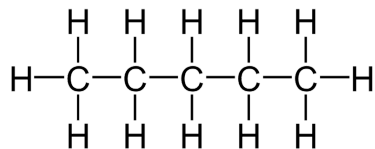
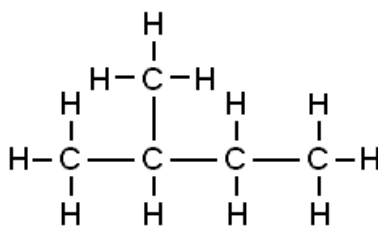


## Isomers

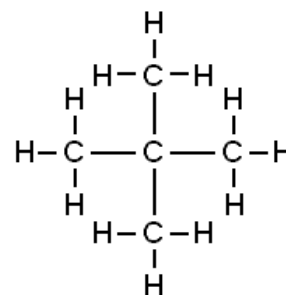
Examine the models of the three alkanes shown below.



pentane



2-methylbutane



2,2-dimethylpropane

Notice that all three have 5 carbon atoms and 12 hydrogen atoms, so they all have the molecular formula  $C_5H_{12}$ . However, as you can see, these models represent three different compounds.

**Isomers** are two or more compounds that have the same molecular formula but different molecular structures. Since the structure of a substance determines its properties, the members of a group of isomers will have different physical and chemical properties.

As the number of carbons in a hydrocarbon increases, the number of possible isomers increases.

Number of Carbon Atoms	Number of Isomers
4	2
5	3
6	5
7	9
10	75
20	316 319
40	62 491 178 805 831

### Example 1

Draw and name the 5 isomers that share the molecular formula  $C_6H_{14}$ .



## Isomers Worksheet

1. Draw and name the 9 isomers that share the molecular formula  $C_7H_{16}$ .