NC Science Unit 3

Level 1 Unit 3 - Science (Materials)

1. The learner will know about a range of properties of materials and communicate their observations in terms of these properties.

1.1 I can identify materials by colour [1]

1.2 I can identfy materials by their feel [2]

1.3 I can identify materials by their shape and size [3]

Level 2 Unit 3 - Science (Materials)

1. The learner will identify a range of common materials and describe some of their properties.

1.1 I can describe similarities and differences between materials [5]

1.2 I can sort materials into groups [6]

1.3 I can identify the basis for my groupings [7]

1.4 I can describe ways in which materials are changed by heating or cooling [8]

1.5 I can describe the ways materials change by processes such as bending or stretching [9]

Level 3 Unit 3 - Science (Materials)

1. The learner will classify materials based on their properties and uses explaining why specific materials are used for specific

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purposes.

1.1 I can classify materials based on their physical properties [11]

1.2 I can identify advantages and disadvantages of specific materials for specific purposes [12]

1.3 I can distunguish between reversible and non-reversible processes related to materials [13]

Level 4 Unit 3 - Science (Materials)

1. The learner will compare a range of materials based on their physical and chemical properties.

1.1 I can describe differences between the properties of different materials [15]

1.2 I can explain how these differences are used to classify substances [16]

1.3 I can describe methods that are used to separate simple mixtures [17]

1.4 I can use scientific words to describe physical changes [18]

1.5 I can make simple predictions about whether changes are reversible or not [19]

Level 5 Unit 3 - Science (Materials)

1. The learner will classify materials, sorting them and separating mixtures of them.

1.1 I can describe properties of metals [21]

1.2 I can identify the difference between properties of metals and non-metals [22]

1.3 I can identify the conditions for change of state [23]

1.4 I can separate mixtures using properties such as solubility and magnetism [24]

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Level 6 Unit 3 - Science (Materials)

1. The learner will understand chemical and physical change in terms of particles in elements, compounds and mixtures.

1.1 I can describe chemical and physical changes [26]

1.2 I can describe how matter is made up of particles [27]

1.3 I can describe differences between the arrangement and movement of particles in solids, liquids and gases [28]

1.4 I can identify similarities between some types of chemical reactions [29]

1.5 I can summarise simple reactions using word equations [30]

1.6 I can relate changes of state to energy transfers in a range of contexts [31]

Level 7 Unit 3 - Science (Materials)

1. The learner will relate the nature and behaviour of materials to the particles from which they are made up.

1.1 I can explain physical and chemical phenomena in terms of the particle model of matter [33]

1.2 I can explain the differences between elements, compounds and mixtures in terms of their constituent particles [34]

1.3 I can recognise that elements and compounds can be represented by symbols and formulae [35]

1.4 I can explain the behaviour of materials in a variety of contexts [36]

1.5 I can make predictions about chemical reactions between a range of substances based on patterns of reactivity [37]

Level 8 Unit 3 - Science (Materials)

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1. The learner will demonstrate extensive knowledge and understanding related to materials, their properties and the Earth including the relationship between evidence and scientific ideas and why scientific ideas change in the light of new evidence.

1.1 I can explain materials, their properties and the Earth, scientifically and comprehensively [39]

1.2 I can relate different aspects of materials, their properties and the Earth [40]

1.3 I can represent common compounds by chemical formulae [41]

1.4 I can use these formulae to form balanced symbol equations for reactions [42]

1.5 I can interpret data from a range of sources and in a range of contexts including descriptions of chemical reactions [43]

1.6 I can evaluate data from a range of primary and secondary sources related to materials, their properties and the Earth [44]

1.7 I can synthesise information from data to classfy chemical reactions [45]

1.8 I can synthesise information from data to explain how new substances can be made [46]

1.9 I can explain the importance of a wide range of applications related to materials their properties and the Earth and the implications of science in these applications [47]

Level 9 Exceptional Performance Unit 3 - Science (Materials)

1. The learner will demonstrate breadth and depth of knowledge and understanding related to materials, their properties and the Earth in familiar and unfamiliar contexts.

1.1 I can explain materials, their properties and the Earth with broad and deep knowledge and understanding [49]

1.2 I can relate the behaviour of consituent particles to the macroscopic properties of materials [50]

1.3 I can interpret data from a range of sources and in a range of chemical systems [51]

1.4 I can explain chemical behaviours that do not fit expected patterns [52]

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1.5 I can evaluate findings drawing on a wide and in-depth knowledge of chemical systems [53]

1.6 I can synthesise information from data in a wide range of contexts related to materials, their properties and the Earth [54]

1.7 I can explain the importance of a wide range of applications and implications of science in familiar and unfamiliar contexts related to materials, their properties and the Earth [55]

1.8 I can explain how scientific knowledge and understanding changes, building on processes such as questioning, investigating and evidence-gathering related to materials, their properties and the Earth [56]

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