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## OUR LADY IMMACULATE CATHOLIC PRIMARY SCHOOL SCIENCE POLICY

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### *Aims of our science policy*

Our science policy follows the National Curriculum 2014 for science guidelines and aims to ensure that all pupils:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- Develop understanding of the nature, processes and methods of science through different types of science enquiry 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.

### *What does science look like at Our Lady Immaculate Catholic Primary School?*

*"Science is fun because we call each other professors and wear lab coats" (KS1 child)*

*"Science is led by the children's investigation" (Teacher)*

At Our Lady Immaculate Catholic Primary School, science is a time for children to explore their curiosity. Children undertake practical experiments to investigate questions they pose. They predict and explore questions on a number of topics and build skills around scientific enquiry. Children are confident in doing science by demonstrating a willingness to modify ideas and take risks. They seek to collaborate and work co-operatively with their peers, using a range of Mind Friendly learning techniques.

Children view themselves as scientists in the process of learning. They look forward to doing science by demonstrating a desire to learn more.

Each year Our Lady Immaculate Catholic primary school holds a science week with a focus on introducing children to a range of topics.

### *Teaching and learning style*

We recognise that children learn in different ways and we therefore use a variety of teaching strategies to provide a wide range of learning opportunities. This allows each child to maximize their learning potential. Many of our teaching strategies are designed to encourage children to share their learning with others.

Our science lessons will include some or all of the following:

- Whole class teaching
- Group activities/tasks
- Enquiry based research activities
- Asking and answering questions
- Paired tasks (working with a partner)
- Talking partners
- Role-play/hot seating

- ICT activities
- Discussions
- Planning investigations
- Recording
- Formal written tasks
- Real contexts
- Teacher demonstration
- Supported activities
- Independent activities
- Different stimuli to initiate questions and investigations
- Out of classroom learning (using the environment as a teaching resource)
- Revision of basic knowledge and vocabulary

We also recognise that there are children of widely different scientific abilities in all classes. We ensure that our lessons are inclusive by providing suitable learning opportunities for all. We achieve this in a variety of ways:

- Setting common tasks that are open ended and can have a variety of responses.
- Grouping children in different ways; sometimes by ability so that different groups work collaboratively.
- Providing resources accessible to all
- Using Learning Support Assistants (LSA's) and volunteer helpers to support the work of individual children or groups of children.
- Using working partners where children support each other.
- Take account of targets set in the children's support plans as appropriate.

#### *Children's recording*

- Writing 'reports'
- Cartoons
- Diagrams
- Annotated pictures
- A range of genres of writing: poetry, instructions, stories, and arguments.
- Cartoon strips
- Planning boards
- Floor/big books
- Presentations
- Making models
- What have we been doing slips
- ICT/green screen, Power point, Purple Mash, iPads, Mac books.
- Videos
- Photos
- graphs

#### *Science curriculum planning*

We use the National Curriculum 2014 Programme of Study to inform planning along with the resource 'TigTag'.

We carry out our curriculum planning in science in two phases (long-term and

medium/short-term). The long-term plan maps the scientific topics studied in each term during the key stage. The science subject leader works this out in conjunction with teaching colleagues in each year group. In some cases, we combine the scientific study with work in other subject areas, especially at Key Stage 1; at other times the children study science as a discrete subject. Science is sometimes taught in weekly sessions and also as a block week within a half term. This can enable the 'Wow' factor in science!

The medium term plans sequence the learning intentions into cohesive steps to ensure progression and coverage of the key objectives.

As we use a creative curriculum within the school, year groups plan Science as part of this curriculum and our long-term planning is being adapted on a two-year rotation cycle. Alternatively, as Science units are blocked in this way we ensure complete coverage of the National Curriculum 2014 without repeating topics.

We have planned the topics in science so that they build upon prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and we also build progression into the science scheme of work, so that the children are increasingly challenged as they move up through the school.

### *Foundation Stage*

We teach science in EYFS as an integral part of the topic work covered during the year. We relate the scientific aspects of the children's work to the objectives set out in the Early Years Foundation Stage (EYFS). Science makes a significant contribution to the objective in the EYFS of developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water.

### *The contribution of science to teaching in other curriculum areas*

#### **English**

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in Literacy are of a scientific nature. The children develop oral skills in science lessons through discussions using mind friendly learning techniques and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information in various ways, both inside and outside the classroom.

#### **Mathematics**

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events and where applicable will show results in the format of graphs or tables. They use numbers in many of their answers and conclusions.

#### **Creative curriculum**

With the school using a creative curriculum approach, this allows science to be taught in way that can engage the children and be relevant. The school still uses the progression of skills and levels from the National Curriculum. We shape our curriculum to meet the needs of our children. We encourage children to recognise that sometimes there is not one right answer. We teach our children skills that they are going to need in the future, rather than content that they are unlikely to need to recall. We

involve our children in decision making about their learning, allowing children choice and independence-

- Tell me and I forget
- Show me and I remember
- Involve me and I understand

### **Computing**

Children use computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet, Apple Mac books and iPads. Children use ICT to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions.

### **Spiritual, moral, social and cultural development**

Science teaching offers children many opportunities to examine some of the fundamental questions in life. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

### ***Teaching science to children with special educational needs and disability***

We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Our work in science takes into account the targets set in the children's School Support Plan (SSP).

### ***Assessment and recording***

We believe that effective assessment provides information to improve teaching and learning. We give learners regular feedback on their learning so that they understand what it is that they need to do better. This allows us to create and amend planning based on a sound knowledge of each pupil. We give parents regular written and verbal reports on their child's progress so that teachers, children and parents are all working together to raise standards for all our children.

Assessment in science is viewed as part of the assessment for learning cycle. Learning objectives and outcomes are discussed with the children during lessons. Children are provided with opportunities for self/peer-assessment and improvement. Marking is in line with our schools marking policy. Teachers monitor the acquisition of skills, knowledge and understanding through appropriate questioning, observations and discussions with groups and individuals.

At Key Stage 1 the only statutory assessment for science is teacher assessment and therefore assessments will be recorded appropriately. Standards will be moderated within the school.

At Key Stage 2 similar arrangements will be followed. The assessment of pupils will rely on a mixture of evidence from pupils' everyday practical work throughout the Key Stage and more independent investigations carried out by the pupils.

Across both Key Stages, the teacher assessment exemplification materials will be used to support teachers' assessment of science.

Sample testing will continue for some schools.

### **Resources**

Class teachers are responsible for informing the science leaders of resources, which are required in order to deliver their planned curriculum. We keep resources in a central location which is organised into Key Stages, depending on the subject being taught. Teachers each have a resource list to inform them of the resources available and where they are kept.

### **Equal Opportunities**

Wherever possible, teachers should provide equal access to the curriculum by:

- Differentiating appropriately for all children, including supporting less able children, extending the more able, catering for the needs of children with English as an Additional Language and supporting children with Special Educational Needs including physical impairment.
- Ensuring girls and boys participate equally, by providing positive role models, images and teaching strategies.
- Providing positive role models regarding ethnicity whilst being sensitive to cultural beliefs and values.

### **Evaluation**

- The policy will be evaluated in line with the school's review policy
- Evaluation will include: effectiveness, ease of implementation, resourcing issues, identifying any amendments needed and additions required to the policy as a result of legislation or other changes in the science curriculum.

### **Governors**

Governors will be involved in the monitoring and evaluating of the policy and the implementation of Science across the whole school. The curriculum coordinators will keep governors informed of the implementation and changes in policy and changes in legislation and curriculum.