Discoveries by Scientific Field

These tables list the 100 greatest science discoveries divided into their appropriate fields of science so that readers can easily identify the individual discoveries that relate to the same area. Within each field inventions are listed chronologically.

Physical Sciences

Discovery	Discovering Scientist	Year
Astronomy		
Sun-centered universe	Copernicus, Nicholaus	1520
Planets' true orbits	Kepler, Johannes	1609
Other planets have moons	Galilei, Galileo	1610
Distance to the sun	Cassini, Giovanni	1672
Galaxies	Herschel, William	1750
	Wright, Thomas	1750
Black hole	Schwarzschild, Karl	1916
	Wheeler, John	1971
Expanding universe	Hubble, Edwin	1926
The Big Bang	Gamow, George	1948
Quasar	Sandage, Allan	1963
Pulsar	Bell, Jocelyn	1967
	Hewish, Antony	1967
Dark matter	Rubin, Vera	1970
Planets around other stars	Mayor, Michel	1995
	Queloz, Didier	1995
Universe is accelerating	Perlmutter, Saul	1998
Chemistry		
Boyle's Law	Boyle, Robert	1662
Oxygen	Priestley, Joseph	1774
Electrochemical bonding	Davy, Humphrey	1806
Molecules	Avogadro, Amedeo	1811
Atomic light signatures	Bunsen, Robert	1859
	Kirchhoff, Robert	1859

Discovery	Discovering Scientist	Year
Periodic Table	Mendeleyev, Dmitri	1880
Radioactivity	Curie, Marie and Pierre	1901
Radioactive dating	Boltwood, Bertram	1907
Isotopes	Soddy, Frederick	1913
Physics		
Levers and buoyancy	Archimedes	260 B.C.
Law of falling objects	Galilei, Galileo	1598
Air pressure	Torricelli, Evangelista	1640
Universal gravitation	Newton, Isaac	1666
Laws of motion	Newton, Isaac	1687
Nature of electricity	Franklin, Benjamin	1752
Conservation of matter	Lavoisier, Antoine	1789
Nature of heat	Rumford, Count	1790
Infrared	Herschel, Frederick	1800
Ultraviolet	Ritter, Johann	1801
Atoms	Dalton, John	1802
Electromagnetism	Oersted, Hans	1820
Calorie	Joule, James	1843
Conservation of energy	Helmholtz, H. von	1847
Doppler effect	Doppler, Christian	1848
Electromagnetic radiation	Maxwell, James	1864
X-rays	Roentgen, Wilhelm	1895
Energy equation	Einstein, Albert	1905
Relativity	Einstein, Albert	1905
Superconductivity	Onnes, Heike	1911
Atomic bonding	Bohr, Niels	1913
Quantum theory	Born, Max	1925
Uncertainty Principle	Heisenberg, Werner	1927
Speed of light	Michelson, Albert	1928
Antimatter	Dirac, Paul	1929
Neutron	Chadwick, James	1932
Strong force	Yukawa, Hideki	1937
Nuclear fission	Meitner, Lise	1939
	Hahn, Otto	1939
Semiconductor transistor	Bardeen, John	1947
Definition of information	Shannon, Claude	1948
Nuclear fusion	Bethe, Hans	1951
	Spitzer, Lyman	1951
Quarks	Gell-Mann, Murry	1962
Weak force	Rubbia, Carlo	1983

Earth Sciences

Discovery	Discovering Scientist	Year
Gulf Stream	Franklin, Benjamin	1770
	Humbolt, A. von	1814
Erosion (weathering)	Hutton, James	1792
Ice ages	Agassiz, Louis	1837
	Milankovich, Milutin	1920
Atmospheric layers	de Bort, L. Teisserenc	1902
Fault lines	Reid, Harry	1911
Earth's core	Gutenberg, Beno	1914
Continental drift	Wegener, Alfred	1915
Ecosystem	Tansley, Arthur	1935
Seafloor spreading	Hess, Harry	1957
Chaos theory	Lorenz, Ed	1960

Life Sciences

Discovery	Discovering Scientist	Year
Biology		
Cells	Hooke, Robert	1665
Fossils	Steno, Nicholas	1669
Bacteria	Leeuwenhoek, Anton van	1680
Taxonomy system	Linnaeus, Carl	1735
Photosynthesis	Ingenhousz, Jan	1779
Dinosaur fossils	Buckland, William	1824
	Mantell, Gideon	1824
Germ theory	Pasteur, Louis	1856
Deep-sea life	Thomson, Charles	1870
Cell division	Flemming, Walther	1882
Virus	Beijerinick, Martinus	1898
	Ivanovsky, Dmitri	1898
Cell structure	Claude, Albert	1933
Origins of life	Miller, Stanley	1952
Nature of dinosaurs	Bakker, Robert	1976

Discovery	Discovering Scientist	Year
Evolution and Human Anatomy		
Human anatomy	Vesalius, Andreas	1543
Evolution	Darwin, Charles	1858
Heredity	Mendel, Gregor	1865
Mitochondria	Benda, Carl	1898
Genetic mutations	Morgan, Thomas	1909
Neurotransmitters	Loewi, Otto	1921
	Walder-Hartz, Heinrich	1921
Human evolution	Dart, Raymond	1924
Coelacanth	Smith, J. L. B	1938
Jumping genes	McClintock, Barbara	1950
DNA	Crick, Francis	1953
	Watson, James	1953
	Franklin, Rosalind	1953
Complete evolution	Margulis, Lynn	1967
Human genome	Venter, Craig	2003
	Watson, James	2003
Medical Science		
Human circulatory system	Harvey, William	1628
Vaccinations	Montagu, Lady Mary Wortley	1798
	Jenner, Edward	1794
Anesthesia	Davy, Humphry	1801
Chloroform (anesthesia)	Simpson, Young	1801
Ether (anesthesia)	Long, Crawford	1801
Blood types	Landsteiner, Karl	1897
Hormones	Bayliss, William	1902
	Starling, Ernest	1902
Vitamins	Hopkins, Frederick	1906
	Eijkman, Christiaan	1906
Antibiotics	Ehrlich, Paul	1910
Insulin	Banting, Frederick	1921
Penicillin	Flemming, Alexander	1928
Genes	Beadle, George	1934
Metabolism (Krebs Cycle)	Krebs, Hans	1938
Blood plasma	Drew, Charles	1940

Scientists

This table is an alphabetical list of the scientists featured in the discussions of the 100 greatest discoveries. Each is listed with his or her discovery and the year the discovery was made.

Name	Discovery	Year
Abel, John	Hormones	1898
Agassiz, Louis	Ice ages	1837
Archimedes	Levers and buoyancy	260 B.C.
Avogadro, Amedeo	Molecules	1811
Bakker, Robert	Nature of dinosaurs	1976
Banting, Frederick	Insulin	1921
Bardeen, John	Semiconductor transistor	1947
Bayliss, William	Hormones	1902
Beadle, George	Genes	1934
Beijerinick, Martinus	Virus	1898
Bell, Jocelyn	Pulsar	1967
Benda, Carl	Mitochondria	1898
Bethe, Hans	Nuclear fusion	1939
Bohr, Niels	Atomic bonding	1913
Boltwood, Bertram	Radioactive dating	1907
Born, Max	Quantum theory	1925
Boyle, Robert	Boyle's law	1662
Buckland, William	Dinosaur fossils	1824
Bunsen, Robert	Atomic light signatures	1859
Cassini, Giovanni	Distance to the sun	1672
Chadwick, James	Neutron	1932
Claude, Albert	Cell structure	1933
Copernicus, Nicholaus	Sun-centered universe	1520
Courtenay-Latimer, M.	Coelacanth	1938
Crick, Francis	DNA	1953
Curie, Marie and Pierre	Radioactivity	1901
Dalton, John	Atoms	1802
Dart, Raymond	Human evolution	1924
Darwin, Charles	Evolution	1858
Davy, Humphry	Anesthesia	1801
Davy, Humphry	Electrochemical bonding	1806
de Bort, Leon Teisserenc	Atmospheric layers	1902

Name	Discovery	Year
Dirac, Paul	Antimatter	1929
Doppler, Christian	Doppler effect	1848
Drew, Charles	Blood plasma	1940
Ehrlich, Paul	Antibiotics	1910
Eijkman, Christiaan	Vitamins	1906
Einstein, Albert	Energy equation	1905
Einstein, Albert	Relativity	1905
Galilei, Galileo	Law of falling objects	1598
Galilei, Galileo	Other planets have moons	1609
Gamow, George	The Big Bang	1948
Gell-Mann, Murry	Quarks	1962
Gutenberg, Beno	Earth's core	1914
Fermi, Enrico	Nuclear fission	1939
Flemming, Alexander	Penicillin	1928
Flemming, Walther	Cell division	1882
Franklin, Benjamin	Nature of electricity	1752
Franklin, Benjamin	Gulf Stream	1770
Franklin, Rosalind	DNA	1953
Hahn, Otto	Nuclear fission	1939
Harvey, William	Human circulatory system	1628
Heisenberg, Werner	Uncertainty Principle	1927
Helmholtz, Hermann von	Conservation of energy	1847
Herschel, Frederick	Infrared	1800
Herschel, William	Galaxies	1750
Hess, Harry	Seafloor spreading	1957
Hewish, Antony	Pulsar	1967
Hodgkin, Dorothy	Penicillin	1942
Hooke, Robert	Cells	1665
Hopkins, Frederick	Vitamins	1906
Hubble, Edwin	Expanding universe	1926
Humbolt, Alexander von	Gulf Stream	1814
Hutton, James	Erosion (weathering)	1792
Ingenhousz, Jan	Photosynthesis	1779
Ivanovsky, Dmitri	Virus	1898
Jenner, Edward	Vaccinations	1794
Joule, James	Calorie	1843
Kepler, Johannes	Planets' true orbits	1609
Kirchhoff, Robert	Atomic light signatures	1859
Krebs, Hans	Metabolism (Krebs Cycle)	1938
Landsteiner, Karl	Blood types	1897
Lavoisier, Antoine	Conservation of matter	1789

Name	Discovery	Year
Lehman, Inge	Earth's core	1938
Leeuwenhoek, Anton van	Bacteria	1680
Linnaeus, Carl	Taxonomy system	1735
Long, Crawford	Ether (anesthesia)	1801
Loewi, Otto	Neurotransmitters	1921
Lorenz, Ed	Chaos theory	1960
Mantell, Gideon	Dinosaur fossils	1824
Margulis, Lynn	Complete evolution	1967
Mayor, Michel	Planets around other stars	1995
Maxwell, James	Electromagnetic radiation	1864
McClintock, Barbara	Jumping genes	1950
Meitner, Lise	Nuclear fission	1939
Mendel, Gregor	Heredity	1865
Mendeleyev, Dmitri	Periodic Table	1880
Michelson, Albert	Speed of light	1928
Milankovich, Milutin	Ice ages	1920
Miller, Stanley	Origins of life	1952
Montagu, Lady Mary	Vaccinations	1798
Morgan, Thomas	Genetic mutations	1909
Newton, Isaac	Universal gravitation	1666
Newton, Isaac	Laws of motion	1687
Oersted, Hans	Electromagnetism	1820
Onnes, Heike	Superconductivity	1911
Pasteur, Louis	Germ theory	1856
Perlmutter, Saul	Universe is accelerating	1998
Priestley, Joseph	Oxygen	1774
Queloz, Didier	Planets around other stars	1995
Reid, Harry	Fault lines	1911
Ritter, Johann	Ultraviolet`	1801
Roentgen, Wilhelm	X-rays	1895
Rubbia, Carlo	Weak force	1983
Rubin, Vera	Dark matter	1970
Rumford, Count	Nature of heat	1790
Sandage, Allan	Quasar	1963
Schwarzschild, Karl	Black hole	1916
Shannon, Claude	Definition of information	1948
Sharpey-Schafer, Edward	Hormones	1894
Simpson, Young	Chloroform (anesthesia)	1801
Smith, J. L. B.	Coelacanth	1938
Soddy, Frederick	Isotopes	1913
Spitzer, Lyman	Nuclear fusion	1951

Name	Discovery	Year
Starling, Ernest	Hormones	1902
Steno, Nicholas	Fossils	1669
Takamine, Jokichi	Hormones	1900
Tansley, Arthur	Ecosystem	1935
Tatum, Edward	Genes	1934
Thomson, Charles	Deep-sea life	1870
Torricelli, Evangelista	Air pressure	1640
Venter, Craig	Human genome	2003
Vesalius, Andreas	Human anatomy	1543
Walder-Hartz, Heinrich	Neurotransmitters	1888
Watson, James	DNA	1953
Watson, James	Human genome	2003
Wegener, Alfred	Continental drift	1915
Wheeler, John	Black holes	1971
Wright, Thomas	Galaxies	1750
Yukawa, Hideki	Strong force	1937

The Next 40

This table is a list of 40 important discoveries that *almost* made the final list of the greatest 100. Each is worthy of consideration, honor, and study. Pick one or more of these to research and describe.

Earth is a sphere	Aristotle	387 B.C.
The heavens are not fixed and unchanging	Brahe	1574
The nature of light	Galileo, Newton, Young, Einstein	various years
Compressibility of gasses	Boyle	1688
Lift/fluid pressure	Bernoulli	1738
Comets have predictable orbits	Halley	1758
Hydrogen	Cavendish	1776
Origin of the solar system	Laplace	1796
Mass of the earth	Cavendish	1798
Liquification of gasses	Faraday	1818
Fingerprints, uniqueness of	Purkinje	1823
Magnetic induction	Faraday	1831
Age of the sun	Helmholtz	1853
Sun is a gas	Carrington	1859
Age of the earth	Lyell (first), Holmes (accurate)	1860, 1940
Antiseptics	Lister	1863
Plastics	Hyatt	1869
Alternating current	Tesla	1883
Bacteriology	Koch	1890
Earth's magnetic field reversals	Brunhes	1906
Chemotherapy	Ehrlich	1906
Cosmic radiation	Hess	1911
Electroencephalogram	Berger	1924
adjustrightBrucellosis bacterium	Evans	1925
Exclusion principle	Pauli	1926
Neutrino	Pauli	1926
Galaxies emit radio waves	Jansky	1932
Artificial radioactivity	Curie and Joliot	1934
Cortisone	Kendall	1935
Sulfa drugs	Domagk	1936
Radiation therapy	Priore	1950
Laser	Townes and Gould	1954/1957

Global warming	Many	late twentieth century
First cloning	Gurden	1967
Laetoli footprints (3.5 million years old)	Mary Leakey	1973
"Lucy" (3.2 million-year-old skull)	Donald Johnson	1974
Non-oxygen-based deep sea life	Ballard	1977
Dinosaur extinction (K-T asteroid)	Alvarez	1979
Human retrovirus HIV	Gallo and Montagnier	1982
Toumai skull (6 to 7 million years old)	Michel Brunet	2002