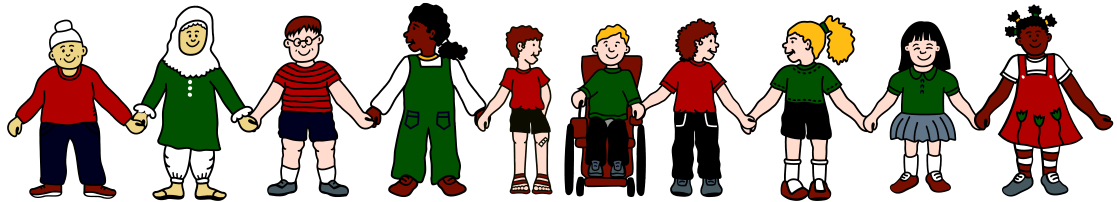


**THE GILES  
NURSERY  
AND  
INFANTS' SCHOOL**



**Science Report for Governors**

**2023 / 2024**

**Science Report for Governors**  
**2023 / 2024**  
**By Science Curriculum Lead K.Edwards**  
**Governor – Professor Nick Rogers**

**Curriculum Intent:**

The aim of our science curriculum is to ensure that all pupils:

- gain a strong understanding of the world around them
- acquire specific skills and knowledge to help them to think scientifically
- gain an understanding of scientific processes and of the uses and implications of science, today and for the future

At The Giles Nursery and Infants' School, scientific enquiry skills are embedded in each topic the pupil's study. These topics are revisited and developed throughout their time at school. Topics, such as 'Plants', are taught in the Early Years Foundation Stage (EYFS) and then again in key stage 1. This model allows pupils to build upon their prior knowledge, and increases their enthusiasm for the topics whilst embedding this procedural knowledge into the long-term memory.

All pupils are encouraged to develop and use a range of skills, including observations, planning and investigations. Pupils are also encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions. Specialist vocabulary for topics is taught and built up, and effective questioning to communicate ideas is encouraged. Concepts taught are reinforced by focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

## Leading Science

### Curriculum Implementation:

#### *Overarching Targets:*Key priorities in SIP 2023/24:

**Priority 1** – Continue to ensure that all pupils, including those with special educational needs and disabilities (SEND) and the lowest 20%, achieve as highly as possible across the curriculum.

**Priority 2** – Continue to ensure that summative and formative assessments are strong across all areas of the curriculum.

**Priority 3** – Safeguarding and attendance.

**Priority 4** – ‘Growing our staff’, focusing on consolidating new positions and roles post key staff changes, staff training and new initiatives.

The curriculum is designed and adapted to meet all pupils needs and enables them to learn more, remember more and do more as they progress through the school. Through quality first teaching staff enable children to learn and practise skills so that they can progress through school and beyond with confidence in their science abilities, deepening their understanding through a spiralled curriculum in areas such as animals, including humans, plants, seasons and materials.

As a school, we have produced a curriculum journey. This shows how skills progress over the period of time that pupils attend The Giles Nursery and Infants’ School. These link to the National Curriculum objectives and clearly detail how all pupils progress through the curriculum to the defined end point.

Staff have worked collaboratively to update and clarify the key vocabulary needed for each year group. These documents are accessible through the school website and parents and other stakeholders can access this information. Key science terminology is made clear on lesson planning documentation alongside the previous years’ key vocabulary. Vocabulary continues to be shared explicitly with all staff so that they understand the importance of using it and supporting the children to use it in their scientific workings.

Curriculum leaders have produced a monitoring schedule that allows them to review the science curriculum, complete lesson visits, book scrutiny, and planning moderations. Photographic evidence and pupil voice are collected throughout the academic year. The aim of these oversight tasks is to observe, offer support and identify further training needs.

## **Curriculum Intent**

### **Year 2 topics**

#### **Autumn**

##### **Animal including humans**

- grouping foods and the healthy food plate
- caring for a baby
- importance of exercise and types of exercise
- importance of dental hygiene
- health and hygiene including washing hands and hair, keeping clean, germ
- investigate the effect of different substances on our teeth

##### **Weather and seasonal change**

- investigate how the weather changes across the seasons and is not defined by the season, with a focus on rain

#### **Spring**

##### **Identify materials and their properties** (including wood, metal, plastic, glass, brick, rock, paper and cardboard)

- compare suitability of materials by packing a rucksack to take to Antarctica (including wood, metal, plastic, glass, brick, rock, paper and cardboard)
- frostbite investigation: which material is most suitable to prevent frostbite?
- investigate the effect of plastic having on our oceans
- investigate why it is important to reuse and recycle
- research invention of new materials: for example, Charles Martin Hall (aluminium), using different resources to conduct research.

##### **Weather and seasonal change**

- investigate how the weather changes across the seasons and is not defined by the season, with a focus on rain

#### **Plants**

- growing seeds and bulbs (nasturtium seeds, narcissus bulbs) including planting, care, observation and description of growth
- growth investigation (effect of water / no water, light / no light, hot / cold temperature)
- seed / bulb diaries

## **Summer**

### **Environments and habitats**

- habitats
- learn that there are different kinds of plants and animals in the immediate environment and to treat animals and the environment with care and sensitivity
- recognise hazards in working with soil
- observe and make a record of animals and plants found
- present results in a variety of ways, including in a table
- learn that there are differences between local habitats
- make predictions about the animals and plants found in different local habitats and investigate these
- use drawings to present results and make comparisons, saying whether their predictions were supported
- learn that flowering plants produce seeds and to turn ideas of their own, about what plants need to begin to grow, into a form that can be tested.
- observe and make a day-by-day record of observations
- use the results to draw a conclusion about what seeds need to begin to grow, and decide whether this is what they expected learn that seeds produce new plants
- garden / pond/ churchyard

## **Year 1 topics**

### **Autumn**

#### **Ourselves / senses / the natural world**

- learn that we have five senses which allow us to find out about and develop a greater understanding of the world
- know which body part relates to each sense
- learn that humans have bodies with similar parts, and to learn the body part names.
- collect and organise data and present it in a chart
- make a prediction and draw conclusions from an investigation

#### **Weather and seasonal change**

- observe changes across the four seasons and the weather associated with autumn
- explore the natural world in the school's nature area
- animals
- identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals
- identify and name a variety of common animals that are carnivores, herbivores and omnivores
- describe and compare the structure of a variety of common animals
- Forest School and Woodland Trust activities

## **Spring**

### **Animals, including humans**

- identify and name a variety of common animals with a focus on birds
- The Royal Society for the Protection of Birds (RSPB) bird watch
- diets and making bird feeders

### **Weather and seasonal change**

- observe changes across the four seasons with a focus on winter
- to observe and describe weather associated with the seasons and how day length varies
- use iPads to take photos
- weekly weather chart
- rain investigation

### **Everyday materials**

- to distinguish between an object and the material it is made from
- to identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock
- to describe the simple physical properties of a variety of everyday materials
- to compare and group together a variety of everyday materials on the basis of their simple physical properties
- umbrella investigation
- Forest School and Woodland Trust activities

## **Summer**

### **Weather and seasonal change**

- seasonal change
- variation of length of the day
- identify changes in trees and clothing worn from spring to summer
- seasonal weather
- use iPads to take photos
- weekly weather chart
- staying safe in the sun
- Forest School and Woodland Trust activities

## **Growing**

## Plants

- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- to identify and describe the basic structure of a variety of common flowering plants, including trees

## Reception

### Autumn

#### 'The Three Little Pigs'

- facts about pigs and wolves
- habitats of pigs and wolves
- wolf breath – 3 little pigs house prediction
- what changes and growth are happening in the natural world autumn walk with ipads
- autumn colour tissue paper trees
- seasons of the year
- **healthy eating, cleaning teeth, washing hands**
- mouldy bread investigation

### Spring

#### 'The Gingerbread Man'

- ingredients for gingerbread man, separately and when combined
- smelling spices
- gingerbread men in oil, water and milk
- signs of winter and spring
- snow and ice investigation

### Summer

#### 'The Little Red Hen'

- facts about hens and chicks
- life cycle of a chick
- observations of chicks hatching and growing
- seed dispersion '
- 'The Tiny Seed' by Eric Carle
- tasting bread from European countries
- harvesting crops long ago investigating seeds using magnifying glasses
- planting seeds and herbs
- facts about windmills
- floating and sinking

- nature table -signs of spring and summer

## **Nursery**

### **Autumn**

#### **Nursery rhymes and celebrations**

- looking for signs of autumn
- using magnifiers to search for insects
- ladybirds and life cycles
- facts about spiders
- harvest
- day and night
- weather
- **healthy eating, cleaning teeth, washing hands**

### **Spring**

- jungle animals / growing
- comparing the local environment to a jungle environment
- signs of winter
- facts about hibernating creatures.
- tasting Chinese food using chopsticks
- spring walk to look for signs of new life
- sowing cress seeds – life cycles
- egg investigation
- new life: lambs
- frog life cycle

### **Summer**

#### **Sand and water**

- what is found in a pond
- what is found in a rock pool
- compare the local environment to a seaside environment
- floating and sinking
- uses of water
- frozen and melted
- investigate wet, dry and damp sand
- signs of summer & seasonal facts



## **Is science taught in a rich and varied way?**

Science is taught in a rich and varied way and is very much a part of the creative curriculum. Each year, the science lead organises two whole-school science enrichment weeks, one in the autumn term and then one in the spring term. These weeks help staff to close the gaps identified in earlier transition meetings and provide a wonderful enrichment to the pupil's science provision.

During the first enrichment week, on the theme 'Healthy Bodies and Healthy Minds', the Nursery children have been learning about healthy foods. They looked closely at a range of fruits and vegetables, including a pineapple, a parsnip, a swede, a sponge gourd, a passionfruit, and a coconut. They were fascinated by the coconut, and it inspired fantastic discussions about what was inside and how it could be opened. The children loved the Giles Greengrocers role play area. They took on the role of a customer by writing lists and using coins to pay for different types of fruit and vegetables. Sabin made a list before shopping and commented, "I'm buying pears for my Mummy." During the week the children also enjoyed taking part in a fruit themed yoga session. They learnt to bring their hands together and say a secret yoga code word, 'namaste'. The children stretched into a banana pose, made themselves into a fruit bowl and fluttered their legs like the wings of a butterfly.

In the same week, reception children thoroughly enjoyed participating in many activities. They talked about what it means to be healthy, looked at the story 'The Carrot Club' and enjoyed tasting a selection of fruit and vegetables. When sampling pink grapefruit, Noah in Barn Owl class said, "I can taste the grape in the grapefruit!" The children also practised the poem 'Juiciest Apple'.

The children participated in a very energetic PE session with Mr Pullin. They discussed what happened to their body after an activity and put their hands on their chest to feel their hearts beating fast and noticed they were breathing faster and harder. The children also enjoyed participating in a lovely yoga session. They practised gentle breathing techniques while listening to meditation music.

The children looked at the importance of maintaining a good level of hygiene and enjoyed the story 'Supersoap' and singing the song to accompany the story. The children loved having 'paint' germs on their hands and singing a rhyme whilst washing to ensure all the germs had disappeared. Lola in Barn Owl class said, "I stroked a cheetah and a cat, and I didn't even bother to wash my hands after touching the cheetah, so I must give my hands a super wash with soap!" Harrie in Snowy Owl class said, "You wash your hands with soap to get rid of the germs." Remi in Tawny Owl class said, "Wipe the germs off and scrub-a-dub!"

The children looked at the importance of cleaning their teeth and loved using toothbrushes and toothpaste to clean a set of teeth. Andrew in Tawny Owl class said, "Brush your teeth, eat healthy food and go to the dentist." The children also made a smile showing off their pearly white teeth and had their photograph taken. These photographs will be made into a colourful display.

The children also focused on the importance of getting lots of sleep, to rest and repair their bodies. The children loved playing with the soft toys and taking part in preparing them for bed. They pretended to bath the toys, clean their teeth, and wrapped them up in a blanket. The

children either sang a lullaby to their doll or read them a bedtime story and finished off by giving their soft toy a goodnight kiss.

The Year One pupils learnt all about the biologist Laura Brown Buck who won the Nobel prize in 2004 for her work on the sense of smell. They had great fun investigating their sense of smell with a smelling test. They had to identify the aromas of peppermint, lemon, orange, coffee and vanilla. They were encouraged to reflect on whether or not they liked the smells and what adjectives came to mind to describe them.

The pupils were also treated to a calm and tranquil yoga workshop run by Jane from Happy Little Yogi.

The children enjoyed investigating the sense of taste through a fruit tasting session. They learnt that our tongues can identify four different taste groups: sweet, sour, bitter and salty. They enjoyed coming up with a range of adjectives to describe textures and tastes of a variety of fruits. They made a class chart to find out which was the most popular fruit in the class. Having tasted the fruits, the children used their knowledge of their own personal preference to design themselves delicious, healthy fruit kebabs. They followed their own plans to make their kebabs and, having eaten them, they evaluated their recipes. Thea in Walker Bear Class said, 'I liked the fruit kebab because I had never made one before.'

The Year 2 children had a fabulous time focusing on well-being.

The children took part in activities focusing on healthy minds, learning how they can make good choices that will make them feel happy. They learnt that it is okay to have negative feelings sometimes and thought of some strategies to help them if this happens, using an emotions tool kit. The children learnt about mindfulness and some useful techniques to help them focus 'in the moment'. They also took part in a calming yoga session, which helped them to focus on their breathing and calm their minds.

In addition to the enrichment week, in the autumn term, Year 1 very much enjoyed a visit from Safari Stu, where the children experienced a hands-on workshop learning about a range of animals. This then led on to some fantastic work about grouping and classifying animals.

Our Forest School woodland area has continued to be an invaluable resource in providing additional opportunities for children to stay safe whilst enjoying high quality and inspiring outdoor learning. The additional field area next to the woodland area has been used for den building and team activities, and resources have been purchased for making obstacle courses which the children have thoroughly enjoyed.

This March, the children are taking part in the second enrichment week - British Science Week. This year the theme is 'Time'. Packs and a wide range of other suggestions and resources have been made available to all staff across the school, so that they can choose the activities that meet the needs of the children in their class, and that fit in with their topics where appropriate. Year One will be turning their hand to model building, using different paper based materials to create a structure based on ideas by the architect Zara Hadid and linked to the Stevenage clock tower.

Year Two are looking at the weather and mapping changes over time.

This academic year we are also aiming to achieve the 'Platinum Woodland Trust Award'. The curriculum lead has chosen to complete the 'Woodland Perspective' and 'Wild Trails' activities this year. This will give the school an additional 10 points towards the platinum award. We are currently on 16 points and need 30 to complete the challenge.

In collaboration with after school club, the children have been awarded the Level 2 RHS gardening scheme.

### **Impact:**

Learning walks in KS1 evidence that teachers are assessing and adapting the planning to meet their pupils' needs. Pupil voice gives clear indications that pupils enjoy their learning and are secure in their understanding of science concepts and skills. This understanding is evidenced in pupils' books and in photographs. This was also seen during the School Effectiveness visit in November 2023, whilst collecting pupil voice from Year 2 pupils. The report notes that Year 2 pupils had exceptional recall about their learning in science. The pupils were articulate and knowledgeable and were proud of their science books. During the reception visit, it was noted that the group of scientists included some children who represented the current lowest 20% in the class. The teacher provided guidance, with modelled sentence starters, as the children were asked to predict which materials could withstand the wolf's breath represented by a hairdryer.

### **What is the quality of teaching across the school in science?**

Carole Hintridge (School Effectiveness Advisor) carried out a deep dive in science on 28.11.23 across all year groups with the science lead and headteacher. It was noted in her report that staff are strong role models and know their pupils well which enabled all pupils to access their learning activities. Across the school, teachers share key vocabulary with classroom support staff at the start of each new unit to ensure all staff are using the correct vocabulary. This is then modelled to the children to ensure the children have a deep understanding of the vocabulary and can use it accurately.

### **What has been done over the past year to improve standards?**

Our science curriculum is high quality, well thought out and is planned to demonstrate progression (using the Herts Science Primary Package and the national curriculum). If pupils are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through mapping against age-related expectation (ARE) standards and working scientifically.

Staff met in October to review the science learning journey and map the enquiry strands to ensure complete coverage. Staff looked at how the investigative skills are built up through our spiralled curriculum and mapped these carefully.

### **Key stage 1 data 2023**

| <b>2023 COHORT - 51 boys and 35 girls</b>   |             |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
|   | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023</b> |
| <b>Giles Nursery and Infants School</b>     | <b>84.5</b> | <b>84.5</b> | <b>N/A</b>  | <b>N/A</b>  | <b>84.4</b> | <b>76</b>   |
| <b>Stevenage</b>                            | <b>82.9</b> | <b>83.0</b> | <b>N/A</b>  | <b>N/A</b>  | <b>74.3</b> | <b>75.4</b> |
| <b>69% boys EXS</b><br><b>86% girls EXS</b> |             |             |             |             |             |             |

### **Moving forward: Actions for 2023/2024**

- Review and update the curriculum where necessary across the school to ensure coverage, consistency and progression including vocabulary.
- Develop pupils' language skills so that they have a wide scientific vocabulary and can express themselves confidently.
- Complete Woodland Trust Platinum Award to engage pupils in outdoor learning to boost wellbeing.
- Continue to run Forest School activities to boost wellbeing of all Year One pupils.
- Roll out Crest Awards to KS1 for science week 2024.
- To continue with a robust monitoring schedule, including:
  - observations of teaching and learning
  - planning scrutiny
  - work sampling
  - moderation of teacher assessments
  - activities to seek the views of pupils
  - monitoring of displays – to ensure diversity

**Kerrhys Edwards curriculum leaders for science**  
**March 2024 Review date: March 2025**