



CE.E31 Reading and Comprehension (Non-Fiction) Set 7

ISEB COMMON ENTRANCE CE.E31 · Calculators not allowed · about 70 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

The Girl Who Read the Rocks

Original narrative account written for Revision Library, grounded in the documented history of Mary Anning's fossil discoveries, including the 1811 ichthyosaur excavation, the 1823 plesiosaur discovery and her exclusion from the Geological Society of London.

[1] In the winter of 1811, a twelve-year-old girl named Mary Anning noticed a strange shape emerging from the crumbling grey cliffs near her home in Lyme Regis, a small town on the Dorset coast where fierce storms regularly tore fresh fossils loose from the rock. Her brother Joseph had already uncovered part of what looked like an unusually large skull, and Mary spent months carefully chipping away at the surrounding stone with a small hammer and chisel until an entire seventeen-foot skeleton lay exposed on the beach: a creature with the jaws of a crocodile, the body of a fish and eye sockets the size of dinner plates. Nobody in Lyme Regis, and indeed nobody in the whole of England, had ever seen anything quite like it before.

[2] Fossil hunting was, by 1811, already the Anning family's trade rather than a childhood hobby. Mary's father, a cabinet maker by profession, had supplemented the family's meagre income for years by combing the beach after storms and selling small ammonites and other curiosities to visitors as souvenirs, a practice Mary and Joseph learned to copy almost as soon as they could walk along the shoreline safely. When their father died suddenly in 1810, leaving the family deep in debt, fossil hunting stopped being a sideline and became, for young Mary, one of the family's only reliable sources of income. She had received almost no formal schooling, yet she taught herself to read scientific papers, to dissect fish and squid to understand anatomy, and to recognise, at a glance across a crowded shingle beach, the tell-tale curve of bone that an untrained eye would have walked straight past.

[3] The great skeleton took months to remove safely from the unstable cliff face, a job that was slow, physically exhausting and genuinely dangerous; landslips along that stretch of coast had already killed Mary's own dog, Tray, and very nearly killed Mary herself on more than one occasion. Once fully excavated, the skeleton was eventually sold to a local landowner for twenty-three pounds, a considerable sum for the struggling Anning family, and put on public display in London under the name *Ichthyosaurus*, meaning 'fish lizard'. Scientific gentlemen argued for years over exactly what the strange creature had been and how old it truly was, yet in almost every published account of the discovery, credit went to the man who had purchased the skeleton, not to the young woman who had actually found, excavated and correctly identified it.

[4] Mary's most startling discovery came a decade later, in 1823, when she unearthed the almost complete skeleton of a creature with a body like a turtle's, a tiny head and a neck so extraordinarily long that several leading scientists in Europe initially refused to believe it was genuine. The eminent French naturalist Georges Cuvier declared, from the comfort of his Paris study, that the specimen must surely be a fake, cobbled together from several different animals. It took a formal presentation of Mary's detailed notes and drawings to the Geological Society of London, and Cuvier's own eventual, grudging retraction, before the creature was accepted as an entirely new species: the plesiosaur. Mary had been right, and one of the most respected scientists in Europe had been proved wrong.

[5] Despite discoveries that reshaped how scientists understood prehistoric life, Mary Anning was barred, for the whole of her working life, from the institutions built around the very science she had helped to create. As a woman, she could not become a member of the Geological Society of London, nor could she attend its meetings, even on the rare occasions when a paper discussing her own fossils was being read aloud to the room. Leading geologists nonetheless travelled to Lyme Regis to consult her privately, buying specimens from her shop and relying on her expertise in letters that rarely, if ever, acknowledged her by name in their published papers. It was, as one of her friends observed at the time, a strange kind of fame: celebrated quietly among the scientists who needed her knowledge, and almost entirely invisible to the wider public who admired the fossils she found.

[6] Mary Anning died of breast cancer in 1847, at the age of forty-seven, having spent almost her entire life on that same stretch of the Dorset coast where she had found her first ichthyosaur as a child. Full recognition came slowly and mostly after her death: the Geological Society, which had never allowed her to join, paid for a stained-glass window in her memory, and it would be well over a century before museums and textbooks routinely credited her by name for the discoveries she had made. Today, the cliffs near Lyme Regis are still known among fossil hunters as one of the richest stretches of coastline in the world, and every storm still has the power, just as it did in 1811, to reveal something extraordinary that has been waiting in the rock for two hundred million years.

- 1 Give the meaning of the following words as they are used in paragraph [1]: (a) 'crumbling' (b) 'exposed'.

(Total for Question 1 is 2 marks)

- 2 In which year did Mary Anning excavate the ichthyosaur skeleton, according to paragraph [1]?

(Total for Question 2 is 1 mark)

3 According to paragraph [1], who discovered part of the skull before Mary excavated the rest of the skeleton?

- ☐ A) her father
- ☐ B) her brother Joseph
- ☐ C) a local geologist
- ☐ D) Georges Cuvier

(Total for Question 3 is 1 mark)

4 Explain the effect of the phrase describing the eye sockets as 'the size of dinner plates' (paragraph [1]).

(Total for Question 4 is 2 marks)

5 According to paragraph [2], what was Mary's father's profession?

(Total for Question 5 is 1 mark)

6 Give two details from paragraph [2] that show Mary taught herself scientific skills without any formal schooling.

(Total for Question 6 is 2 marks)

7 Explain the effect of the phrase 'an untrained eye would have walked straight past' (paragraph [2]).

(Total for Question 7 is 2 marks)

8 According to paragraph [3], what happened to Mary's dog, Tray?

- ☐ A) it found the first fossil
- ☐ B) it was killed in a landslide
- ☐ C) it was sold along with the skeleton
- ☐ D) it helped dig the skeleton free

(Total for Question 8 is 1 mark)

9 Using evidence from paragraph [3], explain in your own words why excavating the ichthyosaur skeleton was difficult and dangerous.

(Total for Question 9 is 3 marks)

10 Explain the effect of the writer's comment that 'in almost every published account of the discovery, credit went to the man who had purchased the skeleton, not to the young woman who had actually found, excavated and correctly identified it' (paragraph [3]).

(Total for Question 10 is 2 marks)

11 State the sum of money the ichthyosaur skeleton was sold for, according to paragraph [3].

(Total for Question 11 is 1 mark)

12 According to paragraph [4], who initially declared that Mary's plesiosaur skeleton must be a fake?

- ☐ A) Mary's brother Joseph
- ☐ B) the Geological Society
- ☐ C) Georges Cuvier
- ☐ D) a local landowner

(Total for Question 12 is 1 mark)

- 13** Explain the effect of the phrase describing Cuvier making his judgement 'from the comfort of his Paris study' (paragraph [4]).

(Total for Question 13 is 2 marks)

- 14** Using evidence from paragraph [4], explain how Mary was eventually proved right about the plesiosaur.

(Total for Question 14 is 3 marks)

- 15** Explain the effect of the phrase describing Mary's fame as 'celebrated quietly among the scientists who needed her knowledge, and almost entirely invisible to the wider public' (paragraph [5]).

(Total for Question 15 is 2 marks)

- 16** Using evidence from paragraph [5], explain in your own words how Mary Anning was treated differently from male scientists of her time.

(Total for Question 16 is 3 marks)

- 17** Explain how the writer structures the passage as a whole to draw attention to the unfairness Mary Anning experienced. Support your answer with reference to language and structure, referring to at least two points in the passage.

(Total for Question 17 is 6 marks)

- 18** Using your own words as far as possible, summarise the discoveries Mary Anning made and the difficulties she faced. Write no more than 60 words.

(Total for Question 18 is 5 marks)

- 19** In your opinion, how successfully does the writer convey both Mary Anning's scientific achievements and the unfairness she experienced? Refer to the whole passage in your answer.

(Total for Question 19 is 8 marks)

Mark scheme • CE.E3 1 Reading and Comprehension (Non-Fiction) Set 7

Question 1

- **B1** (a) breaking apart / falling apart into small pieces (oe)
- **B1** (b) uncovered / revealed, no longer hidden (oe)
- **Answer: (a) Breaking apart into small pieces. (b) Uncovered or revealed, no longer hidden.**

Question 2

- **B1** 1811, cao
- **Answer: 1811.**

Question 3

- **B1** B only, cao
- **Answer: B) her brother Joseph.**

Question 4

- **B1** Identifies the comparison to something large, everyday and familiar to the reader (oe)
- **B1** Comment on effect, e.g. helps the reader visualise the astonishing scale of the creature in concrete, relatable terms, emphasising how extraordinary the discovery was (oe)
- **Answer: Comparing the eye sockets to 'the size of dinner plates' uses something large and everyday to help the reader picture the astonishing scale of the creature in concrete, relatable terms, emphasising just how extraordinary and unfamiliar the discovery was.**

Question 5

- **B1** a cabinet maker, cao
- **Answer: A cabinet maker.**

Question 6

- **B1** She taught herself to read scientific papers (oe)
- **B1** She dissected fish and squid to understand anatomy / she could recognise the tell-tale curve of bone across a crowded beach that others would miss (oe)
- **Answer: She taught herself to read scientific papers; and she dissected fish and squid to understand anatomy, allowing her to recognise the tell-tale curve of bone across a crowded beach that an untrained eye would miss.**

Question 7

- **B1** Identifies the contrast between Mary's skill and an ordinary, untrained observer (oe)
- **B1** Comment on effect, e.g. emphasises how exceptional and hard-won her expertise was, despite having no formal education (oe)
- **Answer: The phrase contrasts Mary's skill with that of an ordinary, untrained observer who would simply walk past. This emphasises how exceptional and hard-won her expertise was, despite her having no formal education.**

Question 8

- **B1** B only, cao
- **Answer: B) it was killed in a landslide.**

Question 9

- **B1** It took months to remove the skeleton safely from an unstable cliff face (oe)
- **B1** The work was slow and physically exhausting (oe)
- **B1** Landslips along the coast were a genuine danger, having already killed her dog and nearly killed Mary herself (oe)
- **Answer: The skeleton took months to remove safely from an unstable cliff face. The work was slow and physically exhausting, and landslips along that stretch of coast were a genuine danger, having already killed Mary's dog and having very nearly killed Mary herself on more than one occasion.**

Question 10

- **B1** Identifies the contrast, or sense of injustice, between who did the work and who received the credit (oe)
- **B1** Comment on effect, e.g. creates a sense of unfairness, drawing the reader's sympathy towards Mary and highlighting a key theme of the passage (oe)
- **Answer: The sentence draws a clear contrast between who actually did the difficult, skilled work and who received the credit for it. This creates a sense of unfairness, drawing the reader's sympathy towards Mary and highlighting one of the passage's central themes.**

Question 11

- **B1** twenty-three pounds, cao
- **Answer: Twenty-three pounds.**

Question 12

- **B1** C only, cao
- **Answer: C) Georges Cuvier.**

Question 13

- **B1** Identifies the implied criticism, or contrast, between Cuvier's comfortable, distant position and Mary's direct, hands-on experience of the fossil (oe)
- **B1** Comment on effect, e.g. suggests his judgement is less trustworthy because he lacks first-hand knowledge, subtly criticising his confidence (oe)
- **Answer: The phrase 'from the comfort of his Paris study' contrasts Cuvier's comfortable, distant position with Mary's direct, hands-on experience of the fossil. This subtly criticises Cuvier's confidence, suggesting his judgement is less trustworthy because he lacks first-hand knowledge.**

Question 14

- **B1** She formally presented her detailed notes and drawings to the Geological Society of London (oe)
- **B1** Cuvier eventually and grudgingly retracted his claim that it was a fake (oe)
- **B1** The creature was then accepted as a genuine new species, the plesiosaur (oe)
- **Answer: Mary formally presented her detailed notes and drawings to the Geological Society of London. Cuvier eventually, and grudgingly, retracted his claim that the specimen was a fake, and the creature was then accepted as an entirely new species, the plesiosaur.**

Question 15

- **B1** Identifies the contrast between private recognition and public invisibility (oe)
- **B1** Comment on effect, e.g. emphasises the unfairness and irony of her situation, being valued in private but not properly acknowledged in public, reflecting the passage's wider theme (oe)
- **Answer: The phrase contrasts Mary being 'celebrated quietly' by scientists with being 'almost entirely invisible' to the wider public. This emphasises the unfairness and irony of her situation, that she was valued in private but not properly acknowledged in public, reflecting the passage's wider theme.**

Question 16

- **B1** As a woman, she could not become a member of the Geological Society, nor attend its meetings, even when her own fossils were being discussed (oe)
- **B1** Leading geologists nonetheless consulted her privately and relied on her expertise (oe)
- **B1** Their letters and published papers rarely, if ever, acknowledged her by name (oe)
- **Answer: As a woman, Mary could not become a member of the Geological Society of London, and could not even attend its meetings when a paper discussing her own fossils was being read aloud. Leading geologists nonetheless travelled to consult her privately and relied on her expertise, yet their letters and published papers rarely, if ever, acknowledged her by name.**

Question 17

- **Level 1** (1-2): Identifies language or details with little or no explanation of their effect; may rely on narrative retelling with minimal reference to the text.
- **Level 2** (3-4): Explains, with some development, how specific words or details (for example the repeated pattern of overlooked credit, or the direct authorial comment) draw attention to unfairness, supported by relevant quotation.
- **Level 3** (5-6): Gives a clear, well-developed explanation of how the writer's precise choices of language and structure work together across the passage to build a cumulative sense of injustice, integrating apt quotations fluently and showing secure understanding of the effect on the reader.
- **Indicative content:**
 - the passage moves chronologically from Mary's childhood discovery through her greatest scientific triumph (the plesiosaur) to her death, allowing the pattern of overlooked credit to build cumulatively across several separate incidents rather than through a single complaint
 - the repetition of the idea of credit going elsewhere (paragraph [3]'s purchaser of the skeleton, paragraph [5]'s Geological Society) reinforces the theme of unfairness through structural repetition
 - paragraph [6]'s closing detail of the stained-glass window, funded only after her death, provides a delayed, ironic final example that extends the pattern of overlooked recognition beyond her lifetime
 - the direct authorial comment 'a strange kind of fame' in paragraph [5] makes the writer's own sympathetic viewpoint explicit rather than leaving the reader to infer it entirely
 - the final sentence returns to the image of the cliffs and storms from the opening paragraph, creating a circular structure that suggests her true legacy lies in the coastline and fossils themselves, rather than in the recognition she was long denied

Question 18

- **B1** She discovered an ichthyosaur skeleton as a child, and later a plesiosaur skeleton, both important scientific finds (oe)
- **B1** She taught herself scientific skills despite having little formal education (oe)
- **B1** Her family relied on fossil hunting for income after her father's death (oe)
- **B1** Her finds were dangerous to excavate and she was rarely credited for them (oe)
- **B1** As a woman she was barred from joining the Geological Society despite her expertise (oe)
- **Answer: As a child, Mary Anning taught herself scientific skills and discovered an ichthyosaur skeleton, later finding a plesiosaur, both important scientific breakthroughs. Her family depended on fossil hunting for income after her father's death. The dangerous excavations rarely brought her credit, and despite her expertise, she was barred from joining the Geological Society because she was a woman.**

Question 19

- **Level 1** (1-2): Simple or surface-level response with little reference to the passage; limited personal engagement with the question.
- **Level 2** (3-4): Some relevant explanation with limited textual reference; makes a straightforward personal comment on how successfully the writer conveys achievement and unfairness.
- **Level 3** (5-6): Clear, developed response with relevant textual reference and some apt quotation; explains effectively how particular techniques (for example specific factual detail, or the repeated pattern of overlooked credit) contribute to the passage's effectiveness.
- **Level 4** (7-8): Perceptive, well-evaluated response with sustained and precise reference to the passage as a whole; explores subtlety in the writer's choices (for example the balance of admiration and criticism, or the tone of the closing paragraph) and their effect on the reader.
- **Indicative content:**
 - specific factual detail (eye sockets 'the size of dinner plates', 'twenty-three pounds', 'forty-seven' years old) grounds Mary's achievements concretely rather than describing them vaguely
 - the repeated structural pattern of credit going to others (paragraph [3]'s purchaser, paragraph [5]'s Geological Society) builds a cumulative sense of injustice across the whole passage rather than relying on a single example
 - the direct authorial comment 'a strange kind of fame' makes the writer's own sympathetic viewpoint explicit, arguably strengthening the passage's persuasive impact but reducing the reader's own scope for interpretation
 - the closing image of storms still revealing fossils today connects Mary's personal story to something larger and ongoing, arguably making the ending feel more optimistic and enduring than mournful
 - candidates may reasonably disagree about how balanced the passage's admiration for Mary's achievements is against its criticism of how she was treated, or whether the ending resolves the unfairness described earlier; credit any well-supported personal response