Worksheet 4.3

Molecular shapes and polarity

For each of the molecules listed below, perform the following tasks.

i Draw the molecule (three-dimensionally).

ii Show any bond angles on your diagram.

iii Mark any partial charges (δ+ and δ−) or, if there are none, state 'no partial charges'.

iv Select the correct alternatives in the following sentence:

This molecule is polar / non-polar because it has an asymmetric / a symmetric distribution of electrons.

v If the molecule is polar, add an arrow to your diagram to indicate the direction of the dipole.

Molecules

a H_2O [5]

b NH_3 [5]

c CH_4 [4]

d HCl [4]

e CCl_4 [4]

f $CHCl_3$ [5]

g CO_2 [4]

h BF_3 [4]