NOW TRY IN ENGLISH CLIL

Periodic table

The periodic table of the chemical elements is a tabular method of displaying the chemical elements, first devised in 1869 by the Russian chemist Dmitri Mendeleev. Mendeleev intended the table to illustrate recurring («periodic») trends in the properties of the elements.

The layout of the table has been refined and extended over time, as many new elements have been discovered, and new theoretical models have been developed to explain chemical behaviour.

Various different layouts are possible, to emphasize different aspects of behaviour; the most common forms, however, are still quite similar to Mendeleev's original.

The periodic table is now ubiquitous within the academic discipline of chemistry, providing an extremely useful framework to classify, systematize and compare all the many different forms of chemical behaviour.

The table has also found wide application in physics, biology, engineering, and industry.

Earlier attempts to list the elements had usually simply put them in order of atomic mass.

Mendeleev's key insight in devising the periodic table was to lay out the elements to illustrate recurring («periodic») chemical properties (even if this meant some of them were not in mass order), and to leave gaps for «missing» elements. Mendeleev used his table to predict the properties of these «missing elements», and many of them were indeed discovered and fitted the predictions well.

With the development of theories of atomic structure (for instance by Henry Moseley) it became apparent that Mendeleev had listed the elements in order of increasing atomic number (the number of protons in the atomic nucleus).

In order to illustrate recurring properties, Mendeleev began new rows in his table so that elements with similar properties fell into the same vertical columns («groups»).

With the development of modern quantum mechanical theories of electron configuration within atoms, it became apparent that each horizontal row («period») in the table corresponded to the filling of a quantum shell of electrons.

In Mendeleev's original table, each period was the same length.

Modern tables have progressively longer periods further down the table, and group the elements into s-, p-, d- and f-blocks to reflect our understanding of their electron configuration.

In printed tables, each element is usually listed with its element symbol and atomic number; many versions of the table also include the element's atomic mass and other information, such as its abbreviated electron configuration, electronegativity and most common valence numbers.

As of 2005, the table contains 116 chemical elements whose discoveries have been confirmed.

94 are found naturally on Earth, and the rest are synthetic elements that have been produced artificially in particle accelerators.

(Adapted from Wikipedia)

Text glossary

To trend	Tendere
However	Comunque
Attempt	Tentativo
Meant	Significava
Length	Lunghezza

Layout	Disposizione
Framework	Struttura
Insight	Intuito
Row	Riga
Understanding	Conoscenza

Dmitri Mendeleev's biography

Born in Siberia, the last of at least 14 children, Dmitri Mendeleev revolutionized our understanding of the properties of atoms and created a table that probably adorns every chemistry classroom in the world. After his father went blind and could no longer support the family, Mendeleev's mother started a glass factory to help make ends meet. But just as Mendeleev was finishing high school, his father died and the glass factory burned down. With most of her other children now out on their own, his mother took her son to St. Petersburg, working tirelessly and successfully to get him into college.

In the late 1860s, Mendeleev began working on his great achievement: the periodic table of the elements. By arranging all of the 63 elements then known by their atomic weights, he managed to organize them into groups possessing similar properties. Where a gap existed in the table, he predicted a new element would one day be found and deduced its properties. And he was right. Three of those elements were found during his lifetime: gallium, scandium, and germanium.

The discovery of these elements provided the strongest support for his periodic table, a cornerstone both in chemistry and in our understanding of how the universe is put together.

In 1866, Newlands published a relationship of the elements entitled the «Law of Octaves».

His greatest accomplishment, however, was the stating of the Periodic Law and the development of the Periodic Table. From early in his career, he felt that there was some type of order to the elements, and he spent more than thirteen years of his life collecting data and assembling the concept, initially with the idea of resolving some of the chaos in the field for his students. Mendeleev was one of the first modern-day scientists in that he did not rely solely on his own work but rather was in correspondence with scientists around the world in order to receive data that they had collected. He then used used their data along with his own data to arrange the elements according to their properties. Mendeleev died in 1907 but continued to be a famous scientist after his death.

(Adapted from Wikipedia)

KEY TO SYMBOLS		LEGENDA:	
Symbol		Simbolo	H 1
Name		Nome	Idrogeno
Atomic Mass		Massa atomica	1,0079
Electronegativity		Elettronegatività	2,1
Oxidation numbers		Stati di ossidazione	1
Buid up		Auf-bau	$1s^1$

Practise

Match the words in table A with the English equivalent in table B. Use a dictionary if needed.

Table A

A	Tavola periodica
B	Gruppo
C	Periodo
D	Metallo alcalino
E	Bisolfito di sodio
F	Deuterio
G	Bicarbonato di sodio
H	Semiconduttore
I	Isolante
J	Alogeni
K	Lega
L	Zincatura
M	Catalizzatore
N	Comportamento
O	Trizio
P	Simbolo
Q	Numero atomico
R	Elemento
S	Blocco
T	Sintetico

Table B

1	Behaviour
2	Alkaline metal
3	Element
4	Semiconductor
5	Catalyst
6	Period
7	Atomic number
8	Sodium bicarbonate
9	Zinc coating
10	Group
11	Block
12	Insulating
13	Symbol
14	Deuterium
15	Alloy
16	Periodic table
17	Synthetic
18	Halogen
19	Sodium bisulphite
20	Tritium

Keys

Match the words in table A with the English equivalent in table B. Use a dictionary if needed.

Table A	Table B
A	16
B	10
C	6
D	2
E	19
F	14
G	8
H	4
I	12
J	18
K	15
L	9
M	5
N	1
O	20
P	13
Q	7
R	3
S	11
T	17