

The Development of the Periodic Table

Chemistry · Answer Key · 20 Questions

1. Who is often considered the "father" of the periodic table?

- A) Hennig Brand
- B) Johann Dobereiner
- C) Dmitri Mendeleev**
- D) John Newlands

2. What was a necessary prerequisite to the construction of the periodic table?

- A) The discovery of noble gases
- B) The discovery of individual elements**
- C) The understanding of nuclear charge
- D) The development of atomic weights

3. When was the first scientific discovery of an element?

- A) 1649**
- B) 1817
- C) 1869
- D) 1790

4. Who discovered phosphorous in 1649?

- A) Dmitri Mendeleev
- B) Hennig Brand**
- C) Johann Dobereiner
- D) A.E.Beguyer de Chancourtois

5. By 1869, how many elements had been discovered?

- A) 56
- B) 63**
- C) 11
- D) 17

6. Johann Dobereiner noticed that the atomic weight of strontium fell midway between the weights of which two elements?

- A) Lithium and potassium
- B) Chlorine and iodine
- C) Calcium and barium**
- D) Oxygen and sulfur

7. What did Johann Dobereiner propose in his "Law of Triads"?

- A) Elements arranged in groups of eight share similar properties.
- B) The properties of elements are the properties of numbers.
- C) The middle element in a triad has properties that are an average of the other two.**
- D) Noble gases have a valency of zero.

8. Which of these scientists is NOT mentioned as contributing to the understanding of chemical relationships beyond triads?

- A) Jean Baptiste Dumas
- B) Leopold Gmelin
- C) Ernst Lenssen
- D) Niels Bohr**

9. Who is credited with publishing the first periodic table in 1862?

- A) Dmitri Mendeleev
- B) Lothar Meyer
- C) A.E. Beguyer de Chancourtois**
- D) John Newlands

10. De Chancourtois arranged elements on a cylinder in terms of increasing atomic weight. What did he observe about closely related elements?

- A) They were arranged horizontally.
- B) They were lined up vertically.**
- C) They were placed at the ends of the cylinder.
- D) They were grouped by color.

11. De Chancourtois was the first to recognize that elemental properties reoccur every how many elements?

- A) Six
- B) Seven**
- C) Eight
- D) Ten

12. John Newlands proposed the "Law of Octaves" by analogy with what?

- A) The musical scale**
- B) The colors of the rainbow
- C) The phases of the moon
- D) The seasons of the year

13. According to Newlands' Law of Octaves, any given element will exhibit analogous behavior to which element following it in the table?

- A) The seventh
- B) The eighth**
- C) The ninth
- D) The element with similar atomic weight

14. Which two chemists produced remarkably similar results for the periodic table independently and around the same time?

- A) Mendeleev and Newlands
- B) Meyer and Dobereiner
- C) Mendeleev and Meyer**
- D) De Chancourtois and Mendeleev

15. Why did Mendeleev's table become available to the scientific community before Meyer's?

- A) Meyer's work was incomplete.
- B) Mendeleev published his table first.**
- C) Meyer's colleague lost the manuscript.
- D) Mendeleev had more funding.

16. Dmitri Mendeleev was born in which country?

- A) Germany
- B) France
- C) England
- D) Russia**

17. Mendeleev organized his textbook, "Principles of Chemistry," in terms of what?

- A) Atomic number
- B) Families of known elements with similar properties**
- C) Alphabetical order
- D) Discovering scientist

18. How did Mendeleev arrange the cards for each element to form the periodic table?

- A) By color and density
- B) In order of ascending atomic weight, grouping similar properties**
- C) By the number of neutrons
- D) Alphabetically

19. What was a significant advantage of Mendeleev's table over previous attempts?

- A) It included only metals.
- B) It showed similarities in an entire network of relationships.**
- C) It was based solely on atomic number.
- D) It predicted the properties of only one new element.

20. Mendeleev reordered elements despite their accepted masses because of what?

- A) Inaccurate experimentally determined atomic masses**
- B) Personal preference
- C) A desire to place all metals together
- D) The influence of his father