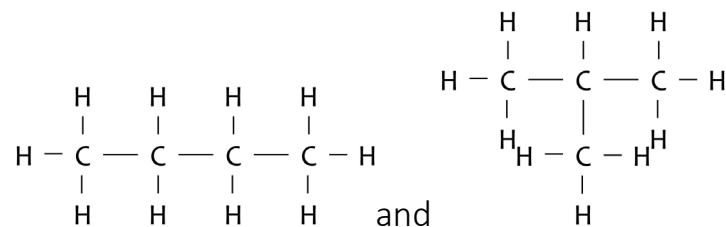


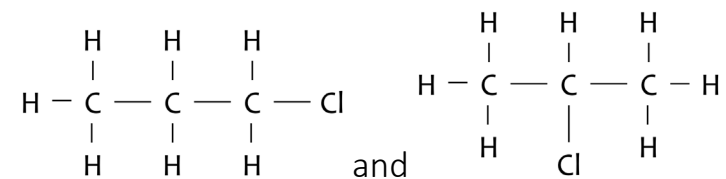
ISOMERISM HELP SHEET

Definition: isomers are when compounds have the SAME MOLECULAR FORMULA but DIFFERENT STRUCTURAL FORMULA

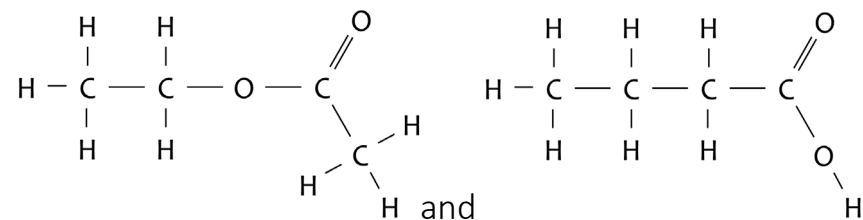
- Chain
- different arrangement of carbon skeleton
 - similar chemical properties
 - slightly different physical properties (more branched = lower b.pt)
- examples: butane and 2-methyl propane



- Positional
- same carbon skeleton
 - same functional group
 - functional group in different position
 - mostly similar properties (at least at Level 2 NCEA)
- examples: 1-chloropropane and 2-chloropropane, but-1-ene and but-2-ene



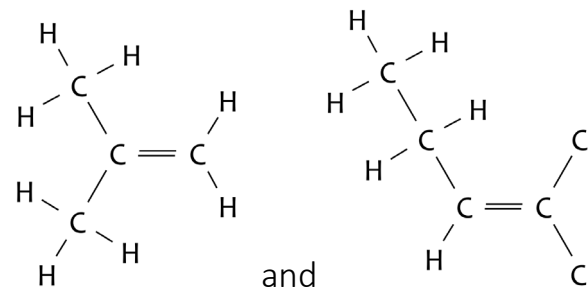
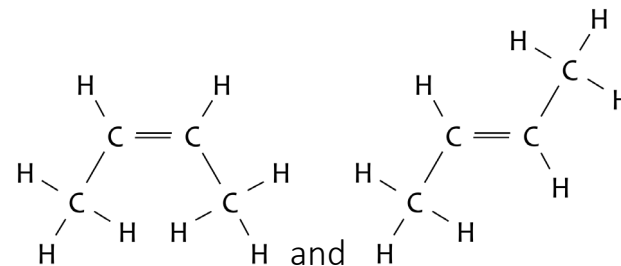
- Functional Group
- different functional group different chemical properties different physical properties
 - example: carboxylic acids and esters (esters no longer assessed at Level 2)
- ethyl ethanoate and butanoic acid



Geometrical isomerism

- a form of stereoisomerism (Level 3)
- found in alkenes
- occurs due to restricted rotation of C=C double bonds (i.e. the C=C bond can't rotate) can't occur with single bonds because they can rotate
- the two forms are CIS (together) and TRANS (across)
- occurs when 2 different groups / atoms are on the both ends of the double bond
- example: cis-but-2-ene and trans-but-2-ene

This does NOT occur when 2 identical groups / atoms are on the same C of the C=C bond



Neither of these can exist as cis or trans isomers – just name them as they are e.g.

2-methylpropene & 1,1-dichlorobut-1-ene