

Bonding Assignment 2

1. A sample of covalent molecular substance is held together by secondary bonding, which is weak. A sample of a covalent molecular substance is held together by primary bonding, which is strong. The covalent network substance would probably be a solid, and the covalent molecular would probably be a liquid or gas. (Or you could measure their melting points – the covalent molecular would be lower).

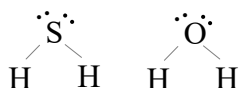
2.

- Only calcium
- Calcium and salt

3.

- A polar bond is a covalent bond in which one end is partially negative and one partially positive (the electrons are being shared unequally).
It occurs because the two bonded elements have different electronegativities.
- Its bonds do not share a common direction, so they cancel out, so the molecule is non-polar overall.

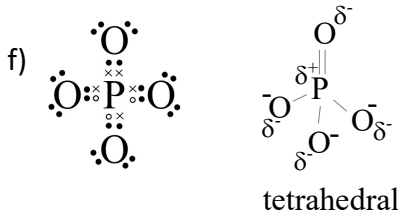
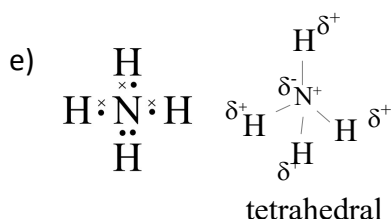
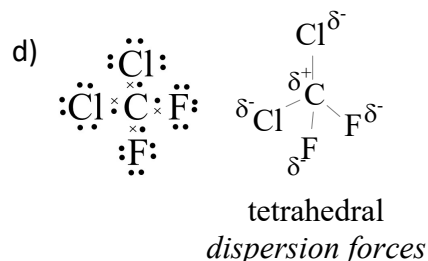
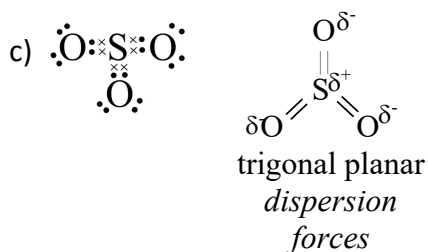
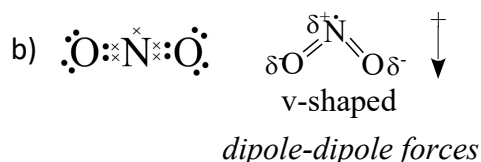
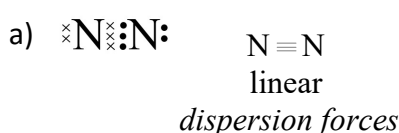
c)



Both are polar molecules so both would have dipole-dipole attractions between their molecules. H_2O has more polar bonds since the electronegativity difference between O and H is higher than between S and H, so H_2O would exhibit stronger intermolecular forces. (H_2O would exhibit hydrogen bonding which is stronger than dipole-dipole forces).

4. Secondary, since it acts between molecules.

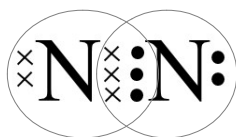
5.



6.

Covalent

Two nonmetal atoms share electrons to become stable.

**Ionic**

Metal atoms lose electrons and nonmetal atoms gain electrons, leading to positive and negative ions. Opposite charges attract, holding the ions together in a lattice.

Either:

- a diagram showing the atoms losing/gaining to become ions, or
- a diagram showing ions in a lattice

Metallic

Metal atoms' electrons delocalise and are free to move around a lattice of the metal ions.

