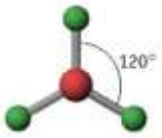
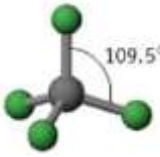
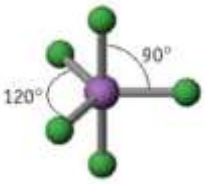
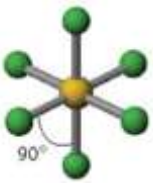
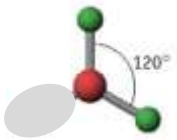
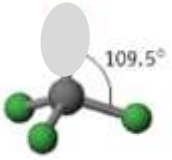
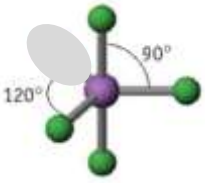
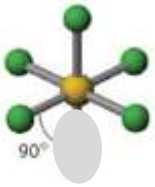
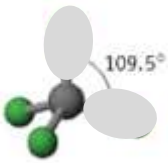
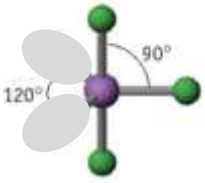
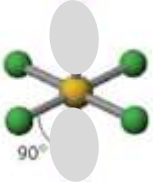
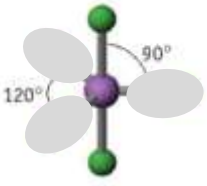
Shape (you fill in the gaps) ☺

- there are __ electron pairs / regions of negative charge around the central __ atom,
- these repel to take a _____ arrangement to minimise repulsion and get as far apart as possible,
- there are ___ bonding electron pairs AND __ lone pairs,
- forming a molecule with a _____ arrangement / shape.

2 regions **linear**	3 regions **trigonal planar**	4 regions **tetrahedral**	5 regions **trigonal bipyramid**	6 regions **octahedral**
				
180°	120°	109.5°	90° & 120°	90°
				
linear	**trigonal planar**	**tetrahedral**	**trigonal bipyramid**	**octahedral**

Other shapes are possible, based around these 5 basic arrangements.

These depend on the number of bonding and non-bonding pairs.

	v shaped / angular	trigonal pyramid	distorted tetrahedral / see-saw	square based pyramid
				
		v-shaped / angular	t shaped	square planar
				
			Linear	
				

Polarity (you follow the FOUR steps to explain) ☺

- the X–Y bond is polar / non polar because of electronegativity difference, (show with δ+ and δ– (or SAY X is more / less electronegative than Y) ; remember F O N/Cl S C H…
- the molecule is symmetrical / asymmetrical overall (choose!!!)
- the dipoles cancel / dipoles don't cancel out OR the centre of positive and negative charge coincide / don't coincide (don't mix and match terms like dipoles and centres, cancelling and coinciding)
- so, overall, the molecule is non-polar / polar!!!

INTERMOLECULAR ATTRACTIONS / FORCES / BONDS ☺

Size matters!! Temporary dipoles depend on the molar mass and the size of the electron cloud. As molar mass increases temporary dipoles increase.

Non-polar molecules have temporary dipole – temporary dipole intermolecular forces / attractions only.

As well as the temporary dipoles, polar molecules have additional permanent dipole – permanent dipole forces between molecules – these are stronger than the temporary dipoles. E.g. H–Cl --- H–Cl

And if the molecule has an H atom bonded to an atom of high electronegativity (FON), it can also form hydrogen bonds between the molecules – the strongest of the weak intermolecular forces. E.g. H–F --- H–F

Shape matters!! E.g. straight chain and branched chain of same/similar molar mass.

The straight chain molecules can pack together more closely / more surface area for formation of temporary dipoles than the branched molecules, so even though the molecules have the same molar mass (and so normally same temporary dipole forces) there will be stronger temporary dipole – temporary dipole attraction.