Science Curriculum: How do things work and change in our world?

2022 - 2023

| Year 1 | | | | | | | | |
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| Topic: Animals, including humans (Seasonal change) | | | | Key Question: What are bodies and what can they do? | | | | POP Task |
| Term: Autumn 1 | KQ1  Who’s who in the animal world? | KQ2  How are animal’s bodies different? | KQ3  Label parts of a human body/ a fish and a bird - which are the same, which are different? | | KQ4  What’s so special about birds/fish? | KQ5  Compare bodies of mammals and how different mammals move? | KQ6  How do the changing seasons affect some animals and why? (SC) | (True or false?) Carnivores are not hunted by other carnivores. |
| Explorify | <https://explorify.uk/en/activities/listen-what-can-you-hear/thats-a-flap> | | | | | | | |
| Topic: Animals, including humans (Seasonal change) | | | | Key Question: Do living things need to hear to survive? | | | | POP Task |
| Term: Autumn 2 | KQ1  What would you miss if you couldn’t see? | KQ2  How can we explore the world using our sense of touch? | KQ3  What can we hear using our sense of hearing? | | KQ4  What can we see and hear that tells us the seasons are changing? (SC) | KQ5  What differences can our tongues taste? Which smells do we love and hate? Is taste better or worse depending on the smell? | KQ6  How do we use our senses to find out about the world around us? | Suggest some adjustments that could be made around school for a blind or deaf person. |
| Explorify | <https://explorify.uk/en/activities/have-you-ever/smelt-something-that-made-you-happy> | | | | | | | |
| Topic: Everyday materials (Seasonal change) | | | | Key Question: What are things made of? | | | | POP Task |
| Term: Spring 1 | KQ1  What material is this? | KQ2  Is all paper the same? | KQ3  Is all fabric the same? | | KQ4  What’s it made of? | KQ5  Can the same object be made from different materials? | KQ6  How does the weather change across the seasons? | Investigate which material started off as a plant. |
| Explorify | <https://explorify.uk/en/activities/zoom-in-zoom-out/creature-comforts> | | | | | | | |
| Topic:Everyday materials (Seasonal change) | | | | Key Question: Does plastic always bend? | | | | POP Task |
| Term: Spring 2 | KQ1  How can we find out which is the best material to protect us when it is wet? | KQ2  What’s it like?  Does it bend and stretch? | KQ3  How wet can you get? | | KQ4  What do different materials feel like? | KQ5  Which materials work best for…keeping us warm in Winter? dry in rain? | KQ6  What do different kinds of weather look and feel like? (SC) | Design an item of clothing to keep the wearer dry. |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/fit-for-purpose> | | | | | | | |
| Topic: Plants (Seasonal change) | | | | Key Question: What is alive? | | | | POP Task |
| Term: Summer 1 | KQ1  What garden plants can we find around our school? | KQ2  What wild plants can we find around our school?  What is the same and different about the flowers around us? | KQ3  What’s inside a flower? | | KQ4  What is happening underground beneath our plants? | KQ5  What makes a tree a tree? | KQ6  What difference does the amount of daylight make to when plants do their most growing? | Are roots always at the bottom of plants? Why do you think that is? |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/lovely-leaves> | | | | | | | |
| Topic: Plants (Seasonal change) | | | | Key Question: How do seasons change? Which do you like best? | | | | POP Task |
| Term: Summer 2 | KQ1  How many seasons are there? | KQ2  Does it ever snow in Summer? | KQ3  How do shadows change over a day? | | KQ4  How does rainfall impact the growth of plants? | KQ5  When is the hottest time of day? | KQ6  When is the coldest time of day? How do mammals keep warm when it is cold? | Always, sometimes or never? It is warm and dry during summer. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/seasons> | | | | | | | |

| Year 2 | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Topic: Animals, including humans | | | | Key Question: What do animals and humans need to thrive? | | | | POP Task |
| Term:  Summer 2 | KQ1  What do animals and humans need to survive? | KQ2  Do all animals need the same things to survive? | KQ3  What do offspring need to survive and thrive? | | KQ4  How do animals change as they grow into adults? | KQ5  What do humans need to lead a healthy lifestyle? | KQ6 | Suggest some ways that an animal’s offspring (including humans) are dependent, for some time, on adults. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/to-flee-or-not-to-flee> | | | | | | | |
| Topic: Living things and their habitats 1 | | | | Key Question: Does where we live matter? | | | | POP Task |
| Term:  Spring 1 | KQ1  Which things are dead and which are alive? | KQ2  What lives in a habitat? | KQ3  What is a micro-habitat? | | KQ4  What lives in a micro-habitat? | KQ5  What lives in our local habitat? | KQ6  Do bugs live in hotels? | Give evidence that a glass bottle has never been alive. |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/different-homes> | | | | | | | |
| Topic: Everyday materials | | | | Key Question: What makes a material suitable? | | | | POP Task |
| Term: Autumn 1 | KQ1  What material is it made of? | KQ2  Is that a good choice of material? | KQ3  How can you test the suitability of different materials? | | KQ4  What fabric will make a bedroom dark? | KQ5  Why would plastic be no good for making teabags? | KQ6 | Paper is sometimes, always or never suitable to make a model boat. What do you think? cc links to Y1 |
| Explorify | <https://explorify.uk/en/activities/have-you-ever/squashed-a-sandwich-in-your-bag> | | | | | | | |
| Topic: Everyday materials | | | | Key Question: How and why do different materials change? | | | | POP Task |
| Term: Autumn 2 | KQ1  How can I change the shape of an object? | KQ2  What property allows a material to be changed? | KQ3  Can all materials have their shape changed? | | KQ4  How can I find out which ball is the bounciest? | KQ5  How can I find out which is the strongest paper? | KQ6 | Always, sometimes or never: The shape of wood can be changed through squashing, bending, twisting or stretching. |
| Explorify | <https://explorify.uk/en/activities/listen-what-can-you-hear/material-world> | | | | | | | |
| Topic: Plants | | | | Key Question: How do we keep plants alive? | | | | POP Task |
| Term: Summer 1 | KQ1  How can we make sure our seeds grow into healthy plants? | KQ2  What do gardeners need to know? | KQ3  What is happening to our seeds? | | KQ4  How can we care for our plants? | KQ5  What happens when a seed germinates? | KQ6  What do plants need to grow and be healthy? | Devise a way of proving that plants need certain conditions for growth. |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/underground-overground> | | | | | | | |
| Topic: Living things and their habitats 2 | | | | Key Question: Does food just keep us alive? | | | | POP Task |
| Term: Spring 2 | KQ1  How does a habitat change through the year? | KQ2  What do different animals eat in their habitats? | KQ3  How do the animals in a habitat depend on each other? | | KQ4  How are food chains similar? | KQ5  How did scientists decide what makes a healthy diet? | KQ6  What do we notice about our bodies when we exercise - and what does this tell us about why exercise is important? | Always, sometimes or never? Food chains end with a carnivore. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/hungry-snails> | | | | | | | |

| Year 3 | | | | | | | | |
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| Topic: Rocks | | | | Key Question: How are rocks different? | | | | POP Task |
| Term: Autumn 1 | KQ1:  Scientists have noticed that our coastline is changing - how is this happening?  Disciplinary | KQ2:  What different types of rocks are there? | KQ3:  How can we sort rocks? | | KQ4:  Are all rocks as hard as each other? | KQ5:  How could we find out if all rocks are waterproof? | KQ6:  What is a fossil and how are they formed? | Is it possible that fossils could be found within igneous rocks? |
| Explorify | <https://explorify.uk/en/activities/zoom-in-zoom-out/a-hinge-in-the-rock> | | | | | | | |
| Topic: Forces and Magnets | | | | Key Question: How can objects move? | | | | |
| Term: Autumn 2 | KQ1:  What is making it move?  Can every movement be described as a push or a pull? | KQ2:  What can magnets do? How can they create a ‘push’ or ‘pull’? | KQ3:  How do magnets affect each other? | | KQ4:  Which materials are magnetic? | KQ5:  Can you design a test to measure how strong different magnets are? | KQ6: | POP Task  Is it possible to make a magnet? (Prove or disprove) |
| Explorify | <https://explorify.uk/en/activities/what-if/you-had-magnets-for-fingers> | | | | | | | |
| Topic: Animals, including humans LINK TO HEALTH DIET D/T | | | | Key Question: How does our body work and how can we look after it? | | | | |
| Term: Spring 1 | KQ1:  How do muscles help us move? | KQ2:  Why do we have a skeleton? | KQ3:  How are vertebrates and invertebrates different? | | KQ4:  What do we need to keep our bones and muscles healthy? | KQ5:  What would you include in a survival kit? | KQ6:  How does an adventurer stay healthy? | POP Task  Design a new vertebrate species. |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/whats-for-dinner> | | | | | | | |
| Topic: Plants | | | | Key Question: How do plants work? | | | | |
| Term: Spring 2 | KQ1:  What do flowers have in common? | KQ2: What function do the parts of plants have? | KQ3: What would happen if a plant lost its leaves? | | KQ4: Are all roots the same? | KQ5: Design an experiment to prove that plants absorb water through their roots? |  | POP Task: Can plants survive without leaves? |
| Explorify | <https://explorify.uk/en/activities/zoom-in-zoom-out/brown-and-sticky> | | | | | | | |
| Topic: Plants | | | | Key Question: How can we create new plants? | | | | |
| Term: Summer 1 | KQ1:  Revisit the parts of a flowering plant and their function. | KQ2:  Can new plants be grown without coming from a seed? | KQ3:  What do bees do? | | KQ4:  Are bees the only pollinators? | KQ5:  How are seeds dispersed? | KQ6: | POP Task  Why might flowering plants grow in high up rooftops or gutters even if humans did not put them there? |
| Explorify | <https://explorify.uk/en/activities/listen-what-can-you-hear/sharing-is-caring> | | | | | | | |
| Topic: Light | | | | Key Question: What is light? | | | | POP Task |
| Term: Summer 2 | KQ1:  Are all shiny objects sources of light? | KQ2:  How can mirrors help me to see what is behind me? | KQ3:  How are shadows formed? | | KQ4:  How can you change the length of shadows? | KQ5:  Do we need light to see? | KQ6  What happens to our eyes when the sun is shining brightly? | How can we protect our eyes from the sun? |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/shadow-shapes> | | | | | | | |

| Year 4 | | | | | | | | | | | | | |
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| Topic: Animals, including humans | | | | | | Key Question: What do our bodies do with food we eat? | | | | | | | |
| Term: Autumn | KQ1:  Where does food go inside our bodies? | KQ2:  What sort of teeth do we have and why? | | KQ3:  What do animals eat? | | | KQ4:  What do animals’ teeth tell us? | | KQ5:  How is food broken down? | | KQ6:  How can we model the digestive system? | | POP Task:  Suggest reasons why humans may suffer from digestive problems. |
| Explorify | <https://explorify.uk/en/activities/zoom-in-zoom-out/blackened-edges> | | | | | | | | | | | | |
| Topic: Sound | | | | | | Key Question: How do we hear different sounds? | | | | | | |  |
| Term: Autumn | KQ1:  How are sounds made? | KQ2:  How do sounds travel? | | KQ3:How can we make a sound louder and quieter | | KQ4:  How can we change the pitch of a plucked note? | | | KQ5:  How can we use air to make music? | |  |  | POP Task:  True or false? Higher sounds are louder than lower notes. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/the-sound-of-silence> | | | | | | | | | | | | |
| Topic: States of Matter | | | | | | Key Question: Is water always wet? | | | | | | | POP Task |
| Term: Spring | KQ1:  What are my properties? | KQ2:  What happens to the ice hands? | | KQ3:  What makes a difference to how fast ice melts? | | | KQ4:  What are melting and freezing? | KQ5:  Are spaces really empty? | | | KQ6:  How can we get it dry? | |  |
| Explorify | <https://explorify.uk/en/activities/listen-what-can-you-hear/terrific-transformations> | | | | | | | | | | | | |
| Topic: Living things and their habitats | | | | | | Key Question: Living things: Are living things in danger? | | | | | | | |
| SpringTerm:  Forest Based Enquiry | KQ1:  How can we classify trees by looking at their leaves and plants by looking at their flowers? | | KQ2:  How can we classify and identify deciduous trees in winter? | | KQ3:  Who lives here? | | KQ4:  How are vertebrates grouped? | | KQ5:  How are invertebrates grouped? | | KQ6:  What happens when a food chain is broken? | | POP task  What is the impact on animal species of habitat destruction in other parts of the world? |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/beavering-away> | | | | | | | | | | | | |
| Topic: Electricity - LINK WITH D/T | | | | | | Key Question: Can we control electricity? | | | | | | | POP Task |
| Term: Summer 1 | KQ1: Can you light the bulb and make it brighter/dimmer? | | KQ2: How does a circuit work? | | KQ3: How do house lights turn on and off? What does a switch do? | | | KQ4:  What can we use instead of wires to make a circuit? | | KQ5:  How are electrical conductors and insulators used? | | | True or false? Everything on Earth either conducts or doesn’t conduct electricity, including humans. |
| Explorify | <https://explorify.uk/en/activities/zoom-in-zoom-out/inside-out> | | | | | | | | | | | | |
| Topic: States of Matter | | | | | | Key Question: Is water always wet? | | | | | | |  |
| Summer 2 | KQ7:  What is evaporation? | | KQ8:  What is boiling | | KQ9:  Where did the water come from? | | | KQ10:  Where does rain come from? | | Always, sometimes or never: gases are lighter than solids? | | |  |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/frozen-in-motion> | | | | | | | | | | | | |

| Year 5 | | | | | | | | | |
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| Topic: Forces | | | | Key Question: How can we change how objects move? | | | | | POP Task |
| Term: Spring | KQ1:  What causes objects to fall to the ground? | KQ2:  Why do cyclists wear lycra? | KQ3:  Which shape is the most streamline? | | | KQ4:  How can you make the slowest marble run? | KQ5:  How do pulleys and levers help us to move heavy objects? | KQ6:  How do gears change speed in which we travel? | Which will reach Earth first if dropped from the same height?  1kg feathers or 1kg steel. Explain concepts. |
| Explorify | <https://explorify.uk/en/activities/have-you-ever/tried-to-keep-a-balloon-in-the-air> | | | | | | | | |
| Topic: Properties and Changes of Materials 1 | | | | Key Question: What are things made of and why? | | | | | POP Task |
| Term: Summer | KQ1: How can we compare and group materials?  Is a solid always hard and a liquid always runny? | KQ2:  Which materials are used and why? | KQ3: Which is the best carrier bag? | | | KQ4: Which container is the best thermal insulator? | KQ5: Which is the most absorbent material? |  | Design a 21st century bike - explain what materials you’re going to use and justify your decision. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/hot-or-cold> | | | | | | | | |
| Topic: Properties and Changes of Materials 2 | | | | Key Question: Can we change materials? | | | | | POP Task |
|  | KQ1:How can we separate mixtures? | KQ2: What happens when we mix liquids and solids? | KQ3: What makes a difference to how fast sugar or salt dissolves? | | | KQ4: How can we get drinkable water from seawater? | KQ5:  How can we clean up contaminated water? | KQ6: | Is there a way to recover water after recovering a substance from a solution after evaporation? Prove it. |
| Explorify | <https://explorify.uk/en/activities/listen-what-can-you-hear/feeling-hot-hot-hot> | | | | | | | | |
| Topic: Living things and their habitats 1 | | | | Key Question: Do all life cycles look the same? | | | | | POP Task |
| Term: Autumn 1 | KQ1:How do we know that plants reproduce? | KQ2:Do all plants reproduce by producing seeds? | KQ3:What is asexual reproduction? | KQ4: How can we artificially clone plants? | | KQ5:How do amphibians and insects reproduce? | KQ6: How do mammals and birds reproduce? | | Prove or disprove that roots act like straws sucking up water for the plant. |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/tropical-fruits> | | | | | | | | |
| Topic: Living things and their habitats 2 - Animals, including humans | | | | Key Question: How do our bodies change as they get older? | | | | | POP Task |
| Term: Summer 2 | KQ1: What is a life cycle? | Are all life cycles the same? | KQ2: How does the human life cycle compare with that of other mammals? | | | KQ3:What happens to us as we grow up? | KQ4: How do we know about the life cycle of amphibians, insects and birds? | KQ5: What makes a successful life cycle? | Animals POP task: Make generalisations about the relationship between age and changes in humans.  Living things POP task: True or false? All young offspring look like smaller versions of their adult parents. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/sandy-adventurers> | | | | | | | | |
| Topic: Earth and Space | | | | | Key Question: Sun, Earth and Moon: what is moving? | | | | POP Task |
| Term: Autumn 2 | KQ1:  What is in our solar system? | KQ2:Why does the moon appear to change shape? | KQ3:What causes the sun to appear to move across the sky? | | | KQ4:  What causes the different seasons? | KQ5:  Why do we change the clocks at the Spring and Autumn equinox? | KQ6:  How has our knowledge of the solar system changed over time? | Sundials do not work at night. Suggest other ways you could tell the approximate time using views of the night sky. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/space-engineer> | | | | | | | | |

| Year 6 | | | | | | | | |
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| Topic: Light | | | | Key Question: Why is the speed of light important? | | | | POP Task |
| Term: Autumn 1 | KQ1: Can light go round corners? | KQ2: Can you make a camera with a box, paper and pin? | KQ3: How many ways can you make a rainbow? | | KQ4: How does light help us to see? | KQ5: Is it possible to change the size and shape of a shadow? | | Is it possible to change the colour of a shadow? |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/back-to-front> | | | | | | | |
| Topic: Electricity | | | | Key Question: How important is voltage? | | | | POP Task |
| Term: Autumn 2 | KQ1: How many simple circuits can you make? | KQ2: How can we make the light brighter? | KQ3: What happens when you add different components to a simple circuit? | | KQ4: How do we represent a circuit using symbols? | KQ5: How does the brightness of a bulb change, when you extend the circuit? | KQ6 | Suggest why a bulb or buzzer may stop working when the voltage is increased. |
| Explorify | <https://explorify.uk/en/activities/whats-going-on/super-spinning-wire> | | | | | | | |
| Topic: Living things and their habitats | | | | Key Question: Why do we classify? | | | | POP Task |
| Term: Spring 1 | KQ1: Can you sort the mess? \*How can you grow your own micro-organisms? - Setup for KQ5 | KQ2: Can you face the garden centre challenge? | KQ3: How are vertebrates and invertebrates grouped together? | | KQ4: Where do things fit? | KQ5: What else is living besides plants and animals? \*How can you grow your own micro-organisms | KQ6: What happens when scientists disagree? | Observable characteristics are not the only way to scientifically group plants and animals. Do you agree? |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/three-roots> | | | | | | | |
| Topic: Evolution and inheritance | | | | Key Question: Why do we have to change? | | | | POP Task |
| Term: Summer 1 | KQ1: Are all offspring identical to their parents? | KQ2: Can you breed animals and plants for a purpose? | KQ3: How does the environment affect plants? | | KQ4: What evidence is there that living things have changed over time? | KQ5: Natural selection - Why so many foxes? | KQ6: Which beak is best? | Does evolution by natural selection always take millions of years? |
| Explorify | <https://explorify.uk/en/activities/odd-one-out/how-old-is-that-chicken> | | | | | | | |
| Topic: Animals, including humans | | | | Key Question: Is the heart the most important muscle? | | | | POP Task |
| Term: Summer 2 | KQ1: What does my circulatory system do? Lungs | KQ2: Blood and the heart - What are they and what do they do? | KQ3: What are blood vessels and how important are valves in our CS? | | KQ4: What happens to water in our bodies? | KQ5: What is the impact of exercise on our circulatory system? | KQ6: Is all food bad? Are all drugs bad? | Design and create a HIIT workout that targets the whole body. |
| Explorify | <https://explorify.uk/en/activities/the-big-question/what-is-a-balanced-diet-for-us-and-the-planet> | | | | | | | |