Wardley CE Primary School Curriculum Inclusion Strategies - Science

Quality First Teaching – Promoting independence, providing suitable adaptation and challenge, meeting learners needs and overcoming barriers.

At Wardley CE Primary School, wherever possible, all pupils work on the same curriculum in science. If necessary, adaptations are made to meet individual needs, making learning accessible for all pupils. Provision will depend on the particular barrier to learning pupils face.

Key Stage	Strategies for inclusion
Whole School	- All adults are aware of individual children's barriers to learning, so they can best meet their needs. - A quiet, calm working environment, to minimise distractions. - Adaptive, responsive teaching e.g. knowing when to revisit concepts, move on or provide an intervention. - Deploy all adults strategically, to achieve the best pupil outcomes. - All adults modelling accurate and precise scientific language. - Regular opportunities to revisit prior learning in science. - A teaching sequence based on links to previously taught skills and knowledge and repetition is utilised to scaffold new learning. *At Wardley, this takes the form of a link- it, learn-it, check-it, show-it and know-it teaching structure.* - Adults use Blank Level Questioning, appropriate to each child. - Adults facilitate group work and provide in the moment feedback, to both support and challenge pupils' scientific understanding. - Plenty of speaking and listening opportunities for pupils to articulate their understanding of scientific concepts and listen to their peers. - Provide extra time to allow children to process questions, think about their answers and respond. - Hands-on practical experiences, wherever possible, to observe science in action/real life.
Early Years Foundation Stage Science is linked to the **The Natural World** area of learning in Development Matters**.**	**<u>Within EYFS:</u>** - Offer opportunities, which provide explicit practical experience, directly linked to the scientific concepts/vocabulary explored. *In Reception, children will explore changes of state with ice cubes and chocolate, to provide children with a practical understanding of melting, freezing and heating.* - Explore change and observe concepts over a long period of time to ensure children are able to acknowledge observed differences. *In both Nursery and Reception, children explore the lifecycle of a plant and butterfly over several weeks. Staff ensure that they buy enhancements of live butterflies for the children to observe.* - *Little Barn Farm visit the school in March with farm animals to discuss life cycles using appropriate vocabulary piglet, pig etc.* - Use visuals to support understanding of abstract concepts they may not have experienced, and support recall of previous experiences e.g seasonal change. - Share stories and re-read to support the pupils' understanding of scientific concepts.

	- Games, songs and rhymes to maximise pupil engagement and to aid memory. *For example, the song 'Heads, Shoulders, Knees and Toes' and the game 'Simon says…' helps children to remember the names of common body parts.* - Offer adult initiated open-ended opportunities, which enable experiential learning and in the moment discovery of planned concepts. *In nursery and reception, the children go on nature walks in Autumn, and talk about the leaves falling from the trees, as they see this happening. The children collect seeds, leaves and minibeasts.* - *Parent autumn treasure hunt, with the children bringing in their finds to discuss and explore.* - *The school nurse (0-19 Team) visits and to explore germs with the children. The use of UV lights to visually demonstrate how germs can be transmitted in our environment through touch* - Tailor the EYFS provision to ensure opportunities are available to revisit, over learn and embed learning linked to the 'Natural World'. This may include seasons' tables and investigation stations.
Key Stage 1 & 2	**<u>Within KS1/2:</u>** - Stories, songs and rhymes to help pupils to remember abstract scientific concepts. *For example, the water cycle song in Year 4.* - Scaffolding learning to support pupils to work with greater independence e.g. word banks, visual prompts, simplifying charts/tables for collecting and recording data. - Adults regularly 'checking in' with pupils to assess depth of understanding and provide instant feedback to get pupils back on track. - Small group work, supported by an adult, to ensure maximum pupil participation. *Supporting pupils during the 'Flashback Four' at the beginning of lessons, allows misconceptions to be identified and addressed in the moment.* - Allow time for children to share their response to posed questions, with an adult/peer first, to give them the confidence to share with group/whole class. Adult to scaffold verbal responses if needed. - Peers/adults reading questions/information for pupils, if required. *In Year 5, this may involve adults supporting pupils to gather information from different sources (e.g. topic books, websites) about Earth and Space.* - Adults scribe for pupils, if writing is a barrier to learning, so science can be the focus. - Draw their understanding of a scientific concept, rather than write. *For example, in Year 4, pupils may draw the particle arrangement of a solid, liquid and gas, to demonstrate their understanding.* - Careful use of pupil scientists, who are able to model correct use of vocabulary and explain scientific concepts clearly to their peers. - Break down learning into manageable chunks, to make it more accessible. *In Year 1, when sorting different animals into animal groups, children may be encouraged to sort the 'birds' first, followed by the 'fish'.* - Reduce the amount of criteria when sorting and classifying. *In Year 1, children may sort materials according to less criteria e.g. 'hard' or 'soft' materials.* - Picture prompts/adult or peer support to warn pupils of the dangers when completing practical work involving potentially harmful apparatus/substances. *In Year 2, children explore different seeds, and in Year 4, children build circuits as part of their Electricity unit. Prior to this, extra measures are taken to ensure pupils understand the potential dangers (e.g. not putting seeds in their mouth), to enable them to carry out their work safely.* - Role play to demonstrate abstract scientific concepts. *In Year 6, children use movement to represent blood flow around the body and the electrical current in a circuit.*

	- Adults use appropriate non-verbal communication. Include gesture, body language and eye contact. - Adults use appropriate ELKLAN strategies e.g. allow thinking time, repeating what the child says so the child hears good examples (reinforcing sentence structure), adding short simple ideas (to expand vocabulary and knowledge). - Limit the number of questions asked. - Children are given the confidence to 'Speak Out' to encourage self-reflection. Giving them the language to express their views and feelings and encouraging them to seek out and vocalise any support that they need. - Verbal information made visual e.g. word lists, vocabulary lists. - Give lots of targeted, focused praise e.g. good listening, good sitting. - Use of Blank Level questions targeted and pitched to the children at their correct level. - Use objectives from when the topic was previously taught, **only** if a child is unable to access their year group's objectives. *In Year 5, this may involve a child completing the Year 1 or year 2 materials unit, if it is more appropriate.* **<u>Vocabulary</u>** - Reduce the amount of vocabulary within a science lesson to avoid cognitive overload. - Repetition of vocabulary throughout a unit, ensures that children are regularly hearing this new language modelled correctly in context. - Pre-teaching new vocabulary wherever possible for links to be made. *For example through use of word maps, spidergrammes, mind maps (see other ELKLAN resources for extending vocabulary).* - Where necessary, simplify scientific vocabulary to make language more accessible. *In a Year 2 materials lesson, when exploring the properties of glass, this may involve the use of 'see through' instead of 'transparent' with a pupil.* - Where necessary, provide picture prompts alongside words to aid understanding of scientific vocabulary and concepts.