

# Science Read

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## Periodic Table has now 4 new elements! (More to study?)

1 H																	18 He
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg	d-block										13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
55 Cs	56 Ba	71 Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
87 Fr	88 Ra	103 Lr	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Uut	114 Fl	115 Uup	116 Lv	117 Uus	118 Uuo
f-block		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb		
		89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No		

The seventh row of the periodic table is officially full!

On December 30, the International Union of Pure and Applied Chemistry announced that a Russian-U.S. collaboration had attained sufficient evidence to claim the discovery of elements 115, 117 and 118. International Union of Pure and Applied Chemistry (IUPAC) awarded credit for the discovery of element 113 to scientists at RIKEN in Wako, Japan, led by Kosuke Morita. Both groups synthesized the elements by slamming lighter nuclei into each other and tracking the decay of the radioactive superheavy elements that followed.

Published reports on the newly recognized elements will appear in early 2016, says IUPAC executive director Lynn Soby. Official recognition of the elements means that their discoverers earn the right to suggest names and symbols. Element 113 will be the first element discovered and named by researchers in Asia. Besides, Japan has a proud research tradition and its citizens have won about 20 Nobel prizes in science and medicine, including two in 2015.

Up till now we do not know much about these new additions to the Periodic Table, however let's look at some of the interesting elements that are seen in the Periodic Table.

### Interesting Element #1 - Mercury (Hg)

Mercury also called quicksilver, is an element that has the symbol Hg (Greek: hydrargyrum, meaning watery or liquid silver) with an atomic number of 80. A heavy, silvery metal, mercury is one of the elements that are liquid at or near room temperature. Mercury is used in thermometers, barometers and other scientific apparatus, though many concerns about

the element's toxicity have led to said thermometers being largely phased out in favor of alcohol-filled or digital. It remains in use in scientific study and research applications, and in dentistry.

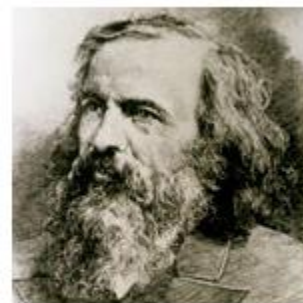
### Interesting Element #2 - Curium (Cm)

Named for famed physicist Marie Curie, curium is made by bombarding plutonium with helium ions. So radioactive it glows in the dark. Several kilograms of curium are produced each year. As curium is only available in extremely limited quantities, it has few uses; however, it was used on a Mars mission as an alpha particle source for the Alpha Proton X-Ray Spectrometer.

### Who invented the Periodic Table?

In 1869, a Russian chemist called Dmitri Mendeleev published a periodic table. Mendeleev also arranged the elements known at the time in order of *relative atomic mass*, but he did some other things that made his table much more successful.

He realised that the physical and chemical properties of elements were related to their atomic mass in a 'periodic' way, and arranged them so that groups of elements with similar properties fell into vertical columns in his table, leading to the 'Group' and 'Period' we see today in the Periodic Table we see today.



Dmitri Mendeleev (1834 - 1907)

Sometimes this method of arranging elements meant there were gaps in his horizontal rows or 'periods'. But instead of seeing this as a problem, Mendeleev thought it simply meant that the elements which belonged in the gaps had not yet been discovered.

He was also able to work out the atomic mass of the missing elements, and so predict their properties. And when they *were* discovered, Mendeleev turned out to be right. For example, he predicted the properties of an undiscovered element that should fit below aluminium in his table. When this element, called gallium, was discovered in 1875, its properties were found to be close to Mendeleev's predictions. Two other predicted elements were later discovered, lending further credit to Mendeleev's table.

Find out more:

- (1) <https://www.sciencenews.org/article/four-elements-earn-permanent-seats-periodic-table>
- (2) <http://phys.org/news/2010-02-chemical-element-copernicium.html#nRlv>
- (3) <http://listverse.com/2007/11/21/top-10-most-amazing-elements/>
- (4) [http://www.bbc.co.uk/schools/gcsebitesize/science/edexcel\\_pre\\_2011/patterns/periodictablerev4.shtml](http://www.bbc.co.uk/schools/gcsebitesize/science/edexcel_pre_2011/patterns/periodictablerev4.shtml)