GCSE

Half Equations

Online Chem Tuition

Half equations tell us what is happening with electrons. They help explain redox reactions and what is happening at an electrode in electrolysis.

Like other equations, the number of atoms needs to be balanced, but also so do the charges.

$Cu^{2+} \rightarrow Cu$

1 Cu on both sides, but the left is +2 charge and right is neutral

$Cu^{2+} + 2e^- \rightarrow Cu$

To balance add electrons to the more positive side

$Br_2 \rightarrow Br^-$

2 Br on the left and only 1 on the right

$Br_2 \rightarrow 2Br^-$

To balance atoms need to put a 2 in front of Br-

The charge is not balanced as neutral on the left and -2 (2x-1) on right

$Br_2 + 2e^- \rightarrow 2Br^-$

To balance add electrons to the more positive side

Try these:

$Zn \rightarrow Zn^{2+}$

$Fe^{3+} \rightarrow Fe$

$Cu^{+} \rightarrow Cu^{2+}$

$H^{+} \rightarrow H_2$

$Cl^{-} \rightarrow Cl_2$

$O_2 \rightarrow O^{2-}$