Day 13

READING PASSAGE 1

*You should spend about 20 minutes on **Questions 1–13**, which are based on Reading Passage 1 below.*

Meet the hedgehog

A In Norwich, England, the first housing development designed for both hedgehogs and people has been built. All through the gardens and fences is a network of pathways and holes installed just for the ancient, spiny creatures. It's a paradise that Fay Vass, chief executive of the British Hedgehog Preservation Society, calls 'absolutely fantastic. As for the developers, they have reason to think the animals will help make home sales fantastic, too. Part of the attraction is that many people simply love hedgehogs, particularly in Britain, where children's book writer Beatrix Potter introduced Mrs. Tiggy-Winkle, a hedgehog character, over a century ago. But part of the attraction is also rooted in science. Studies have helped make clear that hedgehogs are good for gardens, eating vast numbers of slugs and other pests as they forage in the vegetation at night.

B Recent scientific studies about hedgehogs have helped explain mysteries as varied as why hedgehogs apply saliva to their entire bodies, how they have survived on the planet for 30 million years, why they chew toxic toad skins and what secrets they may hold about evolution. As one of the most primitive mammals on theplanet, the hedgehog has been helping geneticists understand evolutionary relationships among mammals and even uncover secrets of the human genome[1]. At Duke University, for example, scientists chose the hedgehog and 14 other species to study the lineages of mammals. They determined among other things that marsupials (e.g. kangaroos) are not related to monotremes (the egg-laying platypus and echidna), which had long been a subject of debate. Such questions are not just academic. 'If you are trying to trace, for example, the evolutionary steps of foetal heart development to better understand how foetal defects occur, it helps to know which mammals are related so that you can make accurate inferences about one mammal from another mammal's development, says researcher Keith Killian.

C Still, much about hedgehogs remains unknown. For one thing, scientists think they haven't even discovered all the hedgehog species. We know of at least 14,' says hedgehog researcher Nigel Reeve of Britain's University of Surrey Roehampton, 'It's almost certain that there are more species. The 14 known species are native to Africa and parts of Asia as well as Europe. Some hibernate through cold winters in the north. Others tolerate desert heat near the equator. Some live in urban areas, adapting well to living in close proximity to humans. Others live in areas that rank among the most remote places on the planet.

[1] *genome*: the complete set of genetic material of a living thing

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D Hedgehogs spend much of their time alone, but Reeve says it would be a mistake to think of them as solitary. Hedgehogs do approach each other and can detect the presence of others by their scent,' he says. It is true that they usually do not interact at close quarters, but that does not mean they are unaware of their neighbours They may occasionally scrap over food items and rival males attracted to a female may also have aggressive interactions. Still, it's fair to say that, in adulthood, hedgehogs meet primarily to mate, producing litters of four or five hoglets as often as twice yearly.

E Adult hedgehogs eat just about anything they can find: insects, snakes, bird eggs, small rodents and more. Veterinarians trying to understand gum disease in domesticated hedgehogs have concluded that the varied diet of wild hedgehogs gives them more than nutrition-the hard bodies of insects also scrape the hedgehogs' teeth clean.

F All hedgehogs also share the same defence mechanism: they retract their vulnerable parts-head, feet, belly-into a quill-covered ball, using special skin down their sides and over their heads and feet. Any perceived threat can. make them roll up, including the approach of a biologist, so researchers have invented a new measurement for the animals: ball length. Young hedgehogs have a few extra defence strategies. 'One is to spring up in the air, says Reeve. 'A fox would get a face full of bristles. They make a little squeak while they do it.' Evidence suggests that hedgehogs may also add unpleasant chemicals to their quills to make them even less appealing. In behaviour that may be unique for a vertebrate, they chew substances laden with toxins and then apply frothy saliva to their entire bodies. In one 1977 study, human volunteers pricked themselves with quills from hedgehogs that had coated themselves after chewing on venomous toad skins. The volunteers found those quills much more imitating and painful than clean ones.

G However, every year, many thousands of the animals die on roads in Europe and elsewhere as they go about their nightly business. Along with intensive farming and pesticides, road kill has taken its toll on hedgehog populations. One 2002 study found the animal numbers had dropped by between 20 and 30 per cent in a single decade. To help combat the decline, the British have established special clinics for injured hedgehogs, urged that anyone making a bonfire check for the animals underneath first, and ensured that hedgehogs can cope with cattle grids. Recently, they even persuaded *McDonald's* to alter the packaging of its *McFlurry* ice-cream container, which had been trapping foraging hedgehogs.

H Ironically, for centuries the English considered these animals as vermin. Even 50 years ago gamekeepers were killing as many as 10,000 a year thinking they were no more than bird-egg-eating pests. In some places today, scientists are coming to the same conclusions all over again. In the 1970s, hedgehogs were introduced to the Hebrides Islands off Scotland to help combat garden slugs. With no natural enemies there, a few hedgehogs soon turned into thousands. Wildlife researchers have watched the hedgehogs reduce the numbers of rare ground - nesting wading birds by feasting on their eggs. Efforts to cull the animals in the past two years have upset Britain's conservationists who have countered with strategies to relocate the animals.

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Questions 1–9

The reading passage has eight sections, ***A–H.***

Which sections contain the following information?

Write the correct letter, ***A–H****, in boxes 1–9 on your answer sheet.*

NB *You may use any letter more than once.*

1 The significance of establishing the relationship between different species.

2 The different habitats where hedgehogs can be found.

3 The reason why standard forms of measurement cannot be used for the hedgehog.

4 A problem associated with hedgehogs kept as pets.

5 Two reasons why hedgehogs are popular with people in the UK.

6 Four findings from the latest research into hedgehogs.

7 The social habits of the hedgehog.

8 The number of hedgehog species already identified.

9 The name given to baby hedgehogs.

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Questions 10–13

*Choose the correct answer **A, B, C** or **D.***

Write the correct letter in boxes 10–13 on your answer sheet.

10 The study conducted in 1977 revealed a possible reason why

- **A** hedgehogs clean their quills.
- **B** hedgehogs chew poisonous animal skins.
- **C** adult hedgehogs do not leap into the air.
- **D** young hedgehogs make a high-pitched noise.

11 In Britain, which of the following has NOT been done to protect hedgehogs?

- **A** The opening of hospitals just for hedgehogs.
- **B** Imposing fines for littering in areas where hedgehogs live.
- **C** The alteration of a container produced by a fast-food chain
- **D** Alerting people to the potential dangers faced by hedgehogs

12 What are the 'conclusions' that scientists on the Hebrides Islands have reached again?

- **A** Hedgehog numbers are declining.
- **B** Hedgehogs pose a threat to other wildlife.
- **C** Hedgehogs can safely be introduced there.
- **D** Hedgehogs can be used effectively as a natural predator.

13 What would conservationists prefer to do on the Hebrides Islands?

- **A** Introduce a native predator of hedgehogs.
- **B** Kill a small number of hedgehogs.
- **C** Remove ground-nesting birds.
- **D** Move the hedgehogs elsewhere.

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