

**PART II****READING**

**PASSAGE 1:** Read the text below and answer the questions 1-7

### Learn to Skydive

Accelerated Freefall (AFF) is an intensive skydiving course and you can experience a freefall on your very first jump. We offer the AFF Level 1 course as a unique introduction to the world of parachuting and skydiving. It's great as a one-off freefall experience. However, the full eight-level Accelerated Freefall course is the best way to learn to skydive and attain your licence as a qualified parachutist, which allows you to jump at skydiving centres across the world.

The AFF Level 1 course begins with an intensive day of ground training. During the day, you will learn how your parachute equipment works and how to check and fit it, how to exit the aircraft, how to maintain the correct body position in the air, monitor your altitude and deploy your parachute and how to deal with emergencies. The day will finish with a written test. The training can be both mentally and physically tiring so you should stay overnight if you wish to do your first jump the next day. For safety reasons we require you to return and jump in less than a month after your training in order to complete the Level 1 course.

When you come to do your jump you will receive refresher training before you board the aircraft. You will exit the aircraft with two AFF Level 1 instructors. They will provide in-air coaching as they fall alongside you, holding onto your harness. You will experience about one minute of freefall and deploy your own parachute, then fly and navigate for around five minutes before landing on the dropzone. Following this, you will meet your instructors to debrief the jump and collect your certificate. Shortly after you arrive home, you will receive an email link to the instructors' footage of your skydive to post online.

There are some restrictions for solo skydiving. The maximum acceptable weight is 95 kg fully clothed and a reasonable level of fitness is required. As far as age is concerned, the minimum is 16 and a parental signature of consent is required for students of 16-17 on three forms. Adults over 45 wishing to skydive must bring a completed Declaration of Fitness form signed and stamped by their doctor. Acceptance rests with the head instructor.

In boxes 1-7 on your answer sheet, write

*TRUE*                      if the statement agrees with the information

*FALSE*                    if the statement contradicts the information

*NOT GIVEN*            if there is no information on this

1 After doing the AFF Level 1 course, people can skydive in different countries.

2 The AFF Level 1 course takes more than one day to complete.

3 Students must do their first jump within a certain period.

4 Training continues after the student jumps out of the plane.

5 During a first jump, an instructor will open the student's parachute.

6 Instructors usually film the first jumps that the students make.

7 Students will be divided into age groups when taking the course.

**PASSAGE 2:** Spend about 20 minutes on Questions 8-21, which are based on the passage below.

### Left or Right?

An overview of some research into lateralization:

*The dominance<sup>1</sup> of one side of the body over the other side*

#### A

Creatures across the animal kingdom have a preference for one foot, eye or even antenna. The cause of this trait, called lateralization, is fairly simple: one side of the brain, which generally controls the opposite side of the body, is more dominant than the other when processing certain tasks. This does, on some occasions, let the animal down: such as when a toad fails to escape from a snake approaching from the right, just because its right eye is worse at spotting danger than its left. So why would animals evolve a characteristic that seems to endanger them?

#### B

For many years it was assumed that lateralization was a uniquely human trait, but this notion rapidly fell apart as researchers started uncovering evidence of lateralization in all sorts of animals. For example, in the 1970s, Lesley Rogers, now at the University of New England in Australia, was studying memory and learning in chicks. She had been injecting a chemical into chicks' brains to stop them learning how to spot grains of food among distracting pebbles, and was surprised to observe that the chemical only worked when applied to the left hemisphere of the brain. That strongly suggested that the right side of the chick's brain played little or no role in the learning of such behaviors. Similar evidence appeared in songbirds and rats around the same time, and since then, researchers have built up an impressive catalogue of animal lateralization.

#### C

In some animals, lateralization is simply a preference for a single paw or foot, while in others it appears in more general patterns of behavior. The left side of most vertebrate brains, for example, seems to process and control feeding. Since the left hemisphere processes input from the right side of the body, that means animals as diverse as fish, toads and birds are

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<sup>1</sup> *Dominance: The fact of being more powerful, more important, or more noticeable than other things*

more likely to attack prey or food items viewed with their right eye. Even humpback whales prefer to use the right side of their jaws to scrape sand eels from the ocean floor.

## D

Genetics plays a part in determining lateralization, but environmental factors have an impact too. Rogers found that a chick's lateralization depends on whether it is exposed to light before hatching from its egg - if it is kept in the dark during this period, neither hemisphere becomes dominant. In 2004, Rogers used this observation to test the advantages of brain bias in chicks faced with the challenge of multi-tasking. She hatched chicks with either strong or weak lateralization, then presented the two groups with food hidden among small pebbles and the threatening shape of a fake predator flying overhead. As predicted, the birds incubated in the light looked for food mainly with their right eye, while using the other to check out the predator. The weakly-lateralized chicks, meanwhile, had difficulty performing these two activities simultaneously.

## E

Similar results probably hold true for many other animals. In 2006, Angelo Bisazza at the University of Padua set out to observe the differences in feeding behavior between strongly-lateralized and weakly-lateralized fish. He found that strongly-lateralized individuals were able to feed twice as fast as weakly-lateralized ones when there was a threat of a predator looming above them. Assigning different jobs to different brain halves may be especially advantageous for animals such as birds or fish, whose eyes are placed on the sides of their heads. This enables them to process input from each side separately, with different tasks in mind.

## F

And what of those animals who favor a specific side for almost all tasks? In 2009, Maria Magat and Culum Brown at Macquarie University in Australia wanted to see if there was general cognitive advantage in lateralization. To investigate, they turned to parrots, which can be either strongly right- or left-footed, or ambidextrous (without dominance). The parrots were given the intellectually demanding task of pulling a snack on a string up to their beaks, using a coordinated combination of claws and beak. The results showed that the parrots with the strongest foot preferences worked out the puzzle far more quickly than their ambidextrous peers.

## G

A further puzzle is why there are always a few exceptions, like left-handed humans, who are wired differently from the majority of the population? Giorgio Vallortigara

and Stefano Ghirlanda of Stockholm University seem to have found the answer via mathematical models. These have shown that a group of fish is likely to survive a shark attack with the fewest casualties if the majority turn together in one direction while a very small proportion of the group escape in the direction that the predator is not expecting.

H

This imbalance of lateralization within populations may also have advantages for individuals. Whereas most co-operative interactions require participants to react similarly, there are some situations - such as aggressive interactions - where it can benefit an individual to launch an attack from an unexpected quarter. Perhaps this can partly explain the existence of left-handers in human societies. It has been suggested that when it comes to hand-to-hand fighting, left-handers may have the advantage over the right-handed majority. Where survival depends on the element of surprise, it may indeed pay to be different.

### Questions 8-11

Complete each sentence with the correct ending, A-F, below.

Write the correct letter, A-F, in boxes 8-11 on your answer sheet.

- 8 In the 1970s, Lesley Rogers discovered that ...
- 9 Angelo Bisazza's experiments revealed that ...
- 10 Magat and Brown's studies show that ...
- 11 Vallortigara and Ghirlanda's research findings suggest that ...

A lateralization is more common in some species than in others.

B it benefits a population if some members have a different lateralization than the majority.

C lateralization helps animals do two things at the same time.

D lateralization is not confined to human beings.

E the greater an animal's lateralization, the better it is at problem-solving.

F strong lateralization may sometimes put groups of animals in danger.

### Questions 12-16

Complete the summary below.

Choose **ONE WORD ONLY** from the **passage** for each answer.

Write your answers in boxes 31-35 on your answer sheet.

### Lesley Rogers' 2004 Experiment

Lateralization is determined by both genetic and **12** ..... influences. Rogers found that chicks whose eggs are given **13** ..... during the incubation period tend to have a stronger lateralization. Her 2004 experiment set out to prove that these chicks were better at **14** ..... than weakly lateralized chicks. As expected, the strongly lateralized birds in the experiment were more able to locate **15** ..... using their right eye, while using their left eye to monitor an imitation **16** ..... located above them.

### Questions 17-21

Reading **Passage 2** has eight paragraphs, A-H.

Which paragraph contains the following information?

Write the correct letter, A-H, in boxes 17-21 on your answer sheet.

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

**17** description of a study which supports another scientist's findings

**18** the suggestion that a person could gain from having an opposing lateralization to most of the population

**19** reference to the large amount of knowledge of animal lateralization that has accumulated

**20** research findings that were among the first to contradict a previous belief

**21** a suggestion that lateralization would seem to disadvantage animals

