PART 4 *Questions 31–40*

Complete the notes below.

*Write **ONE WORD ONLY** for each answer.*

Tardigrades

- more than 1,000 species, 0.05–1.2 millimetres long
- also known as water 'bears' (due to how they **31** .....) and 'moss piglets'

Physical appearance

- a **32** ..... round body and four pairs of legs
- claws or **33** ..... for gripping
- absence of respiratory organs
- body filled with a liquid that carries both **34** ..... and blood
- mouth shaped like a **35** ..... with teeth called stylets

Habitat

- often found at the bottom of a lake or on plants
- very resilient and can exist in very low or high **36** .....

Cryptobiosis

- In dry conditions, they roll into a ball called a 'tun'.
- They stay alive with a much lower metabolism than usual.
- A type of **37** ..... ensures their DNA is not damaged.
- Research is underway to find out how many days they can stay alive in **38** ..... .

Feeding

- consume liquids, e.g., those found in moss or **39** .....
- may eat other tardigrades

Conservation status

- They are not considered to be **40** ..... .

→ p. 122 p. 107

READING

READING PASSAGE 1

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

The Industrial Revolution in Britain

The Industrial Revolution began in Britain in the mid-1700s and by the 1830s and 1840s had spread to many other parts of the world, including the United States. In Britain, it was a period when a largely rural, agrarian* society was transformed into an industrialised, urban one. Goods that had once been crafted by hand started to be produced in mass quantities by machines in factories, thanks to the invention of steam power and the introduction of new machines and manufacturing techniques in textiles, iron-making and other industries.

The foundations of the Industrial Revolution date back to the early 1700s, when the English inventor Thomas Newcomen designed the first modern steam engine. Called the 'atmospheric steam engine', Newcomen's invention was originally used to power machines that pumped water out of mines. In the 1760s, the Scottish engineer James Watt started to adapt one of Newcomen's models, and succeeded in making it far more efficient. Watt later worked with the English manufacturer Matthew Boulton to invent a new steam engine driven by both the forward and backward strokes of the piston, while the gear mechanism it was connected to produced rotary motion. It was a key innovation that would allow steam power to spread across British industries.

The demand for coal, which was a relatively cheap energy source, grew rapidly during the Industrial Revolution, as it was needed to run not only the factories used to produce manufactured goods, but also steam-powered transportation. In the early 1800s, the English engineer Richard Trevithick built a steam-powered locomotive, and by 1830 goods and passengers were being transported between the industrial centres of Manchester and Liverpool. In addition, steam-powered boats and ships were widely used to carry goods along Britain's canals as well as across the Atlantic.

Britain had produced textiles like wool, linen and cotton, for hundreds of years, but prior to the Industrial Revolution, the British textile business was a true 'cottage industry', with the work performed in small workshops or even homes by individual spinners, weavers and dyers. Starting in the mid-1700s, innovations like the spinning jenny and the power loom made weaving cloth and spinning yarn and thread much easier. With these machines, relatively little labour was required to produce cloth, and the new, mechanised textile factories that opened around the country were quickly able to meet customer demand for cloth both at home and abroad.

---

* agrarian: relating to the land, especially the use of land for farming