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| **Rationale for Science** |
| **I can do all things through Christ who strengthens me' – Philippians 4v13**  We have a vision for everyone at Bridgemere to be lifelong learners; trying their best, enduring tough times with hope and courage and being open to new experiences.  We believe that God helps us to grow, especially through challenges, we therefore value resilience. In order to flourish, we aim to support every child and adult with the diverse challenges of everyday life.  **perseverance, creativity, trust, compassion, friendship, community, responsibility, thankfulness** |
| Science at Bridgemere helps develop a sense of excitement and curiosity about the world’s natural phenomenas. Science at Bridgemere begins in Understanding the World in EYFS where children explore the natural world around them. Children are encouraged to ask questions and think of ways that they can find the answers through investigation. We encourage different types of scientific enquiry to answer the children’s own questions, including: observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. Children will learn to explore, talk about, test and develop ideas. Throughout the school, children will build on prior scientific knowledge and skill and work towards drawing conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. |
| **Knowledge**  Knowledge in science refers to the understanding and interpretation of key concepts taught within different scientific contexts. This includes the understanding and deployment of key scientific vocabulary.  The key concepts consist of:  EYFS (Understanding the World)   * observation and drawing of plants and animals * similarities and differences between the natural worlds and contrasting environments. * understanding some important processes and changes in the natural environment, including seasons and changing states of matter.   Year 1:   * plants * animals including humans * everyday materials * seasonal change   Year 2:   * living things and their habitats * plants * animals including humans * uses of everyday materials   Year 3:   * plants * animals including humans * rocks * light * forces and magnets   Year 4:   * living things and their habitats * animals including humans * states of matter * sounds * electricity   Year 5:   * living things and their habitats * animals including humans * properties and changes of material * earth and space * forces   Year 6:   * living things and their habitats * animals including humans * evolution and inheritance * light * electricity   At Bridgemere, we teach these concepts on a two year rolling program provided by Hamilton Trust. Working scientifically is woven throughout each concept. |
| **Substantive knowledge**  In science, this is the knowledge and understanding of the key concepts taught  within scientific contexts including the key vocabulary. The substantive knowledge is progressive through conceptual development from EYFS to Year 6.  **Disciplinary knowledge**  In science, this is known as working scientifically and enquiry skills. Children will need a basic understanding of key concepts before investigating and drawing conclusions. Teachers will model the use of apparatus, how to collect and present data and the use of scientific methods so that children can progress with their disciplinary knowledge and perform their own investigations to answer questions. |
| **Working scientifically**  ‘Working scientifically’ specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how ‘working scientifically’ might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. |