

Topic 1

1. What is an element?	A substance that contains only one type of atom.						
2. What is a compound?	A substance made of more than one type of element chemically combined.						
3. What is a mixture?	Two or more elements or compounds not chemically combined.						
4. How can you separate an insoluble solid from a liquid?	Filtration						
5. Describe the steps to separate a soluble solid from a solvent to collect the solid. CRYSTALLISATION	<ol style="list-style-type: none"> 1. Place the mixture in an evaporating basin. 2. Heat the mixture until crystals start to appear. 3. Leave for the liquid to evaporate 						
6. Describe the steps to separate a soluble solid from a solvent to collect the liquid. DISTILLATION	<ol style="list-style-type: none"> 1. Heat the mixture. 2. Evaporate the solvent. 3. Pass the vapours into a condenser. 4. Collect the condensed liquid. 						
7. When is fractional distillation used?	To separate a mixture of liquids.						
8. When is paper chromatography used?	To separate a mixture of solids dissolved in a solvent.						
9. How does paper chromatography work?	The solids with more attraction to the solvent will move further up the paper.						
10. What was the earliest idea of the atom?	Smallest particles which could not be divided.						
11. Describe the plum pudding model of the atom	A ball of positive charge with negative electrons embedded in it.						
12. Describe Rutherford and Marsden's nuclear model	A positively charged nucleus surrounded by electrons.						
13. What evidence did the scattering experiment produce?	<p>Most of the positive alpha particles passed through the atom.</p> <p>Those that hit the centre of the atom were repelled.</p>						
14. What did Neils Bohr suggest about the atom?	That the electrons were in energy shells around the nucleus						
15. What did Chadwick discover about the atom?	That the nucleus contained positive protons and neutrons with no charge surrounded by negative electrons						
16. Describe modern atomic structure?	<ol style="list-style-type: none"> 1. Protons in the nucleus 2. Neutrons in the nucleus 3. Electrons in shells around the nucleus 						
17. What are the charges on: Protons Neutrons Electrons	<table style="border: none;"> <tr> <td style="padding-right: 20px;">1. Protons</td> <td style="text-align: right;">+1</td> </tr> <tr> <td>2. Neutrons</td> <td style="text-align: right;">0</td> </tr> <tr> <td>3. Electrons</td> <td style="text-align: right;">-1</td> </tr> </table>	1. Protons	+1	2. Neutrons	0	3. Electrons	-1
1. Protons	+1						
2. Neutrons	0						
3. Electrons	-1						

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18. What are the relative masses of: Protons Neutrons Electrons	<ol style="list-style-type: none"> 1. Protons 1 2. Neutrons 1 3. Electrons very small
19. What is the atomic number?	The number of protons in an element. (also the number of electrons. As electrons = protons)
20. What is the mass number?	The number of protons + number of neutrons.
21. What is an ion?	An atom that has gained or lost electrons. Positive ions have lost, negative ions have gained electrons.
22. What are isotopes?	Atoms of the same element with the same number of protons but different numbers of neutrons.
23. If you have 2 isotopes and their % abundances, how do you calculate the relative atomic mass of the element?	$\frac{(\text{mass isotope 1} \times \text{abundance}) + (\text{mass isotope 2} \times \text{abundance})}{100}$
24. How many electrons in each shell? 1 st shell maximum 2 nd shell maximum 3 rd shell maximum	1 st shell maximum 2 2 nd shell maximum 8 3 rd shell maximum 8
25. What are columns of the periodic table called?	Groups
26. What are the rows of the periodic table called?	Periods
27. What do elements in groups have in common?	<ol style="list-style-type: none"> 1. Same number of outer shell electrons 2. Similar properties
28. How did John Dalton arrange the known elements?	In order of their atomic weights
29. What did Newlands notice about the known elements?	The properties of every eighth element was similar
30. How did Medeleev arrange the elements in his periodic table?	In order of atomic weight in rows. Elements with similar properties in the same column. Gaps for elements not yet discovered
31. How is the modern periodic table arranged?	In order of atomic number in rows. Elements with similar properties in the same column.
32. On the periodic table where are the metals?	To the left and bottom
33. On the periodic table where are the non-metals?	To the right and top

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34. What type of ion do metals form?	Positive ions
35. What type of ion do non metals form?	Negative ions
36. What are group 0 elements called?	Noble gases.
37. Why are Noble gases not reactive?	They have a full stable outer shell of electrons.
38. What is the trend in boiling point of the Noble gases?	It increases as you go down the group.
39. What are group 1 elements called?	Alkali metals.
40. What is the trend in reactivity of group 1?	They become more reactive as you move down the group.
41. What is formed when alkali metals react with water?	A metal hydroxide and hydrogen.
42. What are group 7 elements called?	Halogens
43. What is the trend in relative molecular mass, melting point and boiling point of the halogens?	They get higher as you move down the group.
44. What is the trend in reactivity of halogens?	They are less reactive as you move down the group.
45. What is the rule for halogen displacement	The more reactive halogen displaces the less reactive halogen from a solution of its salt.
46. How do the melting points and densities of transition metals compare to group 1 metals?	Transition metals have higher melting points and are more dense.
47. How does the reactivity of transition metals compare with alkali metals?	Transition metals are less reactive.
48. Transition metals can form ions of what charge?	Many different charges.
49. Compounds of transition metals are often.....	Coloured
50. Transition metals and their compounds are often used in industry as what?	Catalysts.