

The periodic table of the elements contains all the known elements in order of increasing *atomic number* (= number of protons). **Symbols:** Each element (type of atom) has a symbol of usually 1 or 2 letters. The 1st letter is always written with a capital letter, the 2nd one is not: For example Na stands for Sodium (and not NA or nA or na); Mg stands for Magnesium (and not MG or mG or mg).

Elements with similar shell structure have similar properties [Eigenschaften] and are positioned near to each other. All elements with the same number of electrons in their outer shell behave in similar ways. All “strive toward” reaching a complete (energetically) stable [stabil] outer shell with *8 electrons* - as only the “noble gases” have which hardly react with other elements: they are “inert”. The elements called “halogens” (in column 17), just before the noble gases, would need only one electron in order to complete their outer shell and are therefore extremely reactive. The elements following each noble gas (“metals” in column 1) have a single electron in the outer shell and tend towards getting rid of it to return to a stable complete shell. Both of these types react very readily with each other: For example Na (Sodium) reacts readily with Cl (Chlorine) to form a new substance, NaCl (table salt)! Nonmetals are not so “extreme”, they share electrons.

1
IA
1A

2
IIA
2A

13
IIIA
3A

14
IVA
4A

15
VA
5A

16
VIA
6A

17
VIIA
7A

18
VIIIA
8A

1
H
Hydrogen
1.008

3
Li
Lithium
6.941

11
Na
Sodium
22.990

19
K
Potassium
39.098

37
Rb
Rubidium
84.468

55
Cs
Cesium
132.905

87
Fr
Francium
223.020

2
He
Helium
4.003

4
Be
Beryllium
9.012

12
Mg
Magnesium
24.305

20
Ca
Calcium
40.078

38
Sr
Strontium
87.62

56
Ba
Barium
137.327

88
Ra
Radium
226.025

5
B
Boron
10.811

13
Al
Aluminum
26.982

31
Ga
Gallium
69.732

49
In
Indium
114.818

67
Tl
Thallium
204.383

81
Tl
Thallium
204.383

6
C
Carbon
12.011

14
Si
Silicon
28.086

32
Ge
Germanium
72.61

50
Sn
Tin
118.71

68
Er
Erbium
167.26

86
Rn
Radon
222.018

7
N
Nitrogen
14.007

15
P
Phosphorus
30.974

33
As
Arsenic
74.922

51
Sb
Antimony
121.760

69
Tm
Thulium
168.934

87
Uus
Ununseptium
unknown

8
O
Oxygen
15.999

16
S
Sulfur
32.066

34
Se
Selenium
78.972

52
Te
Tellurium
127.6

80
Hg
Mercury
200.59

98
Cf
Californium
251.080

9
F
Fluorine
18.998

17
Cl
Chlorine
35.453

35
Br
Bromine
79.904

53
I
Iodine
126.904

81
At
Astatine
209.987

10
Ne
Neon
20.180

18
Ar
Argon
39.948

36
Kr
Krypton
84.80

54
Xe
Xenon
131.29

86
Rn
Radon
222.018

118
Uuo
Ununoctium
unknown

Atomic Number

Symbol

Name

Atomic Mass

8

9

10

11

12

8

VIII

8

11

12

3

4

5

6

7

3B

4B

5B

6B

7B

57-71

89-103

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

La

Ce

Pr

Nd

Pm

Sm

Eu

Gd

Tb

Dy

Ho

Er

Tm

Yb

Lu

89

90

91

92

93

94

95

96

97

98

99

100

101

102

103

Ac

Th

Pa

U

Np

Pu

Am

Cm

Bk

Cf

Es

Fm

Md

No

Lr

Alkali Metal

Alkaline Earth

Transition Metal

Basic Metal

Semimetal

Nonmetal

Halogen

Noble Gas

Lanthanide

Actinide

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sciencenotes.org

<http://sciencenotes.org/color-printable-periodic-table-neon-theme/>

-> See the following pages for explanations, illustrations, websites and revision:

Reading the periodic table:

Symbol

A one- or two-letter abbreviation derived from the element's English or Latin name.

Name

Element's common name.

Mass Number

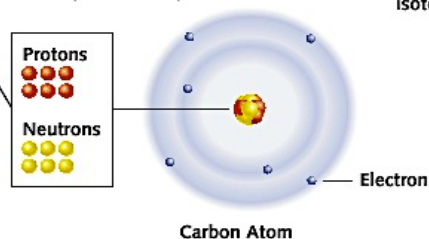
The sum of the numbers of protons and neutrons in a specific isotope.

Atomic Number

Equal to the number of protons in the nucleus, as well as the number of electrons in the electron cloud.

Atomic Mass

Weighted average of the masses of all the element's isotopes. Rounding the atomic mass to the nearest whole number yields the mass number of the most common isotope.



originally from https://www.classzone.com/books/earth_science/terc/content/investigations/es0501/es0501page06.cfm

The elements in interactive sites: <http://periodic.lanl.gov/index.shtml>

<http://www.rsc.org/periodic-table>

and <http://www.ptable.com/?lang=en>

The main groups of elements explained: <http://www.bbc.co.uk/education/guides/zb3j6sg/revision>

and <http://www.bbc.co.uk/education/guides/zb3j6sg/activity>

Metals and non-metals <http://www.bbc.co.uk/education/guides/zb3j6sg/revision/2>

Metals: <http://www.bbc.co.uk/education/guides/zfsk7ty/revision>

Noble gases <http://www.bbc.co.uk/education/guides/zb3j6sg/revision/3>

-> The periodic table in German is on the following page.

Use it also for translating the English names into the German ones you know already.

Das “periodische System der Elemente“

1

1

H

Wasserstoff

1,0079

1

2

3

Li

Lithium

6,941

2/1

2

4

Be

Beryllium

9,0122

2/2

3

11

Na

Natrium

22,99

2/8/1

3

12

Mg

Magnesium

24,305

2/8/2

1

1

H

Wasserstoff

1,0079

1

1

1

H

Wasserstoff

1,0079

1

Ordnungszahl

Symbol

Name

Atomgewicht

Elektronen-konfiguration

Ordnungszahl

schwarz = nicht radioaktiv

gelb = radioaktiv

Symbol

schwarz = Feststoff

rot = Gas

blau = Flüssigkeit

Serie

☐ Alkalimetalle

☐ Erdalkalimetalle

☐ Übergangsmetalle

☐ Lanthanoide

☐ Actinoide

☐ Metalle

☐ Halbmetalle

☐ Nichtmetalle

☐ Halogene

☐ Edelgase

durchgehend = natürliches Element

schraffiert = künstliches Element

Gruppe

13

14

15

16

17

18

5

B

Bor

10,81

2/3

6

C

Kohlenstoff

12,011

2/4

7

N

Stickstoff

14,007

2/5

8

O

Sauerstoff

15,999

2/6

9

F

Fluor

18,988

2/7

10

Ne

Neon

20,179

2/8

13

Al

Aluminium

26,982

2/8/3

14

Si

Silicium

28,086

2/8/4

15

P

Phosphor

30,974

2/8/5

16

S

Schwefel

32,06

2/8/6

17

Cl

Chlor

35,453

2/8/7

18

Ar

Argon

39,948

2/8/8

19

K

Kalium

39,098

2/8/8/1

20

Ca

Calcium

40,08

2/8/8/2

21

Sc

Scandium

44,956

2/8/9/2

22

Ti

Titan

47,90

2/8/10/2

23

V

Vanadium

50,942

2/8/11/2

24

Cr

Chrom

51,996

2/8/13/1

25

Mn

Mangan

54,938

2/8/13/2

26

Fe

Eisen

55,847

2/8/14/2

27

Co

Cobalt

58,933

2/8/15/2

28

Ni

Nickel

58,71

2/8/16/2

29

Cu

Kupfer

63,546

2/8/18/1

30

Zn

Zink

65,38

2/8/18/2

31

Ga

Gallium

69,735

2/8/18/3

32

Ge

Germanium

72,59

2/8/18/4

33

As

Arsen

74,922

2/8/18/5

34

Se

Selen

78,966

2/8/18/6

35

Br

Brom

79,904

2/8/18/7

36

Kr

Krypton

83,80

2/8/18/8

37

Rb

Rubidium

85,458

2/8/18/8/1

38

Sr

Strontium

87,62

2/8/18/8/2

39

Y

Yttrium

88,906

2/8/18/9/2

40

Zr

Zirkonium

91,22

2/8/18/10/2

41

Nb

Niob

92,906

2/8/18/12/1

42

Mo

Molybdän

95,94

2/8/18/13/1

43

Tc

Technetium

98,91

2/8/18/13/2

44

Ru

Ruthenium

101,07

2/8/18/15/1

45

Rh

Rhodium

102,91

2/8/18/16/1

46

Pd

Palladium

106,4

2/8/18/18

47

Ag

Silber

107,87

2/8/18/18/1

48

Cd

Cadmium

112,41

2/8/18/18/2

49

In

Indium

114,82

2/8/18/18/3

50

Sn

Zinn

118,69

2/8/18/18/4

51

Sb

Antimon

121,75

2/8/18/18/5

52

Te

Tellur

127,60

2/8/18/18/6

53

I

Iod

126,90

2/8/18/18/7

54

Xe

Xenon

131,30

2/8/18/18/8

55

Cs

Cäsium

132,91

2/8/18/18/8/1

56

Ba

Barium

137,33

2/8/18/18/8/2

57-71

siehe unten

72

Hf

Hafnium

178,49

2/8/18/32/10/2

73

Ta

Tantal

180,95

2/8/18/32/11/2

74

W

Wolfram

183,85

2/8/18/32/12/2

75

Re

Rhenium

186,21

2/8/18/32/13/2

76

Os

Osmium

190,2

2/8/18/32/14/2

77

Ir

Iridium

192,22

2/8/18/32/15/2

78

Pt

Platin

195,09

2/8/18/32/17/1

79

Au

Gold

196,97

2/8/18/32/18/1

80

Hg

Quecksilber

200,59

2/8/18/32/18/2

81

Tl

Thallium

204,37

2/8/18/32/18/3

82

Pb

Blei

207,19

2/8/18/32/18/4

83

Bi

Bismut

208,98

2/8/18/32/18/5

84

Po

Polonium

208,98

2/8/18/32/18/6

85

At

Astat

(210)

2/8/18/32/18/7

86

Rn

Radon

(222)

2/8/18/32/18/8

87

Fr

Francium

(223)

2/8/18/32/18/8/1

88

Ra

Radium

226,03

2/8/18/32/18/8/2

89-103

siehe unten

104

Rf

Rutherford.

(261)

2/8/18/32/32/10/2

105

Db

Dubnium

(262)

2/8/18/32/32/11/2

106

Sg

Seaborgium

(263)

2/8/18/32/32/12/2

107

Bh

Bohrium

(262)

2/8/18/32/32/13/2

108

Hs

Hassium

(265)

2/8/18/32/32/14/2

109

Mt

Meitnerium

(266)

2/8/18/32/32/15/2

110

Ds

Darmstadt.

(269)

2/8/18/32/32/17/1

111

Rg

Röntgenium

(272)

2/8/18/32/32/18/1

112

Uub

Ununbium

(277)

2/8/18/32/32/18/2

113

UUt

Ununtrium

(287)

2/8/18/32/32/18/3

114

UUq

Ununquad.

(289)

2/8/18/32/32/18/4

115

UUp

Ununpent.

(288)

2/8/18/32/32/18/5

116

UUh

Ununhex

(289)

2/8/18/32/32/18/6

118

Uuo

Ununoctium

(293)

2/8/18/32/32/18/8

Periode

1

2

3

4

5

6

7

↓

Lanthanoide

Actinoide

57

La

Lanthan

138,91

2/8/18/18/9/2

58

Ce

Cer

140,12

2/8/18/19/9/2

59

Pr

Praseodym

140,91

2/8/18/21/8/2

60

Nd

Neodym

144,24

2/8/18/22/8/2

61

Pm

Promethium

146,90

2/8/18/23/8/2

62

Sm

Samarium

150,35

2/8/18/24/8/2

63

Eu

Europium

151,96

2/8/18/25/8/2

64

Gd

Gadolinium

157,25

2/8/18/25/9/2

65

Tb

Terbium

158,93

2/8/18/27/8/2

66

Dy

Dysprosium

162,50

2/8/18/28/8/2

67

Ho

Holmium

164,93

2/8/18/29/8/2

68

Er

Erbium

167,26

2/8/18/30/8/2

69

Tm

Thulium

168,93

2/8/18/31/8/2

70

Yb

Ytterbium

173,04

2/8/18/32/8/2

71

Lu

Lutetium

174,97

2/8/18/32/9/2

89

Ac

Actinium

(227)

2/8/18/32/18/9/2

90

Th

Thorium

232,04

2/8/18/32/18/10/2

91

Pa

Protaktinium

231,04

2/8/18/32/20/9/2

92

U

Uran

238,03

2/8/18/32/21/9/2

93

Np

Neptunium

237,05

2/8/18/32/22/9/2

94

Pu

Plutonium

(244,10)

2/8/18/32/28/8/2

95

Am

Americium

(243,10)

2/8/18/32/25/8/2

96

Cm

Curium

(247,10)

2/8/18/32/25/9/2

97

Bk

Berkelium

(247,10)

2/8/18/32/25/10/2

98

Cf

Californium

(251,10)

2/8/18/32/28/8/2

99

Es

Einsteinium

(254,10)

2/8/18/32/29/8/2

100

Fm

Fermium

(257,10)

2/8/18/32/30/8/2

101

Md

Mendelev.

(258)

2/8/18/32/31/8/2

102

No

Nobelium

(259)

2/8/18/32/32/8/2

103

Lr

Lawrencium

(260)

2/8/18/32/32/9/2