SC17 Groups in the Periodic Table

SC17a Group 1

|  |  |  |  |  |
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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
|  | Explain the classification of alkali metals, halogens and noble gases, into groups in the periodic table. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Describe the main physical properties of alkali metals. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Describe the reactions of lithium, sodium and potassium with water. |  |  |  |
|  | Write word, balanced and **H** ionic equations (including state symbols) for the reactions of alkali metals. |  |  |  |
|  | Describe the pattern of reactivity of the alkali metals. |  |  |  |
|  | Explain how the electronic configurations of the atoms of alkali metals affect their reactivity. |  |  |  |

SC17b Group 7

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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
|  | Recall the appearance of chlorine, bromine and iodine at room temperature. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | 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. |  |  |  |
|  | Describe the chemical test for chlorine gas. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Describe the trends in the reactions of halogens with metals, and use this to predict reactions of other halogens. |  |  |  |
|  | Write word and balanced chemical equations, including state symbols, for the reactions of halogens with metals. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Describe hydrogen halides and their chemical properties. |  |  |  |

SC17c Halogen reactivity

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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Describe the relative reactivity of halogens. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Explain how the reactivity of halogens can be worked out from displacement reactions. |  |  |  |
|  | Write balanced chemical equations, including state symbols, for the displacement reactions of halogens. |  |  |  |
|  | **H** Explain how displacement reactions are examples of redox reactions. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | **H** Write ionic equations, including state symbols, for displacement reactions of halogens. |  |  |  |
|  | Explain the order of reactivity of halogens (using electronic configurations). |  |  |  |

SC17d Group 0

|  |  |  |  |  |
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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Explain why noble gases are chemically inert by referring to their electronic configuration. |  |  |  |
|  | Describe uses of noble gases linked with their properties. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Describe the trends in the physical properties of the noble gases. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Use trends in physical properties to predict the hysical properties of other noble gases. |  |  |  |

SC18 Rates of Reaction

SC18a Rates of reaction

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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Describe different changes that can occur as a reaction proceeds. |  |  |  |
|  | 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). |  |  |  |
|  | Use graphs of changes (in mass, volume or concentration of reactant or product) against time, to interpret what is happening during reactions. |  |  |  |

SC18b Factors affecting reaction rates

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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Explain what has to happen for reactions to take place. |  |  |  |
|  | Explain why changes in the energy of particles affect rates of reaction. |  |  |  |
|  | Explain why changes in the frequency of collisions between particles affect the rate of reaction. |  |  |  |
|  | Explain why changes in temperature, concentration, surface area and pressure affect the rate of reaction (surface area for solids, pressure for gases only). |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Describe ways of speeding up or slowing down chemical reactions. |  |  |  |

SC18c Catalysts and activation energy

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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Describe what a catalyst does. |  |  |  |
|  | Explain how catalysts are useful. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Explain what the activation energy of a reaction is. |  |  |  |
|  | Explain how catalysts speed up chemical reactions. |  |  |  |
|  | Describe what enzymes are. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L6.jpg | Name one or more examples of enzymes. |  |  |  |

SC19 Heat Energy Changes in Chemical Reactions

SC19a Exothermic and endothermic reactions

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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
|  | Recall some examples of exothermic and endothermic changes. |  |  |  |
|  | Describe how heat changes in solution may be determined. |  |  |  |
| C:\Users\bhuiya_f\Downloads\Steps icons\Steps icons\Progression_icon_L8.jpg | Describe the differences between exothermic and endothermic changes. |  |  |  |

SC19b Energy changes in reactions

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| Step | Learning outcome | Had a look | Nearly there | Nailed it! |
|  | Describe exothermic and endothermic reactions in terms of energy changes when bonds are broken and formed. |  |  |  |
|  | **H** Use bond energies to calculate energy changes in reactions. |  |  |  |
|  | Explain the meaning of activation energy. |  |  |  |
|  | Draw and label reaction profiles. |  |  |  |