

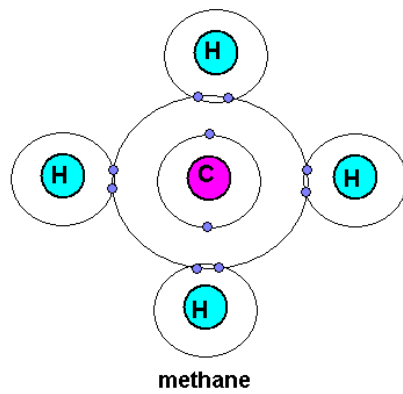
Grade 9 Natural Sciences Worksheet

Elements and compounds

Part One: Differences between elements and compounds

1. Use the following diagram to explain the difference between an element and a compound.

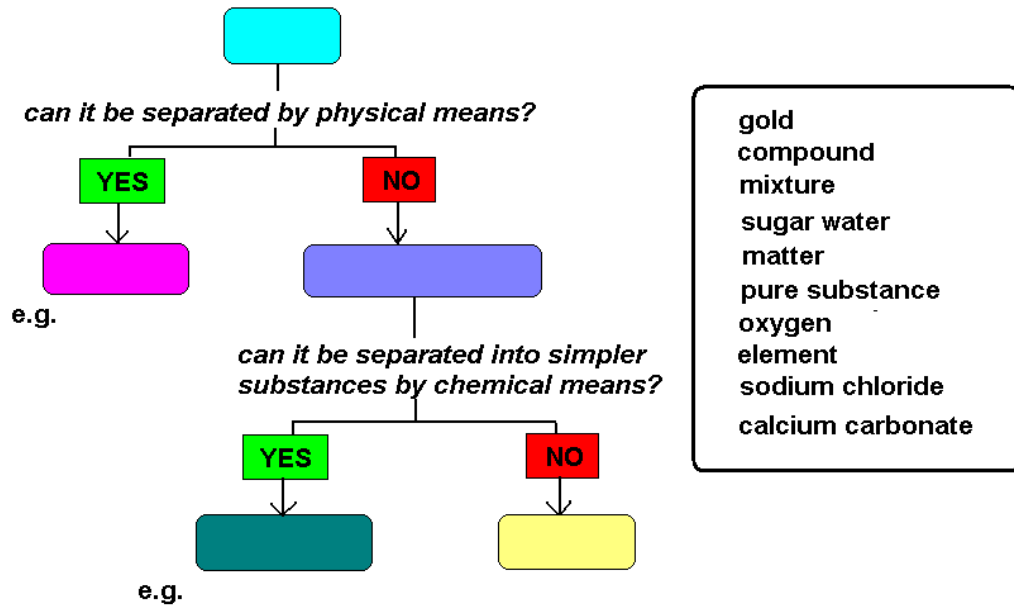
[6 marks]



2. Insert the words in the box on the side of the flow chart into the appropriate places.

[20 marks]

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Part Two: Grouping of elements and compounds

2.1 Group the following list of substances into elements and compounds.

oxygen, sodium chloride, sulphur, iodine, magnesium oxide, potassium permanganate, gold, water, mercury, lead, ammonia, iron sulphide, chlorine, lithium, sodium hydroxide.

[15 marks]

2.2 Which elements combined to form the following compounds?

1. Sodium fluoride
2. Iron oxide
3. Calcium chloride
4. Potassium hydroxide
5. Carbon dioxide

[20 marks]

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2.3 Below is a list of some common elements and compounds. Do a bit of research and write down at least 1 application for each.

Gold, copper, helium, neon, iron, aluminium, lead, sodium bicarbonate, silver nitrate, tungsten, ammonia, potassium nitrate.

[24 marks]

[Total: 85 marks]

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Suggested Solutions

Question number	Possible marks	Solution																		
1.1	6	The diagram is of the compound ✓ methane. Methane is made of one carbon atom and four hydrogen atoms. ✓ Hydrogen is an element ✓ and carbon is an element. ✓ They consist of only one kind of atom. ✓ However, when atoms of two different elements combine, they form a compound. ✓																		
1.2	20	See flow chart in the Appendix of Assessment Tools.																		
2.1	15	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Elements</th> <th>Compounds</th> </tr> </thead> <tbody> <tr> <td>Oxygen</td> <td>Sodium chloride</td> </tr> <tr> <td>Sulphur</td> <td>Magnesium oxide</td> </tr> <tr> <td>Iodine</td> <td>Potassium permanganate</td> </tr> <tr> <td>Gold</td> <td>Water</td> </tr> <tr> <td>Mercury</td> <td>Ammonia</td> </tr> <tr> <td>Lead</td> <td>Iron sulphide</td> </tr> <tr> <td>Chlorine</td> <td>Sodium hydroxide</td> </tr> <tr> <td>Lithium</td> <td></td> </tr> </tbody> </table>	Elements	Compounds	Oxygen	Sodium chloride	Sulphur	Magnesium oxide	Iodine	Potassium permanganate	Gold	Water	Mercury	Ammonia	Lead	Iron sulphide	Chlorine	Sodium hydroxide	Lithium	
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2.2	20	<ol style="list-style-type: none"> 1. Sodium and fluorine 2. Iron and oxygen 3. Calcium and chlorine 4. Potassium, hydrogen and oxygen 5. Carbon and oxygen 																		
2.3	24	<p>Gold – jewellery Copper – electric wiring Helium – party balloons Neon – neon lights Iron – nails Aluminium – foil Lead – sinkers for fishing Sodium bicarbonate – baking powder Silver nitrate – antiseptic Tungsten – filament wire in light bulbs Ammonia – ingredient in household cleaners Potassium nitrate (saltpetre) – fireworks and matches</p>																		

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