Students should be able to recognise and write the formula of the following ions and molecules:

Ion name	Formula
ammonium	NH_4^+
caesium	Cs^+
hydrogen	H^+
lithium	Li^+
potassium	K^+
rubidium	Rb^+
silver	Ag^+
sodium	Na^+
barium	Ba^{2+}
calcium	Ca^{2+}
cobalt(II)	Co^{2+}
copper(II)	Cu^{2+}
iron(II)	Fe^{2+}
lead(II)	Pb^{2+}
magnesium	Mg^{2+}
manganese(II)	Mn^{2+}
nickel(II)	Ni^{2+}
strontium	Sr^{2+}
zinc	Zn^{2+}
aluminium	$A\ell^{3+}$
chromium(III)	Cr^{3+}
iron(III)	Fe^{3+}

Ion name	Formula
bromide	Br^-
chloride	$C\ell^-$
cyanide	CN^-
dihydrogenphosphate	$H_2PO_4^-$
ethanoate (acetate)	CH_3COO^-
fluoride	F^-
hydrogencarbonate	HCO_3^-
hydrogensulfate	HSO_4^-
hydroxide	OH^-
iodide	I^-
nitrate	NO_3^-
nitrite	NO_2^-
permanganate	MnO_4^-
carbonate	CO_3^{2-}
chromate	CrO_4^{2-}
dichromate	$Cr_2O_7^{2-}$
hydrogenphosphate	HPO_4^{2-}
oxalate	$C_2O_4^{2-}$
oxide	O^{2-}
sulfate	SO_4^{2-}
sulfide	S^{2-}
sulfite	SO_3^{2-}
nitride	N^{3-}
phosphate	PO_4^{3-}

Common molecules that have non-systematic names:

Molecule name	Formula
ammonia	NH_3
water	H_2O
hydrogen peroxide	H_2O_2
ethanoic acid	CH_3COOH
hydrochloric acid	$HC\ell$
nitric acid	HNO_3
carbonic acid	H_2CO_3
sulfuric acid	H_2SO_4
sulfurous acid	H_2SO_3
phosphoric acid	H_3PO_4