KS3 SCIENCE
BROCKINGTON COLLEGE

ABILITY BAND AND ASSESSMENT POINT DESCRIPTORS

KS3 Science Year 8 AP1

Ability Band 3	Ability Band 2	Ability Band 1
• Explain why some nutrients have to be broken down before they can be used by the body and why some foods cannot be digested by humans. (8A) • Represent the process of aerobic respiration as a word and/or symbol equation and identify similarities with the burning of fuels. (8B) • Describe the features of the alveoli and explain how damaged alveoli result in less gas exchange. (8B)	• Name some groups of nutrient and identify some examples of foods in which they are found. (8A) • Describe a balanced diet (8A) • Recognise that blood transports products of digestion around the body. (8A) • Recognise that oxygen is required for aerobic respiration and that oxygen and glucose are transported in the blood. (8B) • Describe the difference between inhaled and exhaled air (8B)	• Name nutrients, fibre and water as part of a balanced diet, identifying examples of food in which they are found and describe the role of each in the body. (8A) • Use a model to describe how large molecules are broken down during digestion. (8A) • Describe the role of blood in transporting products of digestion around the body. (8A) • Describe the role of blood in transporting carbon dioxide from, and oxygen to, the lungs. (8B) • Describe aerobic respiration as a reaction with oxygen and describe effects of inadequate oxygen supply. (8B) • Explain the difference between inhaled and exhaled air. (8B) • Identify similarities in aerobic respiration in plants and animals. (8B)
• Can begin to use particle models to explain how elements, mixtures and compounds are different from one another (8E) • Represent some compounds by formulae and explain what these show about the numbers and type of atom present (8F) • Describe how mixtures do not change state at fixed temperatures (8F)	• Can describe the difference between element, mixture and compound (8E) • Name some common elements, mixtures and compounds (8F) • Distinguish between representations or models of these (8F)	• Can observe and describe simple changes of state re ice melting (8E) • Can describe observations of chemical changes (8E) • Make observations and measurements of mass and temperature (8F) • Distinguish between elements, compounds and mixtures (8F)
• Use a model of the magnetic field to explain phenomena (8J). • Explain how magnetic materials can be	• Describe the use of an electromagnet in sorting metals (8J) • Use thermometers safely (8I)	• Distinguish between magnetic and non-magnetic materials (8J) • Make predictions about the behaviour of magnets

magnetised using a simple particle model (8J). • Make systematic measurements of temperature changes with a precision which enables reliable conclusions to be drawn in an investigation of insulators. (8I)	• Identify and control key variables in an investigation of insulators for reducing heat loss and draw practical conclusions. (8I) • Select information to report on ways to reducing heat loss in houses (8I)	and magnetic materials and draw conclusions from patterns in evidence (8J) •Identify factors affecting the strength of electromagnets (8J) •Plan a survey of perceptions of temperature, using an appropriate sample. (8I)

KS3 Science Year 8 AP1 (continued)

Ability Band 3	Ability Band 2	Ability Band 1
• Compare the conductivity of materials and relate this to their uses (8I) • Use the particle model to explain change of state relating this to the forces between particles (8I)	• Draw a graph of temperature changes when a substance changes state (8I) • Describe some uses of good conductors and insulators (8I) • Describe how insulators can reduce heat loss (8I).	•Plan an investigation into methods of reducing heat loss. (8I) •Select information about comparing different methods of preventing heat loss in houses. (8I) •Describe the difference between heat and temperature (8I) •Describe some uses of good conductors and insulators and examples of conduction in solids and convection in liquids and gases. (8I)
• Can select suitable equipment for an investigation, stating reasons. • Can identify variables that will be controlled, changed and measured. • Can describe how control variables were monitored. • Can make a prediction with a reason based on scientific knowledge and understanding. • Can describe how to make the investigation safe. • Can make series of precise observations or measurements systematically. • Can plan and collect repeat measurements and evaluate the reliability of the data obtained. • Can identify a hazard and describe how to control the associated risk.	• Can select suitable equipment for an investigation, stating reasons. • Can identify variables that will be controlled, changed and measured. • Can make a prediction with a reason based on scientific knowledge and understanding. • Can describe how to make the investigation safe. • Can make series of precise observations or measurements systematically. • Can plan and collect repeat measurements. • Can identify a hazard and describe how to control the associated risk.	• Can select suitable equipment for an investigation, stating reasons. • Can identify variables that will be controlled, changed and measured. • Can make a prediction with a reason. • Can describe how to make the investigation safe. • Can make series of precise observations or measurements systematically.

Science Year 8 AP2

Ability Band 3	Ability Band 2	Ability Band 1
• Describe how cells in the leaf and root are adapted for photosynthesis and for absorbing water. (9C) • Represent photosynthesis as a symbol equation (9C) • Describe the relationship between photosynthesis and respiration in plants (9C) • Explain how pyramids of numbers represent feeding relationships in a habitat (8D).	• Identify that carbon dioxide comes from the air and water is taken in through the roots and that these are raw materials. (9C) • Recognise that photosynthesis take place in the leaves. (9C) • Recognise that the abundance and distribution of organisms is different in different habitats (8D). • Use ICT to collect, name some organisms found in a particular habitat and describe how they are adapted to environmental conditions (8D).	• Identify carbon dioxide from the air and water as raw materials, and light as the energy source for photosynthesis. (9C) • Explain photosynthesis as a source of biomass and use the word equation. (9C) • Describe how leaves are adapted for photosynthesis and how roots are adapted to absorb water (9C) • Distinguish between photosynthesis and respiration in plants (9C) • Classify some plant specimens into the main taxonomic groups of plants (8D). • Identify and name organisms found in a particular habitat and describe how they are adapted to the environmental conditions (8D).
• Relate processes of chemical weathering to the reactions of particular grains with acids (8G) • Explain using the particle model how different rates of cooling leads to different crystal sizes, explain how the physical and chemical processes are involved in the rock cycle (8H)	• Name the three types of rock and give some examples of each; describe some characteristics of each rock type (8H) • Describe rock specimens and recognise that different rocks have different textures (8G)	• Describe rock specimens in terms of texture and relate this to properties such as porosity (8G) • Describe the physical and chemical processes by which rocks are weathered and transported (8G) • Describe and explain how sediment becomes sedimentary rock; describe the conditions under which metamorphic rock is formed and how igneous rocks crystallise from magma (8H) • Describe some distinctive features of igneous, sedimentary and metamorphic rocks and uses (8H)
• Explain how experimental evidence has led to changes over time in models of the solar system (9J) • Evaluate recent information and ideas about the origin of the Moon (9J) • Present a reasoned argument about a current issue in the science of hearing (8L) • Use the particle theory to explain how sound travels through materials (8L) • Draw conclusions about reflection, refraction and	• Describe some early ideas about the solar system (9J) • Explain that sound waves cause our eardrums to vibrate and this enables us to hear (8L). • Recognise that sound cannot travel through a vacuum (8L) • Make measurements of light intensity. Compare the effect of materials on light. Measure angles with precision and make generalisations from the data (8K)	• Use a model of gravitational attraction to explain orbiting. (9J) • Describe how ideas of the nature of the solar system have changed over time and relate these to available evidence (9J) • Relate changes in pitch and loudness of making sounds to changes in vibrations (8L) • Explain simply how the ear works (8L) • Classify materials as opaque, transparent, translucent, reflectors or absorbers. Identify

colour (8K)		patterns of reflected rays (8K)

Science Year 8 AP2 (continued)

Ability Band 3	Ability Band 2	Ability Band 1
As AP1 with the additional: • Can design a simple results table and record evidence clearly. • Can plot an appropriately scaled graph and draw an accurate line of best fit • Can describe a pattern from the evidence and state a conclusion referring specifically to the evidence. • Can identify anomalies in results. • Can explain how the method could be improved with reference to the strength of the data collected. • Can decide if the data is sufficient to support the conclusion.	As AP1 with the additional: • Can design a simple results table and record evidence clearly. • Can plot an appropriately scaled graph and attempt a line of best fit when applicable. • Can describe a pattern from the evidence and state a conclusion referring specifically to the evidence. • Can explain how the method could be improved with reference to the strength of the data collected.	As AP1 with the additional: • Can design a simple results table and record evidence clearly. • Can describe a pattern from the evidence and state a conclusion. • Can suggest how the investigation could be improved with scientific reasons.