READING PASSAGE 3

*You should spend about 20 minutes on **Questions 27–40**, which are based on Reading Passage 3 below.*

An inquiry into the existence of the gifted child

Let us start by looking at a modern 'genius', Maryam Mirzakhani, who died at the early age of 40. She was the only woman to win the Fields Medal – the mathematical equivalent of a Nobel prize. It would be easy to assume that someone as special as Mirzakhani must have been one of those 'gifted' children, those who have an extraordinary ability in a specific sphere of activity or knowledge. But look closer and a different story emerges. Mirzakhani was born in Tehran, Iran. She went to a highly selective girls' school but maths wasn't her interest – reading was. She loved novels and would read anything she could lay her hands on. As for maths, she did rather poorly at it for the first couple of years in her middle school, but became interested when her elder brother told her about what he'd learned. He shared a famous maths problem from a magazine that fascinated her – and she was hooked.

In adult life it is clear that she was curious, excited by what she did and also resolute in the face of setbacks. One of her comments sums it up. 'Of course, the most rewarding part is the "Aha" moment, the excitement of discovery and enjoyment of understanding something new . . . But most of the time, doing mathematics for me is like being on a long hike with no trail and no end in sight.' That trail took her to the heights of original research into mathematics.

Is her background unusual? Apparently not. Most Nobel prize winners were unexceptional in childhood. Einstein was slow to talk as a baby. He failed the general part of the entry test to Zurich Polytechnic – though they let him in because of high physics and maths scores. He struggled at work initially, but he kept plugging away and eventually rewrote the laws of Newtonian mechanics with his theory of relativity.

There has been a considerable amount of research on high performance over the last century that suggests it goes way beyond tested intelligence. On top of that, research is clear that brains are flexible, new neural pathways can be created, and IQ isn't fixed. For example, just because you can read stories with hundreds of pages at the age of five doesn't mean you will still be ahead of your contemporaries in your teens.

While the jury is out on giftedness being innate and other factors potentially making the difference, what is certain is that the behaviours associated with high levels of performance are replicable and most can be taught – even traits such as curiosity.

According to my colleague Prof Deborah Eyre, with whom I've collaborated on the book *Great Minds and How to Grow Them*, the latest neuroscience and psychological research suggests most individuals can reach levels of performance associated in school with the gifted and talented. However, they must be taught the right attitudes and approaches to their learning and develop the attributes of

high performers – curiosity, persistence and hard work, for example – an approach Eyre calls 'high performance learning'. Critically, they need the right support in developing those approaches at home as well as at school.

Prof Anders Ericsson, an eminent education psychologist at Florida State University, US, is the co-author of *Peak: Secrets from the New Science of Expertise*. After research going back to 1980 into diverse achievements, from music to memory to sport, he doesn't think unique and innate talents are at the heart of performance. Deliberate practice, that stretches you every step of the way, and around 10,000 hours of it, is what produces the goods. It's not a magic number – the highest performers move on to doing a whole lot more, of course. Ericsson's memory research is particularly interesting because random students, trained in memory techniques for the study, went on to outperform others thought to have innately superior memories – those who you might call gifted.

But it is perhaps the work of Benjamin Bloom, another distinguished American educationist working in the 1980s, that gives the most pause for thought. Bloom's team looked at a group of extraordinarily high achieving people in disciplines as varied as ballet, swimming, piano, tennis, maths, sculpture and neurology. He found a pattern of parents encouraging and supporting their children, often in areas they enjoyed themselves. Bloom's outstanding people had worked very hard and consistently at something they had become hooked on when at a young age, and their parents all emerged as having strong work ethics themselves.

Eyre says we know how high performers learn. From that she has developed a high performing learning approach. She is working on this with a group of schools, both in Britain and abroad. Some spin-off research, which looked in detail at 24 of the 3,000 children being studied who were succeeding despite difficult circumstances, found something remarkable. Half were getting free school meals because of poverty, more than half were living with a single parent, and four in five were living in disadvantaged areas. Interviews uncovered strong evidence of an adult or adults in the child's life who valued and supported education, either in the immediate or extended family or in the child's wider community. Children talked about the need to work hard at school, to listen in class and keep trying.

Let us end with Einstein, the epitome of a genius. He clearly had curiosity, character and determination. He struggled against rejection in early life but was undeterred. Did he think he was a genius or even gifted? He once wrote: 'It's not that I'm so smart, it's just that I stay with problems longer. Most people say it is the intellect which makes a great scientist. They are wrong: it is character.'

Questions 27–32

*Complete the summary using the list of phrases, **A–K**, below.*

*Write the correct letter, **A–K**, in boxes 27–32 on your answer sheet.*

Maryam Mirzakhani

Maryam Mirzakhani is regarded as **27** ..... in the field of mathematics because she was the only female holder of the prestigious Fields Medal – a record that she retained at the time of her death. However, maths held little **28** ..... for her as a child and in fact her performance was below average until she was **29** ..... by a difficult puzzle that one of her siblings showed her.

Later, as a professional mathematician, she had an inquiring mind and proved herself to be **30** ..... when things did not go smoothly. She said she got the greatest **31** ..... from making ground-breaking discoveries and in fact she was responsible for some extremely **32** ..... mathematical studies.

A appeal	**B** determined	**C** intrigued
D single	**E** achievement	**F** devoted
G involved	**H** unique	**I** innovative
J satisfaction	**K** intent	

Questions 33–37

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 33–37 on your answer sheet, write

YES	*if the statement agrees with the claims of the writer*
NO	*if the statement contradicts the claims of the writer*
NOT GIVEN	*if it is impossible to say what the writer thinks about this*

33 Many people who ended up winning prestigious intellectual prizes only reached an average standard when young.

34 Einstein's failures as a young man were due to his lack of confidence.

35 It is difficult to reach agreement on whether some children are actually born gifted.

36 Einstein was upset by the public's view of his life's work.

37 Einstein put his success down to the speed at which he dealt with scientific questions.

Questions 38–40

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

Write the correct letter in boxes 38–40 on your answer sheet.

38 What does Eyre believe is needed for children to equal 'gifted' standards?

A strict discipline from the teaching staff
B assistance from their peers in the classroom
C the development of a spirit of inquiry towards their studies
D the determination to surpass everyone else's achievements

39 What is the result of Ericsson's research?

A Very gifted students do not need to work on improving memory skills.
B Being born with a special gift is not the key factor in becoming expert.
C Including time for physical exercise is crucial in raising performance.
D 10,000 hours of relevant and demanding work will create a genius.

40 In the penultimate paragraph, it is stated the key to some deprived children's success is

A a regular and nourishing diet at home.
B the loving support of more than one parent.
C a community which has well-funded facilities for learning.
D the guidance of someone who recognises the benefits of learning.

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