

NATURAL SCIENCES

GRADE 9 TERM 2

Tracker



Reflection	
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Think about and make a note of: What went well? What did not go well? What did the learners find difficult or easy to understand or do? What will you do to support or extend learners? Did you cover all the work set for the week? If not, how will you get back on track?	What will you change next time? Why?
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Week 3											
CAPS Concepts and Activities	CAPS Page no.	Year:					Year:				
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Week 3 Lesson A											
Topic: Reactions of metals with oxygen Content & Concepts: The general reaction of metals with oxygen <ul style="list-style-type: none"> Some metals react with oxygen during burning (combustion) When a metal reacts with oxygen, a metal oxide is formed as a product. The general equation for this type of reaction is always: metal + oxygen \longrightarrow metal oxide 	65										
Week 3 Lesson B											
Topic: Reactions of metals with oxygen Content & Concepts: Reactions of iron with oxygen <ul style="list-style-type: none"> When the metal iron is burnt in air (which contains oxygen), the reaction forms iron oxide as a product <ul style="list-style-type: none"> Word equation: iron + oxygen \longrightarrow iron oxide Chemical equation: $\text{Fe} + \text{O}_2 \longrightarrow \text{Fe}_2\text{O}_3$ [unbalanced] 	65										
Week 3 Lesson C											
Topic: Reactions of metals with oxygen Content & Concepts: Reactions of magnesium with oxygen <ul style="list-style-type: none"> When the metal magnesium is burnt in air (which contains oxygen), the reaction forms magnesium oxide as a product <ul style="list-style-type: none"> Word equation: magnesium + oxygen \longrightarrow magnesium oxide Chemical equation: $\text{Mg} + \text{O}_2 \longrightarrow \text{MgO}$ [unbalanced] 	65										

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Week 4											
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Week 4 Lesson A											
<p>Topic: Reactions of metals with oxygen Content & Concepts: Formation of rust</p> <ul style="list-style-type: none"> • Rusting is a slow chemical reaction of iron metal, with oxygen and moisture (water) to form a complex compound part of which is iron oxide • Rust (a form of corrosion) only occurs at the surface of the iron exposed to the air • Steel (which consists mostly of iron) is an essential material in modern construction. Equipment and structures can rust, and weaken <p>Content & Concepts: Ways to prevent rust</p> <ul style="list-style-type: none"> • Iron and steel can be painted to keep away moisture and oxygen • Iron and steel can be coated with a thin layer of chromium or zinc (metals which do not rust) This is done by an electroplating technique which is a form of electrolysis 	66										
Week 4 Lesson B											
<p>Topic: Reactions of non-metals with oxygen Content & Concepts: The general reaction of non-metals with oxygen</p> <ul style="list-style-type: none"> • Non-metals react with oxygen to form non-metal oxides • When any non-metal is burnt in excess oxygen, the general equation is always non-metal + oxygen → non-metal oxide 	66										
Week 4 Lesson C											
<p>Topic: Reactions of non-metals with oxygen Content & Concepts: Reaction of carbon with oxygen</p> <ul style="list-style-type: none"> • When the non-metal carbon is burnt in oxygen, carbon dioxide is produced <ul style="list-style-type: none"> ○ Word equation: carbon + oxygen → carbon dioxide ○ Chemical equation: $C + O_2 \rightarrow CO_2$ (this equation is already balanced) 	66										

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Week 5 Lesson A											
Topic: Reactions of non-metals with oxygen Content & Concepts: Reaction of sulphur with oxygen <ul style="list-style-type: none"> Another example is sulphur reacting with oxygen to form sulphur dioxide: <ul style="list-style-type: none"> Word equation: sulphur + oxygen \rightarrow sulphur dioxide Chemical equation: $S + O_2 \rightarrow SO_2$ (this equation is already balanced) 	66										
Week 5 Lesson B											
Topic: Acids and bases and pH value Content & Concepts: The concept of pH value <ul style="list-style-type: none"> pH is a measure of how acidic or basic a substance is. The pH scale ranges from 1 to 14 Acids have a pH in the range of 1 to 7 Strong acids have very low pH values Bases have a pH in the range of 7 to 14. Strong bases have very high pH values A neutral substance has a pH of 7 	67										
Week 5 Lesson C											
Topic: Acids and bases and pH value Content & Concepts: The concept of pH value <ul style="list-style-type: none"> We use chemical indicators (such as universal indicator, litmus paper, red cabbage water, red onion water, turmeric water, bromothymol blue, phenolphthalein) to tell us whether a substance is an acid, base or neutral 	67										
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Week 6 Lesson C										
<p>Topic: Reactions of acids with bases: Part I Content & Concepts: Neutralisation of pH</p> <ul style="list-style-type: none"> • Non-metal oxides tend to be acidic (low pH) • Bases (high pH) include metal oxides, metal hydroxides, metal carbonates • Acids and bases react together, we call this a neutralisation reaction • A base reacts with an acid, to make it less acidic / neutral • An acid reacts with a base, to make it less basic / neutral • Acids commonly used in the laboratory include sulphuric acid (H₂SO₄) and hydrochloric acid (HCl) 	67									
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Week 7 Lesson A											
Topic: Reactions of acids with bases: Part II Content & Concepts: The general reaction of an acid with a metal oxide (base) <ul style="list-style-type: none"> When metals react with oxygen, they tend to form oxides which are bases (see reactions of metals with oxygen) When any acid reacts with a metal oxide, the products formed are a salt and water. The type of salt formed will depend on the specific acid and metal oxide used in that reaction The general equation is always: acid + metal oxide \longrightarrow salt + water. Example: <ul style="list-style-type: none"> Word equation: hydrochloric acid + magnesium oxide \longrightarrow magnesium chloride + water Balanced chemical equation: $2\text{HCl} + \text{MgO} \longrightarrow \text{MgCl}_2 + \text{H}_2\text{O}$ 	68										
Week 7 Lesson B											
Topic: Reactions of acids with bases: Part II Content & Concepts: Applications <ul style="list-style-type: none"> Burning wood and fossil fuels releases carbon dioxide and sulphur dioxide into the atmosphere. These combine with water in the atmosphere to produce acid rain Limestone (CaCO_3) is used in agriculture to make soil less acidic 	68										

Week 7 Lesson C										
<p>Topic: Reactions of acids with bases: Part II Content & Concepts: The general reaction of an acid with a metal hydroxide (base)</p> <ul style="list-style-type: none"> • When metals react with water, they tend to form hydroxides which are bases • When any acid reacts with a metal hydroxide, the products formed are a salt and water. The type of salt formed will depend on the specific acid and metal oxide used in that reaction • The general equation is always: acid + metal hydroxide \longrightarrow salt + water. Example: <ul style="list-style-type: none"> ○ Word equation: hydrochloric acid + sodium hydroxide \longrightarrow sodium chloride + water ○ Balanced chemical equation: $\text{HCl} + \text{NaOH} \longrightarrow \text{NaCl} + \text{H}_2\text{O}$ <p>[Note: sodium chloride (NaCl) is table salt]</p>	68									
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Week 8 Lesson C										
<p>Topic: Reactions of acids with metals Content & Concepts: The general reaction of an acid with a metal</p> <ul style="list-style-type: none"> • When any acid reacts with a metal, the products formed are a salt and hydrogen gas. The type of salt formed will depend on the specific acid and metal used in that reaction • The general equation is always: acid + metal \longrightarrow salt + hydrogen gas. Example: <ul style="list-style-type: none"> ○ Word equation: hydrochloric acid + magnesium \longrightarrow magnesium chloride + hydrogen gas ○ Balanced chemical equation: $2\text{HCl} + \text{Mg} \longrightarrow \text{MgCl}_2 + \text{H}_2$ 	69									
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