



ST RICHARD REYNOLDS CATHOLIC COLLEGE

ST RICHARD REYNOLDS CATHOLIC PRIMARY SCHOOL
ST RICHARD REYNOLDS CATHOLIC HIGH SCHOOL

St Richard Reynolds is a Catholic community rooted in the love of Christ in which we help each other to become the person whom God has created us to be.

LOVED, LISTENED TO, CHALLENGED, INSPIRED

Science Subject Story

Curriculum Intent

The Science curriculum at SRRCC is designed to ensure coverage of the National Curriculum content, but will more importantly engage pupils' curiosity and take them on a journey of learning focusing on how to relate scientific ideas and explanations to phenomena in the world around them. Our intent is to nurture inquisitive, knowledgeable and practical young scientists.



At SRRCC we aim to ensure all pupils:

- Leave SRRCC with a fundamental understanding of a range of scientific ideas in the subject disciplines and an ability to apply this to more complex phenomena over time.
- Investigate their own lines of enquiry in a more systematic way and begin to recognise how these ideas help them to understand and predict how the world operates.
- Develop a wide range of practical skills whilst investigating scientific ideas across all science subjects.
- Have the ability to make connections between subjects and topics ensuring that scientific knowledge is built on prior learning.
- Apply their numerical understanding to scientific problems and read, spell and pronounce scientific vocabulary accurately as well as being able to use it accurately and effectively.
- Are prepared, academically and practically, for lifelong learning about the world around them.



- Experience a range of extracurricular events and workshops which increase cultural capital and preparedness for the world beyond school.

Curriculum Implementation

Science is an indispensable part of the curriculum at St Richard Reynolds, we endeavour to provide our children with a variety of scientific opportunities by enhancing our science capital across the school. From Year 1 to Year 6, we follow the scientific knowledge and skills laid out by the national curriculum. In EYFS, science is covered through Early Learning Goals under the headings of:

Understanding the World, People and Communities and Technology.

To ensure that all our students are getting the most out of our Science lessons, we strive to incorporate as much 'hands-on learning' as possible. We have found that this allows our students the opportunity to practise, and put into action, the main working scientific skills of: asking questions, planning enquiries, taking measurements, interpreting data, making predictions and presenting results.

To ensure that children get the most out of their science learning, we endeavour to implement a spiralled curriculum, allowing children to revisit and reuse prior learning as a foundation to help shape and progress new knowledge and skills. In order to achieve this, we have invested in a new 'hands on' scheme of work - in the form of PZAZ science - which encourages hands-on learning and incorporates fun science experiments to help maintain children's engagement.

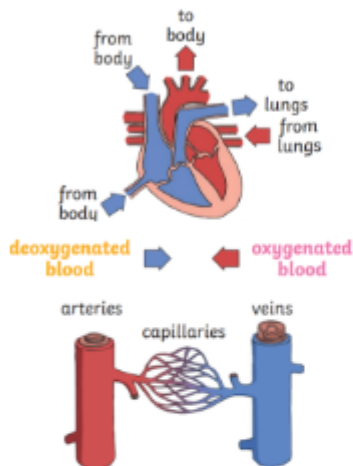
Additionally, we feel it is important that children understand how science can be used outside the classroom and that science isn't just for a particular demographic of person. We are therefore beginning to link all of our topics to a key scientist from each particular field, ranging from Mae Jemison (Astronaut - Earth and Space) to Ibn al-Baitar (Physician - Animals including Humans). We are hoping that by having children understand that science is inclusive and for all, they may be more inspired by the subject.



Curriculum Outcomes

At St Richard Reynolds we want all of our children to achieve their full potential. We appreciate that every child is different and needs to be treated as an individual. Therefore, when we plan our lessons we make every effort to ensure that our formative and summative assessment is used to judge how best to move each student along in their learning.

Year 6
Animals Inc. Humans -
Diet and Exercise
Knowledge Organiser



Key Vocabulary	
circulatory system	A system which includes the heart, veins, arteries and blood transporting substances around the body.
heart	An organ which constantly pumps blood around the circulatory system .
blood vessels	The tube-like structures that carry blood through the tissues and organs. Veins, arteries and capillaries are the three types of blood vessels.
oxygenated blood	Oxygenated blood has more oxygen. It is pumped from the heart to the rest of the body.
deoxygenated blood	Deoxygenated blood is blood where most of the oxygen has already been transferred to the rest of the body.
drug	A substance containing natural or man-made chemicals that has an effect on your body when it enters your system.
alcohol	A drug produced from grains, fruits or vegetables when they are put through a process called fermentation.
nutrients	Substances that animals need to stay alive and healthy.

Knowledge	Skill
Explain the functions of the different parts of the circulatory system	Can explain results using some scientific vocabulary accurately in a conclusion.
Describe the path of blood through the circulatory system using scientific vocabulary.	Can accurately classify the effects of drugs, diet and exercise as being either positive or negative.
Explain the effect of exercise on the body – both short and long term (does not always use the correct scientific terminology)	Can independently plan and conduct a fair test to determine the effect of exercise on heart rate showing some awareness of variables
Explain the impact of diet, exercise, drugs and lifestyle on the body and use knowledge of the heart and lungs with some scientific vocabulary to explain their reasoning.	

If you were to walk into Science lessons at St Richard Reynolds, you would see:

- High quality teaching and learning accessible to all learners.
- Carefully sequenced lessons, following a spiral of skills in order to build on children's previous learning.
- Opportunities to develop 'working scientifically' skills through well planned lessons and hands-on learning.
- Opportunities for children to be inquisitive and ask questions regarding a scientific concept, ensuring misconceptions are addressed.
- Exposure to new and technical vocabulary.

Pupil Voice

What do you enjoy about Science?

KS1 child: "I enjoy all of the cool experiments. I also enjoy writing about the different interesting fact we learn, like the life cycle of different animals."

KS2 child: "It's always something fun, at the start of each topic we always get to do a really fun WOW lesson that introduces our topics really well."

What helps you improve in Science?

KS1 child: "I like it when we take close ups of small creatures because it helps me learn more about what they look like as well as their different strategies for survival."

KS2 child: "I find it really helpful when we review our science experiments and see how it worked and what went well."

An example of skill progression within our Science curriculum

Skills					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ask simple questions and recognise that they can be answered in different ways Use simple equipment to observe closely Perform simple tests Identify and classify Use his/her observations and ideas to suggest answers to questions Gather and record data to help in answering questions	Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum Use simple equipment to observe closely including changes over time Perform simple comparative tests Identify, group and classify Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns Gather and record data to help in answering questions including from secondary sources of information	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 using equipment where appropriate Gather, record, classify and present data in a variety of ways Record findings using simple scientific language presented in different ways 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 his/her findings	Ask relevant questions and use an understanding of different types of scientific enquiries to best 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 answering questions Record findings using simple scientific language, drawings, labeled 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 his/her findings	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests 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 Identify scientific evidence that has been used to support or refute ideas or arguments	Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests Use test results to make predictions to set up further comparative and fair tests 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 Identify scientific evidence that has been used to support or refute ideas or arguments

Outstanding examples of learning

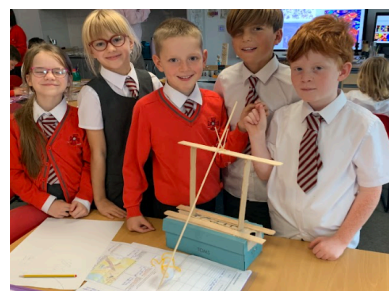
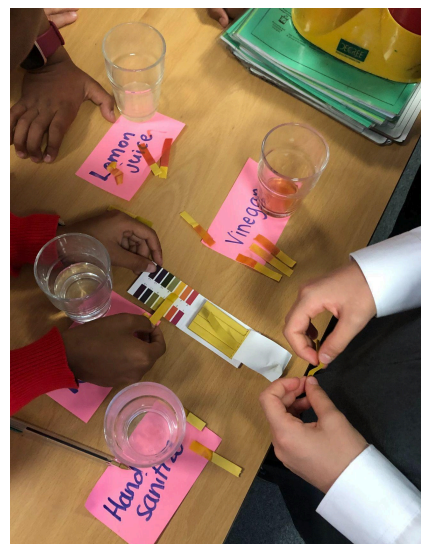
Hands on learning



We encourage learning outside of the classroom and ensure children are giving ample opportunities to use their practical skills in 'real life' scenarios.



Providing the children opportunities to ask their own questions to encourage children's inquisitive nature.



Recent Successes

- Teachers and students have been able to utilise the secondary school laboratories , fostering an enthusiasm and passion for science.
- Implementation of Topic covers has been effective and teachers have been able to utilise its structure in order to inform their end of unit assessments.
- Science clubs have been delivered to children of all ages across the school and has become a popular weekly club.
- Science week was another big success and feedback from children was very positive.

Next Priorities

- Utilise outdoor space more and make use of the new school garden project. Incorporating it into our curriculum.
- Encourage more 'hands on learning' within science, encouraging a wider range of scientific experiments.
- Continue to promote extra curricular science provision to ensure science capital is at a premium.
- Update and uplevel science resources within the classroom.