Subject: **Science**

Rationale

At St Vincent de Paul we love science! We want our children to embrace science. We want them to have no limits to what their ambitions are and grow up wanting to be astronauts, forensic scientists, toxicologists or microbiologists. The science curriculum has been carefully considered so that our children develop their scientific capital. We want our children to remember their science lessons in our school, to cherish these memories and make links to the scientific opportunities they are presented with.

The KS1 curriculum is enhanced by external visitors to school, for example, Acorn Farm and by educational visits to other places, for example, the Museum of Liverpool. KS2 follow the Empiribox scheme which enhances their sciences lessons with a plethora of practical activities.

Characteristics of Well-rounded Scientists (Curriculum Aims)

The national curriculum for science aims to ensure that all pupils develop:

- the ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings
- confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations
- excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings
- high levels of originality, imagination or innovation in the application of skills
- the ability to undertake practical work in a variety of contexts, including fieldwork
- a passion for science and its application in past, present and future technologies

Curriculum Intent

The science curriculum promotes curiosity and a love and thirst for learning. It is ambitious and empowers our children to become independent and resilient. We want to equip them with not only the minimum statutory requirements of the science National Curriculum but to prepare them for the opportunities, responsibilities and experiences of later life.

Children explore great scientists of the past, through science fairs, themed weeks, for example, 'Kitty Wilkinson' week, and studying the scientists themselves, for example, Michael Faraday (electricity) and Arthur Kilpin Bully (tropical curations). This broadens their scientific knowledge and understanding.

Curriculum Implementation

We encourage staff to teach a weekly science lesson. This helps to ensure sufficient time is allocated to science and that scientific subject matter can be revisited frequently. We believe that by crafting our curriculum this way, we improve the potential for our children to retain what they have been taught, to alter their long-term memory and thus improve the rates of progress they make. Key concepts are revisited and built upon.

During KS1, our short-term plans are produced on a weekly and daily basis. We use these to set out the learning objectives for each lesson, identifying engaging activities and resources which will be used to achieve them. In KS2, we use the Empiribox programme, which provides plans and resources for three discrete units of Physics, Chemistry and Biology per academic year. All KS2 teachers attend a termly training session with our science subject lead, were they link set objectives with planned lessons, building on prior learning and focusing on one specific element of an investigation; planning, data collection and analysis or evaluating an investigation. This approach helps children to confidently carry out a full investigation and furnishes them with skills which can be applied to any scientific investigation, irrespective of context. From September 2020, we will be recording assessments on three key areas of the science curriculum throughout each child's time at school, to measure progress over time, and their increasing depth of knowledge.

Curriculum Impact

We use both formative and summative assessment information in every science lesson. Staff use this information to inform their short-term planning and short-term interventions. This helps us provide the best possible support for all of our pupils, including the higher attainers. Staff use the Balance assessment wheel to systematically assess what the children know as the topic progresses and informs their future planning. This assessment grid then informs summative assessment judgements for each topic. Assessment information is collected termly, and analysed as part of our monitoring cycle. This process provides an accurate and comprehensive understanding of the quality of education in science. A comprehensive monitoring cycle is developed at the beginning of each academic year. This identifies when monitoring is undertaken. Monitoring in science includes: book scrutiny and peer assessment of teacher judgements at termly staff meetings, learning walks and pupil and staff voice. This information is used to ascertain the quality of teaching and provision of this subject, and to inform future planning.