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 | KQ1Who’s who in the animal world? | KQ2How are animal’s bodies different? | KQ3Label parts of a human body/ a fish and a bird - which are the same, which are different? | KQ4What’s so special about birds/fish? | KQ5Compare bodies of mammals and how different mammals move?  | KQ6How 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 | KQ1What would you miss if you couldn’t see? | KQ2How can we explore the world using our sense of touch? | KQ3What can we hear using our sense of hearing? | KQ4What can we see and hear that tells us the seasons are changing? (SC) | KQ5What differences can our tongues taste? Which smells do we love and hate? Is taste better or worse depending on the smell? | KQ6How 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 | KQ1What material is this? | KQ2Is all paper the same? | KQ3Is all fabric the same? | KQ4What’s it made of? | KQ5Can 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 | KQ1How can we find out which is the best material to protect us when it is wet?  | KQ2What’s it like?Does it bend and stretch? | KQ3How wet can you get? | KQ4What do different materials feel like? | KQ5Which materials work best for…keeping us warm in Winter? dry in rain?  | KQ6What 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 | KQ1What garden plants can we find around our school? | KQ2What wild plants can we find around our school?What is the same and different about the flowers around us? | KQ3What’s inside a flower?  | KQ4What is happening underground beneath our plants? | KQ5What makes a tree a tree? | KQ6What 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 | KQ1How many seasons are there?  | KQ2Does it ever snow in Summer?  | KQ3How do shadows change over a day? | KQ4How does rainfall impact the growth of plants? | KQ5When is the hottest time of day?  | KQ6When 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 |
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| Topic: Animals, including humans | Key Question: What do animals and humans need to thrive? | POP Task |
| Term:Summer 2 | KQ1What do animals and humans need to survive? | KQ2Do all animals need the same things to survive? | KQ3What do offspring need to survive and thrive? | KQ4How do animals change as they grow into adults? | KQ5What 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 | KQ1Which things are dead and which are alive? | KQ2What lives in a habitat? | KQ3What is a micro-habitat? | KQ4What lives in a micro-habitat? | KQ5What lives in our local habitat? | KQ6Do 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 | KQ1What material is it made of? | KQ2Is that a good choice of material?  | KQ3How can you test the suitability of different materials? | KQ4What fabric will make a bedroom dark? | KQ5Why 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 | KQ1How can I change the shape of an object? | KQ2What property allows a material to be changed? | KQ3Can all materials have their shape changed? | KQ4How can I find out which ball is the bounciest? | KQ5How 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 | KQ1How can we make sure our seeds grow into healthy plants? | KQ2What do gardeners need to know? | KQ3What is happening to our seeds? | KQ4How can we care for our plants? | KQ5What happens when a seed germinates? | KQ6What 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 | KQ1How does a habitat change through the year? | KQ2What do different animals eat in their habitats? | KQ3How do the animals in a habitat depend on each other? | KQ4How are food chains similar? | KQ5How did scientists decide what makes a healthy diet? | KQ6What 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 TaskIs 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 TaskDesign 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 TaskWhy 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? | KQ6What 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 taskWhat 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> |