

Solutions

Each answer shows the steps, then the **result**.

2.1

- the outer (valence) electrons of each of the two atoms

2.2

- 2 lone pairs

3.1 C

- Methane has four shared pairs (four C–H bonds)

3.2

- three N–H bonding pairs, each one dot + one cross; one lone pair shown on the nitrogen

3.3

- carbon in the centre with two double bonds to the oxygens (two shared pairs each); two lone pairs shown on each oxygen

3.4

- four N–H bonds around nitrogen; one shown as a coordinate bond (both electrons from N), with the whole ion in brackets and a + charge