**Wallace Fields Infant School & Nursery**

***Subject Story for Science***

## Intent:

At Wallace Fields Infant School & Nursery, our vision is to provide children with a wide range of Science opportunities which will enable them to confidently explore and discover the world around them. These practical, hands-on experiences encourage curiosity and questioning, a key factor of developing children's scientific enquiry skills. Allowing children to investigate through a variety of contexts will ensure a continually and evolving knowledge, which will equip them for an ever-changing world.

*The National Curriculum for Science 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 enquiries 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.*

## Implementation:

- In Key Stage One, Science learning takes place regularly, either in the form of a 'Whole Class Teach' or a 'Task Time Recall' activity. The teachers use the progression of knowledge and skills document to identify which areas the children need to focus on. This allows teachers to identify the challenge and support needed for each individual task.

- In the Early Years, whole class Science lessons and experiments are planned for by teachers. The children will then be able to further explore and consolidate their knowledge and understanding of the key concept during child-initiated learning ('Discovery Time').

- Science activities are linked to the whole school topic, where appropriate, however, teachers plan to ensure that there is progression through each National Curriculum strand. 'Working scientifically' opportunities are planned as part of each Science activity. During task time and discovery time, children are given the opportunity to explore science through practical investigative tasks.

- Science Weeks: Once every term, the Science Lead plans a Whole School Science Week. During Science Week, the Science Lead plans a differentiated investigation for each year group to carry out. At the end of the week, the Science Lead holds an assembly for each class to share the experiment and the findings. We also celebrate British science week through a STEM investigation.

- Enrichment: We work closely with the Science Department at Epsom College and utilise their skills where appropriate. This involves workshops as well as the children visiting the science laboratories at Epsom College. We also welcome and encourage parents with a scientific background into school to share their expertise in a 'hands on' way, where possible. Our PTA also provide exciting experiences in the form of science workshops to enhance our curriculum.

## Progression across year groups:

- In EYFS, Science is explored through looking at 'Understanding the World'. Children are encouraged to explore and investigate the world around them, asking questions such as 'why' and 'how' does something work. Children are encouraged to explore similarities and differences in relation to materials and living things. Simple experiments are conducted to develop these skills, both inside the classroom and in the outdoor learning spaces.
- In Year 1, children begin to build on their scientific enquiry skills through the exploration of 'identifying and classifying' and performing simple tests. They are also taught about different plants, common animals and everyday materials, as well as seasonal changes. Children are given opportunities to apply their scientific enquiry skills through each of these topics.
- In Year 2, children continue to further deepen their scientific enquiry skills through practical experiments to build on their scientific questioning skills. They continue to deepen their understanding of plants, animals including humans and everyday materials as well as exploring habitats.
- Learning journals will show evidence of two scientific investigations each half term.

## Impact:

- ✓ Children will have a clear understanding of the scientific processes behind the investigations. Children will know the correct terminology to discuss their observations.
- ✓ We will be able to see that the children know more and remember in more in Science, through evidence in their learning journals and through discussions with children (pupil voice). We will also see they are able to recall prior learning and apply it. Children will then start their next year of learning with the necessary skills and knowledge to build upon.

If you were to walk into a Science lesson at WFIS & Nursery you would see:

- ✓ *All children engaged, challenged and working collaboratively whilst enjoying their Science lesson.*
- ✓ *An appropriate 'Task Time' or 'Discovery Time' activity available for children to access to allow consolidation of taught concepts.*
- ✓ *A key skill being taught during an experiment based on the 'Working Scientifically' strand of the Science National Curriculum.*
- ✓ *Cumulative skills progression between and within lessons.*

## British Values and Spiritual, Moral, Social and Cultural Learning in Science:

British Values: The Science curriculum promotes the value of democracy by encouraging children to take the views and opinions of others into account. It is important for children to understand the importance of the safety rules when working scientifically, which promotes rule of law. The children must know that there are consequences if rules are not followed. Children are often given the opportunity to make their own choices when planning an investigation. A key value, which links to Science, is 'Mutual Respect'. This is addressed when children are working as a team, discussing their findings and offering support and advice to others.

Social: Within our Science Curriculum, children are provided with opportunities for group work and paired talk through planned investigations and scientific enquiry. This develops children's teamwork skills as well as allowing them to take responsibility. Each of these elements promotes children's social development.

Moral: Moral education in Science encourages children to become increasingly curious, to develop open mindedness to the suggestions of others and to make judgements on scientific evidence. It allows children to build an awareness of the ways that Science can affect society and the environment.

Spiritual: In Science, we promote the spiritual development of our children by encouraging them to reflect on the wonder of our natural world. It helps us understand our relationship with the world around us. It encourages children to reflect on what is special about life and the awe of the scale of living things, e.g. from the smallest organism to the largest tree.

Cultural: Cultural education in Science involves learning about great scientific discoveries. Scientific developments are made all over the world, from people of all backgrounds and cultures. It is important for the children to understand how the different cultures around the world can have different impacts on the planet.

## Pupil Voice:

Nursery: *"We know all about floating and sinking. The toy boat floats!"*

Reception: *"I know that if something floats it stays on the top of the water but if it sinks it goes to the bottom."*

Year 1: *"In Science we do experiments. We've been learning about how to make sure it's a fair test. If it is then we know we have done a good experiment."*

Year 2: *"We've been looking at different materials to see which is the best to protect our egg. We sorted the different materials into hard and soft. Cotton wool will be good to protect the egg because it's soft".*

## Outstanding Learning Outcomes:

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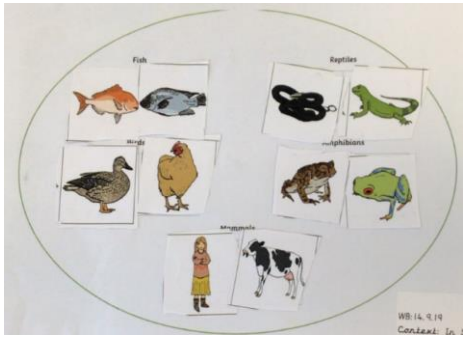
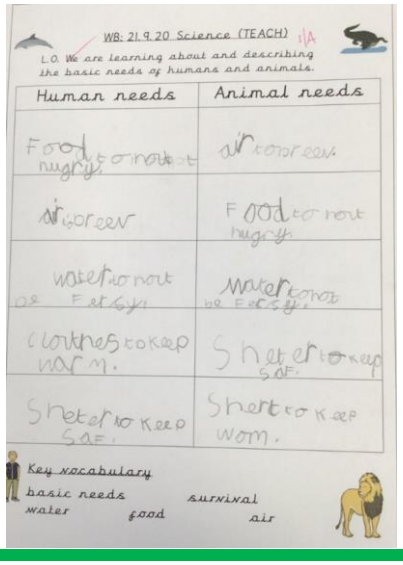
|  |  |  |
| ***Reception*** *– exploring which materials are suitable to build a bridge for the Gingerbread man.* | ***Year 1*** *– exploring animal groups and classifying them based on their characteristics.* | ***Year 2*** *– exploring the basic needs of humans and animals.* |

## Successes in 2019-20:

☺ **We wanted to develop children's scientific enquiry skills.** These skills were improved due to an increase in the number of Science experiments that were explicitly taught throughout the academic year. The increase in the number of experiments meant that children were able to deepen their questioning skills.

☺ **We wanted children to be appropriately challenged and supported according to their level of science knowledge.** Through learning walks and journal monitoring it was evident that differentiated resources were being planned for to cater for the needs of all children within a Science lesson. Key vocabulary was also provided for all children and it was evident that children were using this vocabulary. This was identified during a pupil voice interview with a group of children.

## Priorities for 2020-21:

⇨ **To ensure that Science is being assessed effectively:** We want to ensure that children are continuing to make good and accelerated progress in Science. This means assessing the children effectively to ensure they make sufficient progress.

⇨ **To ensure that Science is taught effectively, providing children with a broad and ambitious curriculum with a focus on two experiments in a term:** We want to ensure that all children are able to develop their scientific enquiry skills through the continual teaching of simple experiments and practical activities. We also want to ensure that children have opportunities to consolidate key concepts during 'Task Time' and 'Discovery Time'.