Science

Afternoon Tea

14th November 2023

Mrs Catterall

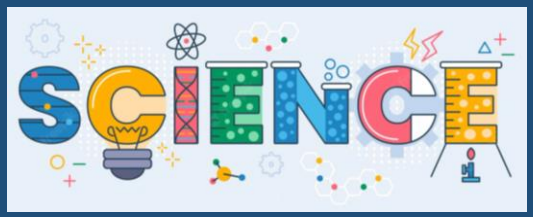
Longton Primary School

Aims

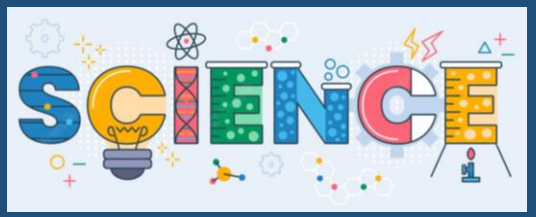
To ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics (the children don't need to know these terms)
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them.
- are equipped with the scientific knowledge required to understand the **uses and implications of science, today and for the future**.

At Longton we therefore aim to inspire in pupils a curiosity and fascination about the natural and man-made world and a respect for the environment that will remain with them for the rest of their lives.



Our curriculum



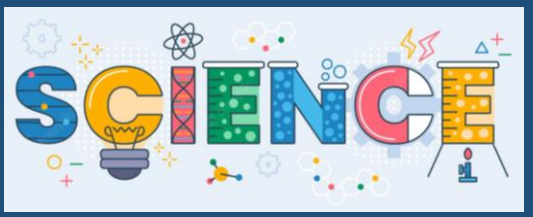
- We follow the National Curriculum. For Science this outlines exactly which topics are to be taught in which year group.
- The are 2 aspects of the Science curriculum.

Knowledge

Working Scientifically

Longton Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Biology - Our Body Healthy food, good hygiene, exploring our senses	Physics – Light & Seeing Investigate shadows and sources of light Floating and sinking	Chemistry – Hot & Cold. Explore freezing and melting Biology – Human & Animals Minibeasts, habitats, Nocturnal animals	Biology - Growth & Change Plants/animals/humans, good conditions for growth, life cycles	Physics - Forces Pushing, pulling, magnets	Using equipment to investigate the world around them Looking after the environment, recycling
Year 1	Weather and seasonal changes to be taught throughout the year.					
	To understand humans – the body	Seasonal changes	To understand animals	To understand plants	To investigate everyday materials	To investigate living things
Year 2	Uses of everyday Materials	Animals including humans: offspring	Animals including humans: exercise and food	Plants	Living Things and their habitats	
Year 3	Rocks, Fossils and Soils	Forces and Magnets	Animals and Humans -Nutrition	Light and Shadows	Flowering Plants	Animals and Humans - Skeletons and Muscles
Year 4	Electricity	States of matter	Animals + humans Teeth and digestion	Sound	Living Things - Classification	Living things - Habitats
Year 5	Forces	Earth and Space	Living Things in their habitats	Properties and changing materials		Animals including humans
Year 6	Evolution and Inheritance	Light/Sound	Famous Scientists	Electricity	Animals including Humans Circulatory system	Living Things and their habitats



Can be found on the school website

Longton Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Biology - Our Body Healthy food, good hygiene, exploring our senses	Physics – Light & Seeing Investigate shadows and sources of light Floating and sinking	Chemistry – Hot & Cold. Explore freezing and melting Biology – Human & Animals Minibeasts, habitats, Nocturnal animals	Biology - Growth & Change Plants/animals/humans, good conditions for growth, life cycles	Physics - Forces Pushing, pulling, magnets	Using equipment to investigate the world around them Looking after the environment, recycling
Year 1	Weather and seasonal changes to be taught throughout the year.					
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Year 2	Uses of everyday Materials	Animals including humans: offspring	Animals including humans: exercise and food	Plants	Living Things and their habitats	
Year 3	Rocks, Fossils and Soils	Forces and Magnets	Animals and Humans -Nutrition	Light and Shadows	Flowering Plants	Animals and Humans - Skeletons and Muscles
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Year 5	Forces	Earth and Space	Living Things in their habitats	Properties and changing materials		Animals including humans
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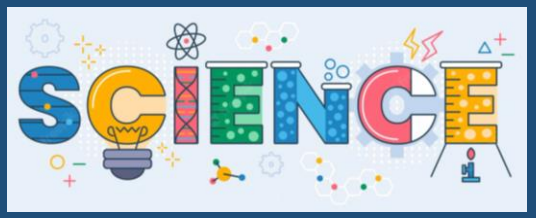
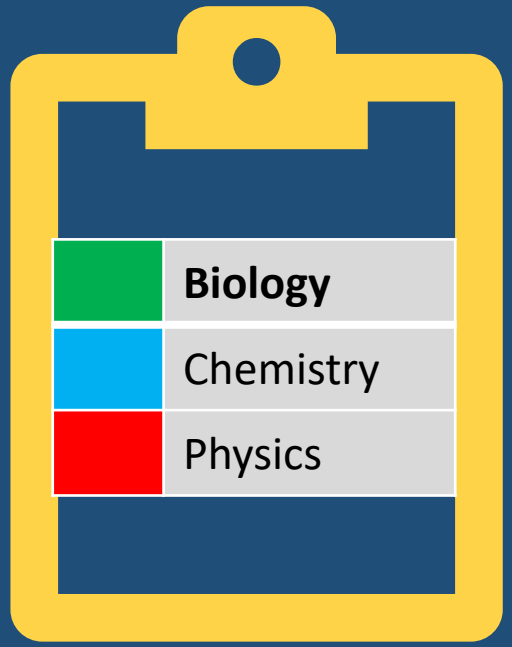




Vocabulary

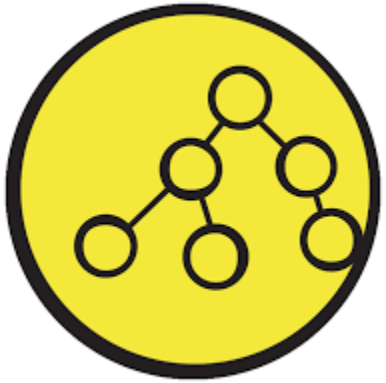
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans body parts, girl/woman, boy/man, skin hair, similarities/differences, height, weight, senses, animal names, trunk, neck, patterns, skin, fur, scales, feathers, wings, How animals move?	**Animals including Humans** Fish, Reptiles, Mammals, Birds, Amphibians (+examples of each) Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Body, Eyes, Mouth, Teeth, Tongue, Ear, Nose, Back, Tail, Wings, Beak, claw, fin, scales, beak, paws, hooves senses, touch, taste, see, smell, skin.	**Animals including Humans** Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, hatchling, chick, gills, pregnancy, egg, spawn, tadpole, lungs, Offspring, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly Exercise, Hygiene, heartbeat, breathing, germs disease food types (examples – meat, fish, vegetables, bread, rice, pasta	**Animals including Humans** Nutrition, carbohydrates, protein, fats, vitamins, minerals, water, fibre, Movement, Muscles, Bones, Skull, ribs, spine, skeleton, support, protect, move, joints, endoskeleton, exoskeleton, vertebrates, invertebrates, muscles, contract, relax	**Animals including Humans** Digestive system, Mouth, Tongue, teeth, saliva, Oesophagus, gall bladder, Stomach, Small intestine, pancreas, Large intestine, rectum, anus, liver, Herbivore, Carnivore, Omnivore, tooth, canine, incisor, molar, premolar, producer, predator, prey, food chain, consumer.	**Animals including Humans** Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, adolescence, Elderly, Growth, Development, Puberty. life cycle, reproduce, fertilisation, life expectancy	**Animals including Humans** Circulatory system, Heart, pulse, pump, Lungs, Blood, Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration nutrients, water, exercise oxygen, carbon dioxide, lifestyle, alcohol, drugs, tobacco.
Plants leaves, root, petal, stem, soil, ground, location – pond, park, woodland, seed, bulb	**Plants** Deciduous, Evergreen trees, Leaves, Flowers, blossom, Petals, Fruit, Roots, Bulb, bark, stalk, berry, Seed, Trunk, Branches, Stem, buds, garden plants, wild plants	**Plants** Water, Light, Temperature, Growth, light, shade, sun, warm, cool, water, grow, healthy, germinate	**Plants** Air, Light, Nutrients, Soil, Reproduction, Transportation, Flower, seed, leaf, stem, roots, petal, pollen, life cycle, dispersal (wind, animal, water) pollination (insect, wind), seed formation, fertilisation, germination, ovary, ovule, sepal, stamen, anther, filament, stigma, style, photosynthesis.	**Living Things in their habitats** Vertebrate, Fish, Reptiles, Mammals, Birds, Amphibians, Invertebrate, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats. Environment, flowering, non-flowering, plants, human impact, nature reserves, deforestation, Classification, classification keys, habitat, human impact, positive, negative, migrate, hibernate	**Living Things in their habitats** Mammal, Reproduction, Insect, Amphibian, Bird, Fish, Offspring, Sexual, asexual, reproduction, cell, fertilisation, pollination, male, female, pregnancy, gestation, young, metamorphosis, egg, sperm, embryo, plant, Life cycle, live young.	**Living Things in their habitats** Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects. Classify, compare, bacteria, characteristics, organism, flowering, non-flowering.
Living Things in their Habitats Areas: school, local, Longton, Preston, Woodland, Bird hive, nature reserve, Brickcroft, rocks, damp/wet/, nest, bug hotel, recycle	**Everyday Materials** Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through	**Living Things in their habitats** Living, dead, never been alive, suited, suitable, basic needs, food, food chain, energy, predator, prey, shelter, move, feed, names of local habitats e.g. pond, woodland, desert etc., names of micro-habitats e.g. under logs, in bushes etc Conditions, damp, dark, shade etc	**Rocks** Fossils (chemical, body, trace, cast, replacement, mould), extinct, organic, Mary Anning, rocks, igneous, metamorphic, sedimentary, anthropic, absorbent, permeable, impermeable, rock, stone, pebble, boulder grain, crystals, layers, hard, soft, Sandstone, Granite, Marble, Pumice, Crystals, chalk, slate. Soils, organic matter, top soil, sub soil, base rock, peat, sandy/chalk/clay soil	**States of matter** Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating. state, materials, properties, matter, melt, freeze, water, ice, process, water vapour, energy, precipitation, collection, water cycle, melting point, boiling point.	**Properties and changes of materials** Hardness, Solubility, Transparency, Conductivity (Thermal, electrical), Magnetic, Filter, Evaporation, Dissolving, Mixing. Material, insoluble, suspension, chemical, physical, irreversible, solution, reversible, separate, mixture, insulator, transparent, flexible, permeable, soluble, property, hard. change of state, mixture, dissolve, solution, filter, sieve, burning, rusting, new material, malleable, absorbent, carbon dioxide.	**Evolution and Inheritance** Evolution, adaptation, inherited traits, inheritance, adaptive traits, characteristics, reproduction, genetics, natural selection, suited, adapted, Charles Darwin, Alfred Wallace, DNA, genes, species, variation, parent, offspring, fossil, environment, habitat, fossilisation, plants, animals, living things
Materials bumpy, shiny, fluffy, smooth, sticky, bendy, crunchy, rough, sharp, blunt, liquid, ice, freeze, liquid, steam, splash pour, dry, wet, fizz, bubble.	**Seasonal Changes** Summer, Spring, Autumn, Winter, Sun, Day, Night, Moon, Light, Dark, weather, sunny, rainy, snowy, windy, sunrise, sunset, day length, monsoon, thunderstorm.	**Everyday materials and their uses** Hard, Stiff, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Waterproof, Absorbent, Opaque, Transparent, translucent, Brick, Paper, Glass, Fabrics, Elastic, Foil, Rubber, rock, cardboard, metal, plastic, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/puling, twist/twisting, squash/squashing. Bend/bending, stretch/stretching	**Light** . Light source, dark, reflect, reflective, reflection, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent, shiny, matt, sunlight - dangerous	**Sound** Volume (faint, loud), Vibration, Wave, Pitch (high, low), Tone, Speaker, Amplitude, quiet, loud, ear, particles, instruments, Sound, source, travel, sound insulation	**Earth and Space** Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the moon, star, constellation. Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, planets, solar system, rotate, orbit, spherical, time zone	**Light** Shadow, light, filter, colour, reflect/reflection, absorb, refract/refraction, spectrum, wavelength, prism, visible, lens, angle, straight line, light ray, beam, rainbow
Seasons Weather, Autumn, Spring, Summer, Winter, rain, snow sun, cloud, hail, thunder, lightning, rainbow **Sound** bell, whistle, loud, quiet, shout, whisper, hum, ring, bang, blow, shake, pluck **Light** shadow, day, night, dark, light, glow **Forces/Magnets** force, pushes, pull, attract			**Forces and magnets** Magnetic, Force, Contact force, non-contact force, magnetic force, magnet, strength, Attract, Repel, Friction, Poles, Push, Pull bar magnet, ring magnet, button magnet, horseshoe magnet, metal, iron, steel, poles, north pole, south pole, compass.	**Electricity** Circuit, Series, Conductors, electrical insulators Electricity, electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, positive, negative	**Forces** Air resistance, Water resistance, Friction, Gravity, Newton, Pulleys, Gears. Force, push, pull, opposing, streamline, brake, mechanism, lever, cog, buoyancy	**Electricity** Cells/battery, Wires, bulb, Buzzers, motor, switch, Circuit, circuit diagram/symbol, Series, Conductors, Insulators, Amps, electric current, Volts to describe different batteries, open switch, closed switch, motor, buzzer, circuit, voltage, brightness

Can be found on the school website

Working Scientifically - Enquiry

Observing over time

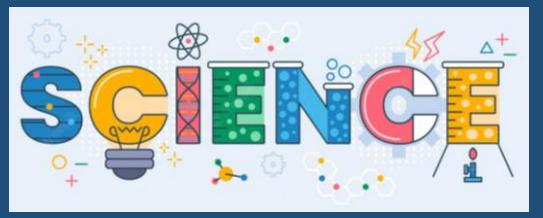
Pattern Seeking

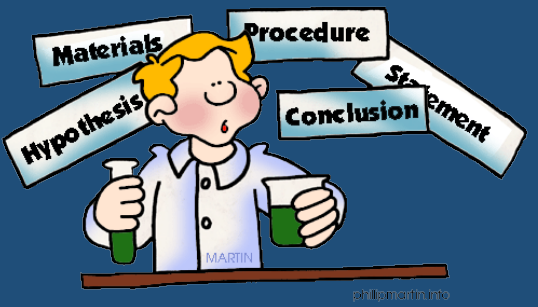


Identifying, grouping and classifying

Comparative and Fair testing

Research

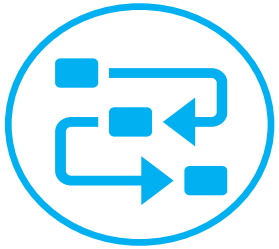




Working Scientifically - Skills

Asking scientific questions

Presenting Results

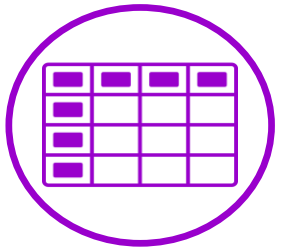


Planning an Enquiry

Interpreting results

Observing Closely

Taking Measurements

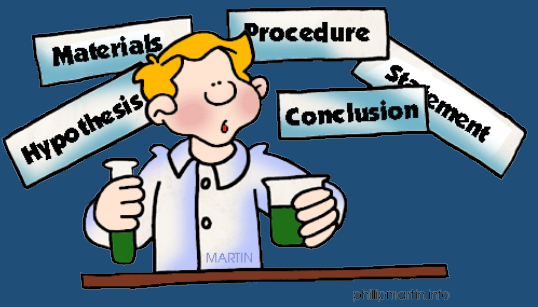


Gathering and recording results

Drawing conclusions KS2 only

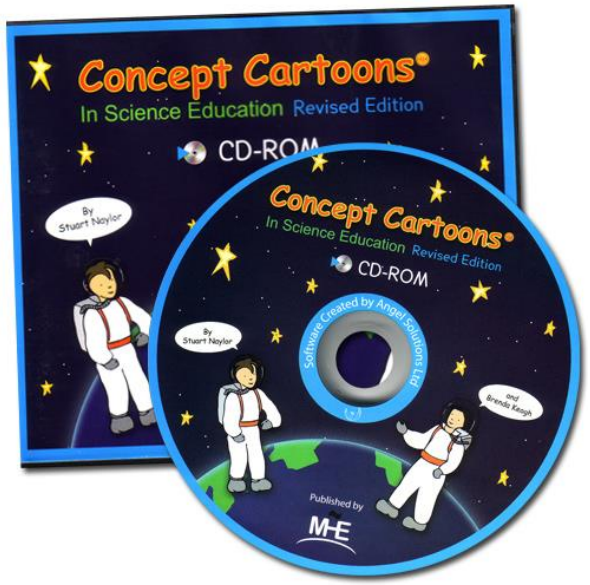
Making predictions KS2 only

Evaluating an Enquiry KS2 only



Resources

Explorify



Developing Experts™

Science lessons

Knowledge Questions and a skill to show how we are being like a scientist.

All lessons have elements of practical activities.

We focus on scientists from the past put also current scientists to make a link to how science is used in different careers.

Lets have a go!

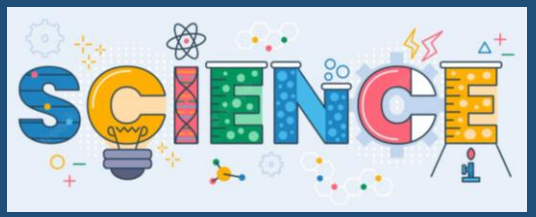
True / False / Not sure

All plants have seeds
All plants have flowers
All plants have leaves
All plants have roots
All plants have stems
All plants have a front and a back
All plants have a top and a bottom.

Odd One Out

- No right or wrong answer – encourages to take risks, justify reasons and develop explaining and vocabulary skills.

Celery	**broad bean**	**carrot**
Snail	**woodlouse**	**centipede**



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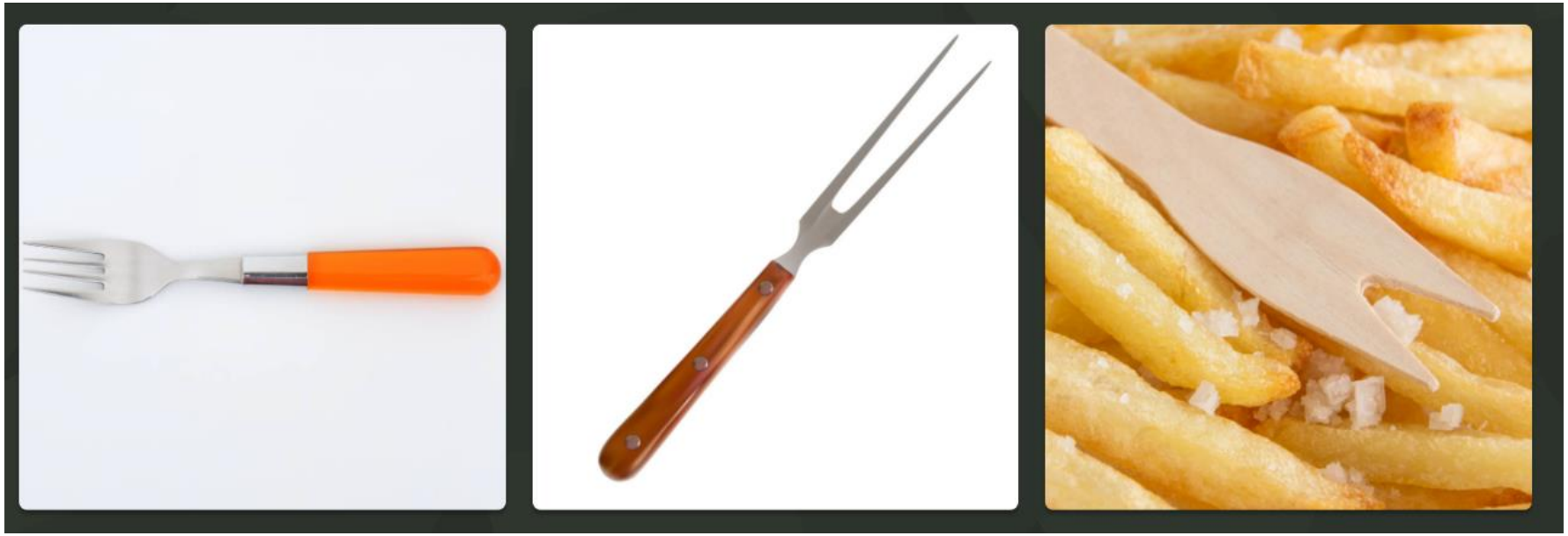

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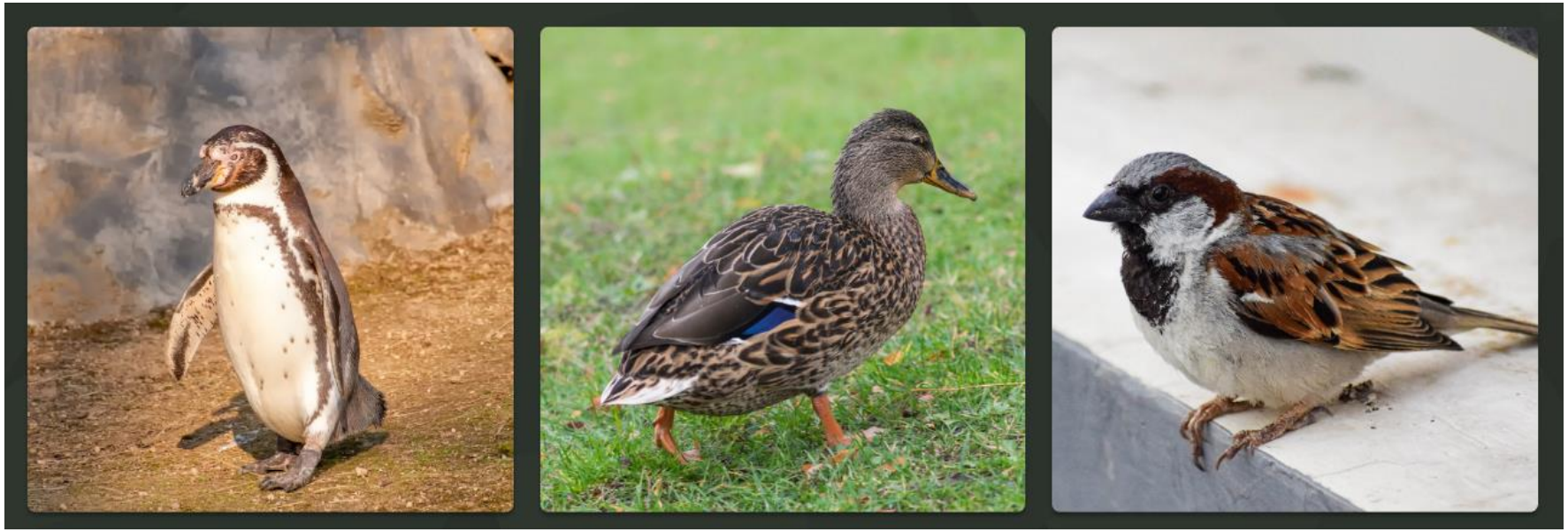
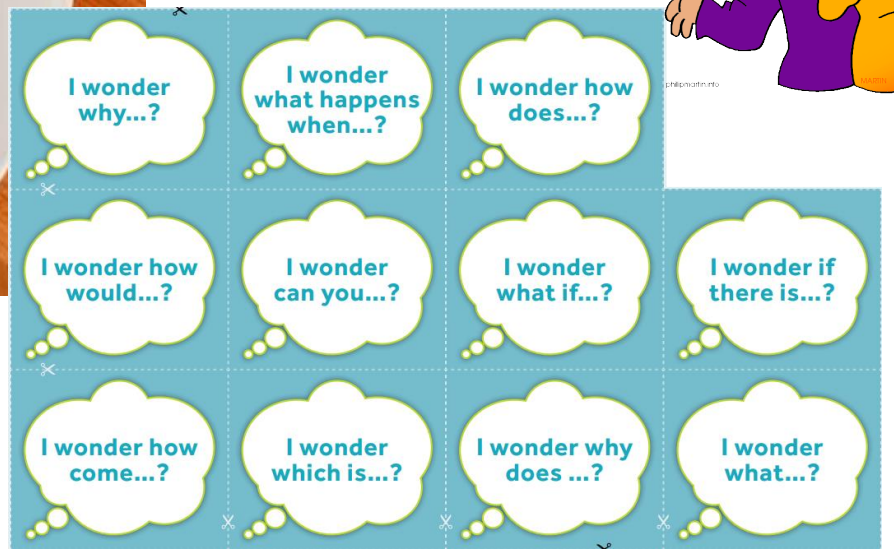
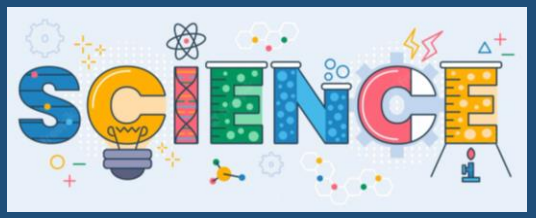


Questions


I wondered...


I wonder why...?
I wonder what happens when...?
I wonder how does...?
I wonder how would...?
I wonder can you...?
I wonder what if...?
I wonder if there is...?
I wonder how come...?
I wonder which is...?
I wonder why does ...?
I wonder what...?


SCIENCE

Other activities

young science ambassadors

Children to have activities planned to show and do with groups if we have time.

Can you help us?

Thursday 14th March

Careers Fair in the Hall

Do you have a Science background?

Do you know someone who does?

We would love to build some links with parents/companies to give children a context for their learning. If you can help and support us at the above event or at any time to talk to a group of children please make contact by e-mailing school and ask for it to be forward to Mrs Catterall.

bursar@longton.lancs.sch.uk

Family Science
Top Tips for Saving the Planet!

We have purchased packs for each age range for you to take away with you.

Family Science Digital

An introduction for parents & carers.

As Creatives Connect

Family Science - Living Room - A

1a. The Pigs had been watching one of their favourite cookery programmes on the television. Why do you think they enjoyed it so much?

Because it made them hungry?	Because the cooks used lots of fresh and healthy ingredients?	Because the cooks used lots of lots of fatty and processed ingredients?	Because the cooks' kitchen was absolutely filthy?

1b. What fresh foods do you like? If you like, you can draw pictures to show your answers.

2a. Once the programme was finished, the Pigs settled down to read their books. What should they do with the telly?

Should they leave it as it was?	Should they leave it on – but turn the sound down?	Should they put it on standby?	Should they turn it off at the mains (unplug it)?

2b. Can you think of something else that could be turned off at the mains, and not just put on standby? If you like you can draw a picture of your answer.

Thank you

The science at home packs will be sent out on scopay tomorrow afternoon