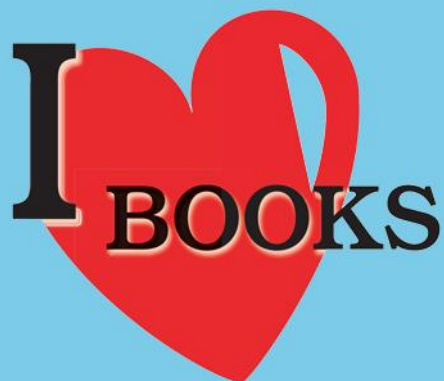




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extracts from
Lift the Flap Periodic Table

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How does the Periodic Table work?

The Periodic Table looks like this. It shows 118 different elements, and reveals which elements are similar to each other. Each box represents one element.

1
H
HYDROGEN
1

3
Li
LITHIUM
7

11
Na
SODIUM
23

19
K
POTASSIUM
39

37
Rb
RUBIDIUM
85

55
Cs
CAESIUM
133

87
Fr
FRANCIUM
223

4
Be
BERYLLIUM
9

12
Mg
MAGNESIUM
24

20
Ca
CALCIUM
40

38
Sr
STRONTIUM
88

56
Ba
BARIUM
137

88
Ra
RADIUM
226

21
Sc
SCANDIUM
45

22
Ti
TITANIUM
48

23
V
VANADIUM
51

24
Cr
CHROMIUM
52

25
Mn
MANGANESE
55

26
Fe
IRON
56

27
Co
COBALT
59

28
Ni
NICKEL
59

29
Cu
COPPER
64

30
Zn
ZINC
65

39
Y
YTTRIUM
89

40
Zr
ZIRCONIUM
90

41
Nb
NIOSIUM
93

42
Mo
MOYBENIUM
96

43
Tc
TECHNETIUM
99

44
Ru
RUTHENIUM
101

45
Rh
RHODIUM
103

46
Pd
PALLADIUM
106

47
Ag
SILVER
108

48
Cd
CADMIUM
112

57-71
La-Lu

72
Hf
HAFNIUM
178

73
Ta
TANTALUM
180

74
W
TUNGSTEN
184

75
Re
RHENIUM
186

76
Os
OSMIUM
190

77
Ir
IRIDIUM
192

78
Pt
PLATINUM
195

79
Au
GOLD
197

80
Hg
MERCURY
201

89-103
Ac-Lr

104
Rf
RUTHERFORDIUM
261

105
Db
DUBNIUM
262

106
Sg
SEABORGIUM
266

107
Bh
BOHRIUM
264

108
Hs
HASSIUM
269

109
Mt
MEITNERIUM
268

110
Ds
DARMSTADIUM
269

111
Rg
ROENTGENIUM
272

112
Cn
COPERNICIUM
277

2
He
HELIUM
4

10
Ne
NEON
20

18
Ar
ARGON
40

36
Kr
KRYPTON
84

54
Xe
XENON
131

86
Rn
RADON
222

HYDROGEN is the first element. The table is numbered from left to right.

Each element contains one more proton than the one before it.

Columns are called groups. Elements get heavier down each group.

Horizontal rows are called periods.

How heavy the element is – called its 'atomic mass'

Elements 113-118 were officially discovered in 2015, and named in 2016. Lift the flap to see them.



Mendeleev was the first chemist to find a way to order the elements. He weighed equal amounts of different elements, and arranged them according to how heavy their atoms were.

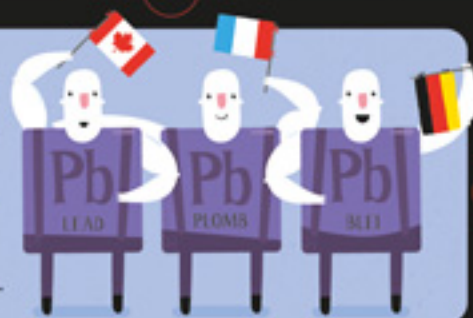
An element's code name, called its **chemical symbol**, can be quite different from its name.

My name is TUNGSTEN but my symbol is W.



92 elements are found in nature.

The Periodic Table is used in every country, and the code names are the same in every language, even when their full names are different.



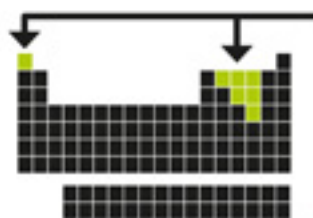
This group of elements is in a small grid underneath, to make the table easier to read.

57 La LANTHANUM 139	58 Ce CELIUM 140	59 Pr PRASEODYMIUM 141	60 Nd NEODYMIUM 144	61 Pm PROMETHIUM 145	62 Sm SAMARIUM 150	63 Eu EUROPIUM 152	64 Gd GADOLINIUM 157	65 Tb TERBIUM 159	66 Dy DYSPROSIUM 163	67 Ho HOLMIUM 165	68 Er ERBIUM 167	69 Tm THULIUM 169	70 Yb YTTERIUM 173	71 Lu LUTETIUM 175
89 Ac ACTINIUM 227	90 Th THORIUM 232	91 Pa PROTACTINIUM 231	92 U URANIUM 238	93 Np NEPTUNIUM 237	94 Pu PLUTONIUM 244	95 Am AMERICIUM 243	96 Cm CURIUM 247	97 Bk BERKELIUM 247	98 Cf CALIFORNIUM 251	99 Es EINSTEINIUM 254	100 Fm FERMIUM 257	101 Md MENDELEVIUM 258	102 No NOBELIUM 259	103 Lr LAWRENCIUM 262

A lot of the elements not found in nature are named after famous scientists. Lift the flaps to find out who.

The elements of life

A few elements in the table are known as **non-metals**. They are all essential to life on Earth. From the air you breathe to the water you drink, they're in you and in everything around you.



The non-metals are split across the table.

Two or more atoms stuck together form a substance called a molecule.



The OXYGEN atoms you breathe from the air always come in pairs, as molecules called O_2 .

HYDROGEN and OXYGEN together make water.



All life on Earth is based on CARBON.

Pure CARBON comes in lots of shapes and forms.

An alchemist called Hennig Brand discovered a new non-metal in 1669.

HYDROGEN is the most abundant element in the Universe.

HYDROGEN is the lightest element. It used to be used to keep airships called zeppelins in the air.

78% of the Earth's atmosphere is NITROGEN.

Your body is made of lots of non-metals.

PHOSPHORUS is a crucial part of DNA – the chemical code that builds living things.

NITROGEN and PHOSPHORUS compounds are used in plant fertilizers.

Plants need a compound of CARBON and OXYGEN, called carbon dioxide, to survive.



Only one type of animal can survive without OXYGEN – microscopic sea creatures called loricifera.

The outside of the Earth is mostly made of non-metals. Lift the flap to see the elements inside the Earth.

When OXYGEN reacts with fuels such as wood or coal, and there's a spark...

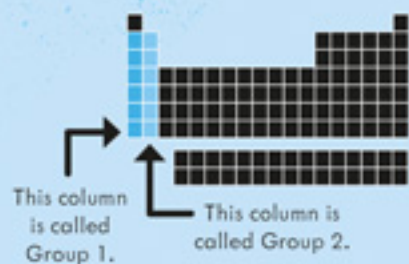
Brazil nuts contain more SELENIUM than any other food.

SELENIUM can cause bad breath and smelly bodies.

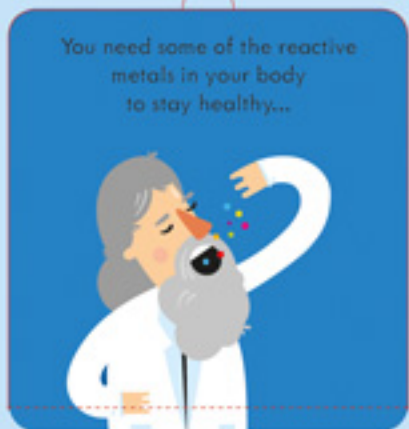
When HYDROGEN, SULFUR and OXYGEN combine...

SULFUR is the smelliest element.

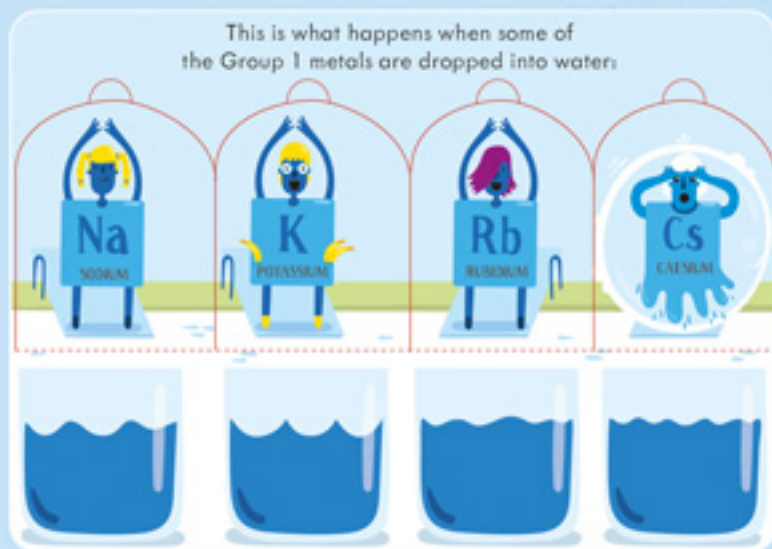
Elements that FLIZZ and BANG



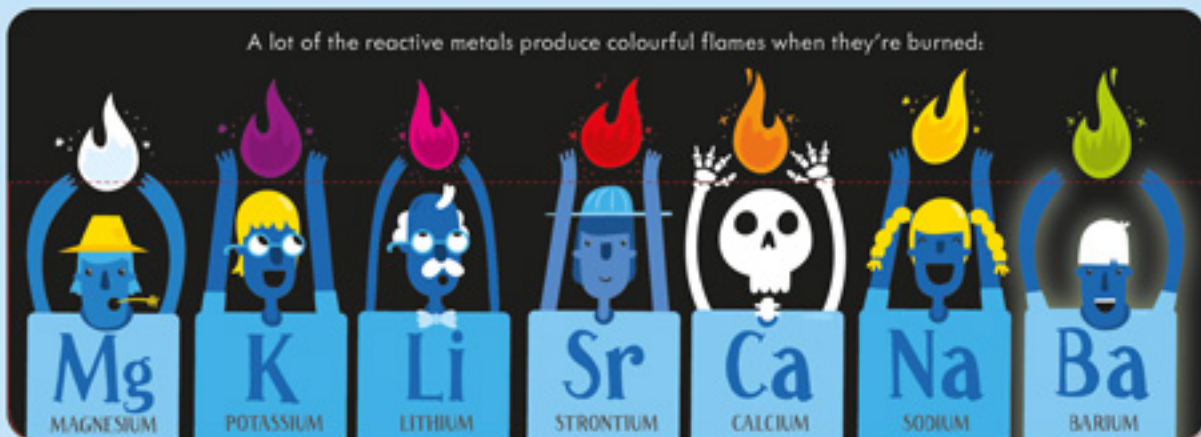
The elements down the left two columns of the table are metals that fizz, flash, bang or explode when they come into contact with other elements. They're known as **reactive metals**.



You need some of the reactive metals in your body to stay healthy...



This is what happens when some of the Group 1 metals are dropped into water:



A lot of the reactive metals produce colourful flames when they're burned:



When SODIUM reacts with the gas CHLORINE they turn into a compound called sodium chloride – also known as table salt.



There are lots of other types of salt too. Whenever a Group 1 or 2 metal reacts with a non-metal, they form a salt (but you can't eat them).

Here are some more of the reactive metals.



LITHIUM and BERYLLIUM were two of the first elements to exist in the Universe.

