

TIMELINE The Discovery of Elements

Early History	The elements carbon, sulfur, iron, tin, lead, copper, mercury, silver, and gold are known to humans. Pre-a.d. 1600: The elements arsenic, antimony, bismuth, and zinc are known to humans.
1669	German physician Hennig Brand discovers phosphorous .
1735	Swedish chemist Georg Brandt discovers cobalt .
c1748	Spanish military leader Don Antonio de Ulloa discovers platinum .
1751	Swedish mineralogist Axel Fredrik Cronstedt discovers nickel .
1766	English chemist and physicist Henry Cavendish discovers hydrogen .
1772	Scottish physician and chemist Daniel Rutherford discovers nitrogen .
1774	Swedish chemist Carl Wilhelm Scheele discovers chlorine .
1774	Swedish mineralogist Johann Gottlieb Gahn discovers manganese .
1774	English chemist Joseph Priestley and Swedish chemist Carl Wilhelm Scheele discover oxygen .
1781	Swedish chemist Peter Jacob Hjelm discovers molybdenum .
c1782	Austrian mineralogist Baron Franz Joseph Muller von Reichenstein discovers tellurium .
1783	Spanish scientists Don Fausto D'Elhuyard and Don Juan Jose D'Elhuyard, and Swedish chemist Carl Wilhelm Scheele discover tungsten .
1789	German chemist Martin Klaproth discovers uranium .
1789	German chemist Martin Klaproth discovers zirconium .
1791	English clergyman William Gregor discovers titanium .
1794	Finnish chemist Johan Gadolin discovers yttrium .
1797	French chemist Louis-Nicolas Vauquelin discovers chromium .
1798	French chemist Louis-Nicolas Vauquelin discovers beryllium .
1801	English chemist Charles Hatchett discovers niobium .
1801	Spanish-Mexican metallurgist Andres Manuel del Rio discovers vanadium .
1802	Swedish chemist and mineralogist Anders Gustaf Ekeberg discovers tantalum .
1803	English chemist and physicist William Hyde Wollaston discovers palladium .
1804	Klaproth discover black rock of Bastnas, Sweden, which led to the discovery of several elements.
1804	English chemist and physicist William Hyde Wollaston discovers rhodium .
1804	English chemist Smithson Tennant discovers osmium .
1804	English chemist Smithson Tennant discovers iridium .
1807	English chemist Sir Humphrey Davy discovers sodium .
1808	English chemist Sir Humphrey Davy discovers barium .
1808	English chemist Sir Humphrey Davy discovers strontium .
1808	English chemist Sir Humphrey Davy discovers magnesium .
1808	French chemist Louis Jacques Thenard and Joseph Louis Gay-Lussac discover boron .
1811	French chemist Bernard Courtois discovers iodine .
1817	Swedish chemist Johan August Arfwedson discovers lithium .

1817	German chemist Friedrich Stromeyer discovers cadmium .
1818	Swedish chemist Jons Jakob Berzelius and J. G. Gahn discover selenium .
1823	Swedish chemist Jons Jakob Berzelius discover silicon .
1826	French chemist Antoine-Jerome Balard discovers bromine .
1825	Danish chemist and physicist Hans Christian Oersted discovers aluminum .

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1828	Swedish chemist Jons Jakob Berzelius discovers thorium .
1830	Swedish chemist Nils Gabriel Sefstrom rediscovers vanadium .
1839	Swedish chemist Carl Gustav Mosander discovers cerium .
1839	Italian physicist Emilio Segrè and his colleague Carlo Perrier discover protactinium .
1839	Swedish chemist Carl Gustav Mosander discovers lanthanum .
1843	Swedish chemist Carl Gustav Mosander discovers terbium .
1844	Russian chemist Carl Ernst Claus discovers ruthenium .
c1861	German chemists Robert Bunsen and Gustav Kirchoff discovers cesium .
c1861	German chemists Robert Bunsen and Gustav Kirchoff discovers rubidium .
1861	British physicist Sir William Crookes discovers thallium .
1863	German chemist Ferdinand Reich and Hieronymus Theodor Richter discovers indium .
1875	Paul-emile Lecoq de Boisbaudran discovers gallium .
1878	Jean-Charles-Galissard de arginac receives partial credit for the discovery of ytterbium .
1879	Swedish chemist Per Teodor Cleve discovers holmium .
1879	Swedish chemist Per Teodor Cleve discovers thulium .
1879	Swedish chemist Lars Nilson discovers scandium .
1879	Swedish chemist Lars Nilson receives partial credit for the discovery of ytterbium .
1880	French chemist Paul-Emile Lecoq de Boisbaudran discovers samarium .
1885	Austrian chemist Carl Auer (Baron von Welsbach) discovers praseodymium .
1885	Austrian chemist Carl Auer (Baron von Welsbach) discovers neodymium .
1885	German chemist Clemens Alexander Winkler discovers germanium .
1886	French chemist Henri Moissan discovers fluorine .
1886	French chemist Paul-Emile Lecoq de Boisbaudran discovers dysprosium .
1894	English chemist Lord Raleigh and William Ramsay discover argon .
1895	English chemist Sir William Ramsay and Swedish chemists Per Teodor Cleve and Nils Abraham Langlet discover helium .
1898	English chemist William Ramsay and Morris Travers discover krypton .
1898	English chemist William Ramsay and Morris Travers discover xenon .
1898	French physicists Marie and Pierre Curie discover polonium .
1898	French physicists Marie and Pierre Curie discover radium .
1899	French chemist Andre Debierne discovers actinium .
1900	German physicist Friedrich Ernst Dorn discovers radon .
1901	French chemist Eugene-Anatole Demarcay discovers europium .
1907	French chemist Georges Urbain discovers lutetium .
1907	French chemist Georges Urbain receives partial credit for the discovery of ytterbium .
1917	German physicists Lise Meitner and Otto Hahn discover protactinium .
1923	Dutch physicist Dirk Coster and Hungarian chemist George Charles de Hevesy discover hafnium .
1925	German chemists Walter Noddack, Ida Tacke, and Otto Berg discover rhenium .
1933	French chemist Marguerite Perey discovers francium .

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	technetium.
1940	Edwin M. McMillan (1907-91) and Philip H. Abelson prepare neptunium.
1940	Dale R. Corson, Kenneth R. McKenzie, and Emilio Segre discover astatine.
1940	University of California at Berkeley researcher Glenn Seaborg and others prepare plutonium.
1944	University of California at Berkeley researcher Glenn Seaborg, Albert Ghiorso, Ralph A. James and Leon O. Morgan prepare americium.
1944	University of California at Berkeley researcher Glenn Seaborg, Albert Ghiorso, Ralph A. James prepare curium.
1945	Scientists at the Oak Ridge Laboratory in Oak Ridge, Tennessee, discover promethium.
1949	University of California at Berkeley researchers prepare berkelium.
1950	University of California at Berkeley researchers Glenn Seaborg, Albert Ghiorso, Kenneth Street, Jr., and Stanley G. Thompson prepare californium.
1954	University of California at Berkeley researchers prepare einsteinium.
1960's – 1970's	Researchers at the Joint Institute of Nuclear Research, in Dubna Russia; the Lawrence Berkley Laboratory at the University of California at Berkeley; and the Institute for Heavy Ion Research in Darmstadt, Germany continue to prepare new transfermium elements.

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