Alkenes

Alkenes contain at least one carbon-carbon double bond.
Alkenes have the same names as the alkanes EXCEPT they end in "-ene".

eg. ethane

propene

* Note: Alkenes have _____ less hydrogens than an alkane

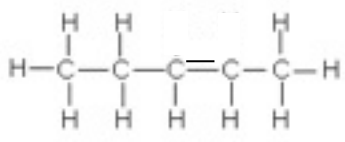
For alkenes that have more carbons, we use a number to state where the double bond is:

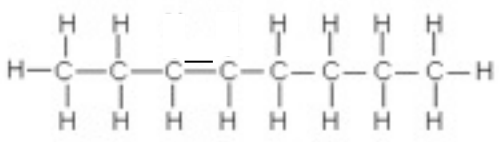
eg. 2-butene

1-butene

When we name alkenes, we always number the carbons.

- Start numbering the carbons at the end closes to the double bond.
- Write the name of the chain and put the number where the double bond starts in front of the name of the chain.





Alkynes

Alkynes contain at least one carbon-carbon triple bond.

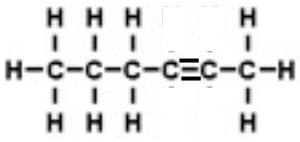
We name alkynes in the same way as alkenes except alkynes end in "-yne".

Draw the structure of: propyne 2-pentyne

* Note: Alkynes have _____ less hydrogens than an alkane

Write the name for:

H—C≡C—H



Structural isomers are two compounds that have the same chemical formula but TWO different structures.

eg. 1-butene 2-butene

Properties of Hydrocarbons

- hydrocarbons are non-polar
- they have London forces holding their molecules together which are weak
- hydrocarbons have a low boiling point (they boil easily because it doesn't take much energy to separate their particles)
- small hydrocarbons are gases (eg. propane)
- medium sized hydrocarbons are liquids (eg. octane)
- large hydrocarbons are solids (eg. wax)

Reactions of Hydrocarbons

1. All hydrocarbons react with oxygen to form carbon dioxide and water (CO_2 + H_2O). This is called COMBUSTION.

   eg. Write the balanced chemical equation for the combustion of 1-butene.

2. All alkenes and alkynes will undergo what is called an addition reaction. Their double bond breaks and two atoms are added to the molecule.

eg. 1-butene + chlorine gas

eg. propene + hydrogen gas

eg. propyne + hydrogen gas

Saturated vs. Unsaturated Hydrocarbons

Read pg. 188 and define saturated and unsaturated.