

The Periodic Table

Lesson 2 - the Atom

Science

Chemistry - Key Stage 3

Miss Willett



What do you remember from last time?

1. What is an element?
2. Where are non-metals on the periodic table?
3. What is the name of the line that separates metals and non-metals?



Quick fire question round!

Which is smaller, an atom or a proton?

What do you find in the nucleus of an atom?

Where do we find electrons?



Fill in the missing words:

All substances are made up of _____.

In the middle of an atom is the _____, which contains _____ and _____.

_____ are found on _____ around this.



True or false?

Electrons are always positively charged

You can represent the nucleus of an atom as a circle

Protons and electrons have the same mass

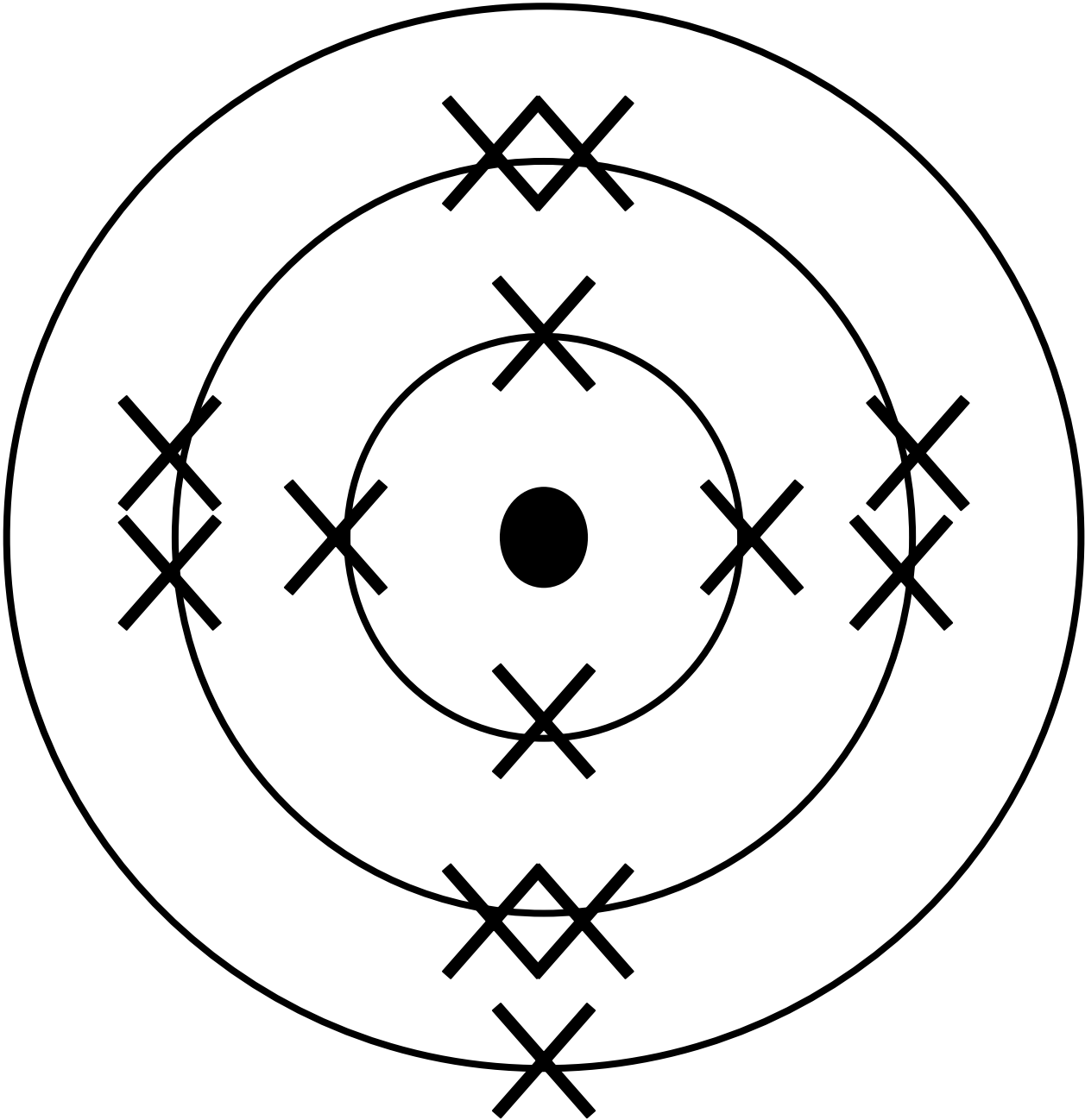


Q1) Draw an atom, and label the subatomic particles

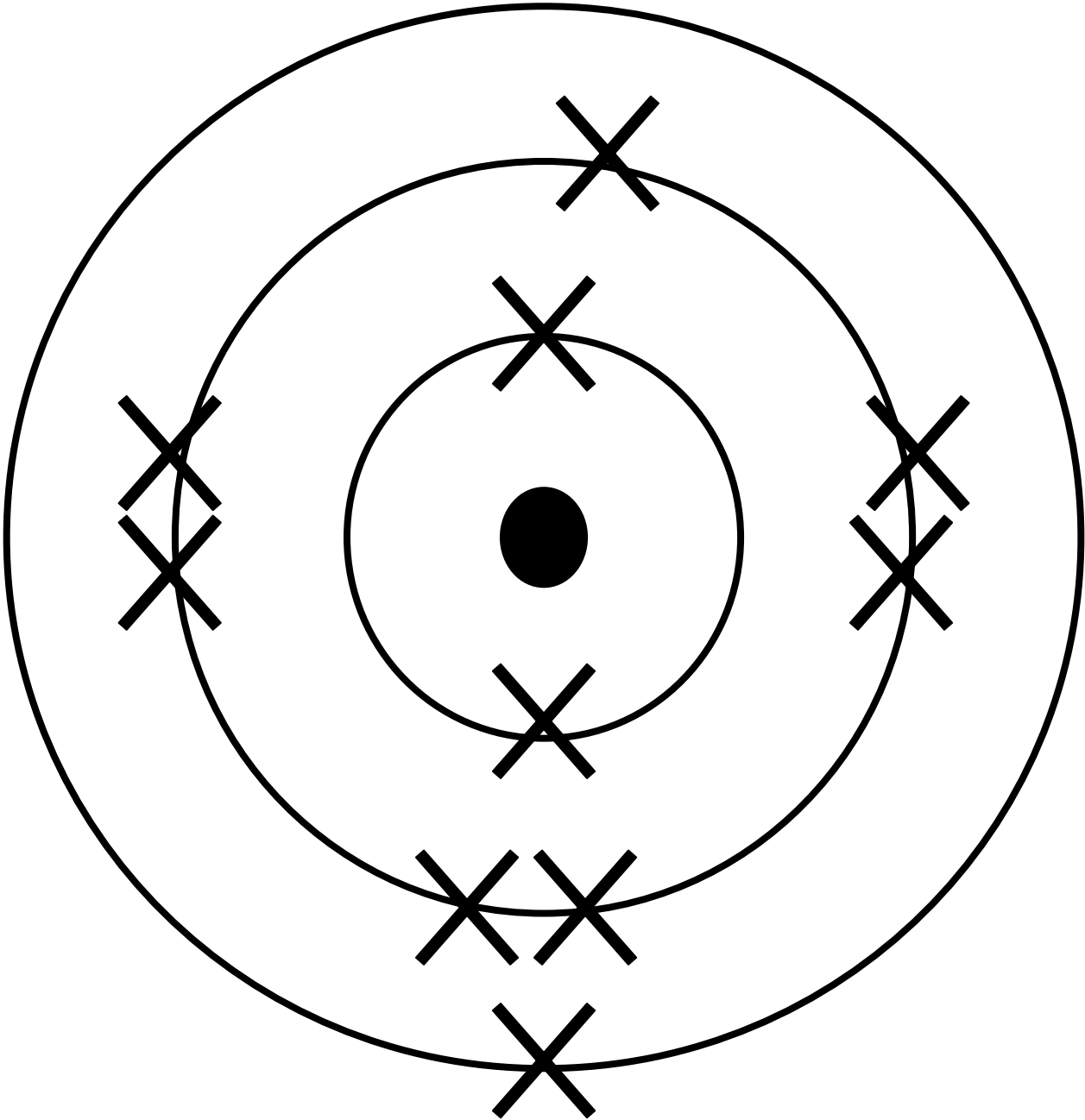
Q2) Add information about the subatomic particles



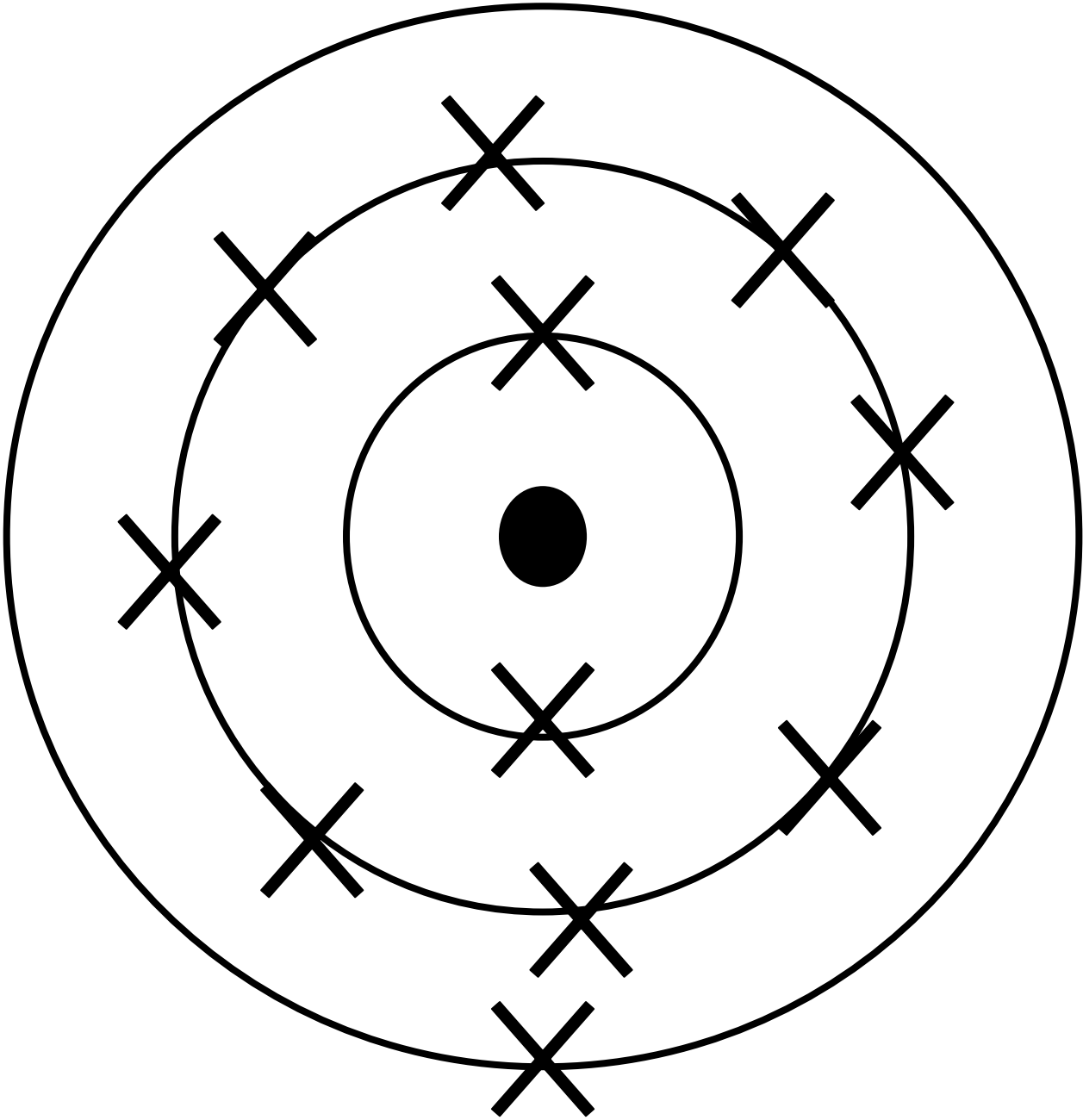
Spot the mistake!



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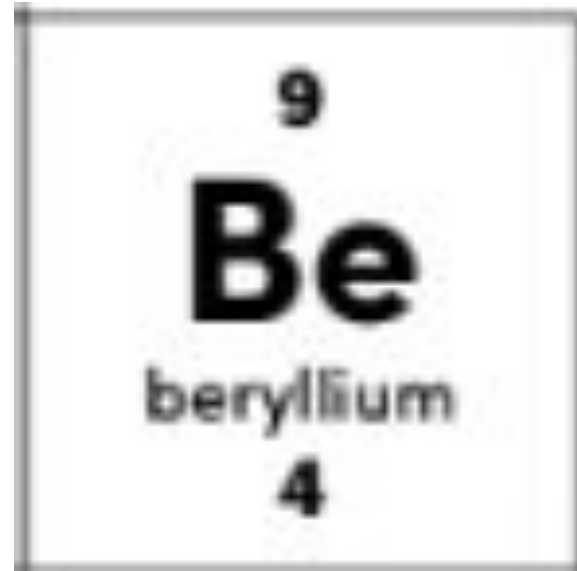


Spot the mistake!



How do we know what's in a SPECIFIC atom?

Number of protons?



Number of electrons?

Number of neutrons?

Remember!

Easy Electrons

Peasy Protons

Naughty Neutrons



Key:

relative atomic mass →

Atomic symbol ←

Name →

Atomic (proton number) ←

1 H hydrogen 1																	4 He helium 2
7 Li lithium 3	9 Be beryllium 4											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
23 Na sodium 11	24 Mg magnesium 12											27 Al aluminium 13	28 Si silicon 14	31 P phosphorus 15	32 S sulfur 16	35.5 Cl chlorine 17	40 Ar argon 18
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[97] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[267] Rf rutherfordium 104	[270] Db dubnium 105	[269] Sg seaborgium 106	[270] Bh bohrium 107	[270] Hs hassium 108	[278] Mt meitnerium 109	[281] Ds darmstadtium 110	[281] Rg roentgenium 111	[285] Cn copernicium 112	[286] Nh nihonium 113	[289] Fl flerovium 114	[289] Mc moscovium 115	[293] Lv livermorium 116	[293] Ts tennessine 117	[294] Og oganesson 118



What is inside each of the following atoms?

Use the periodic table to determine the number of protons, neutrons in the following:

Name:	Number of protons:	Number of electrons:	Number of neutrons:
Argon	18		22
Boron		5	6
Silicon			14
Manganese		25	
Sodium			
Vanadium			



Bringing it all together..

27
Al
aluminium
13

- Draw the correct electronic configuration for Aluminium
- Describe its atomic structure

