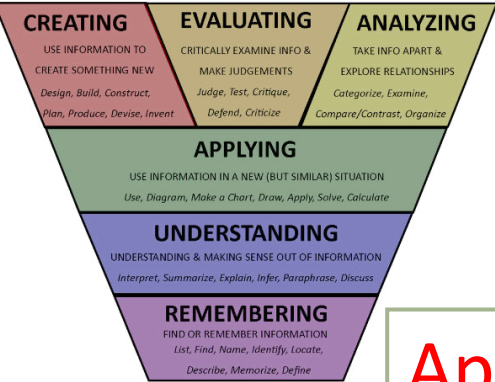


1	2											3	4	5	6	7	0	
																		He
Li	Be											H	B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
Fr	Ra	Ac																

Element A is on the left of the periodic table.
Predict 6 properties

What state are most metals? Why?





Groups and Periods

Apply

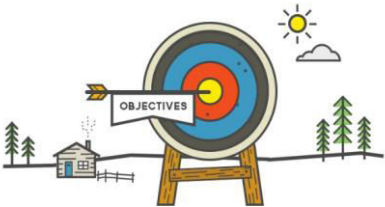
Use patterns to predict properties of elements
Interpret information on periodic table.

Understand

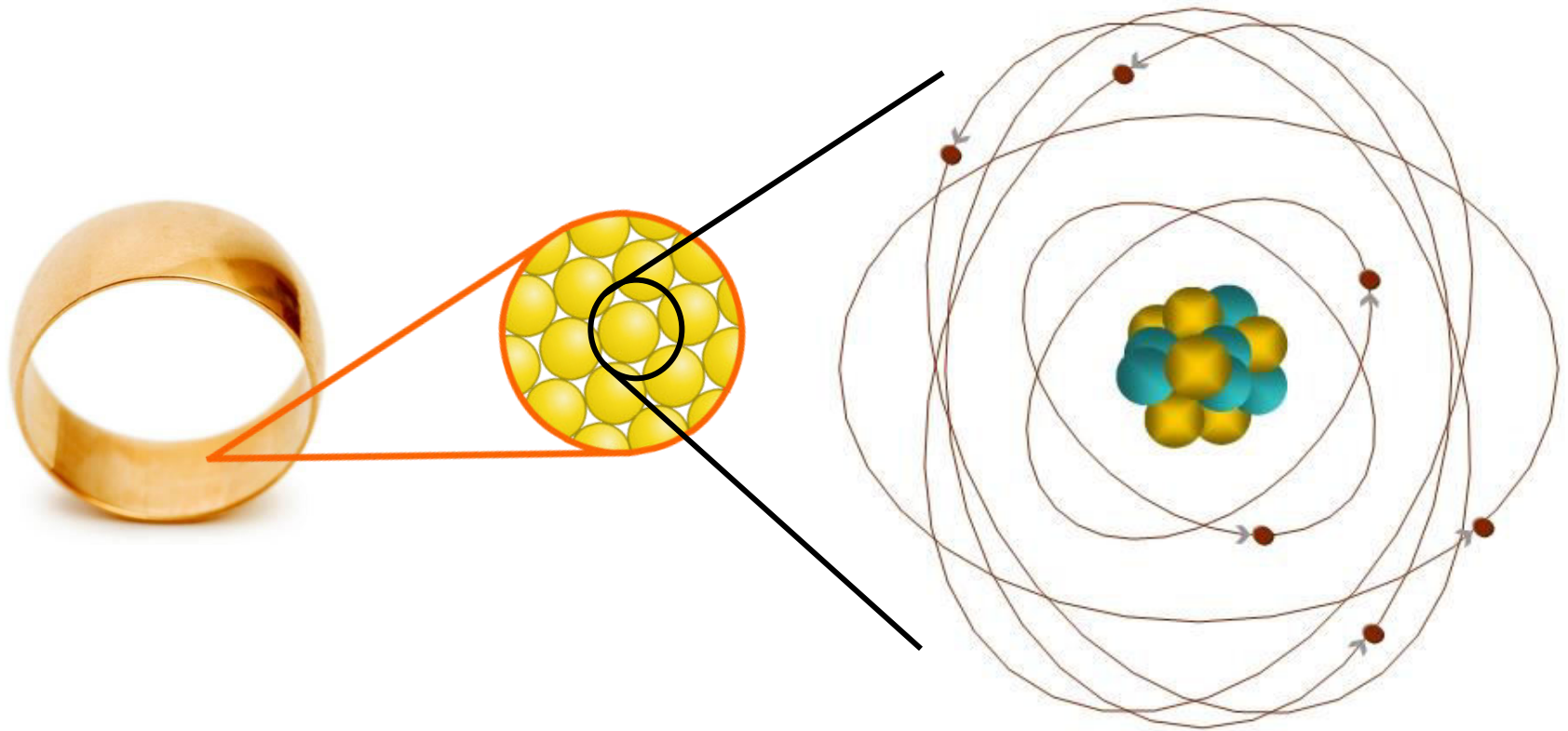
Identify patterns in properties in the groups and periods using the periodic table.

Remember

Identify groups and periods on a periodic table.
Label the groups on a periodic table
Label the structure of an atom.



Structure of an Atom



Structure of an Atom

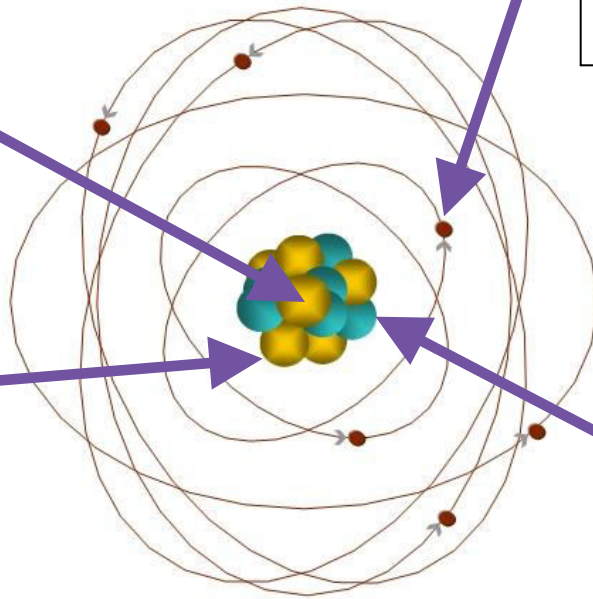
An atom is made of smaller particles known as **subatomic particles**. These particles cannot exist on their own.

The centre of the atom is called the **nucleus**.

Electrons have a **negative (-) charge and no mass** and spread around the edge of the atom.

Protons exist in the nucleus have a **positive (+) charge and 1 mass**.

Neutrons exist in the nucleus have a **no charge and 1 mass**.

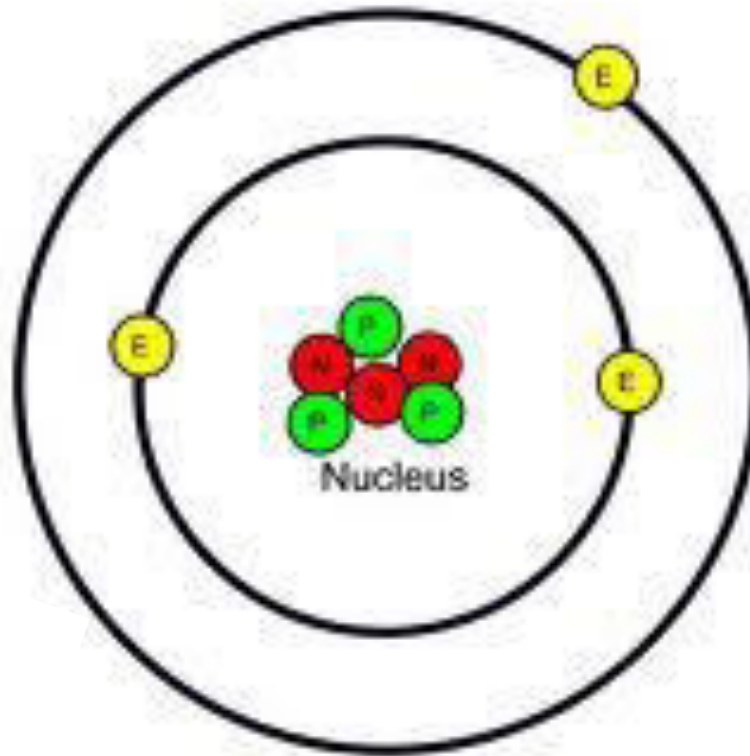


On the worksheet provided....

Label the electrons, protons and neutrons.

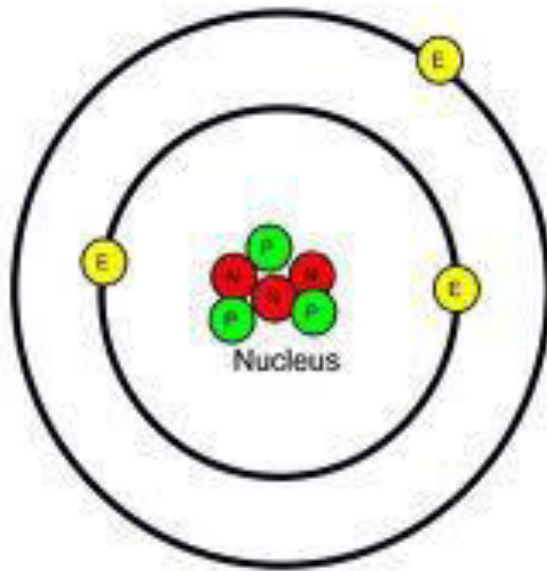
Label the nucleus of the atom.

Write down what charge exists on the different particles.



Stretch

What happens if you remove or add an electron?



Task 1

- Label the electrons, protons and neutrons.
- Label the nucleus of the atom.
- Write down what charge exists on the different particles.

Task 2

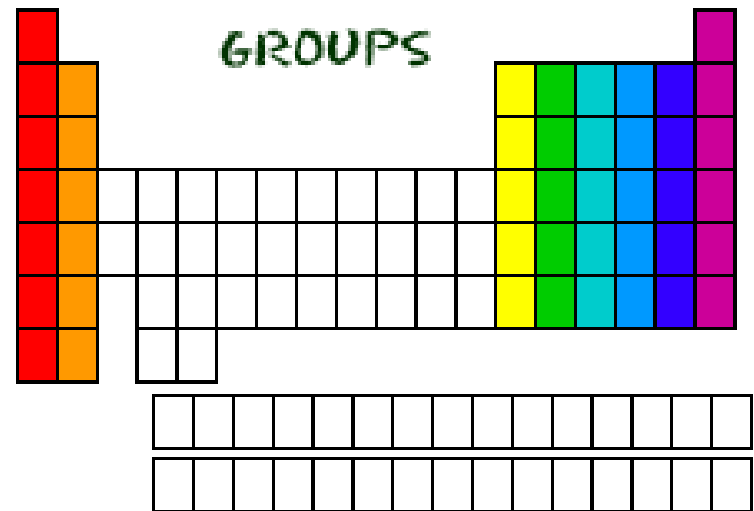
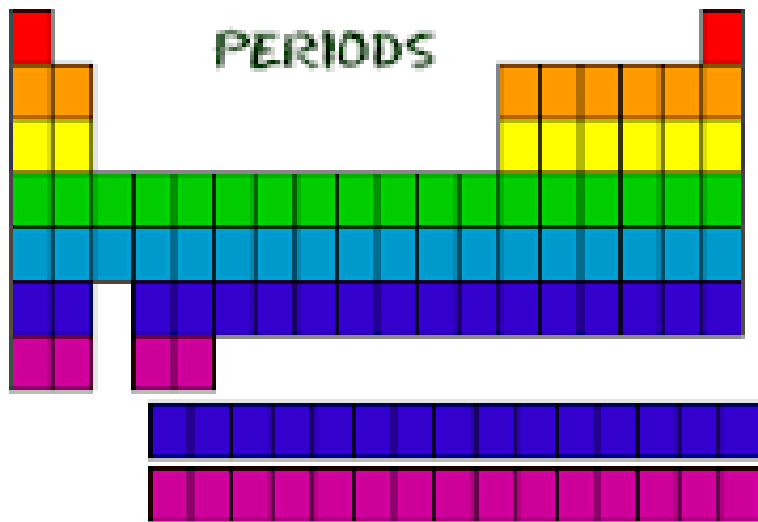
- Label the example below with name of element, symbol, atomic number and atomic mass. Remember atomic mass is the bigger number.
- Extension: explain what the number represent.

CARBON

6

C

12.01



- The **periodic table** is organized like a big grid.
- Each **element** is placed in a specific location because of its atomic structure.
- Each row and column has **specific characteristics**.
- Each row is called a **period**
- Each column is called a **group**
- **The periodic table contains information about elements and their atoms.**

1	2											3	4	5	6	7	0	
																		4 He 2
7 Li 3	9 Be 4												11 B 5	12 C 6	14 N 7	15 O 8	19 F 9	20 Ne 10
23 Na 11	24 Mg 12												27 Al 13	28 Si 14	31 P 15	32 S 16	35.5 Cl 17	40 Ar 18
39 K 19	40 Ca 20	45 Sc 21	48 Ti 22	51 V 23	52 Cr 24	55 Mn 25	56 Fe 26	59 Co 27	59 Ni 28	63.5 Cu 29	65 Zn 30	70 Ga 31	73 Ge 32	75 As 33	79 Se 34	80 Br 35	84 Kr 36	
85 Rb 37	88 Sr 38	89 Y 39	91 Zr 40	93 Nb 41	96 Mo 42	(98) Tc 43	101 Ru 44	103 Rh 45	106 Pd 46	108 Ag 47	112 Cd 48	115 In 49	119 Sn 50	122 Sb 51	128 Te 52	127 I 53	131 Xe 54	
133 Cs 55	137 Ba 56	139 La 57	178 Hf 72	181 Ta 73	184 W 74	186 Re 75	190 Os 76	192 Ir 77	195 Pt 78	197 Au 79	201 Hg 80	204 Tl 81	207 Pb 82	209 Bi 83	(209) Po 84	(210) At 85	(222) Rn 86	
(223) Fr 87	(226) Ra 88	(227) Ac 89																

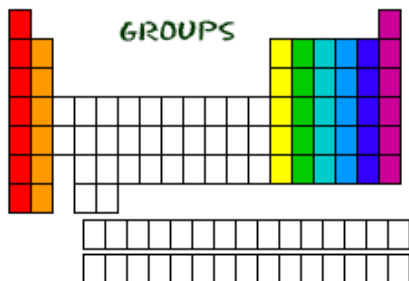
KEY

Group 1 =

Group 2 =

Group 7 =

Group 0 =



There is a pattern in the properties going down a Group. e.g. melting point/boiling point and density.

1	2											3	4	5	6	7	0
																	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
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Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg							

Alkali metals	Halogens
Transition metals	Noble gases

Beryllium (Be) and magnesium (Mg) are found in column two (Group 2) and share some similar characteristics while potassium (K) and calcium (Ca) from row four share different characteristics

Learning Task: Using different coloured crayons, colour in each of the following groups and give them the heading shown (use a key)

Group 1 'The alkali metals'

Group 2 'The alkaline earth metals'

Group 7 'The halogens'

Group 0 'The noble gases'

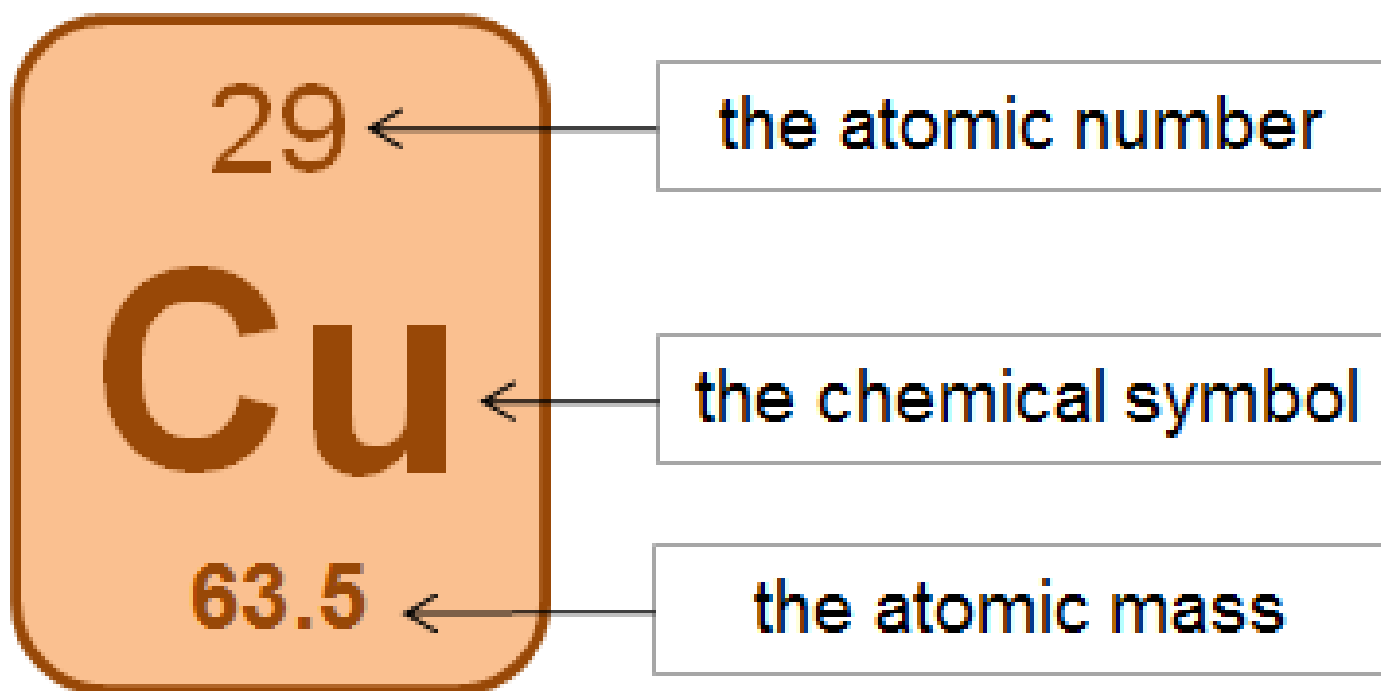
			3	4	5	6	7	
			11 B 5	12 C 6	14 N 7	16 O 8	19 F 9	
			27 Al 13	28 Si 14	31 P 15	32 S 16	35.5 Cl 17	
63.5 i 29	65 Cu 29	65 Zn 30	70 Ga 31	73 Ge 32	75 As 33	79 Se 34	80 Br 35	
108 d 47	112 Ag 47	112 Cd 48	115 In 49	119 Sn 50	122 Sb 51	128 Te 52	127 I 53	
197 t 79	201 Au 79	201 Hg 80	204 Tl 81	207 Pb 82	209 Bi 83	(209) Po 84	(210) At 85	

You have been given a periodic table: what does the line shown divide?

- Add the following labels in large, clear writing to show:
- ‘Metals’ to the left of the stepped line
- ‘Non-metals’ to the right of the stepped line
- Draw an arrow to the stepped line and add the following label:
‘Metalloids are found either side of this stepped line.’

Information on the Periodic Table

Atomic Number



On the worksheet provided....

The diagram shows a central box representing an element from the periodic table. The box contains the following information: "CARBON" at the top, the atomic number "6" below it, the chemical symbol "C" in the center, and the atomic mass "12.01" at the bottom. Four empty rectangular boxes are connected to the central box by lines: one on the left points to "CARBON", one on the right points to "6", one on the right points to "C", and one on the left points to "12.01".

Task 2

- Label the example below with name of element, symbol, atomic number and atomic mass. Remember atomic mass is the bigger number.
- Extension: explain what the number represent.

Information about Elements

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.

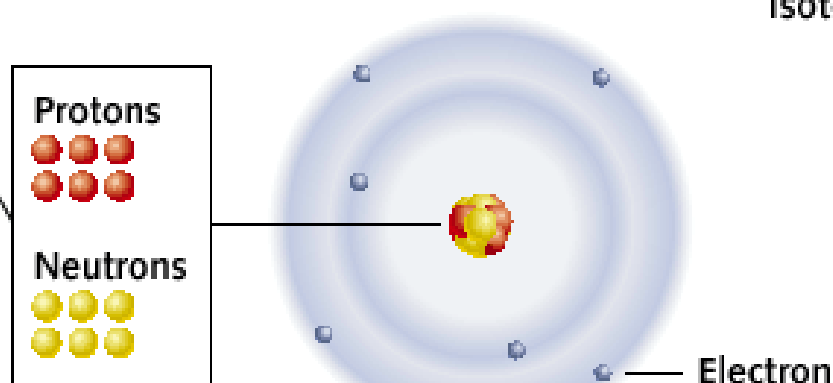
Atomic Number

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.

6
C
Carbon
12.011



Carbon Atom

Fill in the words in the grid by answering these clues. If you have got them correct, the letters in the shaded boxes should spell out two words: _____

A Particle in the nucleus of an atom that has a positive charge.

B Elements found on the left of the Periodic Table.

C A vertical column in the Periodic Table.

D The state of matter between a solid and a gas.

E Particle in the nucleus of an atom that has no charge.

F A substance made from two or more different elements.

G A chemical _____ happens in a reaction.

H Tiny particles _____ move around the nucleus.

I Elements found _____ the Periodic Table.

J The state shown _____.

K What you have to _____ ions so they show the correct _____ atoms on each side.

L All substances become _____ if you make them cold enough.

M A substance containing just one kind of atom.



The Periodic Table

Pair activity

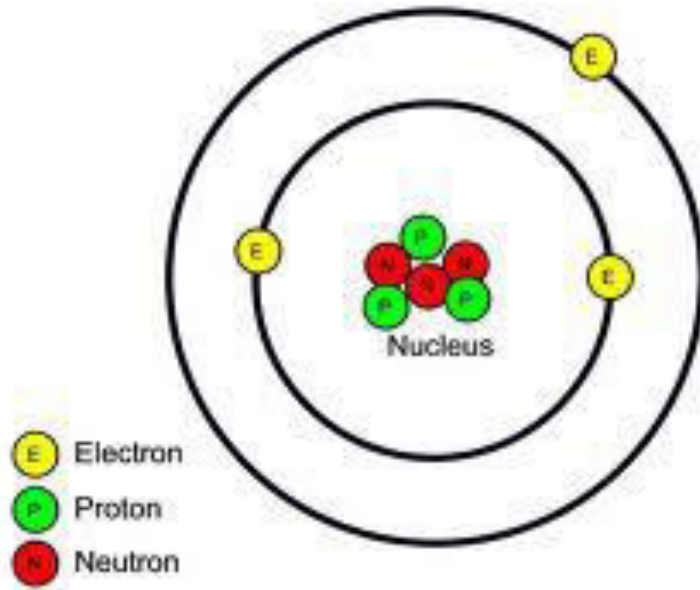
Play this game in pairs.

One person think of an element and write it down secretly on a post-it

Stick it to your partners head. They can ask 3 questions to work out the element but only 'Yes' of 'No' questions.

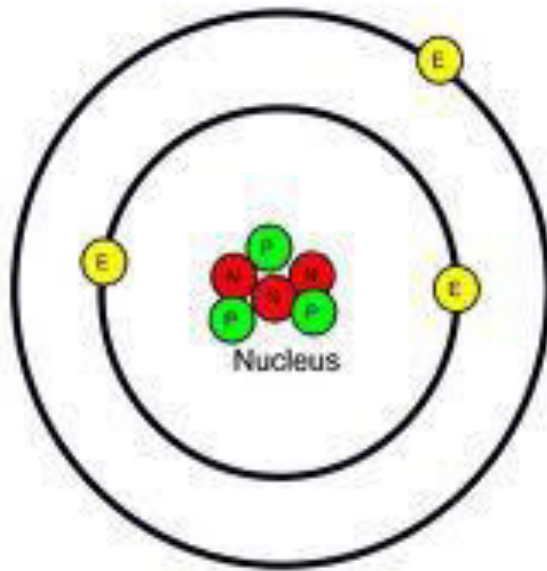
Think about using your knowledge of the periodic table.

Take turns and see who figure it out first.



	CARBON	Element name Usually from a Greek or Latin word for the element or a substance containing the element.
Atomic number The number of protons in the nucleus of the atom.	6	
	C	Symbol Short-hand abbreviation for the element name.
Atomic mass The average mass of the atoms in an element.	12.01	

worksheets



Task 1

- Label the electrons, protons and neutrons.
- Label the nucleus of the atom.
- Write down what charge exists on the different particles.

Task 2

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CARBON

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39 K 19	40 Ca 20	45 Sc 21	48 Ti 22	51 V 23	52 Cr 24	55 Mn 25	56 Fe 26	59 Co 27	59 Ni 28	63.5 Cu 29	65 Zn 30	70 Ga 31	73 Ge 32	75 As 33	79 Se 34	80 Br 35	84 Kr 36	
85 Rb 37	88 Sr 38	89 Y 39	91 Zr 40	93 Nb 41	96 Mo 42	(98) Tc 43	101 Ru 44	103 Rh 45	106 Pd 46	108 Ag 47	112 Cd 48	115 In 49	119 Sn 50	122 Sb 51	128 Te 52	127 I 53	131 Xe 54	
133 Cs 55	137 Ba 56	139 La 57	178 Hf 72	181 Ta 73	184 W 74	186 Re 75	190 Os 76	192 Ir 77	195 Pt 78	197 Au 79	201 Hg 80	204 Tl 81	207 Pb 82	209 Bi 83	(209) Po 84	(210) At 85	(222) Rn 86	
(223) Fr 87	(226) Ra 88	(227) Ac 89																

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B Elements found on the left of the Periodic Table.

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D The state of matter between a solid and a gas.

E Particle in the nucleus of an atom that has no charge.

F A substance made from two or more different elements.

G A chemical _____ shows what happens in a reaction.

H Tiny particles with a negative charge that move around the nucleus of an atom.

I Elements found on the right of the Periodic Table.

J The state shown by (g) in a symbol equation.

K What you have to do to symbol equations so they show the correct numbers of atoms on each side.

L All substances become _____ if you make them cold enough.

M A substance containing just one kind of atom.

					a		R				
					b				L		
					c	G					
					d		Q				
				e				T			
f			M								
				g		Q					
				h		L					
				i		N					
					j		S				
					k					C	
				l				D			
				m		L					