

Geological Milestones: Firsts, Inventions, and Discoveries

Geology · Answer Key · 20 Questions

1. Who is credited with the first comprehensive theory of continental drift, proposing that continents were once joined in a supercontinent called Pangea?

- A) Charles Lyell
- B) Alfred Wegener**
- C) James Hutton
- D) Nicholas Steno

2. What early geological principle, established by Nicolaus Steno, states that in an undeformed sequence of sedimentary rocks, the oldest layers are at the bottom and the youngest are at the top?

- A) Principle of Uniformitarianism
- B) Principle of Superposition**
- C) Principle of Original Horizontality
- D) Principle of Lateral Continuity

3. The development of which invention in the 18th century revolutionized the ability to drill for resources and understand subsurface geology?

- A) The telescope
- B) The printing press
- C) The steam engine**
- D) The microscope

4. Who published the first comprehensive textbook on geology, 'Theory of the Earth,' laying the groundwork for the concept of deep time and gradual geological change?

- A) William Smith
- B) Charles Darwin
- C) James Hutton**
- D) Georges Cuvier

5. What discovery in the early 20th century provided direct evidence for the Earth's molten outer core, based on the behavior of seismic waves?

- A) Discovery of radioactivity
- B) Analysis of seismic S-waves**
- C) Discovery of magnetic anomalies
- D) Observation of volcanic eruptions

6. The first geological map of an entire country was created for which nation by William Smith?

- A) France
- B) United States
- C) Great Britain**
- D) Germany

7. Which early geologist is often called the 'Father of Paleontology' for his work in identifying fossil mammals and his theory of catastrophism?

- A) Charles Lyell
- B) Georges Cuvier**
- C) Mary Anning
- D) Adam Sedgwick

8. The discovery of the Earth's magnetic field reversal history is primarily based on the study of which geological material?

- A) Ice cores
- B) Sedimentary rocks
- C) Volcanic rocks**
- D) Metamorphic rocks

9. Who is recognized for developing the concept of 'uniformitarianism' (the present is the key to the past), a cornerstone of modern geology?

- A) James Hutton**
- B) Charles Lyell
- C) Nicolaus Steno
- D) Louis Agassiz

10. The first widely accepted theory explaining the mechanism of plate tectonics, which involved convection currents in the mantle, was proposed by?

- A) Harry Hess
- B) Alfred Wegener
- C) Tuzo Wilson
- D) Arthur Holmes**

11. What significant discovery by Marie Curie and others in the late 19th and early 20th centuries opened up new avenues for geological dating and understanding Earth's internal processes?

- A) The law of superposition
- B) Radioactivity**
- C) Continental drift
- D) The rock cycle

12. Which pioneering fossil collector and paleontologist is famous for her discoveries of Ichthyosaur and Plesiosaur fossils along the Jurassic Coast of England?

A) Gideon Mantell

B) Mary Anning

C) William Buckland

D) Richard Owen

13. The development of the seismograph in the late 19th century was a crucial invention for the study of what geological phenomenon?

A) Volcanic eruptions

B) Earthquakes

C) Landslides

D) Tsunamis

14. What early theory, proposed by Abraham Werner, suggested that all rocks were formed from precipitates from a universal ocean?

A) Neptunism

B) Plutonism

C) Catastrophism

D) Uniformitarianism

15. The first direct observation and confirmation of seafloor spreading, a key component of plate tectonics, came from the study of:

A) Mountain ranges

B) Oceanic trenches

C) Mid-ocean ridges

D) Continental shelves

16. Who is credited with the first systematic study of glaciers and their erosional power, leading to the understanding of past ice ages?

A) Charles Lyell

B) Louis Agassiz

C) James Geikie

D) William Morris Davis

17. The technique of radiometric dating, which revolutionized geological time scales, relies on the decay of:

A) Stable isotopes

B) Radioactive isotopes

C) Isotopes of carbon

D) Isotopes of oxygen

18. What geological concept, formalized by Alfred Wegener and later expanded upon, describes the movement and interaction of Earth's lithospheric plates?

- A) The rock cycle
- B) Isostasy
- C) Plate tectonics**
- D) The geological timescale

19. The first detailed classification of rocks into igneous, sedimentary, and metamorphic categories is largely attributed to:

- A) James Hutton**
- B) William Smith
- C) Augustus Lehmann
- D) Abraham Werner

20. The discovery of fossils of early human ancestors, such as *Australopithecus*, in geological formations in Africa provided significant evidence for:

- A) The age of the Earth
- B) Plate tectonics
- C) Human evolution**
- D) The formation of mountains