

1. **SVANTE AUGUST  
ARRHENIUS**

He developed a theory of acids and bases on how they form ions in solution. He also explained the fact that most reactions require added heat energy to proceed by formulating the concept of activation energy.



SWEDISH

1859 - 1927

4. **ANTOINE HENRI  
BECQUEREL**

Discover of radioactivity along with Marie Curie and Pierre Curie.



FRENCH

1852 - 1908

2. **AMEDEO  
AVOGADRO**

He is most noted for his contributions to molecular theory, including a law named after him. In tribute to him, the number of atoms, molecules, ions or other particles in 1 mole of a substance,  $6.02214179(30) \times 10^{23}$ , is known as a constant that also bears his name.



1776 - 1856

ITALIAN

1776 - 1856

5. **NIELS HENDRIK  
DAVID BOHR**

Made some of the first contributions to understanding atomic structure and quantum mechanics.



DANISH

1885 - 1962

3. **JOHANN JAKOB  
BALMER**

Devised an empirical formula for working out the visible spectral lines (wavelength) of the hydrogen atom



GERMAN

1825 - 1898

6. **ROBERT BOYLE**

Developed the Law (named after him) which states that for a fixed amount of an ideal gas kept at a fixed temperature, P [pressure] and V [volume] are inversely proportional (while one increases, the other decreases).



IRISH

1627 - 1691

7. **LOUIS DE BROGLIE**

Developed the theory of electron waves and stated that any moving particle or object had an associated wave.



FRENCH

1892 - 1987

8. **ROBERT WILHELM BUNSEN**

Developed the laboratory heating apparatus named after him and with Gustav Kirchhoff discovered caesium (in 1860) and rubidium (in 1861).



GERMAN

1811 - 1899

9. **ANDERS CELSIUS**

He proposed the temperature scale where the boiling point of water is 100 degrees.



SWEDISH

1701 - 1744

10. **JAMES CHADWICK**

English Nobel laureate in physics awarded for his discovery of the neutron.



ENGLISH

1891 - 1974

11. **JACQUES ALEXANDRE CÉSAR CHARLES**

Formulated the law which bears his name and which states that, at constant pressure, the volume occupied by a fixed weight of gas is directly proportional to the absolute temperature

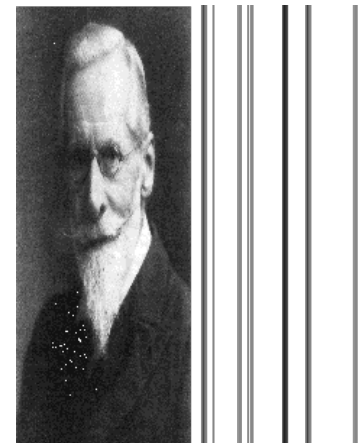


FRENCH

1746 - 1823

12. **WILLIAM CROOKES**

He was a pioneer of vacuum tubes, inventing the tube, which bears his name. Wilhelm Röntgen discovered x-rays with the Crookes tube in 1895



ENGLISH

1832 - 1919

13. **JOHN DALTON**

He is best known for his pioneering work in the development of modern atomic theory and his research into colour blindness.



ENGLISH

1766 - 1844

14. **DANIEL GABRIEL FAHRENHEIT**

Who is best known for inventing the alcohol thermometer (1709), the mercury thermometer (1714), and for developing a temperature scale now named after him



POLISH

1686 - 1736

15. **JOSEPH LOUIS GAY - LUSSAC**

Known mostly for two laws related to gases, and for his work on alcohol-water mixtures, which led to the degrees Gay-Lussac used to measure alcoholic beverages in many countries.



FRENCH

1778 - 1850

16. **FRITZ HABER**

Received the Nobel Prize in Chemistry in 1918 for his development for synthesizing ammonia, important for fertilizers and explosives



GERMAN

1868 - 1934

17. **STEPHEN WILLIAM HAWKING**

Key scientific works to date have included providing, with Roger Penrose, theorems regarding gravitational singularities in the framework of general relativity, and the theoretical prediction that black holes should emit radiation (Hawking radiation).



ENGLISH

1942-

18. **GERMAIN HENRI HESS**

Developed Hess's Law that states that in a series of chemical reactions, the total energy gained or lost depends only on the initial and final states, regardless of the number or path of the steps.



SWISS

1802 - 1850

19. **JOSEPH JOHN THOMPSON**

He is credited for the discovery of the electron and of isotopes, and the invention of the mass spectrometer



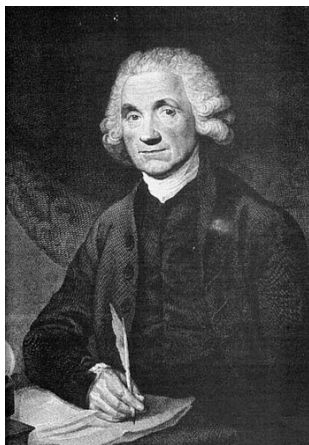
ENGLISH

1856 - 1940



20. **JOSEPH  
PRIESTLEY**

He is usually credited with the discovery of oxygen, having isolated it in its gaseous state.



ENGLISH

1733 - 1804

23. **ANTOINE -  
LAURENT  
DE LAVOISIER**

He stated the first version of the law of conservation of mass, recognized and named oxygen (1778) and hydrogen (1783), helped construct the metric system and wrote the first extensive list of elements



FRENCH

1743 - 1794

21. **JAMES PRESCOTT  
JOULE**

Discovered the theory of conservation of energy which led to the development of the first law of thermodynamics. The Joule is named after him.



ENGLISH

1818 - 1889

24. **MARIE  
SKLODOWSKA  
CURIE**

She was a pioneer in the field of radioactivity and the first person honored with two Nobel Prizes

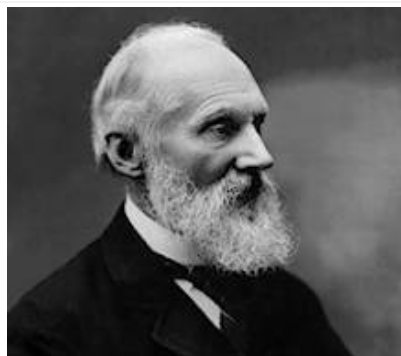


POLISH

1867 - 1934

22. **WILLIAM  
THOMSON  
(LORD KELVIN)**

Widely known for developing the basis of absolute zero.



NORTHERN IRISH

1824 - 1907

25. **VLADIMIR  
VASILEVICH  
MARKOVNIKOV**

Best known for Markovnikov's rule, which he developed in 1869 to describe addition reactions of H-X to alkenes.

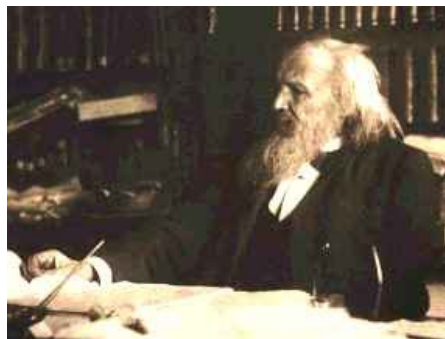


RUSSIAN

1838 - 1904

26. **DMITRI  
IVANOVICH  
MENDELEEV**

Credited as being the creator of the first version of the periodic table of elements and using it to predict the properties of elements yet to be discovered.



RUSSIAN

1834 - 1907

29. **JOHN WILLIAM  
STRUTT  
(LORD RAYLEIGH)**

Discovered the element argon. He also discovered the phenomenon now called Rayleigh scattering, explaining why the sky is blue.



ENGLISH

1842 - 1919

27. **LINUS CARL  
PAULING**

Worked on chemical bonding and many of his contributions like hybridization and electronegativity have become part of standard chemistry textbooks. He also discovered the alpha helix and beta sheet structure of proteins.



AMERICAN

1901 - 1994

30. **WILHELM CONRAD  
RÖNTGEN**

Produced and detected electromagnetic radiation in a wavelength range today known as x-rays

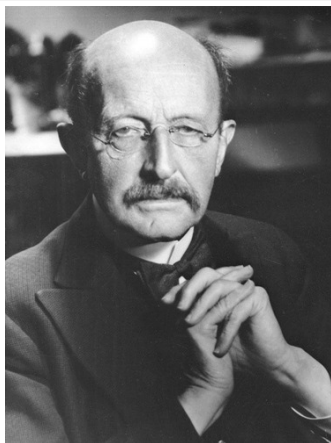


GERMAN

1845 - 1923

28. **MAX KARL  
ERNST  
LUDWIG  
PLANCK**

Considered to be the founder of the quantum theory



GERMAN

1858 - 1947

31. **ERNEST  
RUTHERFORD**

Discovered the concept of radioactive half life and also differentiated and named alpha and beta radiation



NEW ZEALANDER

1871 - 1937

32. **JOHANNES DIDERIK  
VAN DER WAALS**

**Famous for his work on an equation to determine the state of matter for gases and liquids in different conditions**



DUTCH

1837 - 1923

33. **ERWIN RUDOLF JOSEF ALEXANDER SCHRÖDINGER**

**Achieved fame for his contributions to quantum mechanics, especially the Schrödinger equation.**



AUSTRIAN

1887 - 1961

34. **HENRY MOSELEY**

**Provided the first experimental proof of Bohr's theory. Organised the periodic table based on atomic number rather than atomic mass and solved the Tellurium-Iodine problem.**



ENGLISH

1897 - 1915