READ THESE INSTRUCTIONS FIRST

This insert contains the two reading passages.
Passage 1 – Glass

1 Glass can be produced naturally when volcanic lava cools quickly, and this material, called obsidian, was used by many Stone Age societies as a sharp cutting tool. The first man-made glass may have been an accidental discovery. The Roman historian Pliny, trying to explain the origins of glass, told the story of how Phoenician sailors, preparing a meal, propped up their cooking pots on the sandy beach with blocks of a substance from the ship's cargo which he called nitrum; the nitrum mixed with sand produced streams of translucent liquid which, when hardened, we now call glass.

2 Whatever its origins, glass was certainly manufactured over 5,000 years ago in Mesopotamia, where it was a luxury item used to make jewellery. In Ancient Egypt there was a rapid growth in glass-making technology, resulting in many utensils being made from glass, which were often given as presents to important people. The Egyptians developed techniques to create a range of vibrant colours of glass in shades of yellow, red, green, blue and purple, thereby enhancing its popularity.

3 Wealthy Roman citizens used patterns of coloured glass, called mosaics, to cover floors and walls; mosaics are extremely beautiful and are among the most enduring of Roman art work. Through time, glass utensils became less expensive to the Romans than the pottery ones; glass became as common as plastic is today and a growth in its use occurred throughout the Roman world. With the discovery of clear glass, the Romans began to use glass for architectural purposes; windows, although not the translucent type we know today, began to appear in public buildings and luxurious houses.

4 Around the time of the growth of the Roman Empire, the availability and popularity of glass was increased by the invention of glass-blowing. In this process, glass is heated, inflated and then blown to make utensils, such as bottles for perfume and oil, which harden as the glass cools down. The fact that beautiful small blown-glass bottles, dating from almost 2,000 years ago, have been found in Greece is only one piece of evidence that glass spread to many parts of the world, for example present-day Lebanon, Israel and Cyprus.

5 In Christian churches, windows made of stained glass – small pieces of coloured glass held together by lead – told religious stories to people, many of whom were illiterate and therefore not able to read them for themselves. The glass had to be watertight, fit a particular space and support its own weight; admiration for the artistry involved here did much to ensure the popularity of glass.

6 As a building material in modern times, glass has several advantages. If a building has many windows, it allows the entry of natural light, creating a feeling of airiness and space. The best way for an architect to show his creativity is by using different patterns and colours of glass. When whole walls are built out of glass, less electricity is required to light the building. Glass is a bad conductor of heat, which means that in cold countries more heat is kept in, while in hot countries it is kept out. This means that the amount spent on fuel bills for heating and air-conditioning respectively is much reduced. Modern glass can be given different types of coating and insulation, making it even more energy-saving. Moreover, the use of glass in architectural design is very popular nowadays for the construction of public buildings or office complexes because it is a relatively inexpensive building material. Buildings made of glass are absolutely stunning. Curved glass is a modern phenomenon which is widely used nowadays in the construction of airports, concert halls and shopping arcades.

7 Glass is an attractive storage material that is completely recyclable; where glass is not recycled it is only because people are not willing to make the effort to do so. Glass can be seen as playing an important role in public education on the need to save our planet. An example of practical glass recycling is Ngwenya in Swaziland, a workshop which makes beautiful objects from recycled glass; not only are local people encouraged to collect old glass, but Ngwenya Glass also works with schools to instil in the children a sense of environmental awareness. Glass, as a storage material, can be recycled more easily than other storage materials, such as plastic, and in this respect it has a huge advantage over them.
Passage 2 – Pi

1 I was named after a swimming pool. My uncle, who was a great storyteller, had spent time in France. Most of his stories were about swimming competitions and swimming pools there, in particular Piscine Molitor, or Molitor Swimming Pool, ‘piscine’ being the French word for ‘swimming pool’. What was even odder about my name was that my parents never liked large expanses of water.

2 On my first day at school, one of my classmates, full of evil genius, pointed at me, shouting, ‘Piscine! What a silly name!’ In a second everyone was laughing, and it did not fall away until we filed into class. The cruelty of children comes as news to no-one. Laughter would waft across the yard to me, unprovoked. I would freeze or, alternatively, pursue my activities, pretending not to have heard. The sound would disappear, but the hurt would linger.

3 Teachers also showed, however inadvertently, that they found my name amusing. As the day wore on, the temperature rose and the lessons, which in the morning had been as compact as an oasis, started to stretch out like a desert. In the afternoon, as the teachers wiped their foreheads with their handkerchiefs, even they seemed to smirk as they used my name. Sometimes when my hand was up to give an answer, I anticipated the insult and changed my mind. Then the teacher would look at me curiously, wondering why I was no longer offering to answer.

4 When I went to secondary school, my older brother Ravi was already there and, like all younger brothers, I would suffer from having to follow in the footsteps of a very clever older sibling, who already had a good reputation. That I was an excellent swimmer was unimportant; it seems to be a law of nature that those who live by the sea, as we did, see swimmers as rather odd. But it wasn't being related to Ravi, the elected captain of the school cricket team, that allowed me to escape from my name. I had a better plan than that.

5 I carried out my plan on the very first day of secondary school, in the very first class, which started with the checking of names. We were to remain seated and call out our names from our desks.

‘Vipin Nath,’ said Vipin Nath.

‘Stanley Kumar,’ said Stanley Kumar.

‘Sylvester Naveen,’ said Sylvester Naveen, right in front of me.

It was my turn. I got up promptly from my desk and hurried to the chalkboard. Before the teacher could say a word, I picked up a piece of chalk and said as I wrote, ‘My name is Piscine Molitor Patel, known to all as Pi.’ I double-underlined the first two letters of my given name. There was silence. The teacher was staring at the chalkboard. I was holding my breath. Then he said, ‘Very well, Pi. But next time ask permission before leaving your desk.’ I was saved. I could breathe. It was a new beginning. I repeated the stunt with every teacher that day. Between one boy and another, I rushed forward and emblazoned, sometimes with a terrible screech of chalk, the details of my rebirth.

6 When I put up my hand that day to answer questions, which I did at every chance I had, teachers granted me the right to speak with a single syllable that was music to my ear. Students followed suit; in fact, the name really caught on. Even my brother, that local god, the captain of the school cricket team, approved. ‘What's this I hear about you having a new name?’ he said. ‘I didn't realise you liked the colour yellow so much.’ I kept silent because, whatever mocking was to come, there was no avoiding it. I looked around. Nobody must hear what he might have been about to say, especially not one of his friends. 'It's all right with me, brother,' he said. 'Anything's better than “swimming pool”, even “lemon pie”.' As he sauntered away he smiled and said, ‘You look a bit red in the face.'

7 And so, in my new name, I found refuge.