

#### Contents:

Qty	Element	colour	holes / type	Ø mm
16	Hydrogen H	white	Atomlink, Calotte	14
2	Hydrogen H	white	1	17
8	Carbon C	black	4 tetrahedral sp <sup>3</sup>	23
2	Carbon C	black	3 trigonal sp <sup>2</sup>	23
2	Carbon C	black	2 linear sp	23
1	Carbon C	black	1 hole for CO	23
3	Oxygen O	red	2 angular	23
3	Oxygen O	red	1	23
1	Nitrogen N	blue	4 tetrahedral	23
1	Nitrogen N	blue	3 pyramidal	23
1	Nitrogen N	blue	3 trigonal	23
1	Nitrogen N	blue	2 angular	23
2	Nitrogen N	blue	1 for N <sub>2</sub>	23
1	Sulphur S	yellow	4 tetrahedral	23
1	Sulphur S	yellow	2 angular	23
1	Phosphorus P	purple	4 tetrahedral	23
2	Fluorine F	green	1	17
2	Chlorine Cl	green	1	20
2	Bromine	orange	1	23
2	Iodine	purple	1	23
2	Metal	grey	1	17
2	Metal	grey	6	23
30	Short Link	NV	translucent	1 / 9 *
2	Link remover	Tool		

**Example structures**, which can be made from this set, include:

Hydrogen H<sub>2</sub>      Ozone O<sub>3</sub>      Nitrogen N<sub>2</sub>



Hydrogen chloride HCl      Water H<sub>2</sub>O      Ammonia NH<sub>3</sub>



Carbon monoxide CO      Carbon dioxide CO<sub>2</sub>



Sulphuric acid H<sub>2</sub>SO<sub>4</sub>



Ethyne C<sub>2</sub>H<sub>2</sub>      Ethene C<sub>2</sub>H<sub>4</sub>      Ethane C<sub>2</sub>H<sub>6</sub>



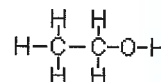
#### Other examples.

Oxygen O<sub>2</sub>, Chlorine Cl<sub>2</sub>, Sulphur dioxide SO<sub>2</sub>  
Nitric oxide NO, Nitrogen dioxide NO<sub>2</sub>, Nitric acid HNO<sub>3</sub>  
Hydrogen peroxide H<sub>2</sub>O<sub>2</sub>, Methane CH<sub>4</sub>.

#### Molecular, and Structural Formulae

The Molecular Formula shows the exact number of atoms of each element which are present in one molecule, e.g. Ethanol C<sub>2</sub>H<sub>6</sub>O  
2 Carbon, 6 Hydrogen, 1 Oxygen

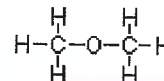
The Structural Formula is a plan view of the arrangement of the atoms in a molecule using symbols for atoms and lines for the links which represent the bonds between the atoms in the molecule.



The Constitutional Formula is an abbreviated version of a molecule and shows groups of atoms. For example, CH<sub>3</sub>.CH<sub>2</sub>.OH is an abbreviated version of the formula of ethanol.

#### Structural Isomerism

It is possible using the molecular formula C<sub>2</sub>H<sub>6</sub>O to make a different structure when the same atoms are arranged with the Oxygen atom between the two Carbon atoms. This formula represents a different substance called **Dimethyl ether**.

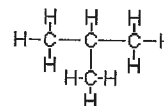


When two or more substances have the same number and kind of atoms but different structures they are called **Isomers**.

#### Another example of Structural Isomerism

**Butane** has the molecular formula C<sub>4</sub>H<sub>10</sub> Its structural formula is CH<sub>3</sub>.CH<sub>2</sub>.CH<sub>2</sub>.CH<sub>3</sub>

The same atoms can be rearranged to make a different structure named **iso-butane** which is shown in the photo across. The structural formula of iso-butane is:



**Compact models** are made using the short links.

#### Disassembly of Compact models

Please read the instructions and the diagrams for the recommended use of the link remover tool

HOW TO USE THE SHORT LINK REMOVER TOOL	
<p>1. Link Remover tool</p> <p>short link</p> <p>Lower</p> <p>Lower the tool onto the link with tool side uppermost</p>	<p>2. short link</p> <p>Push</p> <p>Push the tool horizontally under the Link carefully. This raises the link 2 mm</p>
<p>3. short link</p> <p>Lever</p> <p>Release the link by Leverage &amp; Hold the link with the thumb</p>	<p>4. short link</p> <p>Raise</p> <p>Lift and Remove the Link. Hold the link and drop into a box</p>

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