Belton Primary School

Science Curriculum

Includes Scientist Progression

Updated July 2023 – based on PSEC

Belton Primary School Two Year Rolling Programme for Science

Taken from PSEC – Scientists Across the Curriculum

Research has shown that, while learning science can be interesting and enjoyable, many children find that what they learn at school is abstract and they cannot see how it relates to their own lives. Consequently, they see science as something that is not for them. Studies have shown that these perceptions can start early in a child's primary school career. Children who think or feel this way have low science capital.

One way of increasing children's science capital is for them to learn about scientists that they can identify with. This document is intended to help schools and teachers include scientists in the curriculum who:

- are relevant to the topics
- illustrate how scientific knowledge has developed over time
- children can identify with and whose work they can relate to.

Please see the Science Policy for our rationale for sequencing topics.

We are trying to ensure that children are introduced to a wide range of Scientists:-

- historical figures who illustrate the development of scientific knowledge over time
- scientists from under-represented groups
- modern scientists whose work is relevant to children and who reflect their world and backgrounds.

For information about the Scientists follow the link below.

https://www.primary-science.co.uk/product-page/scientists-across-the-curriculum

NB:- Not all Scientists will be looked at and the children may have a free choice in lessons or it will be chosen by the class teacher dependent on the needs of the class.

EYFS – From Developing Experts (Taught yearly)

Understanding of the world (UW) The Natural world (Developing Experts).	My Body Know about and name body parts Describe what different body parts do Explore how our bodies change Think about how we are similar and different What do we use our arms, legs and chest for? What do our hands and feet do? Why we have eyes and a nose? Can I describe my ears, mouth and hair?	Weather and Seasons Know the names of different seasons State what weather is likely in different seasons Recognise types of weather Discuss ways to be safe in different types of weather What is rain, ice and water? Why does the air move? Why is the snow melting? How are rainbows made in the sky?	Animals Name different types of animals Explore different habitats animals live in Discover dinosaurs and how they are now extinct Where do animals live and what do they need? Where do birds live and what do they need? What are bears? Did dinosaurs live on earth?	Food Know where food comes from Informed about healthy food choices Understand how animals are used for food production Say why measuring ingredients is important Where does food come from? What forms a healthy diet? How are animals used in food production? How can we measure when learning about ingredients used in	Plants Know what a plant looks like Name different parts of a plant Discuss how to look after plants Understand how plants are made and grow Are plants living? Where do plants come from? How do I look after plants?	Beach Know about materials used to build a sandcastle Understand how to measure length properly Learn more about the beach environment and how to protect it How do waves wear away the coastline? How do you make the perfect sandcastle? How long is your foot print in the sand?
	How has my body changed since I was a baby?	What happens in spring and summer? What happens in autumn and winter? Materials Reflective / non reflective		different food products?		

Cycle A

Term	Year 1 and 2	Year 3 and 4	Year 5 and 6
Autumn 1	Growth Animals incl Humans	Light	Studying Living Things Living things and their habitats (5)
	Adelle Davis (Biochemist & Nutritionist who linked health and diet)	Percy Shaw (Inventor of the cat's eye)	David Attenborough - links to free resources requiring a login (Naturalist & TV Presenter) Jane Goodall (Wildlife Researcher & Conservationist who studied chimpanzees)

Autumn 2	Exploring everyday materials Everyday materials	Animals incl. Humans – yr 3 Skeletons & Food	Living Things & their Habitats (6)
	Chester Greenwood (Inventor of earmuffs)	Marie Curie (Physicist who invented the first mobile x-ray machine to treat soldiers wounded on the battlefield in WWI) Adelle Davis (Biochemist & Nutritionist who linked health and diet)	Carl Linnaeus (Botanist & Zoologist who developed a taxonomy for classifying organisms) Agnes Arber (Botanist and first woman to become a fellow of the Royal Society who studied aquatic flowering plants and monocots, a group of flowering plants) Beatrix Potter (Mycologist, study of fungi, and Scientific Illustrator)
Spring 1	Plants – Yr 1 Look at seasonal change and how this affects plant growth.	Animals incl Humans Digestion	Changes of materials
	Maria Sibylla Merian (German artist, scientific illustrator, and naturalist)	William Beaumont (Surgeon who first observed and studied human digestion as it occurs in the stomach) Washington & Lucius Sheffield (Dentists who invented toothpaste in a tube)	Raquel Prado (Chemist who develops a sustainable fabric that looks like leather but comes from pineapple leaves that would otherwise be burnt) Jamie Garcia - links to free resources requiring a login (Chemist who discovered a fully recyclable plastic)
Spring 2	Exploring everyday materials 2 – 3 Little Pigs Materials	States of Matter	Evolution and Inheritance
	Becky Schroeder - links to free resources requiring a login (Inventor of Glo-sheets which she patented as a 12-year-old)	Joseph Priestley (Clergyman who discovered oxygen at about the same time as Carl Wilhelm Scheele) Carl Wilhelm Scheele	Charles Darwin - links to free resources requiring a login (Natural Historian who developed the theory of evolution by natural selection) Alfred Wallace

		(Chemist who discovered oxygen at about the same time as Joseph Priestley) Daniel Fahrenheit (Physicist who invented the Fahrenheit temperature scale and the thermometer)	(Natural Historian who developed the theory of evolution by natural selection) Emma Dunne (Palaeobiologist who investigates how ancient climate change affected the evolution of different species) Telma Laurentino (Evolutionary Biologist who measures differences in the colour of lizards that live in white desert sands to find differences in their genes which might have allowed them to survive in such an extreme environment)
Summer 1	Life Cycles Animals incl. humans	Classifying Living Things and Their Habitats – yr 4	Forces
	Dr Kelly Blacklock (Veterinary Surgeon)	Wangari Maathai - search document for information (Biologist & Environmental Activist awarded the 2004 Nobel Peace Prize for her contribution to sustainable development) Kelsey Archer Barnhill (Deep Sea Ecologist who sends robots to the seafloor to collect samples of different animals to study)	Galileo Galilei - links to free resources requiring a login (Astronomer, Mathematician & Physicist who was the first person to use the scientific method to test theories about gravity and the Solar System) Isaac Newton - links to free resources requiring a login (Mathematician & Physicist who developed theories about gravity) Brahmagupta - search document for information (Mathematician & Astronomer who was the first scientist to talk about gravity)
Summer 2	Living Things and Their Habitats	Electricity	Also puberty sessions for yr 5/ 6 separately – these need to be taught first. Blood + Transportation Heart Health Animals, including humans
	Prem Singh Gill (Polar Scientist who studies where Antarctic seals live, breed and feed, so we can know more about where they prefer to live)	Thomas Edison (Inventor of the lightbulb and power grid)	William Harvey (Doctor who discovered the nature of blood circulation and the function of the heart as a pump)

	Dawood Qureshi (Marine Biologist who studies wildlife in the ocean)	William Kamkwamba - search document for information (Inventor who used wind turbines to bring electricity to his village in Malawi)	Ruth Ella Moore - search document for information (Bacteriologist who researched immunology, blood groups and tuberculosis)

Cycle B

Term	Year 1 and 2	Year 3 and 4	Year 5 and 6
Autumn 1	About Me Animals incl. Humans	Forces	Properties of materials
	Leonardo Da Vinci (Anatomical drawing, 'Vitruvian Man')	William Gilbert (Doctor who developed the theory of magnetism) Leonardo Da Vinci - search document for information (First person to plan and carry out tests on friction)	Spencer Silver & Arthur Fry (Chemical Engineer & Chemist respectively who invented the post-it note) Ruth Benerito (Chemist who developed wrinkle-free cotton fabric)
Autumn 2	Seasonal changes	Plants	Light
	Jim Cantore (Meteorologist and storm tracker)	Jan Ingenhousz (Doctor & Scientist who discovered the process of photosynthesis) Dr Kelsey Byers (Biologist who studies flower smells and how they attract insects) Jagadish Chandra Bose - search document for information (Biophysicist who measured plant response to different stimuli)	Euclid - search document for information (Mathematician who predicted that light travels in straight lines and we only see things that light falls on) Ibn al-Haytham (Alhazen) (Physicist & Mathematician who developed a theory that light travels in a straight line, and proved it by carrying out the first scientific experiment)
Spring 1	About Animals Animals, including humans	Conservation Living Things & Their Habitats	Electricity
	Joan Beauchamp Procter - search document for information (Herpetologist and Curator of Reptiles, London Zoo)	Wangari Maathai - search document for information (Biologist & Environmental	Nikola Tesla - links to free resources requiring a login (Electrical & Mechanical Engineer who developed the AC electrical system and made important

	Tanesha Allen (Zoologist who studies badgers)	Activist awarded the 2004 Nobel Peace Prize for her contribution to sustainable development)	advances in technologies such as x-rays, neon lights and robotics) Alessandro Volta (Physicist who developed the electric battery) Mildred S Dresselhaus (Materials Scientist whose research led to the development of the rechargeable batteries in all modern electronic equipment)
Spring 2	Plants – year 2 Plants Need to also teach Year 1 Identify and describe the basic structure of common flowering plants, incl. trees.	Sound	Animals incl Humans – year 5
	Daniel Solander (Botanist who worked with Joseph Banks on Captain Cook's voyage around the World) Joseph Banks (Naturalist on Captain Cook's voyage around the World) Poppy Okotcha (Horticulturalist interested in the connection between healthy environments, healthy food, and healthier people)	Aristotle (Philosopher who developed the concept that sound travels through air due to the movement of air particles) Isaac Newton - search document for information (Mathematician & Physicist who measured the speed of sound)	Virginia Apgar (Doctor & Medical Researcher who developed a method of evaluating the well-being of new-born babies)
Summer 1	Uses of Everyday materials – Year 2 Look at year 1 objectives Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials incl. rocks, glass, water, plastic	Scientific Enquiry	Space
	Charles Macintosh - links to free resources requiring a login (Chemist and inventor of waterproof clothing) John McAdam		Nicolaus Copernicus (Astronomer who developed the theory that the Sun was at the centre of the Solar System around which the planets orbited) Johannes Kepler - search document for information

	(Inventor of the modern road surface) Dr Pearl Agyakwa (Materials scientist who studies why some materials wear out and other don't)		(Mathematician, Astronomer and Astrologer who developed the theory that the planets moved on oval paths around the Sun) Mae Jemison (Astronaut and first Black woman in space) Helen Sharman (Astronaut who was the first British citizen to go into space) Tim Peake (Astronaut who was the first British person to walk in space)
Summer 2	Habitats from around the World Living Things and their Habitats Seasonal changes	Rocks	Looking after the environment
	Prem Singh Gill (Polar Scientist who studies where Antarctic seals live, breed and feed, so we can know more about where they prefer to live)	Florence Bascom (Geologist who studied the origin and formation of mountains) Anjana Khatwa (Geologist who collects rocks and fossils from the beach and studies them to learn about the creatures that lived in the sea and on Earth over 150 million years ago)	Liz Bonin – Conservationist and TV Presenter.

	EYFS	Yr 1/2	Yr 3/4	Yr 5/6
Autumn Fly High Friday	Allow the children the time to explore how they can make paper fly. The teacher could demonstrate the air-powered rocket, then the children could make either the stunt planes or the straw planes. The children will choose the one they think will fly the farthest, try it and then the class teacher should record the result.	Who can make paper fly the farthest? How to make paper fly 1. Air rocket 2. Straw Planes 3. Stunt Plane How will children measure how far it will fly?	Who can make paper fly the farthest? Children will learn how to fly and what makes different things fly – birds, planes and helicopters. They will then make a:- 1. Air rocket 2. Straw Planes 3. Stunt plane They will measure how far it will fly and then adapt it to travel further.	Who can make paper fly the farthest? Children will learn how to fly and what makes different things fly – birds, planes and helicopters. They will then make a:- 4. Air rocket 5. Straw Planes 6. Stunt plane Children will test a few times and get the mean distance. They will make each test as similar as possible
Spring Which Biscuit is the best Dunker?	Gingerbread man story. What happens to the gingerbread man in water?	Are filled biscuits or plain biscuits better for dunking?	How do different brands of biscuits compare? They will investigate which biscuit makes the best dunker.	How does the shape of a biscuit/ number of layers/ chocolate topping affect its dunkability? They then come up with their own questions.
Summer Bubbles	Exploring how to make the biggest and best bubble possible! Provide a range of bubble wands and mixtures to explore, a range of tools such as straws, whisks, spoons etc/ Attempt to make a huge bubble with PE hoop. Encouraging the use of appropriate vocab and	Testing one brand of bubble bath to see how we can make the most bubbles. Try different methods such as whisking, spoon, blowing with a straw – compare the bubbles made each time. Using the element of time (sand timer to keep the test fair) discuss ways of recording the amount of bubbles made (photos to	We have been e-mailed by a new bubble bath company and want us to be secret spies. Test a range of bubble baths to see which one makes the most bubbles to see if they are the best. Keep the test fair by using the same quantity of mixture (measured in ml) and decide which method to use to make the bubbles (whisk, blow, stir, agitate) and mixing for the same length of time.	Come up with a new bubble bath formula - which one last the longest? Children will come up with their own brand of bubble bath. They will come up with a formula and test it against other brands. What must they do to ensure their bubbles last? What do they add?

	making very simple predictions. Possible record their thoughts in written or pictorial form (HAP)	compare size) how much of the bowl they fill?	Discuss how we will measure and compare them. (Using standard measures- for example how far in cm do the bubbles come up in the jug). Present evidence in table/ graph form	

	EYFS	Yr 1/2	Yr 3/4	Yr 5/6
Autumn Christmas	Melting Snowman. Use packing peanuts which are made from biodegradable corn starch. Using permanent markers encourage the children to draw faces on them. Then makes them melt. Fill a bowl with room temperature water – pop one of the snowmen in. What happens? Does the temperature of the water affect the snowman melting?	Rudolf races – make balloon reindeer – which one gets to the end quickest. Does the size of the balloon affect the speed?	Candy Cane experiment Which material will melt the candy cane the quickest? What will happen to the candy cane when you put it in hot water? Put a candy cane in different liquids Vinegar, cold water, hot water, oil. Observe what happens over time – why?	Snowball Launcher How can you make a snowball launcher using a cup and a balloon? Does the size of the balloon affect how far the snowball will travel?
Spring Make a lava lamp https://sciencebob.com/blobs-in-a-bottle-2/	What can we observe when we make a lava lamp?	Does the size of the bottle affect the amount of bubbles produced?	Does the temperature of the water affect the reaction?	Does the size of the tablet pieces affect the number of blobs created? What happens if we take the cap off?
Summer Our school grounds - minibeasts	What minibeasts can we find in our school grounds? Plant sunflowers	Which minibeast is mostly in our school grounds? Plant a wild flower garden.	What habitat do most of the minibeasts in our school grounds live in? Make a bug hotel	Can we make a classification table for the minibeasts on our school grounds?

				Make a bee hotel and signs for the forest school.