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| **Cycle A 2024 – 2025** |
|  | **A1** | **A2** | **Sp1** | **Sp2** | **Su1** | **Su2** |
| **Starfish 1** | **Animals including humans (biology)**identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense CPD – Humans and other animals https://pictures.abebooks.com/isbn/9780140563788-uk.jpg | **Seasonal changes (physics)**observe changes across the 4 seasonsobserve and describe weather associated with the seasons and how day length variesCPD – Seasonal ChangesOut and About by Shirley Hughes | **Seasonal changes (physics)**observe changes across the 4 seasonsobserve and describe weather associated with the seasons and how day length variesCPD – Seasonal Changes https://images-na.ssl-images-amazon.com/images/I/41YyN8iwuWL._SY384_BO1,204,203,200_.jpg | **British Science Week 7-16th March – Change and Adapt****Plants (biology)**identify and name a variety of common wild and garden plants, including deciduous and evergreen treesidentify and describe the basic structure of a variety of common flowering plants, including treesCPD – Plants https://blackwells.co.uk/jacket/l/9780887080159.jpg | **Everyday materials (chemistry)**distinguish between an object and the material from which it is madeidentify and name a variety of everyday materials, including wood, plastic glass, metal, water, and rockdescribe the simple physical properties of a variety of everyday materialscompare and group together a variety of everyday materials on the basis of their simple physical propertiesCPD – Everyday Materials Not A Stick  | **Animals including humans (biology)****Seashore science lessons (PSTT)**identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammalsidentify and name a variety of common animals that are carnivores, herbivores and omnivoresdescribe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)CPD – Living things and habitats https://images-na.ssl-images-amazon.com/images/I/51scCaLS3pL._SX355_BO1,204,203,200_.jpg |
| **Dolphins 1/2** | **Everyday Materials Y1 (chemistry)** identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rockcompare and group together a variety of everyday materials on the basis of their simple physical propertiesdescribe the simple physical properties of a variety of everyday materialsdistinguish between an object and the material from which it is made**Use of everyday materials Y2 (chemistry)**identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular usesfind out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretchingCPD – Everyday Materialshttps://images-na.ssl-images-amazon.com/images/I/51gmJ1tElKL._SX496_BO1,204,203,200_.jpg | **Animals including humans Y1 (biology)**identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammalsidentify and name a variety of common animals that are carnivores, herbivores and omnivoresdescribe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense**Animals including humans Y2 (biology)**describe the importance for humans of exercise, eating the right amounts of different types of food, and hygienefind out about and describe the basic needs of humans, for survival (water, food and air)CPD – Humans and other animalsThe Disgusting Sandwich By Gareth Edwards | **Plants Y1 (biology)**identify and name a variety of common wild and garden plants, including deciduous and evergreen treesidentify and describe the basic structure of a variety of common flowering plants, including treesCPD – Plants It Starts With A Seed By Laura Knowles | **British Science Week 7-16th March – Change and Adapt****Plants Y2 (biology)**observe and describe how seeds and bulbs grow into mature plantsfind out and describe how plants need water, light and a suitable temperature to grow and stay healthyCPD – Outdoor Sciencehttps://blackwells.co.uk/jacket/l/9780887080159.jpg  | **Seasonal changes Y1 (physics)**observe changes across the 4 seasonsobserve and describe weather associated with the seasons and how day length variesCPD – Seasonal Changes https://images-na.ssl-images-amazon.com/images/I/41YyN8iwuWL._SY384_BO1,204,203,200_.jpg | **Living things and their habitats Y2 (biology)****Seashore Science lessons (PSTT)**identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each otheridentify and name a variety of plants and animals in their habitats, including microhabitatsdescribe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food CPD – Living things and habitatshttps://pictures.abebooks.com/isbn/9780333982235-uk.jpgCreature Features |
| **Lobster 3** | **Animals including humans (biology)**identify animals (humans) need right types and levels of nutrition, cannot make own food, nutrition comes from what they eatidentify humans and some animals have skeletons and muscles for support, protection and movement CPD – Food and Feeding/ Body Systems | **Forces and Magnets – (physics)**compare how things move on different surfacesnotice that some forces need contact between 2 objects, but magnetic forces can act at a distanceobserve how magnets attract or repel each other and attract some materials and not otherscompare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, andidentify some magnetic materialsdescribe magnets as having 2 polespredict whether 2 magnets will attract or repel each other, depending on which poles are facingCPD – Forces and Magnetsundefined | **Light (physics)**recognise that they need light in order to see things and that dark is the absence of lightnotice that light is reflected from surfacesrecognise that light from the sun can be dangerous and that there are ways to protect their eyesrecognise that shadows are formed when the light from a light source is blocked by an opaque objectfind patterns in the way that the size of shadows changeCPD – Light | **British Science Week 7-16th March – Change and Adapt****Plants (biology)**identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowersexplore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plantinvestigate the way in which water is transported within plantsexplore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersalCPD – Plants and growthhttps://pictures.abebooks.com/isbn/9781452119366-uk.jpg | **Rocks (chemistry)**compare and group together different kinds of rocks on the basis of their appearance and simple physical propertiesdescribe in simple terms how fossils are formed when things that have lived are trapped within rockrecognise that soils are made from rocks and organic matterCPD – Rocks This Little Pebble | **Living things and their habitats (biology)****Seashore Science lessons (PSTT)**recognise that living things can be grouped in a variety of waysexplore and use classification keys to help group, identify and name a variety of living things in their local and wider environmentrecognise that environments can change and that this can sometimes pose dangers to living thingsCPD – Environments and Habitatshttps://pictures.abebooks.com/isbn/9781910277676-uk.jpg |
| **Jellyfish 4** | **Living things and their habitats (biology)**(local environment: field/woodland/hedgerows)recognise that living things can be grouped in a variety of waysexplore and use classification keys to help group, identify and name a variety of living things in their local and wider environmentrecognise that environments can change and that this can sometimes pose dangers to living thingsCPD – Environments and Habitats | **States of matter (chemistry)**compare and group materials together, according to whether they are solids, liquids or gasesobserve that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperatureCPD – States of Matterhttps://pictures.abebooks.com/inventory/30723166488.jpg | **Electricity (physics)**identify common appliances that run on electricityconstruct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzersidentify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a batteryrecognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuitrecognise some common conductors and insulators, andassociate metals with being good conductorsCPD – Electricityhttps://pictures.abebooks.com/isbn/9780142408575-uk.jpg | **British Science Week 7-16th March – Change and Adapt****Animals including humans (biology)**describe the simple functions of the basic parts of the digestive system in humansidentify the different types of teeth in humans and their simple functionsconstruct and interpret a variety of food chains, identifying producers, predators and preyCPD – Food and feedinghttps://images-na.ssl-images-amazon.com/images/I/41tg1l5K9GL._SY324_BO1,204,203,200_.jpg | **Sound (physics)**identify how sounds are made, associating some of them with something vibratingrecognise that vibrations from sounds travel through a medium to the earfind patterns between the pitch of a sound and features of the object that produced itfind patterns between the volume of a sound and the strength of the vibrations that produced itrecognise that sounds get fainter as the distance from the sound source increasesCPD – SoundListen: How Evelyn Glennie, a Deaf Girl, Changed Percussion | **Living things and their habitats (biology)****Seashore Science lessons (PSTT)**recognise that living things can be grouped in a variety of waysexplore and use classification keys to help group, identify and name a variety of living things in their local and wider environmentrecognise that environments can change and that this can sometimes pose dangers to living thingsCPD – Environments and Habitatshttps://pictures.abebooks.com/isbn/9781910277676-uk.jpg |
| **Seals 5** | **Living things and habitats (biology)**describe the life process of reproduction in some plants and animals (sexual/ asexual)CPD – Environments and Habitatshttps://pictures.abebooks.com/isbn/9781452141244-uk.jpg | **Forces (physics)**explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling objectidentify the effects of air resistance, water resistance and friction, that act between moving surfacesrecognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effectCPD – Forceshttps://images-na.ssl-images-amazon.com/images/I/61XJtfHBR4L._SX486_BO1,204,203,200_.jpg | **Earth and Space (physics)**describe the movement of the Earth and other planets relative to the sun in the solar systemdescribe the movement of the moon relative to the Earthdescribe the sun, Earth and moon as approximately spherical bodiesuse the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the skyCPD – Earth and Spacehttps://images-na.ssl-images-amazon.com/images/I/51cmxv5R75L._SX437_BO1,204,203,200_.jpg | **British Science Week 7-16th March – Change and Adapt****Animals including humans (biology**)describe the changes as humans develop to old ageCPD – Lifecycleshttps://pictures.abebooks.com/isbn/9780823449385-uk.jpg | **Properties and changes of materials (chemistry)**compare and group together everyday materials on the basis of their properties, including their hardness solubility, transparency, conductivity (electrical and thermal), and response to magnetsknow that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solutionuse knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporatinggive reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changesexplain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of sodaCPD – Changing Materialshttps://blackwells.co.uk/jacket/l/9780394800752.jpg, | **Living things and habitats (biology)****Seashore Science lessons (PSTT)**describe the differences in the life cycles of a mammal, an amphibian, an insect and a birdreproduction of some plants and animalsCPD – Environments and Habitatshttps://pictures.abebooks.com/isbn/9781471115684-uk.jpg |
| **Sea Turtles 6** | **Light (physics)**recognise that light appears to travel in straight linesuse the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyeexplain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyesuse the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast themCPD – LightShadow By Lucy Christopher | **Evolution and inheritance**recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years agorecognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parentsidentify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolutionCPD – Evolution and Inheritancehttps://images-na.ssl-images-amazon.com/images/I/416mxnlExVL._SX386_BO1,204,203,200_.jpg | **Electricity (physics)**associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuitcompare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switchesuse recognised symbols when representing a simple circuit in a diagramCPD – Electricityhttps://blackwells.co.uk/jacket/l/9781423121909.jpg | **British Science Week 7-16th March – Change and Adapt****Animals including humans (biology)**identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and bloodrecognise the impact of diet, exercise, drugs and lifestyle on the way their bodies functiondescribe the ways in which nutrients and water are transported within animals, including humansCPD – Body SystemsPage 1 | SATS  | **Living things and their habitats (biology) (Beach schools – PSTT lessons)**describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animalsgive reasons for classifying plants and animals based on specific characteristicsCPD – ClassificationPage 1. |

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| **Key stage 1 National curriculum strands** |
| **Working Scientifically**  | **Biology Pupils should be taught to:** | **Chemistry Pupils should be taught to:** | **Physics Pupils should be taught to:** |
| During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering | **Living things and their habitats** • explore and compare the differences between things that are living, dead, and things that have never been alive Animals, including humans • identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals ( fish, amphibians, reptiles, birds and mammals including pets) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • notice that animals, including humans, have offspring which grow into adults • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene**Plants** • identify and name a variety of common wild and garden plants including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees. • observe and describe how seeds and bulbs grow into mature plants • find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Habitats** • identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • identify and name a variety of plants and animals in their habitats, including micro-habitats • describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. | **Everyday materials** • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties • identify and compare the suit- ability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses find out how the shapes of solid objects made from some materials can be changed by squashing, bend- ing, twisting and stretching. | **Seasonal changes** •observe changes across the four seasons •observe and describe weather associated with the seasons and how day length varies |

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| **Lower Key stage 2 National curriculum strands** |
| **Working Scientifically** | **Biology Pupils should be taught to:** | **Chemistry Pupils should be taught to:** | **Physics Pupils should be taught to:** |
| Working scientifically During Years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and , where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables• reporting on findings from enquiries, including oral and writ- ten explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings. | **Living things and their habitats** • recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • recognise that environments can change and that this can sometimes pose dangers to living things Animals, including human • identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • identify that humans and some other animals have skeletons and muscles for support, protection and movement. • describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions. • Construct and interpret a variety of food chains, identifying producers, predators and prey **Plants** • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • investigate the way in which water is transported within plants • explore the part of flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | **Rocks** •compare and group together different kinds of rocks on the basis of their simple physical properties • recognise that soils are made from rocks and organic matter •Describe in simple terms how fossils are formed when things that have lived are trapped within rock. States of matter •compare and group materials together, according to whether they are sol- ids, liquids or gases •observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C), •identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | **Electricity** •identify common appliances that run on electricity •construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers •identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery •recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit •recognise some common conductors and insulators, and associate metals with being good conductors **Forces and magnets** •compare how things move on different surfaces •notice that some forces need contact between two objects but magnetic forces can act at a distance •observe how magnets attract or repel each other and attract some materials and not others •compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials •describe magnets as having two poles •predict whether two magnets will attract or repel each other, de- pending on which poles are facing **Light** • recognise that they need light in order to see things and that dark is the absence of light •notice that light is reflected from surfaces •recognise that light from the sun can be dangerous and that there are ways to protect their eyes •recognise that shadows are formed when a light source is blocked by a solid object • find patterns in the way that the size of shadows change Sound •identify how sounds are made, associating some of them with something vibrating •recognise that vibrations from sound travel through a medium to the ear •find patterns between the pitch of a sound and features of the object that produced it •find patterns between the volume of a sound and the strength of the vibrations that produced it. •recognise that sounds get fainter as the distance from the sound source increases. |

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| **Upper Key stage 2 National curriculum strands** |
| **Working Scientifically** | **Biology Pupils should be taught to:** | **Chemistry Pupils should be taught to:** | **Physics Pupils should be taught to:** |
| Working scientifically During Years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and la- bels, classification keys, tables, scatter graphs, bar and line graphs, • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations results, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments. | **Living things and their habitats** • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro- organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics • describe the life process of reproduction in some plants and animals • describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Animals, including humans • describe the changes as humans develop to old age • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. • describe the ways in which nutrients and water are transported within animals including humans Evolution and inheritance • recognise that living things produce off- spring of the same kind, but but normally off- spring vary and are not identical to their parents • recognise that living things have changed over time and that fossils provide the information about living things that inhabited the Earth millions of years ago • identify how animals and plants are adapted to suit their environment in different ways and that adaption leads to evolution normally off- spring vary and are not identical to their parents • recognise that living things have changed over time and that fossils provide the information about living things that inhabited the Earth millions of years ago • identify how animals and plants are adapted to suit their environment in different ways and that adaption leads to evolution | **Properties of everyday materials** • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Reversible change • demonstrate that dissolving, mixing and changes of state are reversible changes. Changes that form new materials • explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, and the action of acid on bicarbonate of soda. | **Electricity** • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram**Forces** • explain that unsupported objects fall to- wards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effect of air resistance, water resistance and friction, that act between moving surfaces • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect **Light** • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them **Earth and space** • describe the movement of the Earth, and other planets, relative to the Sun in the solar system • describe the movement of the Moon relative to the Earth • describe the Sun, Earth and Moon as approximately spherical bodies • use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky  |

**Websites and Resources for topics:**

[https://www.pzaz.online](https://www.pzaz.online/portal/category/8)

PZAZ scheme of work and resources/ CPD videos

<https://explorify.wellcome.ac.uk/en/activities>

Explorify has been highly recommended on all the science training I have done– excellent for quick activities that link to all Science topics. These really develop reasoning skills and discussion whilst using science language etc. My class have absolutely loved Zoom in, Zoom out and Odd one out. Quick activities that require no recording, if time is tight.

Also, suggestions for investigations etc linked to all year group topics.

<https://www.reachoutcpd.com/>

This site is great for support/ fast training with your subject knowledge. Training takes about an hour and covers every Science topic you will be covering. This is for teachers not children. Ideally, before teaching your next topic, do the online training as it can update and extend your subject knowledge.

<https://www.liketobe.org/>

You can makes links to ‘real’ scientists here that can help answer some of the questions the children ask, which you may not know the answer to. Starfish class asked an engineer, working on a space rocket, questions about rockets when we were doing our space topic. Ruth Peacey (who took the flag to the Antarctic) is on here too.

<https://www.stem.org.uk/>

Useful for investigation ideas, CPD and resources linked to each year groups topics. I think I have signed everyone up for this before, but you may need to create a new account or reset it.

<https://www.hamilton-trust.org.uk/science>

Every year group science topics are covered here, with lesson plans and ideas – although they are not all free!