

## SC17 Groups in the Periodic Table

## SC17a Group 1

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 7 <sup>th</sup>	Explain the classification of alkali metals, halogens and noble gases, into groups in the periodic table.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Describe the main physical properties of alkali metals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Describe the reactions of lithium, sodium and potassium with water.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Write word, balanced and <b>H</b> ionic equations (including state symbols) for the reactions of alkali metals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Describe the pattern of reactivity of the alkali metals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 <sup>th</sup>	Explain how the electronic configurations of the atoms of alkali metals affect their reactivity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC17b Group 7

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 3 <sup>rd</sup>	Recall the appearance of chlorine, bromine and iodine at room temperature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Describe the trends in colour, melting point and boiling point of chlorine, bromine and iodine down the group, and use these to predict physical properties of other halogens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 <sup>th</sup>	Describe the chemical test for chlorine gas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Describe the trends in the reactions of halogens with metals, and use this to predict reactions of other halogens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Write word and balanced chemical equations, including state symbols, for the reactions of halogens with metals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Describe hydrogen halides and their chemical properties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC17c Halogen reactivity

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 <sup>th</sup>	Describe the relative reactivity of halogens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Explain how the reactivity of halogens can be worked out from displacement reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Write balanced chemical equations, including state symbols, for the displacement reactions of halogens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 <sup>th</sup>	<b>H</b> Explain how displacement reactions are examples of redox reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	<b>H</b> Write ionic equations, including state symbols, for displacement reactions of halogens.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 <sup>th</sup>	Explain the order of reactivity of halogens (using electronic configurations).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC17d Group 0

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 8 <sup>th</sup>	Explain why noble gases are chemically inert by referring to their electronic configuration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 3 <sup>rd</sup>	Describe uses of noble gases linked with their properties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Describe the trends in the physical properties of the noble gases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Use trends in physical properties to predict the physical properties of other noble gases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC18 Rates of Reaction

## SC18a Rates of reaction

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 <sup>th</sup>	Describe different changes that can occur as a reaction proceeds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Suggest different experimental methods to investigate rates of reaction (e.g. measurements of mass of reactants against time, volume of gas released against time, concentration of reactant or product against time).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Use graphs of changes (in mass, volume or concentration of reactant or product) against time, to interpret what is happening during reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC18b Factors affecting reaction rates

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 8 <sup>th</sup>	Explain what has to happen for reactions to take place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Explain why changes in the energy of particles affect rates of reaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Explain why changes in the frequency of collisions between particles affect the rate of reaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Explain why changes in temperature, concentration, surface area and pressure affect the rate of reaction (surface area for solids, pressure for gases only).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Describe ways of speeding up or slowing down chemical reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SC18c Catalysts and activation energy**

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 <sup>th</sup>	Describe what a catalyst does.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Explain how catalysts are useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Explain what the activation energy of a reaction is.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Explain how catalysts speed up chemical reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Describe what enzymes are.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 <sup>th</sup>	Name one or more examples of enzymes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SC19 Heat Energy Changes in Chemical Reactions

### SC19a Exothermic and endothermic reactions

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 4 <sup>th</sup>	Recall some examples of exothermic and endothermic changes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 <sup>th</sup>	Describe how heat changes in solution may be determined.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 <sup>th</sup>	Describe the differences between exothermic and endothermic changes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### SC19b Energy changes in reactions

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 9 <sup>th</sup>	Describe exothermic and endothermic reactions in terms of energy changes when bonds are broken and formed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 11 <sup>th</sup>	<b>H</b> Use bond energies to calculate energy changes in reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 <sup>th</sup>	Explain the meaning of activation energy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 <sup>th</sup>	Draw and label reaction profiles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>