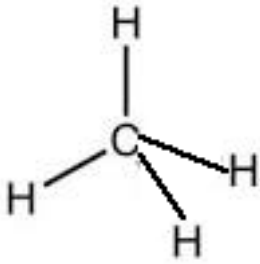



Assignment - Molecules

1) Complete the table below. [Click](#) for a revision on how to draw structural formulae of molecules.

Molecule	Draw the structural formula	Intra-molecular bonding (circle)	Intermolecular bonding (circle)	Symmetry (circle)
CH ₄		Pure covalent Polar covalent	Dispersion forces Dipole-dipole H-bonding	Symmetrical Asymmetrical
O ₂				
CH ₄ O				
CCl ₃ H				
CH ₂ O ₂				
NF ₃				
H ₂ O				

2) Build the molecules shown in the table below using the kits provided and complete the table.



Molecule	Draw the electron dot diagram and give its shape	Symmetry	melting temperature. °C
SO ₂	 <p>V-shape</p>	<p>Symmetrical</p> <p>Asymmetrical</p>	16.9
CCl ₄		<p>Symmetrical</p> <p>Asymmetrical</p>	-23
CH ₄		<p>Symmetrical</p> <p>Asymmetrical</p>	-182
OF ₂		<p>Symmetrical</p> <p>Asymmetrical</p>	-223
NH ₃		<p>Symmetrical</p> <p>Asymmetrical</p>	-78
CO ₂		<p>Symmetrical</p> <p>Asymmetrical</p>	-79
SO ₃		<p>Symmetrical</p> <p>Asymmetrical</p>	-72
CH ₃ OH		<p>Symmetrical</p> <p>Asymmetrical</p>	-98

4) Usually, the bigger the molecule the higher its melting temperature. [Click](#) for revision on intermolecular bonding

a) Offer an explanation as to why the melting temperature of

- i. SO₃ is lower than the smaller molecule SO₂
- ii. CO₂ is lower than SO₃
- iii. NH₃ is higher than the much heavier molecule OF₂

b) The melting temperature of H₂S is -82°C while the melting temperature of water is 0°C. Explain why since the relative size of water is smaller than H₂S.