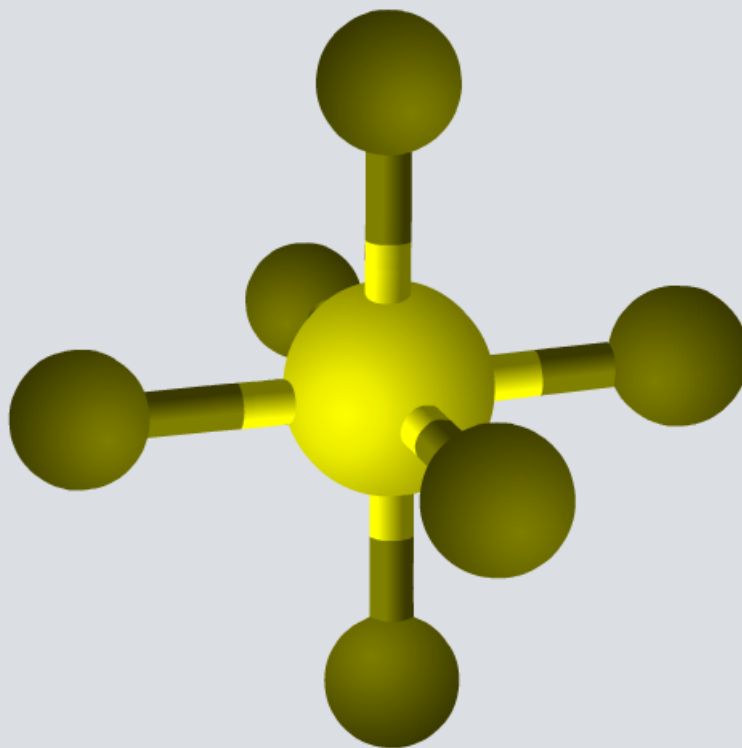
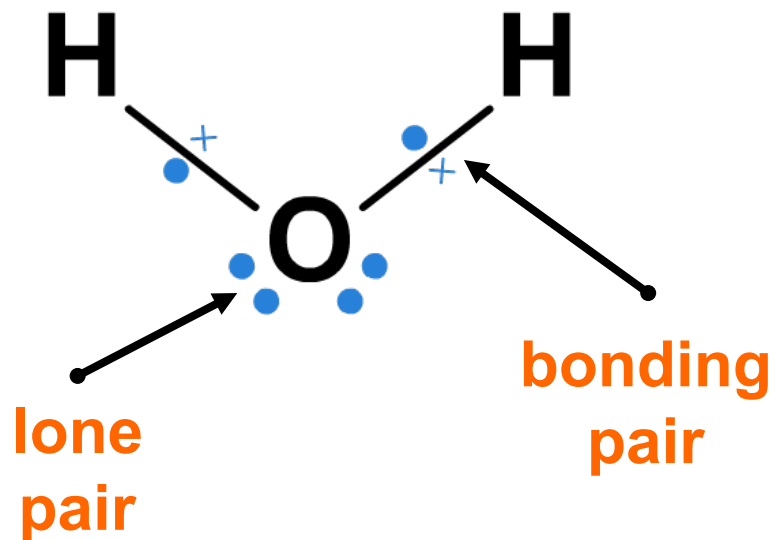


Shapes of Molecules



Bonding and lone pairs

A pair of electrons in a covalent bond are called a **bonding pair**. Pairs of electrons that are not involved in bonding are called **lone pairs**.

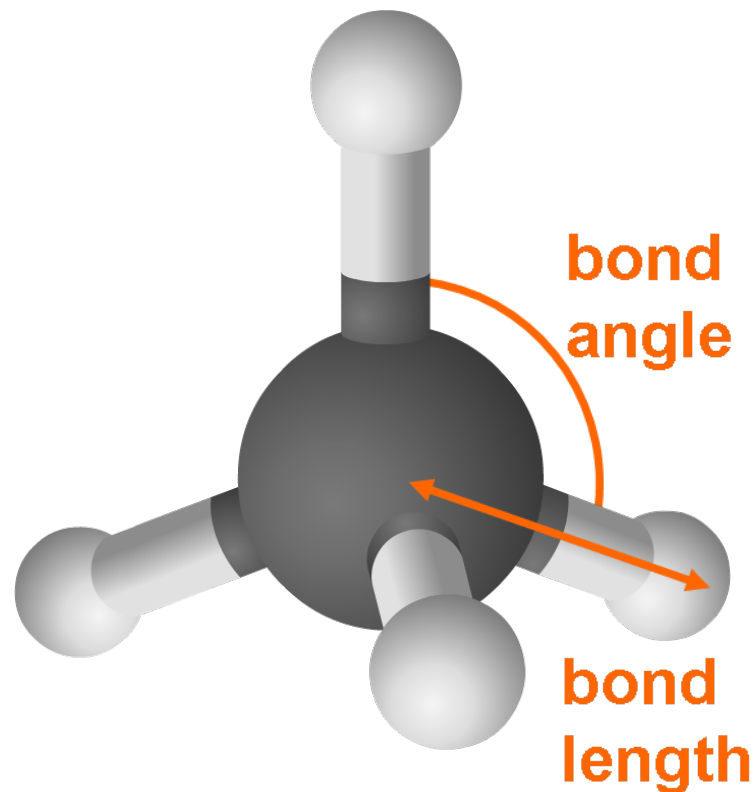


Electron pairs are clouds of negative charge, so there is **mutual repulsion** between them, forcing them as far apart as possible.

This means the number of electron pairs around the central atom(s) determines the basic shape of the molecule.

The shape of a molecule can be described in terms of its **bond lengths** and **bond angles**.

- **Bond length** is the distance between the nuclei of two bonded atoms.
- **Bond angle** is the angle between two covalent bonds.



Counting electrons enables the basic shape of the molecule and its approximate bond angles to be predicted.



Basic shapes of molecules

Click on the name of a molecular shape to find out more about the number of bonding pairs and bond angles.

linear

trigonal
planar

tetrahedral

trigonal
bipyramid

octahedral

