

The Periodic Table

H																	He
Li	Be										B	C	N	O	F	Ne	
Na	Mg										Al	Si	P	S	Cl	Ar	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	?	?	?	?	?	?	?



What is the atomic number?

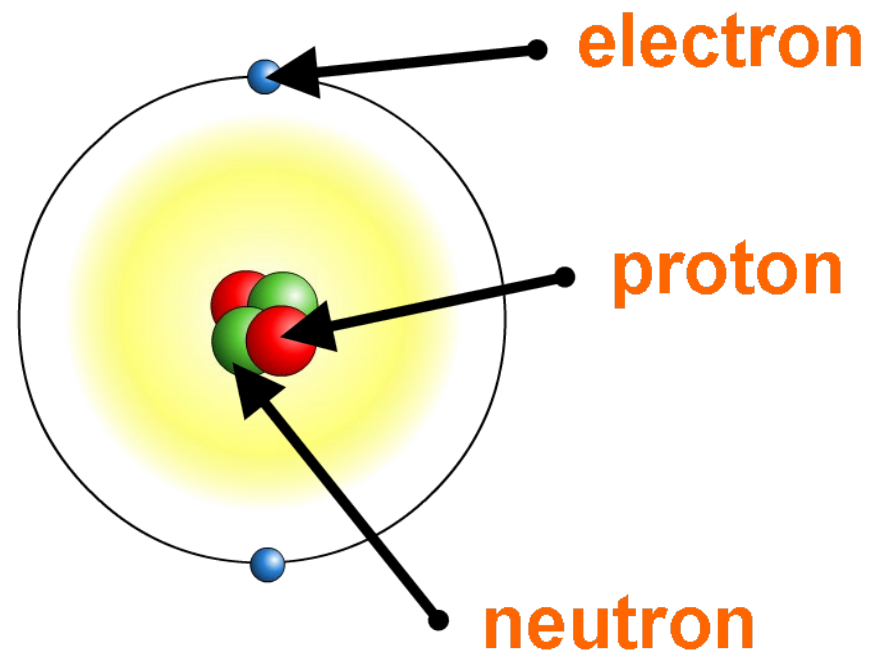
Every element has a unique **atomic number**. This is the **number of protons** in the nucleus of each atom.

What is the atomic number of this helium atom?

Helium has 2 protons, so its atomic number is 2.

Atoms are neutrally charged, so what links atomic number and the number of electrons?

A neutral atom must have equal numbers of protons and electrons, so the atomic number of an element also gives the **number of electrons**.



What are the properties of elements?

A **property** is any characteristic feature of a substance.

Can you name any properties of the element **sodium**?

Properties of sodium include:

- highly reactive
- solid but melts easily
- feels light (low density).



The chemical properties of an element are determined by its **atomic number**.

Are there any patterns in the properties of the elements?

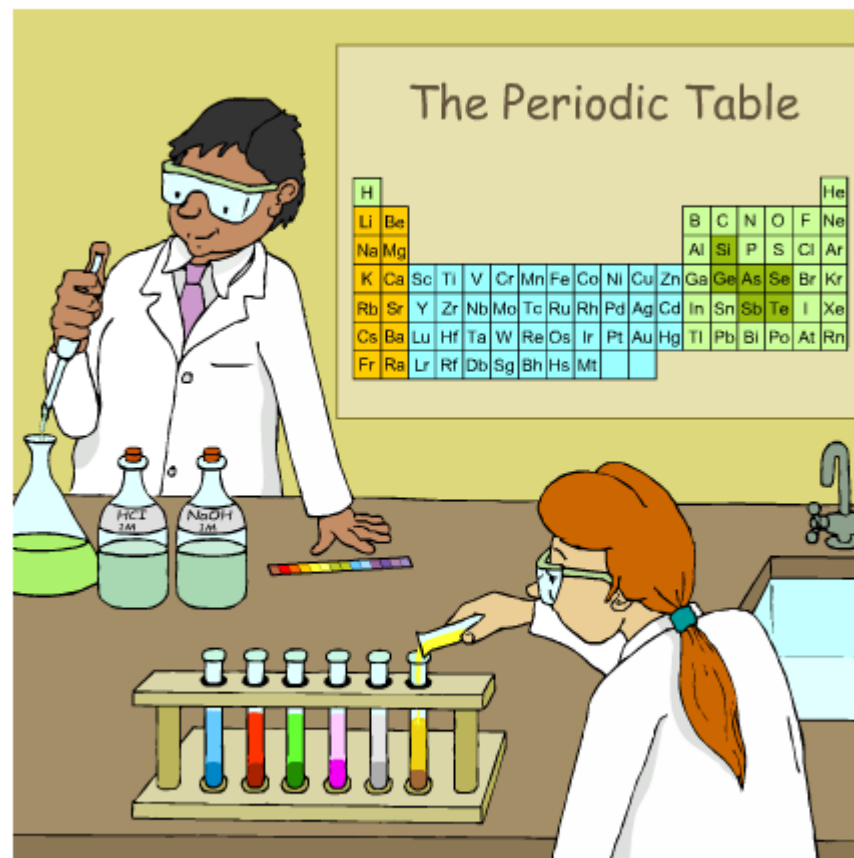




The Development of the Periodic Table

The development of the modern periodic table is the result of many scientists all over the world trying to find order among the elements.

Click "**start**" to find out more about how the elements were arranged into the periodic table.



start



How are the elements arranged?



How are the elements arranged?

How are the elements arranged in the periodic table?

Are there any patterns in this arrangement?

Click "**play**" to find out more about how the elements are arranged.

1 H																									2 He		
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne										
11 Na	12 Mg											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	57 La	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	89 Ac	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	?	?	?	?	?	?	?										



The periodic table

Arranging all the elements by their atomic number and their properties led to the creation of...

...the **periodic table**

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	?	?	?	?	?	?	?



Missing elements!

In this periodic table the symbols are replaced by atomic numbers. Some of the numbers are missing – where?

Two more rows of elements fit here.

They are called the **lanthanides** and **actinides**.

1																	2
3	4											5	6	7	8	9	10
11	12											13	14	15	16	17	18
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118

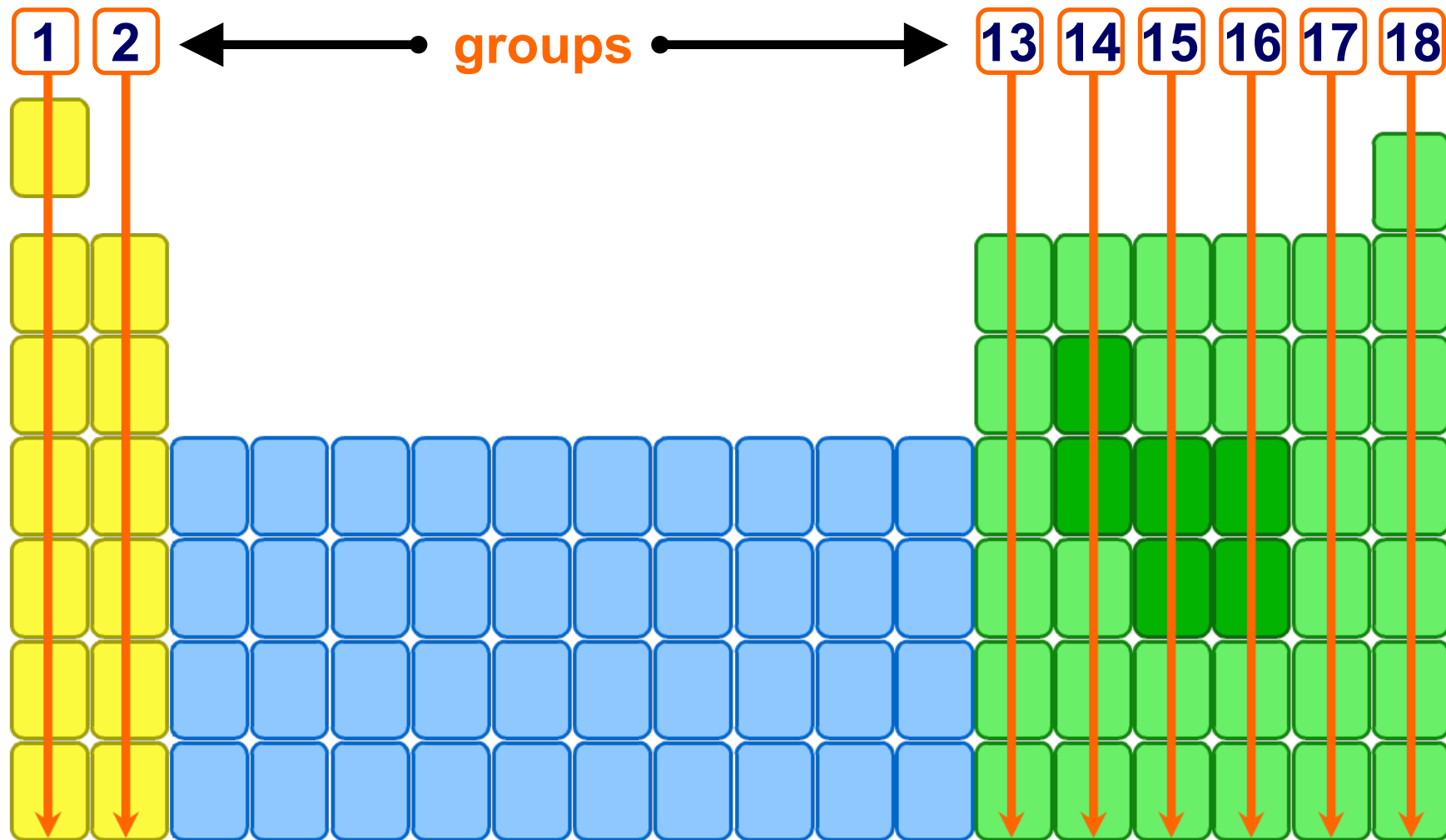


The elements in the periodic table




Columns of elements

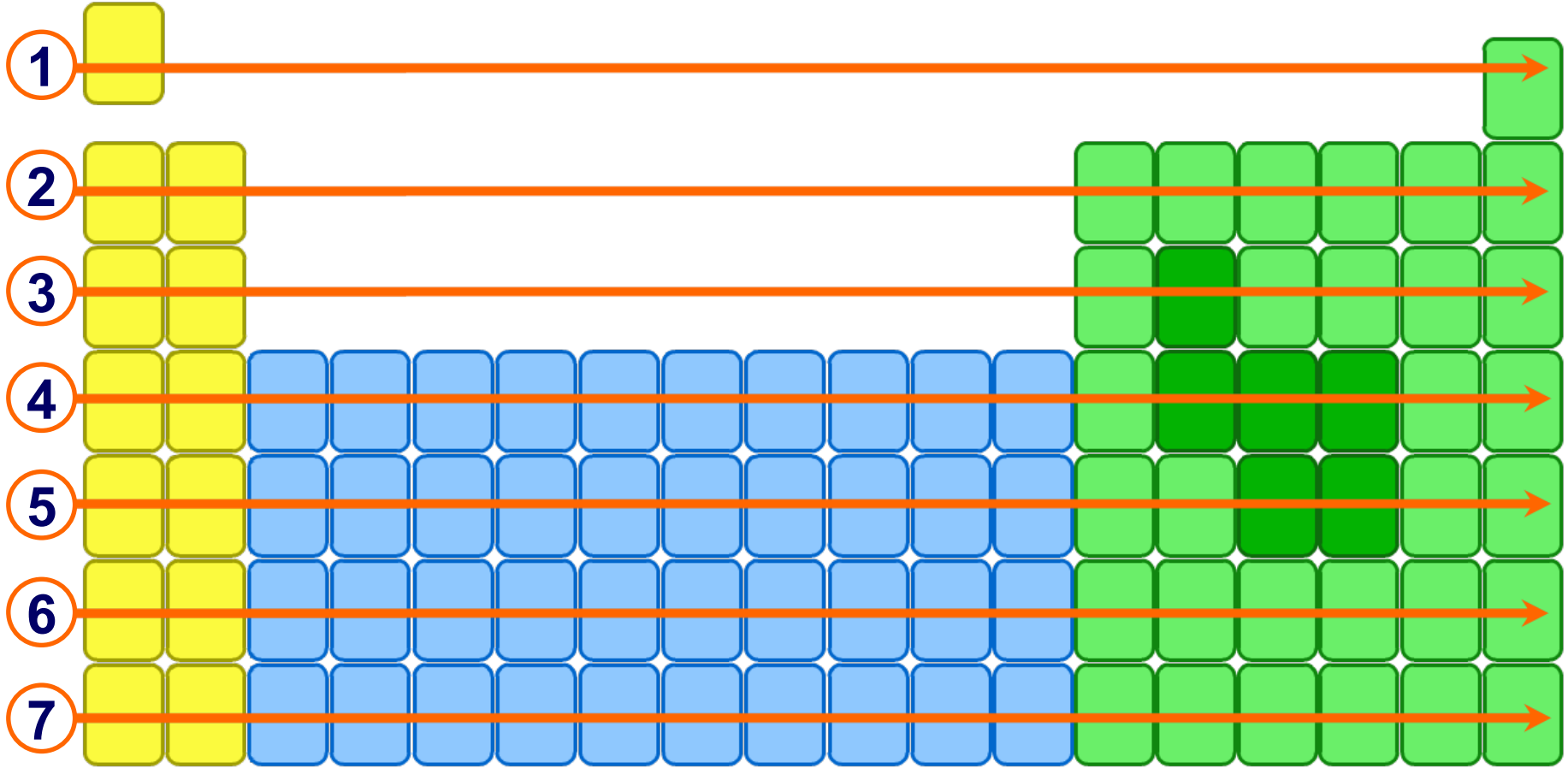
What are **columns** of elements called?



Rows of elements

What are **rows** of elements called?

 **periods**



Complete the sentences – periodic table

