

OUR LADY OF LOURDES CATHOLIC PRIMARY SCHOOL



School **Curriculum Policy and Subject Guidance** for

SCIENCE

(2021/22)

Curriculum Leader: Miss Helen Townson

Our School Vision

"We want our school to be a safe, secure and exciting place to learn and grow in Christ. A place where children, staff, families and governors work closely together to answer Christ's call."

Our Catholic School community works with a Christian purpose:

- To promote an enthusiasm for enjoyment of learning
- To provide a broad and well-balanced curriculum
- To challenge the children to reach their full potential
- To learn about God and his creation
- To answer Christ's call through our love for each other
- To foster in children independence and a sense of responsibility.

"For you are precious in my eyes"
(Isaiah 43)

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CURRICULUM AIMS/INTENTION:

Through Science at Our Lady of Lourdes, we aim for all children to learn to:

- Develop enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life
- Build on curiosity and sense of awe of the natural world
- Use a planned range of investigations and practical activities to give a greater understanding of the concepts and knowledge of science
- Introduce the language and vocabulary of science
- Develop basic practical skills and their ability to make accurate and appropriate measurements
- Develop use of computing in their science studies.
- Extend the learning environment for our pupils via our environmental areas and the locality
- Promote a 'healthy lifestyle' in our pupils.
- Continue to deepen their respect, care and appreciation for the natural world and all its phenomena.

EARLY YEARS FOUNDATION STAGE:

In the EYFS (Early Years Foundation Stage) children investigate science as part of Understanding of the World. Children are encouraged to investigate through practical experience; teachers guide the children and plan opportunities that allow the children to experience and learn whilst experimenting for themselves. Topics are covered throughout the year. Children will observe similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

KEY STAGE ONE:

In Key Stage One children will be introduced to science through focused observations and explorations of the world around them. Children are taught the skills to ask simple questions and recognise that they can be answered in different ways. They will observe closely, using simple equipment and perform simple tests. Children will be taught to identify and classify. They will use their observations and ideas to suggest answers to questions. Children will gather and record data to help in answering questions.

KEY STAGE TWO:

In Key Stage Two, children will develop scientific skills further through supportive investigations into more independent work at Key Stage 2. By careful planning, children's scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2.

During years 3 and 4, children will be taught to use practical scientific methods, processes and skills through the teaching of the programme of study content. They will ask relevant questions and use different types of scientific enquiries to answer them. The children will have opportunities to set up simple practical enquiries, comparative and fair tests. They will be asked to make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Children will gather, record, classify and present data in a variety of ways to help in answering questions. They will record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. They will report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Children will use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. They will identify differences, similarities or changes related to simple scientific ideas and processes. Children will use straightforward scientific evidence to answer questions or to support their findings.

During years 5 and 6, children will be taught to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Children will take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. They will record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Children will use test results to make predictions to set up further comparative and fair tests. They will report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Children will identify scientific evidence that has been used to support or refute ideas or arguments.

ROLES & RESPONSIBILITIES:

The Governing Body	<i>The governing board will monitor the effectiveness of this policy and hold the headteacher to account for its implementation.</i> <i>The governing board will also ensure that:</i> ○ A robust framework is in place for setting curriculum priorities and aspirational targets ○ Enough teaching time is provided for pupils to cover the National Curriculum and other statutory requirements ○ Proper provision is made for pupils with different abilities and needs, including children with special educational needs (SEN)
	<i>The headteacher is responsible for ensuring that this policy is adhered to, and that:</i> ○ All required elements of the curriculum, and those subjects which the school chooses to offer, have aims and objectives which reflect the aims

The Headteacher	of the school and indicate how the needs of individual pupils will be met ○ The amount of time provided for teaching the required elements of the curriculum is adequate and is reviewed by the governing board ○ Where appropriate, the individual needs of some pupils are met by permanent or temporary disapplication from all or part of the National Curriculum ○ They manage requests to withdraw children from curriculum subjects, where appropriate ○ The school's procedures for assessment meet all legal requirements ○ The governing board is fully involved in decision-making processes that relate to the breadth and balance of the curriculum ○ The governing board is advised on whole-school targets in order to make informed decisions ○ Proper provision is in place for pupils with different abilities and needs, including children with SEN ○ Managing, as necessary the continued subject professional development of staff through staff meetings and training ○ Communicating subject information to pupils, colleagues, parents, leadership, governors and external agencies as required
Curriculum Subject Leader	The Curriculum Leader is responsible for: ○ Oversee the continuity of the subject and the progression of teaching and learning within annual and medium-term plans. ○ They will monitor the quality of teaching and the standard of work produced. ○ Support staff in catering for the needs of all the children in their class, ensuring all children access the curriculum at an appropriate level. ○ Ensure proper provision is in place for pupils with different abilities and needs, including children with SEN. ○ Report to the governing board and ensure it is advised on any changes to the Science curriculum and making them aware of what is happening in school. ○ Promote high quality learning and teaching in the Science. ○ Managing, as necessary the continued subject professional development of staff through staff meetings and training.

	○ Developing, improving and sustaining the commitment and enthusiasm of all staff to create positive attitudes towards the subject ○ Support cross-curricular skills and themes ○ Communicating subject information to pupils, colleagues, parents, leadership, governors and external agencies as required.
Class Teachers	Other staff will ensure that the school curriculum is implemented in accordance with this policy. ○ Ensure they are aware of the previous knowledge of the children and build on this within lessons. ○ Ensure children are given concrete experiences, planning trips, inviting visitors into school or loaning equipment. ○ Ensure all of our intentions are being taught. ○ Plan opportunities for children to work scientifically. ○ Plan meaningful, exciting, topical, challenging and relevant experiences. ○ Plan investigative learning within a real context. ○ Be creative, imaginative, dynamic and radical.

ORGANISATION:

Science is delivered and experienced in a safe and supportive environment. Wherever possible science work will be related to the real world and everyday examples will be used. Science encompasses every aspect of our lives and we will relate it to all areas of the curriculum. Where possible links are made to thematic plans and seasonal occurrences. Due to mixed age classes, topics are taught over a 2-year cycle to ensure all areas of curriculum are covered, building on the skills developed in previous years. Due to the nature of the EYFS, areas are covered across the year as they arise and through children's interests. The building blocks children are given in Early Years Foundation Stage should lay the foundations for the rest of their learning.

Consideration is made of seasonal topics as plants and seasonal change are taught explicitly as themes and across the year, i.e. recording differences in weather patterns across each season, observing bulbs growth in spring, planting vegetables in summer and harvesting crops in autumn.

We will also ensure that children realise the positive contribution of both men and women to science and the contribution from those of other cultures. We will not only emphasise the positive effects of science on the world but also include problems, which some human activities can produce.

As a Catholic School, human reproduction and growth should be taught in line with our HRSE and RE policy.

Health and safety

Children will be taught to use scientific equipment safely when using it during practical activities. Class Teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities any perceived hazards will be reported to the Head who will determine the appropriateness of said activity.

Displays

Classroom displays show our 'Learning Tree'. These depict the main enquiry question that I'd being taught and will support teaching and learning.

CURRICULUM PLANNING (IMPLEMENTATION)

Cycle A

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Chestnut Class	Why are there so many leaves on the floor? Seasonal Change Knowing about seasonal change		Why would a dinosaurs not make a good pet? Animals Habitats & Food Chains		Which plants and birds would Evie find in our park? Plants Knowing parts of plants and trees	
Willow Class	What happens to the food we eat? Animals including Humans Digestive system and teeth		How far can you throw your shadow? Light & Dark Reflections & Shadows	Why is the sound made by Little Mix enjoyed by so many? Sound Sound Vibrations, Pitch & Volume	How would we survive without water? States of Matter Solids, Liquids and Gas	
Oak class	Do all animals start life as an egg and how different will you be when you are as old as your grandparents? Animals including Humans and their Habitats Life Cycles, Classification of Living Things, Changes as Humans Develop from Birth to Old Age		Could you be the next CSI investigator? Properties and Changes in Materials Compare Properties of Everyday Materials, Soluble/Dissolving, Reversible & Irreversible Substances		Does everything that goes up always come down? Forces Gravity, Friction, Forces and Motion of Mechanical Devices	How can you light up your life? Light How Light Travels

Cycle B

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Chestnut Class	How are humans not like tigers?	How will 5-a-day keep me healthy?	What would Traction Man use to build our school?		How quickly do plants grow?	

	Animals Classifying Animals, Life Cycles	Humans Exercising & Keeping Healthy	Everyday Materials Naming different Materials, using different Materials for different tasks	Plants How plants grow & Keeping plants healthy
Willow Class	How would you cope for a day without electricity? Electricity Simple Circuits & Switches, Conductors & Insulators	What do rocks tell us about the way the Earth was formed? Rocks & Magnets Rocks, Fossil Formation, Soil, Different Forces & Magnets	How can Usain Bolt run so fast? Animals including Humans Skeleton & Muscles, Exercise & Health	Which wild animals and plants thrive in our local environment? Plants & Animals Life Cycles and Transportation of Water, Classification of Plants and Animals, Basic Structure and Functions
Oak Class	Is there anybody out there? Earth & Space	Have we always looked like this? Evolution & Inheritance Off Spring, Fossils Evidence & Evolution, Adaptation & Evolution	Why is your heart the most important pump you own? Animals including Humans Circulatory system, Water Transportation, Impact of Exercise on the Body	Could you be the next Nintendo apprentice? Electricity Electrical Components, Simple Circuits, Fuses & Voltage

ASSESSMENT:

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms thus making marking different. It is, however, important that written work is marked regularly and clearly, as an aid to progression and to celebrate achievement. When appropriate, children may be asked to self-assess or peer assess their own or other's work.

Marking for improvement comments in a child's book must be relevant to the learning objective to help children to better focus on future targets. See Effective Marking & Feedback for more details.

Throughout the teachers will assess whether children are working at/above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. Teachers will use Rising Stars assessments to validate their judgments. The diagnostic test is used before starting a topic to gather children's prior knowledge. The midterm and end of test are used together at the end of a topic to assess the children's progress. Children's progress should be tracked using the Rising Stars Assessment Trackers, stored on the School server. Progress and attainment are reported to parents through parents' evenings and end of year reports.

RESOURCES:

Specialist pieces of equipment and those posing a potential safety risk will be held centrally in the resource room for staff access when required. Resources are in labelled box for easy access.

- General School Resources(see resource room)
- Outdoor Science Garden
- Visitors and enhancements
- Explorify - <https://explorify.wellcome.ac.uk/>
- SCARF – Coram Life Education <https://www.coramlifeeducation.org.uk/scarf/>
- Rising Stars Assessment and Trackers
- PLAN primary science assessment resources
<https://www.planassessment.com/>

INCLUSION:

Teachers set high expectations for all pupils. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEN
- Pupils with English as an additional language (EAL)

Teachers will plan lessons so that pupils with SEN and/or disabilities can study every National Curriculum subject, wherever possible, and ensure that there are no barriers to every pupil achieving.

Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in all subjects.

To ensuring suitable learning opportunities and challenge that matches to the ability of each child, teachers may use:

- Open-ended questions that can have a variety of responses
- Grouping children by ability and setting different tasks to each ability group
- Providing resources of different complexity according to the ability of the child
- Using additional adults to support the work of an individual child or groups of children
- Giving additional teacher input to some children when needed.
- Provision made for children on the SEN and Gifted and Talented register, in accordance with corresponding policy

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

MONITORING:

Senior Leaders and Curriculum Subject Leaders monitor the way their subject is taught throughout the school by:

- Planning sampling
- Book sampling
- Learning walks
- Child discussions
- Teacher discussions
- Displays
- Annual focus for a staff meeting. Standards of teaching and learning will be considered using work sampling and data review. The policy will be reviewed at this meeting.
- CPD for the Curriculum Leader as required (Ofsted – Sandylands Hub)

LINKS WITH OTHER POLICIES:

This policy links to the following policies and procedures:

- EYFS Policy
- Effective Marking & Feedback policy
- SEN policy and information report
- Equality information and objectives
- HRSE Policy
- Geography Policy

Policy Date:	9 th January 2022
Policy Review Date:	September 2022
Signed & Dated:	 Chair of Governors
Signed & Dated:	 Headteacher Curriculum Leader