is this which is making the waters of the Antarctic more acidic, in turn preventing the krill eggs from hatching. Diminishing levels of krill not only mean less food for



penguins. Digesting up to 40 million of these tiny animals per day, most whales depend on them for survival, too. Also, thanks to their more diverse diet, Gentoo penguins, a species which eats squid and small crab-like creatures as well as krill, have hardly been affected by this situation. In fact, their numbers appear to be on the rise. Other species, such as the Chinstrap and Emperor penguins, however, have the same narrow diet as Adélies.

Scientists are now concerned that Adélie penguins will be forced to move further south in search of more suitable breeding and feeding locations. A team made up of researchers from Stanford University, USA, and the British Antarctic Survey have recently used geolocation sensors attached to a number of penguins to track them in order to better understand their patterns of migration. They know that Adélie penguins leave their nesting areas in February to begin the slow march north to avoid the darkest time of the year. Around 480 kilometres from completely open water, they stop on the floating sea ice to spend time feeding and increase their body weight. They then turn around, and march back to the nesting areas – a journey of about 13,000 kilometres in total. Scientists also know that Adélies have never lived further south of Cape Royd, and suspect that this is because they need light in order to navigate and search for food. It also allows them to spot such predators as the skua – a large bird that can easily kill young penguins. So, will the Adélies be able to adapt, move further south, and live in a darker environment? Scientists doubt that this kind of evolutionary change can happen in a short time.

A. Read the passage and questions 6 – 13. Match the types of information you will need to look for in the passage with the questions.

- | | |
|--|--|
| a. a month or season | b. a specific location on Ross Island |
| c. another animal living in Antarctica | d. something that has been increasing |
| e. something eaten by Adélie penguins and the Chilean sea bass | f. a type of penguin |
| g. something that penguins do | h. something that penguins need to survive |

1. The Adélie penguin population has increased in the part of Ross Island known as _____.
2. Both Adélie penguins and the Chilean sea bass feed on _____.
3. Dr Kawaguchi believes that an increase in _____ is the main reason for declining numbers of krill.
4. Not only penguins, but also _____ will be affected by smaller krill populations.
5. The _____ species of penguins have more variety in their diet than other penguins.



6. British and American scientists have used special equipment to find out more about penguin _____.

7. The British-American team know that it is in _____ that the penguins begin to walk in a northerly direction.

8. It is now thought by the British-American team that penguins require _____ to help them avoid threats and to find food.

B. Complete the sentences 1-8 above. Choose NO MORE THAN TWO WORDS from the passage for each answer.

1. _____ 5. _____

2. _____ 6. _____

3. _____ 7. _____

4. _____ 8. _____

C. Read the information. Then match the words in the box from the Reading passage with the phrases in bold in the questions which have a similar meaning.

Adélie penguins are thriving	diminishing	diversity	eat
geolocation sensors	need	rising levels of	slow march north

1. **The Adélie penguin population has increased** in the part of Ross Island known as Cape Crozier. _____

2. Both Adélie penguins and the Chilean sea bass **feed on** silverfish. _____

3. Dr. Kawaguchi believes that **an increase** in carbon dioxide is the main reason for declining numbers of krill. _____

4. Not only penguins, but also whales will be affected by **smaller** krill populations. _____

5. The Gentoo species of penguins have more **variety** in their diet than other penguins. _____

6. British and American scientists have used **special equipment** to find out more about penguin migration. _____

7. The British-American team know that it is in February that the penguins begin to **walk in a northerly direction**. _____



8. It is now thought by the British-American team that penguins **require** light to help them avoid threats and to find food. _____

Exercise 8. [Sentence completion] Read the passage and answer the questions.

The Intersection of Health Sciences and Geography

A While many diseases that affect humans have been eradicated due to improvements in vaccinations and the availability of healthcare, there are still areas around the world where certain health issues are more prevalent. In a world that is far more globalised than ever before, people come into contact with one another through travel and living closer and closer to each other. As a result, super-viruses and other infections resistant to antibiotics are becoming more and more common.

B Geography can often play a very large role in the health concerns of certain populations. For instance, depending on where you live, you will not have the same health concerns as someone who lives in a different geographical region. Perhaps one of the most obvious examples of this idea is malaria-prone areas, which are usually tropical regions that foster a warm and damp environment in which the mosquitos that can give people this disease can grow. Malaria is much less of a problem in high-altitude deserts, for instance.

C In some countries, geographical factors influence the health and well-being of the population in very obvious ways. In many large cities, the wind is not strong enough to clear the air of the massive amounts of smog and pollution that cause asthma, lung problems, eyesight issues and more in the people who live there. Part of the problem is, of course, the massive number of cars being driven, in addition to factories that run on coal power. The rapid industrialization of some countries in recent years has also led to the cutting down of forests to allow for the expansion of big cities, which makes it even harder to fight the pollution with the fresh air that is produced by plants.

D It is in situations like these that the field of health geography comes into its own. It is an increasingly important area of study in a world where diseases like polio are re-emerging, respiratory diseases continue to spread, and malaria-prone areas are still fighting to find a better cure. Health geography is the combination of, on the one hand, knowledge regarding geography and methods used to analyse and interpret geographical information, and on the other, the study of health, diseases and healthcare practices around the world. The aim of this hybrid science is to create solutions for common geography-based health problems. While people will always be prone to illness, the study of how geography affects our health could lead to the eradication of certain illnesses, and the prevention of others in the future. By understanding why and how we get sick, we can change the way we treat illness and disease specific to certain geographical locations.



E The geography of disease and ill health analyses the frequency with which certain diseases appear in different parts of the world, and overlays the data with the geography of the region, to see if there could be a correlation between the two. Researchers study the interactions between humans and their environment that could lead to illness (such as asthma in places with high levels of pollution) and work to create a clear way of categorizing illnesses, diseases and epidemics into local and global scales. Health geographers can map the spread of illnesses and attempt to identify the reasons behind an increase or decrease in illnesses, as they work to find a way to halt the further spread or re-emergence of diseases in vulnerable populations.

F The second subcategory of health geography is the geography of healthcare provision. This group studies the availability (of lack thereof) of healthcare resources to individuals and populations around the world. In both developed and developing nations there is often a very large discrepancy between the options available to people in different social classes, income brackets, and levels of education. Individuals working in the area of the geography of healthcare provision attempt to assess the levels of healthcare in the area (for instance, it may be very difficult for people to get medical attention because there is a mountain between their village and the nearest hospital). These researchers are on the frontline of making recommendations regarding policy to international organisations, local government bodies and others.

Complete the sentences below. Choose ONE WORD ONLY from the passage for each answer.

1. Certain diseases have disappeared, thanks to better _____ and healthcare.
2. Because there is more contact between people, _____ are losing their usefulness.
3. Disease-causing _____ are most likely to be found in hot, damp regions.
4. One cause of pollution is _____ that burn a particular fuel.
5. The growth of cities often has an impact on nearby _____.
6. _____ is one disease that is growing after having been eradicated.
7. A physical barrier such as a _____ can prevent people from reaching a hospital.

Exercise 9. [Short answer questions] Read the passage and answer the questions.

What Do Whales Feel?

An examination of the functioning of the senses in cetaceans, the group of mammals comprising whales, dolphins and porpoises.



Some of the senses that we and other terrestrial mammals take for granted are either reduced or absent in cetaceans or fail to function well in water. For example, it appears from their brain structure that toothed species are unable to smell. Baleen species, on the other hand, appear to have some related brain structures but it is not known whether these are functional. It has been speculated that, as the blowholes evolved and migrated to the top of the head, the neural pathways serving sense of smell may have been nearly all sacrificed. Similarly, although at least some cetaceans have taste buds, the nerves serving these have degenerated or are rudimentary.

The sense of touch has sometimes been described as weak too, but this view is probably mistaken. Trainers of captive dolphins and small whales often remark on their animals' responsiveness to being touched or rubbed, and both captive and free-ranging cetacean individuals of all species (particularly adults and calves, or members of the same subgroup) appear to make frequent contact. This contact may help to maintain order within a group, and stroking or touching are part of the courtship ritual in most species. The area around the blowhole is also particularly sensitive and captive animals often object strongly to being touched there.

The sense of vision is developed to different degrees in different species. Baleen species studied at close quarters underwater - specifically a grey whale calf in captivity for a year, and free-ranging right whales and humpback whales studied and filmed off Argentina and Hawaii - have obviously tracked objects with vision underwater, and they can apparently see moderately well both in water and in air. However, the position of the eyes so restricts the field of vision in baleen whales that they probably do not have stereoscopic vision.

On the other hand, the position of the eyes in most dolphins and porpoises suggests that they have stereoscopic vision forward and downward. Eye position in freshwater dolphins, which often swim on their side or upside down while feeding, suggests that what vision they have is stereoscopic forward and upward. By comparison, the bottlenose dolphin has extremely keen vision in water. Judging from the way it watches and tracks airborne flying fish, it can apparently see fairly well through the air-water interface as well. And although preliminary experimental evidence suggests that their in-air vision is poor, the accuracy with which dolphins leap high to take small fish out of a trainer's hand provides anecdotal evidence to the contrary.

Such variation can no doubt be explained with reference to the habitats in which individual species have developed. For example, vision is obviously more useful to species inhabiting clear open waters than to those living in turbid rivers and flooded plains. The South American boto and Chinese baiji, for instance, appear to have very limited vision, and the Indian manatee are blind, their eyes reduced to slits that probably allow them to sense only the direction and intensity of light.



Although the senses of taste and smell appear to have deteriorated, and vision in water appears to be uncertain, such weaknesses are more than compensated for by cetaceans' well-developed acoustic sense. Most species are highly vocal, although they vary in the range of sounds they produce, and many forage for food using echolocation¹. Large baleen whales primarily use the lower frequencies and are often limited in their repertoire. Notable exceptions are the nearly song-like choruses of bowhead whales in summer and the complex, haunting utterances of the humpback whales. Toothed species in general employ more of the frequency spectrum, and produce a wider variety of sounds, than baleen species (though the sperm whale apparently produces a monotonous series of high-energy clicks and little else). Some of the more complicated sounds are clearly communicative, although what role they may play in the social life and 'culture' of cetaceans has been more the subject of wild speculation than of solid science.

**echolocation: the perception of objects by means of sound wave echoes.*

Answer the questions below using NO MORE THAN THREE WORDS from the passage for each answer.

1. Which of the senses is described here as being involved in mating?

2. Which species swims upside down while eating?

3. What can bottlenose dolphins follow from under the water?

4. Which type of habitat is related to good visual ability?

5. Which of the senses is best developed in cetaceans?
