

Science at home... how can I help?



- Reading, in particular non-fiction / fact based books (see 'Recommended Books').
- Take a walk in the park or garden – practice identifying the types of tree, plants and animals observed (download a plant identification app to help).
- Cook with them! Look at ingredients, are they solids, liquids or gases? Look at measures and methods of separating (sieving) etc. Observe how ingredients change when mixed and heated.
- Helping with DIY – Look at materials and their uses, looking at properties such as rough, smooth, shiny, dull, malleable, etc. Distinguish between object, material and their properties (Object = Pen; Material = plastic; Properties = transparent / hard / smooth etc.).
- Look at inventions around the home and how they work.
- Visit Science and STEM-themed museums (see 'Science Capital' section)
- Pets – Research their life-cycles, diets, natural habitats, features etc.
- Check the news for the latest science and environmental stories.
- YouTube – search 'Kids Science' for great experiments that can be done at home.
- Watch BBC documentary programmes through BBC iPlayer, including: Planet Earth I-III, Blue Planet I-II, Frozen Planet, Dynasties I-II. Watch Steve Backshall's 'Deadly 60' and 'Expedition'
- Explore magnetism using fridge magnets.
- Use the app, Decibel X to measure the volume of different sounds, both inside and outside.



Tag your Science experiences: **@stpetersfarn**

Websites and Apps:



Decibel X
(Sound)



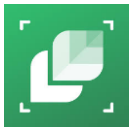
Dr Jo
Science
Solutions



Science
Kids



The School
Run - Science



LeafSnap –
Plant
Identification



BBC Bitesize
KS2 Science



Crickweb
KS2
Science



The Science
Museum

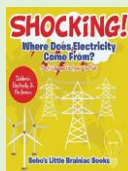
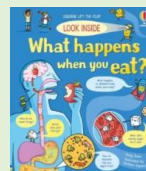
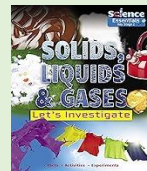


PictureThis –
Plant Identifier



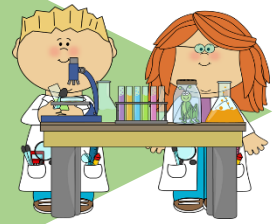
Birda – Bird ID

Recommended Books:



- The Street Beneath My Feet, Charlotte Guillain
- Sound – Science in Action, Joanna Brundle
- Solids, Liquids & Gases – Let's Investigate, Ruth Owen
- Look Inside – What Happens When You Eat? Emily Bone
- Shocking – Where Does Electricity Come From? Bobo's Little Brainiac Books

SCIENCE



A Parents' Guide to Lower Key Stage 2



“Learn, Sparkle & Shine...”

What does my child need to know?



The National Curriculum for Science in Lower Key Stage 2 (Years 3 and 4)

Science is split into two parts: working scientifically and science knowledge.

Working Scientifically (Disciplinary knowledge - the processes of scientific investigation)

Children by the end of Year 4 need to be able to:

- Ask relevant questions and use different types of scientific enquiries to answer them.
- Set up simple practical enquiries, comparative and fair tests.
- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help in answer questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Use straightforward scientific evidence to answer questions or to support their findings.

Year 3 Scientific Knowledge (Substantive knowledge – science facts and information)

- **Animals including humans (Biology):** Nutrition linked to what we eat; Skeletons and muscles.
- **Plants (Biology):** Functions of different parts of plants; What different plants need to flourish; Journey of water through a plant; Life-cycle of a plant.
- **Light (Physics):** Sources, including the Sun; Protecting eyes from the Sun; Shadows; Reflection / mirrors.
- **Forces and magnets (Physics):** How magnets attract / repel some materials; Magnetic poles; Friction.
- **Rocks (Rocks):** How rocks are formed; Different kinds of rocks; Fossils; Soil.

Year 4 Scientific Knowledge (Substantive knowledge – science facts and information)

- **Animals including humans (Biology):** Digestive system; Teeth; Food chains; Predator and prey.
- **Living things and their habitats (Biology):** Identify and name a variety of living things (plants and animals) in the local and wider environment and group them; Recognise that environments can change and pose dangers.
- **States of matter (Chemistry):** Solids, liquids and gases; Heating and cooling (no baking etc.); Evaporation and condensation.
- **Electricity (Physics):** Identify common appliances; Construct simple circuits including switches; Common conductors and insulators; Alternative sources of energy.
- **Sound (Physics):** Sources; Vibration; Loud and faint; Pitch; Volume; Sound travelling.

What is Science Capital?



A person's 'science capital' is how much they are exposed to the knowledge and understanding of STEM subjects (Science, Technology, Engineering and Mathematics), both through education and in the wider world around them.

Science Capital is important, as it helps create linked scientific understanding, thus providing them with a broader, increasingly balanced view of the Science's key role in the wider world and importantly, why it is important to their own lives.

Below are some science and STEM related attractions which can help increase your child's Science Capital (and they're fun too!):

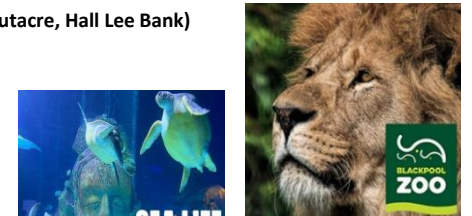
Free admission:

- **Bolton Museum (Aquarium)** (Bolton [BL1 1SE](#))
- **Manchester Museum** (Manchester [M13 9PL](#))
- **Museum of Science and Industry** (Manchester [M3 4JP](#))
- **National Science and Media Museum** (Bradford [BD1 1NQ](#))
- **National Railway Museum** (York [YO26 4XJ](#))
- **Brockholes Nature Reserve** (Preston [PR5 0AG](#))
- **Bolton's various country parks** (**Seven Acres, Moses Gate, Jumbles, Cutacre, Hall Lee Bank**)
- **Local reservoirs:** Anglezarke, Wayoh, Entwistle, Lower Rivington etc.



Charged entrance fee:

- **Catalyst Science Discovery Centre and Museum** (Widnes [WA8 0DF](#))
- **Imagine That!** (Liverpool [L13 1EH](#))
- **Xplore! Science Discovery Centre** (Wrexham [LL13 8AE](#))
- **Jodrell Bank Centre For Engagement** (Cheshire [SK11 9DW](#))
- **Eureka! The National Children's Museum** (Halifax [HX1 2NE](#))
- **Eureka! Science and Discovery** (Wallasey [CH44 6NR](#))
- **Magna Science Adventure Centre** (Rotherham [S60 1FD](#))
- **Sealife Centre** (Blackpool [FY1 5AA](#))
- **Sealife Centre** (Manchester [M17 8AS](#))
- **The Deep** (Kingston-Upon-Hull [HU1 4DP](#))
- **Lakes Aquarium** (Ulverston [LA12 8AS](#))
- **Blackpool Zoo** (Blackpool [FY3 8PP](#))
- **Chester Zoo** (Chester [CH2 1LE](#))
- **Knowsley Safari Park** (Knowsley [L34 4AN](#))
- **South Lakes Safari Zoo** (Dalton-in-Furness [LA12 0LU](#))
- **Smithills Farm** (Bolton [BL1 7NS](#))
- **Bowland Wild Boar Park** (Lancashire [PR3 2HB](#))
- **Martin Mere Wetland Centre** (Burscough [L40 0TA](#))
- **Tropical World** (Leeds [LS8 2ER](#))



Science Capital – An Introduction (Video Clip)