



PART 3

Read the text below and answer questions 27–40.

THE ANTHROPOCENE: A NEW GEOLOGICAL EPOCH?

Geologists do not describe Earth's past as a simple story, but as a stratified archive. Over 4.6 billion years, the planet has been divided into eons, eras, periods and epochs, each boundary justified by a recognisable shift in the physical record—changes in mineral chemistry, fossil assemblages, or sedimentary patterns. The current official epoch, the Holocene, began about 11,700 years ago as the last ice age ended. It is commonly characterised as a comparatively stable climatic interval, a steady background against which agriculture spread, cities grew, and complex societies became possible. Yet the very success of those societies has revived an old geological question in a new guise: can humans, through their collective activity, force the Earth into a different state that deserves its own formal place on the timescale?

The label “Anthropocene” has been proposed to capture the idea that human influence is no longer merely ecological or historical, but geological—an agent capable of altering the lithosphere, atmosphere and biosphere at a scale once associated with volcanoes, tectonics and orbital cycles. Supporters argue that the planet is now surrounded by a rapidly expanding technosphere: roads, dams, mines, cities, industrial farms, shipping lanes, and communication networks that redirect flows of energy and matter. This is not simply “impact” in the ordinary sense, but biospheric alteration and chemical reorganisation—nitrogen and phosphorus cycles rerouted by fertilisers, carbon moved from buried reserves into the air, and entire river systems reshaped by engineered infrastructure.

However, to transform a compelling idea into an official unit of time, stratigraphers demand more than persuasive rhetoric. The formal geological timescale depends on stratigraphic integrity: a boundary should be visible in rock layers in multiple regions and remain legible far into the future. In practice, this usually means identifying a clear and permanent horizon, ideally one that can be correlated worldwide. Hence the attraction of a “golden spike”—a distinct marker fixed to a narrow window of time, so that future geologists could locate the boundary without needing to know today's debates. The Anthropocene discussion, therefore, is not only about human power, but also about evidence, method, and what counts as a durable signature.

Disagreement begins with the start date. Some writers push the origin back thousands of years, claiming that early agriculture, land clearance and domestication initiated large-scale ecosystem change long before steam engines or electricity. Under this view, the



Anthropocene is a long, slow transition, with humans gradually amplifying their footprint until the modern world emerged. Others argue that such early signals are patchy and regionally variable, and therefore poor candidates for a global boundary. A competing proposal focuses on the mid-twentieth century, when human activity underwent what has been called the Great Acceleration. After about 1950, multiple socioeconomic indicators—population, energy use, industrial output, fertiliser consumption, and transport—rise sharply. At the same time, Earth-system trends such as greenhouse gas concentrations and ocean chemistry show an inflection point, suggesting a shift in the planet’s operating conditions rather than a mere continuation of earlier patterns.

For advocates of a mid-century boundary, the strongest argument is that the period also produced time-specific signals that are worldwide. The most discussed candidate is nuclear fallout from atmospheric bomb tests. Radioactive isotopes spread through air and water, leaving a distinctive global imprint that can be detected in sediments, soils, ice and biological archives. Crucially, this signature can be dated with high precision and tied to a relatively short interval, meeting the requirement for a marker that is both widespread and time-locked. It also avoids dependence on local land-use history: unlike agricultural pollen signals or charcoal layers, nuclear fallout does not rely on whether a particular region was farmed, forested, or urbanised, and so offers a more universal stratigraphic reference.

Other proposed indicators are more material and, in some sense, more symbolic. Industrial society has introduced substances that did not exist previously in nature at comparable scales: plastics, aluminium alloys, concrete and a vast range of synthetic compounds. These artefacts may persist as “technofossils”—physical remnants of the technosphere that become incorporated into sediments and, eventually, into the lithosphere. Even when plastics fragment into micro-particles, supporters claim their chemical traces could remain detectable. Yet this is precisely where uncertainty enters. The long-term preservation of such materials may vary by environment; some settings might bury and protect them, while others might degrade, disperse, or chemically transform them. In other words, a modern signature can be obvious now, but its future visibility is not guaranteed.

Scepticism is not limited to the question of which marker is best. Some critics argue that the Anthropocene is too recent to justify an epoch on a timescale usually measured in thousands to millions of years. From this perspective, today’s disturbances may prove transient, leaving blurred or inconsistent signals rather than a distinct boundary horizon. Others accept that humans are altering the planet but question whether that alteration will form a durable layer that future stratigraphers could recognise as clearly as older epoch boundaries. A further critique is political rather than geological: the term “Anthropocene”



can imply that humanity acts as a single agent, obscuring the unequal distribution of responsibility among nations, industries and social classes. If the concept encourages a simplified story of collective blame, it may hinder honest discussion of power, consumption and accountability.

Still, the Anthropocene functions as more than a technical proposal. It represents an epistemological shift: a change in how societies understand the relationship between human history and Earth history. By describing humans as a geological force, it collapses the old separation between “natural” processes and “social” processes, reframing governance, ethics and law as part of the Earth system. This is why the term appears in education, public debate and policy discussions, where it is used to justify stronger planetary stewardship and even new legal ideas, such as recognising ecocide or granting rights to nature. Whether or not the label becomes formally ratified, it has already influenced how multiple disciplines interpret risk, responsibility and the management of shared planetary systems.

In the end, the formal decision will turn on stratigraphic practice: thresholds must be clear, correlatable and defensible. Advocates therefore prefer markers that are globally detectable, sharply time-bounded, and independent of local variation. Critics, meanwhile, keep asking whether the signals are robust enough to persist in deep time, rather than simply being vivid in the present. The Anthropocene debate, then, is a debate about evidence and meaning at once: how to read the rocks, how to name a new age, and what it implies when a species becomes entangled with the planet’s fundamental systems.

Questions 27–31

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

27 The writer presents the Holocene as a period whose relative climatic stability helped agriculture and complex societies develop.

28 The writer indicates that a proposed epoch boundary should be identifiable in rock layers across different regions.

29 The writer suggests that the mid-20th century is the only possible start date that any reasonable scientist could accept.

30 The writer personally favours plastics over nuclear fallout as the most reliable “golden spike”.



31 The writer believes that the Anthropocene has already influenced debates in areas such as policy and education.

Questions 32–35

Complete the summary below. Choose **ONE WORD ONLY** from the text for each answer.

Defining the Boundary

The officially recognised epoch that followed the last ice age is the **32** To define a new epoch, scientists look for a “golden spike” that is fixed to a narrow **33** of time. Fallout from nuclear bomb tests is considered useful because it can be dated with high **34** and appears globally. However, some critics argue that the Anthropocene is too **35** to justify classification as an epoch.

Questions 36–40

Select the correct answer.

36 What does the passage suggest about the “Great Acceleration”?

- A** It refers mainly to the spread of plastics and aluminium.
- B** It began with the first evidence of agriculture.
- C** It is a theory that has been rejected by the Working Group.
- D** It is identified by an inflection point in multiple socioeconomic and Earth-system trends.

37 Why do advocates prefer a marker that does not depend on local land-use history?

- A** It would allow the boundary to be recognised in many different environments.
- B** It would prove that urbanisation is the main driver of change.
- C** It would reduce the need for chemical analysis in geology.
- D** It would show that climate change began before agriculture.

38 What is the concern raised by some critics about the term “Anthropocene”?

- A** It ignores the role of natural climate cycles completely.
- B** It focuses too heavily on fossil evidence rather than chemistry.
- C** It can hide unequal responsibility by implying humanity acts as a single agent.
- D** It relies on ice-core data that cannot be verified.

39 What is the main point made about the Anthropocene in the discussion of ethics?

- A** It is valuable only if it becomes an official stratigraphic unit.
- B** It has consequences for governance by redefining humans as a geological force.
- C** It was created to support a single international legal proposal.
- D** It resolves the debate between natural and human history.

40 Which title best summarises the passage?



- A** Debating a proposed epoch and what the idea implies beyond geology
- B** The discovery of a single stratigraphic marker that settles the Anthropocene question
- C** How plastics became the dominant indicator of Earth's future fossil record
- D** Why the Holocene should be formally replaced as soon as possible

Answer Key

- 27. YES
- 28. YES
- 29. NO
- 30. NOT GIVEN
- 31. YES
- 32. Holocene
- 33. window
- 34. precision
- 35. recent
- 36. D
- 37. A
- 38. C
- 39. B
- 40. A