



Year 8 Science Medium Term Plan Autumn Term 1

Learning Overview (Contents)	• Food and nutrition • Combustion • Fluids
Assessment Opportunities	Assessments will occur at the end of each topic using exam style questions.
Textbooks Published Lesson Resources	Exploring Science int Y8 SB 9781292294131 Pearson

Home Learning Resources	https://www.thenational.academy/teachers/programmes/science-secondary-ks3/units/diet-and-exercise/lessons?sid-916d45=x83cu1Mdhr&sm=0&src=3 https://www.thenational.academy/teachers/programmes/science-secondary-ks3/units/understanding-chemical-reactions/lessons/chemical-reactions-combustion?sid-b74b54=mczj1W2ivn&sm=0&src=4 https://www.thenational.academy/teachers/programmes/science-secondary-ks3/units/hidden-forces/lessons/pressure-at-different-depths-and-heights?sid-abdcfc=02IElxx1o-&sm=0&src=4
Knowledge organisers	

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week? (Use clear Success criteria)
1	• Nutrients • Uses of nutrients • Practical	• Recall the nutrients we need in our diets • Interpret nutrition information labels • Recall the tests used to detect some nutrients • Recall good sources of different nutrients • Describe how factors change the amount of energy we need • Describe what each nutrient does in the body
2	• Balanced diets	• Describe the benefits of a balanced diet

	• Digestion • Absorption • Revision	• Explain the causes and effects of some different types of malnutrition • Recall the parts of the digestive system and their functions • Explain why enzymes and bacteria are useful for digestion • Explain how diffusion enables absorption by the small intestine • Explain how the small intestine is adapted to its function
3	• End of unit test • Burning fuels • Oxidation	• Describe the combustion reactions of hydrogen and hydrocarbons • Describe tests for hydrogen, carbon dioxide and water • Describe oxidation reactions of metals and non-metals • Explain changes in mass seen in oxidation reactions • Compare how phlogiston and oxygen explain combustion
4	• Fire Safety • Air pollution • Global warming • Practical	• Use the fire triangle to explain how to control a fire • Identify hazards symbols for substances likely to cause fires • Describe pollutants that are formed by burning fuels • Explain how these pollutants cause problems and how their effects can be reduced • Describe the greenhouse effect and how it is caused • Explain how human activity may be causing global warming
5	• Revision • End of unit test • The particle model	• Describe the properties of different states of matter

		• Explain the properties in terms of the particle model
6	• Changing state • Practical • Pressure in fluids Pressure in fluids • Practical	• Explain why materials expand and contract when temperature changes Recall that a substance does not change temperature while it is changing state • Describe what happens to particles during changes of state • Describe the ways in which water and ice are different from other liquids and solids • Describe how fluid changes with depth or height • Describe how gas pressure can be increased • Explain some effects of pressure in different situations using the particle model • d
7	• Floating and sinking • Drag • Practical	• State what is meant in upthrust • Explain why some objects float • Recall the factors that affect the amount of upthrust • Use ideas about density in my explanations • Describe ways in which drag forces can be increased or reduced • Describe the causes of drag forces • Describe how drag changes with speed
8	• Revision • Revision • End of unit test	



Year 8 Science Medium Term Plan

Autumn Term 2

Learning Overview (Contents)	- Plants and their reproduction - The Periodic Table - Light
Assessment Opportunities	Assessments will occur at the end of each topic using exam style questions.
Textbooks Published Lesson Resources	Exploring Science int Y8 SB 9781292294131 Pearson

Home Learning Resources	
Knowledge organisers	

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week? (Use clear Success criteria)
1	- Classification and biodiversity - Types of reproduction - Pollination	- Interpret scientific organism names - describe how organisms are classified - explain the importance of biodiversity - Recall the differences between sexual and asexual reproduction - Recall examples of asexual reproduction in plants - Explain characteristics of offspring produced by sexual and asexual reproduction - Explain how the structures of flowers and pollen allow pollination, by animals or wind. - Explain how plants ensure cross-pollination
2	- Fertilization and dispersal - Germination and Growth	- Describe how pollination leads to fertilisation - Describe the formation of seeds and fruits

	• Practical • Revision	• Explain the functions of seeds and fruits • Describe what happens in germination • Explain why seeds and plants need certain resources • Describe how organisms are interdependent
3	• End of Unit test • Dalton's atomic model • Chemical properties	• Describe Daltons atomic theory • Describe elements using physical properties • Write and identify the chemical symbols for elements • Explain the difference between physical and chemical properties • use atomic theory to explain what happens during chemical reactions • write and interpret chemical formulae
4	• Mendeleev's table • Physical trends • Chemical trends • Practical	• use the periodic table to find elements with similar properties • describe some typical properties of alkali metals, halogens and noble gases • describe how the modern table is arranged • Explain melting, freezing and boiling points and use them to predict the state of a substance • Describe and identify trends in physical properties within the periodic table • Identify metals and non metals by their properties and position in the periodic table • Describe the reactions of some elements with water and oxygen. • Identify trends about chemical properties using the periodic table
5	• Revision • End of unit test • Light on the move	• Compare light and sound waves • Describe what happens to light when it hits different surfaces • Describe how to demonstrate that light travels in straight lines
6	• Reflection • Refraction • Practical • Cameras and eyes	• Describe how mirrors and rough surfaces reflect light • Describe how an image is formed in a mirror using a ray diagram • Recall some uses of lenses • Describe how light changes direction at the interface of two different substances • Use a model to explain how lenses work

		• Recall the parts of cameras and eyes and state their functions • Describe some ways in which the energy transferred by light leads to chemical or electrical effects
7	• Colour • Revision • End of unit test	• Describe how to make a spectrum • Explain why coloured objects appear coloured



Year 8 Science Medium Term Plan

Spring Term 1

Learning Overview (Contents)	- Breathing and respiration - Metals and their uses
Assessment Opportunities	Assessments will occur at the end of each topic using exam style questions.
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Home Learning Resources	
Knowledge organisers	

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week? (Use clear Success criteria)
1	- Aerobic Respiration - Gas Exchange - Getting oxygen	- Recall what happens in aerobic respiration - Recall the functions of the organs in the gas exchange system - Explain how the structure of the lungs allows efficient gas exchange - Describe the effects of exercise on breathing and heartbeat rates - Describe how substances reach respiring cells from the blood and how waste products are returned to the blood - Describe the causes, and explain the effects of, reduced oxygen supply on the body
2	- Practical - Comparing Gas exchange - Anaerobic respiration - Practical	- Recall how to detect aerobic respiration - Describe how gas exchange occurs in different organisms - Recall what happens in anaerobic respiration

		Describe the effects of anaerobic respiration during and after hard exercise
3	- Revision - End of unit test - Metal properties	- Describe some common properties and uses of metals - Write word equations for the reactions of metals and non-metals - Describe what a catalyst is and some uses of catalysts
4	- Corrosion - Metals and water - Practical - Metals and acids	- Describe what happens during corrosion - Explain how metals can be protected from corrosion - Identify the products and reactants using a symbol equation - Describe the reactions of metals with water - Place metals in order of reactivity - Write word and symbol equations for reactions - Describe the reactions of metals with acids - Place metals in order of reactivity - Write word and symbols equations for reactions
5	- Practicals - Pure metals and alloys	- Explain what alloys are and why they are used - Use models to explain the properties of alloys - Identify pure substances by their melting points and boiling points
6	- Revision - End of unit test	



Year 8 Science Medium Term Plan

Spring Term 2

Learning Overview (Contents)	• Energy transfers • Unicellular organisms
Assessment Opportunities	Assessments will occur at the end of each topic using exam style questions.
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Home Learning Resources	
Knowledge organisers	

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week? (Use clear Success criteria)
1	• Temperature changes • Transferring energy • Practical	• Explain how internal energy and temperature are different • Identify the direction in which energy will be transferred • Explain what happens to particles when a liquid evaporates • Describe how energy is transferred by radiation, conduction and convection • Use the particle model to explain energy transfers in matter
2	• Controlling transfers • Power and efficiency • Practical • Paying for energy	• Recall ways of reducing energy transfers • State the meanings of accuracy and precision • Explain how to avoid random and systematic errors • Describe what power and efficiency mean • Calculate efficiencies • Interpret Sankey diagrams

3	• Revision • End of unit test • Unicellular or multicellular organisms	• Use cell features to identify members of different kingdoms • Explain differences between unicellular and multicellular organisms
4	• Microscopic fungi • Bacteria • Practical • Protoctists	• Describe the ways in which yeast respire • Explain the use of yeast in baking • Describe how yeast reproduce and the factors that limit this • Explain why anaerobic bacteria are used to make yoghurt and cheese • Describe the functions of the parts of a bacterial cell • Describe how bacteria reproduce • Use a statement key • Describe the function of the common parts of the Protoctists cells • Describe how algae make their own food, and explain the importance of this
5	• Decomposers and carbon • Revision • End of unit test	• Explain the importance of decomposers • Model the recycling of carbon in an ecosystem using the carbon cycle



Year 8 Science Medium Term Plan

Summer Term 1

Learning Overview (Contents)	• Rocks • Earth and space
Assessment Opportunities	Assessments will occur at the end of each topic using exam style questions.
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Home Learning Resources	
Knowledge organisers	

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week? (Use clear Success criteria)
1	• Rocks and their uses • Igneous and metamorphic • Weathering and erosion	• describe the textures of some different rocks • Explain how some of the properties of rocks are related to their texture • Recall some uses of rocks • Describe the structure of the earth • Describe how igneous and metamorphic rocks are formed • Explain how the grain size is evidence for the speed of cooling • Describe the reaction between metal carbonates and acids • Describe how weathering can break up rocks • Describe how weathering rocks are eroded

2	• Sedimentary rocks • Materials in the earth • Practicals • Practicals	• Describe how sedimentary rocks are formed • Describe the texture of some sedimentary rocks • Use the rock cycle model to link the three types of rock • Describe how metals are obtained • Describe some advantages of recycling metals
3	• Revision • End of unit test • Gathering the evidence	• Describe some ways of investigating the planets • Compare different models of the solar system
4	• Seasons • Magnetic earth • Gravity in space • Beyond the solar system	• Use the tilt of the earth's axis to explain the changes in the seasons • Use a model to explain the pattern of light and dark at the earth's poles • Explain how to arrange magnets so they attract or repel each other • Describe the earth's magnetic field and how it affects compasses • Describe how to find the shape of a magnetic field • calculate weight • Recall the factors that affect the strength of gravity • Describe how gravity affects objects in space • Describe stars, galaxies and constellations • Describe the Milky Way • Explain what a light-year is
5	• Revision • Revision • Revision	
6	• End of unit test	