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5.6 CLASS WORKSHEET – INTRODUCTION TO OXIDATION AND REDUCTION**Questions 1 – 3 will be assessed as Classwork (10 points)**

1. Using the video, explain the meaning of the following terms:

OXIDATION	Loss of electrons
REDUCTION	Gain of electrons
REDOX REACTION	Transfer of electrons

2. Consider the following reaction: $\text{Na} + \text{Cl} \rightarrow \text{NaCl}$

Use the video to answer these questions:

What is happening to the Na in this reaction?	It is being oxidised
Explain your answer	It is losing an electron
Write a half-equation to show what is happening to the Na	$\text{Na} \rightarrow \text{Na}^+ + \text{e}^-$

What is happening to the Cl in this reaction?	It is being reduced
Explain your answer	It is gaining an electron
Write a half-equation to show what is happening to the Cl	$\text{Cl} + \text{e}^- \rightarrow \text{Cl}^-$

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3. Consider the following reaction: $\text{Mg} + \text{O} \rightarrow \text{MgO}$

Answer these questions (the half-equations are already done – see below)

What is happening to the Mg in this reaction?	It is being oxidised
Explain your answer	It is losing two electrons
Write a half-equation to show what is happening to the Mg	$\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^-$

What is happening to the O in this reaction?	It is being reduced
Explain your answer	It is gaining two electrons
Write a half-equation to show what is happening to the Cl	$\text{O} + 2\text{e}^- \rightarrow \text{O}^{2-}$

Questions 4 – 5 will be assessed as Homework (10 points)

Here are some other examples of oxidation and reduction half equations:

Examples of oxidation		Examples of reduction	
$\text{Li} \rightarrow \text{Li}^+ + \text{e}^-$	Li loses one electron	$\text{Br} + \text{e}^- \rightarrow \text{Br}^-$	Br gains one electron
$\text{I}^- \rightarrow \text{I} + \text{e}^-$	I ⁻ loses one electron	$\text{Mg}^{2+} + 2\text{e}^- \rightarrow \text{Mg}$	Mg ²⁺ gains two electrons
$\text{Tl}^+ \rightarrow \text{Tl}^{3+} + 2\text{e}^-$	Tl loses two electrons	$\text{Fe}^{3+} + \text{e}^- \rightarrow \text{Fe}^{2+}$	Fe ³⁺ gains one electron

4. Now consider what happens in these other situations. The first situation has been done for you:

a) Ag^+ turns into Ag

Is Ag^+ being oxidised or reduced?	Reduced
Explain your answer	It gains one electron
Write a half-equation for the conversion of Ag^+ to Ag	$\text{Ag}^+ + \text{e}^- \rightarrow \text{Ag}$

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b) Fe^{2+} turns into Fe^{3+}

Is Fe^{2+} being oxidised or reduced?	Oxidised
Explain your answer	It is losing one electron
Write a half-equation for the conversion of Fe^{2+} to Fe^{3+}	$\text{Fe}^{2+} \rightarrow \text{Fe}^{3+} + \text{e}^-$

c) Sn^{4+} turns into Sn^{2+}

Is Sn^{2+} being oxidised or reduced?	reduced
Explain your answer	It is gaining two electrons
Write a half-equation for the conversion of Sn^{4+} to Sn^{2+}	$\text{Sn}^{4+} + 2\text{e}^- \rightarrow \text{Sn}^{2+}$

d) Al turns into Al^{3+}

Is Al being oxidised or reduced?	Oxidized
Explain your answer	It is losing three electrons
Write a half-equation for the conversion of Al to Al^{3+}	$\text{Al} \rightarrow \text{Al}^{3+} + 3\text{e}^-$

Extra Credit Question5. Consider the reaction: $\text{Mg} + 2\text{H}^+ \rightarrow \text{Mg}^{2+} + \text{H}_2$

Which atom is being oxidised?	Mg
Explain your answer	It is losing two electrons
Which atom is being reduced?	H
Explain your answer	It is gaining electrons
Write a half-equation for the oxidation process	$\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^-$
Write a half-equation for the reduction process	$2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$