1 Write balanced half equations for these conversions.

a Mg^{2+} ions → Mg atoms $\quad$ **$Mg^{2+} + 2e^- → Mg$**

b Al^{3+} ions → Al atoms $\quad$ **$Al^{3+} + 3e^- → Al$**

c I^- ions → I_2 molecules $\quad$ **$2I^- - 2e^- → I_2$**

d O^{2-} ions → O_2 molecules $\quad$ **$2O^{2-} - 4e^- → O_2$**

2 Complete the table to show which ions are discharged and what is formed at each electrode in these electrolysis processes.

substance	molten or aqueous	formula	positive electrode		negative electrode	
			ions discharged	product	ions discharged	product
potassium bromide	molten	**KBr**	**Br^-**	**Br_2**	**K^+**	**K**
potassium bromide	aqueous	**KBr**	**Br^-**	**Br_2**	**H^+**	**H_2**
silver(I) sulfate	aqueous	**Ag_2SO_4**	**OH^-**	**O_2**	**Ag^+**	**Ag**
magnesium nitrate	aqueous	**$Mg(NO_3)_2$**	**OH^-**	**O_2**	**H^+**	**H_2**

3 Explain why hydrogen rather than sodium is formed at the negative electrode during the electrolysis of aqueous sodium chloride.

it is easier to discharge H^+ ions than Na^+ ions as hydrogen is less reactive than sodium