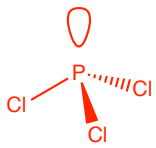
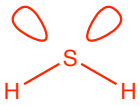
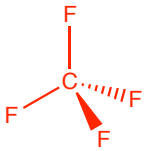
QUICK CHECK STRUCTURE & BONDING (D)

1 Give the formula and structure type of the following substances.

Name	Formula	Structure type				
		Monatomic	Molecular	Giant covalent	Ionic	metallic
aluminium hydroxide	$Al(OH)_3$				✓	
ammonium sulfate	$(NH_4)_2SO_4$				✓	
ammonia	NH_3		✓			
potassium	K					✓
diamond	C			✓		

2 Complete the table about the following molecules and ions.

Molecule	PCl_3	H_2S	CF_4
Sketch of shape (including lone pairs)			
Name of shape	trigonal pyramidal	bent (or V shape)	tetrahedral
Bond angles	107°	104.5°	109.5°
Does the molecule contain polar bonds?	✓	✓	✓
Is the molecule polar?	✓	✓	×
Van der Waals' forces between molecules?	✓	✓	✓
Dipole-dipole forces between molecules?	✓	✓	×
Hydrogen "bonds" between molecules?	×	×	×

3 Explain why sulfur (S_8, 115°C) has a higher melting point than white phosphorus (P_4, 44°C)

both molecular
S_8 has more electrons
S_8 has stronger van der Waals' forces between molecules