

READING

READING PASSAGE 1

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

Raising the *Mary Rose*

How a sixteenth-century warship was recovered from the seabed

On 19 July 1545, English and French fleets were engaged in a sea battle off the coast of southern England in the area of water called the Solent, between Portsmouth and the Isle of Wight. Among the English vessels was a warship by the name of *Mary Rose*. Built in Portsmouth some 35 years earlier, she had had a long and successful fighting career, and was a favourite of King Henry VIII. Accounts of what happened to the ship vary: while witnesses agree that she was not hit by the French, some maintain that she was outdated, overladen and sailing too low in the water, others that she was mishandled by undisciplined crew. What is undisputed, however, is that the *Mary Rose* sank into the Solent that day, taking at least 500 men with her. After the battle, attempts were made to recover the ship, but these failed.

The *Mary Rose* came to rest on the seabed, lying on her starboard (right) side at an angle of approximately 60 degrees. The hull (the body of the ship) acted as a trap for the sand and mud carried by Solent currents. As a result, the starboard side filled rapidly, leaving the exposed port (left) side to be eroded by marine organisms and mechanical degradation. Because of the way the ship sank, nearly

all of the starboard half survived intact. During the seventeenth and eighteenth centuries, the entire site became covered with a layer of hard grey clay, which minimised further erosion.

Then, on 16 June 1836, some fishermen in the Solent found that their equipment was caught on an underwater obstruction, which turned out to be the *Mary Rose*. Diver John Deane happened to be exploring another sunken ship nearby, and the fishermen approached him, asking him to free their gear. Deane dived down, and found the equipment caught on a timber protruding slightly from the seabed. Exploring further, he uncovered several other timbers and a bronze gun. Deane continued diving on the site intermittently until 1840, recovering several more guns, two bows, various timbers, part of a pump and various other small finds.

The *Mary Rose* then faded into obscurity for another hundred years. But in 1965, military historian and amateur diver Alexander McKee, in conjunction with the British Sub-Aqua Club, initiated a project called 'Solent Ships'. While on paper this was a plan to examine a number of known wrecks in the Solent, what McKee



Test 2

really hoped for was to find the *Mary Rose*. Ordinary search techniques proved unsatisfactory, so McKee entered into collaboration with Harold E. Edgerton, professor of electrical engineering at the Massachusetts Institute of Technology. In 1967, Edgerton's side-scan sonar systems revealed a large, unusually shaped object, which McKee believed was the *Mary Rose*.

Further excavations revealed stray pieces of timber and an iron gun. But the climax to the operation came when, on 5 May 1971, part of the ship's frame was uncovered. McKee and his team now knew for certain that they had found the wreck, but were as yet unaware that it also housed a treasure trove of beautifully preserved artefacts. Interest in the project grew, and in 1979, The *Mary Rose* Trust was formed, with Prince Charles as its President and Dr Margaret Rule its Archaeological Director. The decision whether or not to salvage the wreck was not an easy one, although an excavation in 1978 had shown that it might be possible to raise the hull. While the original aim was to raise the hull if at all feasible, the operation was not given the go-ahead until January 1982, when all the necessary information was available.

An important factor in trying to salvage the *Mary Rose* was that the remaining

hull was an open shell. This led to an important decision being taken: namely to carry out the lifting operation in three very distinct stages. The hull was attached to a lifting frame via a network of bolts and lifting wires. The problem of the hull being sucked back downwards into the mud was overcome by using 12 hydraulic jacks. These raised it a few centimetres over a period of several days, as the lifting frame rose slowly up its four legs. It was only when the hull was hanging freely from the lifting frame, clear of the seabed and the suction effect of the surrounding mud, that the salvage operation progressed to the second stage. In this stage, the lifting frame was fixed to a hook attached to a crane, and the hull was lifted completely clear of the seabed and transferred underwater into the lifting cradle. This required precise positioning to locate the legs into the 'stabbing guides' of the lifting cradle. The lifting cradle was designed to fit the hull using archaeological survey drawings, and was fitted with air bags to provide additional cushioning for the hull's delicate timber framework. The third and final stage was to lift the entire structure into the air, by which time the hull was also supported from below. Finally, on 11 October 1982, millions of people around the world held their breath as the timber skeleton of the *Mary Rose* was lifted clear of the water, ready to be returned home to Portsmouth.



Questions 1–4

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1–4 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 There is some doubt about what caused the *Mary Rose* to sink.
- 2 The *Mary Rose* was the only ship to sink in the battle of 19 July 1545.
- 3 Most of one side of the *Mary Rose* lay undamaged under the sea.
- 4 Alexander McKee knew that the wreck would contain many valuable historical objects.

Questions 5–8

Look at the following statements (Questions 5–8) and the list of dates below.

Match each statement with the correct date, **A–G**.

Write the correct letter, **A–G**, in boxes 5–8 on your answer sheet.

- 5 A search for the *Mary Rose* was launched.
- 6 One person's exploration of the *Mary Rose* site stopped.
- 7 It was agreed that the hull of the *Mary Rose* should be raised.
- 8 The site of the *Mary Rose* was found by chance.

List of Dates			
A	1836	E	1971
B	1840	F	1979
C	1965	G	1982
D	1967		



Test 2

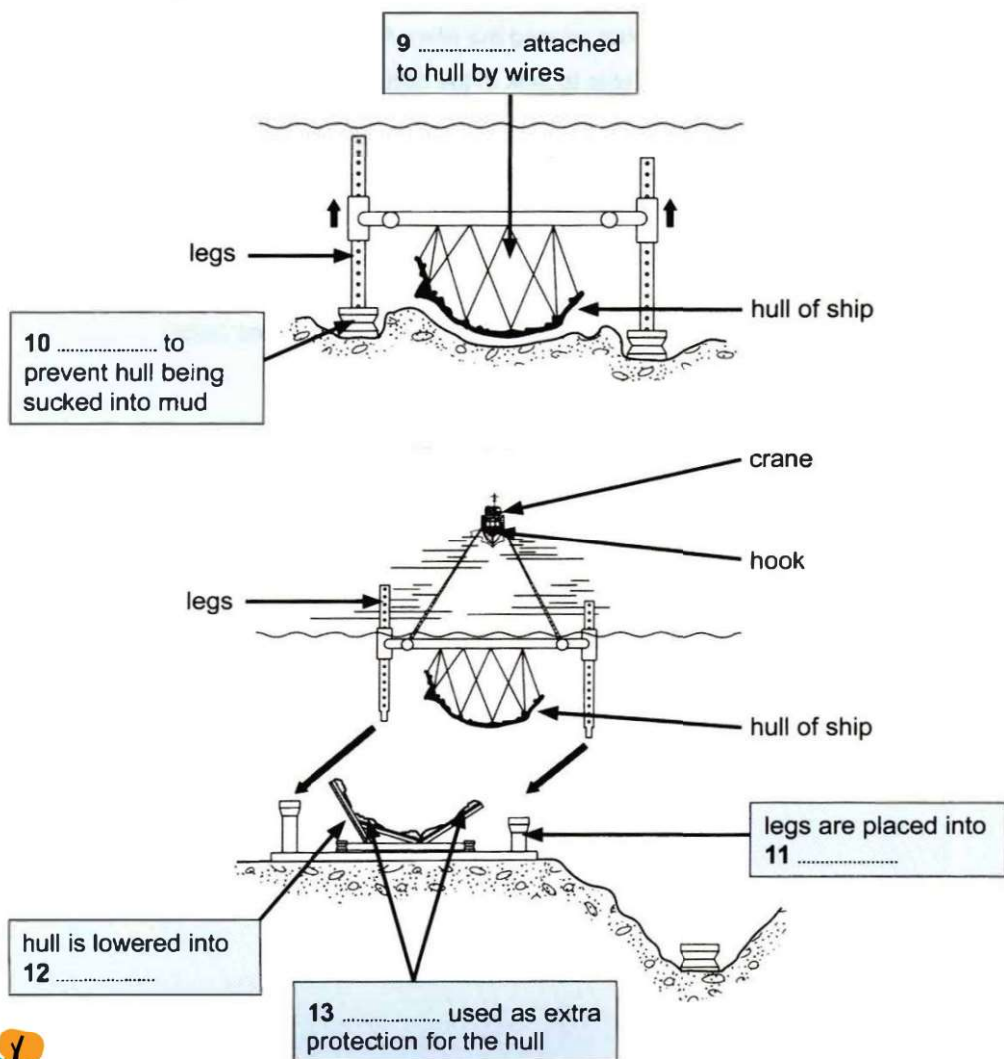
Questions 9–13

Label the diagram below.

Choose **NO MORE THAN TWO WORDS** from the passage for each answer.

Write your answers in boxes 9–13 on your answer sheet.

Raising the hull of the *Mary Rose*: Stages one and two



READING PASSAGE 2

You should spend about 20 minutes on **Questions 14–26**, which are based on Reading Passage 2 on the following pages.

Questions 14–20

Reading Passage 2 has seven paragraphs, **A–G**.

Choose the correct heading for each paragraph from the list of headings below.

Write the correct number, **i–ix**, in boxes 14–20 on your answer sheet.

List of Headings

- i** Evidence of innovative environment management practices
- ii** An undisputed answer to a question about the moai
- iii** The future of the moai statues
- iv** A theory which supports a local belief
- v** The future of Easter Island
- vi** Two opposing views about the Rapanui people
- vii** Destruction outside the inhabitants' control
- viii** How the statues made a situation worse
- ix** Diminishing food resources

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- 14** Paragraph **A**
- 15** Paragraph **B**
- 16** Paragraph **C**
- 17** Paragraph **D**
- 18** Paragraph **E**
- 19** Paragraph **F**
- 20** Paragraph **G**



What destroyed the civilisation of Easter Island?

- A** Easter Island, or Rapa Nui as it is known locally, is home to several hundred ancient human statues – the *moai*. After this remote Pacific island was settled by the Polynesians, it remained isolated for centuries. All the energy and resources that went into the *moai* – some of which are ten metres tall and weigh over 7,000 kilos – came from the island itself. Yet when Dutch explorers landed in 1722, they met a Stone Age culture. The *moai* were carved with stone tools, then transported for many kilometres, without the use of animals or wheels, to massive stone platforms. The identity of the *moai* builders was in doubt until well into the twentieth century. Thor Heyerdahl, the Norwegian ethnographer and adventurer, thought the statues had been created by pre-Inca peoples from Peru. Bestselling Swiss author Erich von Däniken believed they were built by stranded extraterrestrials. Modern science – linguistic, archaeological and genetic evidence – has definitively proved the *moai* builders were Polynesians, but not how they moved their creations. Local folklore maintains that the statues walked, while researchers have tended to assume the ancestors dragged the statues somehow, using ropes and logs.
- B** When the Europeans arrived, Rapa Nui was grassland, with only a few scrawny trees. In the 1970s and 1980s, though, researchers found pollen preserved in lake sediments, which proved the island had been covered in lush palm forests for thousands of years. Only after the Polynesians arrived did those forests disappear. US scientist Jared Diamond believes that the Rapanui people – descendants of Polynesian settlers – wrecked their own environment. They had unfortunately settled on an extremely fragile island – dry, cool, and too remote to be properly fertilised by windblown volcanic ash. When the islanders cleared the forests for firewood and farming, the forests didn't grow back. As trees became scarce and they could no longer construct wooden canoes for fishing, they ate birds. Soil erosion decreased their crop yields. Before Europeans arrived, the Rapanui had descended into civil war and cannibalism, he maintains. The collapse of their isolated civilisation, Diamond writes, is a 'worst-case scenario for what may lie ahead of us in our own future'.
- C** The *moai*, he thinks, accelerated the self-destruction. Diamond interprets them as power displays by rival chieftains who, trapped on a remote little island, lacked other ways of asserting their dominance. They competed by building ever bigger figures. Diamond thinks they laid the *moai* on wooden sledges, hauled over log rails, but that required both a lot of wood and a lot of people. To feed the people, even more land had to be cleared. When the wood was gone and civil war began, the islanders began toppling the *moai*. By the nineteenth century none were standing.



- D** Archaeologists Terry Hunt of the University of Hawaii and Carl Lipo of California State University agree that Easter Island lost its lush forests and that it was an 'ecological catastrophe' – but they believe the islanders themselves weren't to blame. And the moai certainly weren't. Archaeological excavations indicate that the Rapanui went to heroic efforts to protect the resources of their wind-lashed, infertile fields. They built thousands of circular stone windbreaks and gardened inside them, and used broken volcanic rocks to keep the soil moist. In short, Hunt and Lipo argue, the prehistoric Rapanui were pioneers of sustainable farming.
- E** Hunt and Lipo contend that moai-building was an activity that helped keep the peace between islanders. They also believe that moving the moai required few people and no wood, because they were walked upright. On that issue, Hunt and Lipo say, archaeological evidence backs up Rapanui folklore. Recent experiments indicate that as few as 18 people could, with three strong ropes and a bit of practice, easily manoeuvre a 1,000 kg moai replica a few hundred metres. The figures' fat bellies tilted them forward, and a D-shaped base allowed handlers to roll and rock them side to side.
- F** Moreover, Hunt and Lipo are convinced that the settlers were not wholly responsible for the loss of the island's trees. Archaeological finds of nuts from the extinct Easter Island palm show tiny grooves, made by the teeth of Polynesian rats. The rats arrived along with the settlers, and in just a few years, Hunt and Lipo calculate, they would have overrun the island. They would have prevented the reseedling of the slow-growing palm trees and thereby doomed Rapa Nui's forest, even without the settlers' campaign of deforestation. No doubt the rats ate birds' eggs too. Hunt and Lipo also see no evidence that Rapanui civilisation collapsed when the palm forest did. They think its population grew rapidly and then remained more or less stable until the arrival of the Europeans, who introduced deadly diseases to which islanders had no immunity. Then in the nineteenth century slave traders decimated the population, which shrivelled to 111 people by 1877.
- G** Hunt and Lipo's vision, therefore, is one of an island populated by peaceful and ingenious moai builders and careful stewards of the land, rather than by reckless destroyers ruining their own environment and society. 'Rather than a case of abject failure, Rapa Nui is an unlikely story of success', they claim. Whichever is the case, there are surely some valuable lessons which the world at large can learn from the story of Rapa Nui.



Test 2

Questions 21–24

Complete the summary below.

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

Write your answers in boxes 21–24 on your answer sheet.

Jared Diamond's View

Diamond believes that the Polynesian settlers on Rapa Nui destroyed its forests, cutting down its trees for fuel and clearing land for **21** Twentieth-century discoveries of pollen prove that Rapa Nui had once been covered in palm forests, which had turned into grassland by the time the Europeans arrived on the island. When the islanders were no longer able to build the **22** they needed to go fishing, they began using the island's **23** as a food source, according to Diamond. Diamond also claims that the moai were built to show the power of the island's chieftains, and that the methods of transporting the statues needed not only a great number of people, but also a great deal of **24**

Questions 25 and 26

Choose **TWO** letters, **A–E**.

Write the correct letters in boxes 25 and 26 on your answer sheet.

On what points do Hunt and Lipo disagree with Diamond?

- A the period when the moai were created
- B how the moai were transported
- C the impact of the moai on Rapanui society
- D how the moai were carved
- E the origins of the people who made the moai



READING

Reading Passage 1, Questions 1–13

- 1 TRUE
- 2 NOT GIVEN
- 3 TRUE
- 4 FALSE
- 5 C
- 6 B
- 7 G
- 8 A
- 9 (lifting) frame
- 10 hydraulic jacks
- 11 stabbing guides
- 12 (lifting) cradle
- 13 air bags

Reading Passage 2, Questions 14–26

- 14 ii
- 15 ix
- 16 viii
- 17 i
- 18 iv
- 19 vii

- 20 vi
- 21 farming
- 22 canoes
- 23 birds
- 24 wood
- 25&26 **IN EITHER ORDER**
- B
- C

Reading Passage 3, Questions 27–40

- 27 C
- 28 D
- 29 B
- 30 A
- 31 C
- 32 B
- 33 H
- 34 NOT GIVEN
- 35 YES
- 36 NO
- 37 NO
- 38 YES
- 39 NOT GIVEN
- 40 A

If you score ...

0–11	12–24	25–40
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