# Ladygrove Primary School and Nursery Science Policy

**Written by Max Trusler**

**Due for review – September 2026**


## Abstract

Science has become increasingly important in primary education because it equips children with the knowledge and skills to engage with the world around them. It fosters curiosity, critical thinking, and problem-solving, enabling learners to make informed decisions in areas such as health, sustainability, and technology. As a cornerstone of STEM, science builds foundations for future learning in mathematics, engineering, and technology, while linking across the curriculum to literacy, numeracy, and the humanities. Early science education promotes equity, prepares students for future careers, and supports national priorities for innovation and sustainability. This policy is essential in defining our vision and curriculum approach to ensure these aims are met, providing a clear framework for delivering high-quality science education that empowers all learners.

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# Our Vision

Our motto, '***Every day counts, every minute matters***,' is the heartbeat of our school. Education opens doors to opportunities and the sense of belonging to Ladygrove helps to shape our pupils as individuals. We pride ourselves on being a friendly, happy and supportive school. High self-esteem is encouraged, high expectations, standards and values are fostered and progress and achievement are positively monitored and celebrated. We believe that all children can achieve!

We prepare our children for life as 21st century responsible citizens, teaching the importance of sustainability and looking after the environment for generations to come. We strive to develop in our children a life-long love of learning.

Our children deserve the best and we see excellence in making "Every Day Counts and Every Minute Matters!" We teach our children to become *'Tough Tortoises, Wise Owls, Team Ants' and Resourceful Squirrels*; developing skills of resilience, reflection, reciprocity and resourcefulness; so they are equipped with learning skills that will prepare them for life in an ever-changing world!




# Aims for Science

- To develop scientific knowledge and conceptual understanding.
- To 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.
- To equip children with the scientific knowledge required to understand the uses and implications of science, today and for the future.
- To develop enjoyment and awe and wonder when carrying out investigations.
- To teach age-appropriate key skills in Science.
- To link Science with Numeracy skills when observing links and patterns with their results.
- For children to be taught about safety and to ensure all work is carried out safely both for themselves and other people.
- To ensure children are taught how to use resources correctly, including developing independence in the use of these from an early age.
- To teach children the appropriate scientific vocabulary, both based on knowledge and skills.
- To recognise Science as a core subject area and to ensure that it is allocated the correct status and time.
- To explore values and attitudes towards Science.
- Learn ways of thinking and finding out and communicating ideas, including the use of higher order thinking skills to develop awareness further.

- To develop knowledge and understanding of important scientific ideas, processes and skills and relate these to everyday experiences.
- To learn and know the names and findings of key British Scientists and those from other parts of the world.

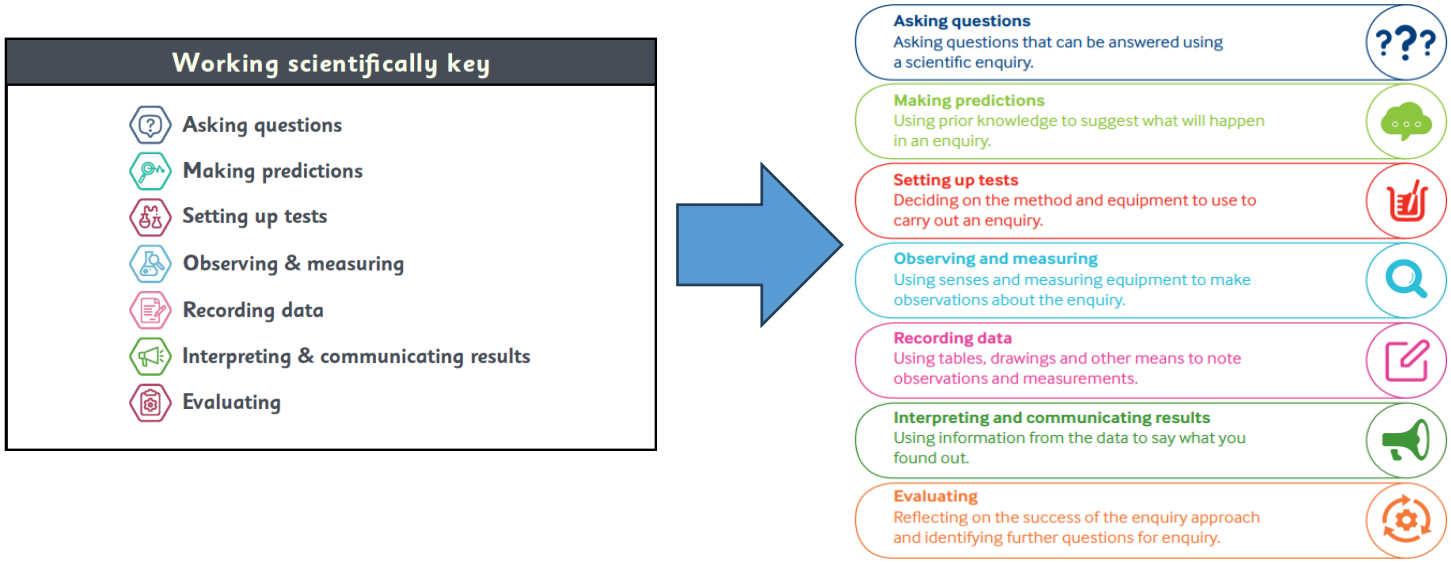
## Why we teach science

Why we teach science Children are encouraged to be 'scientists' right from Early Years through to Upper Key Stage Two and beyond. All children will experience the Working Scientifically skills at varying levels depending on their age and ability. The following elements will be taught throughout:

**Knowledge** – Children are taught and learn key facts linked to the three scientific strands that they study. Children are expected to learn about key scientists and their impact on scientific findings.

**Working Scientifically**– children are directly taught a variety of key scientific skills such as: observation, asking questions, sorting and classifying, concluding, recording results.

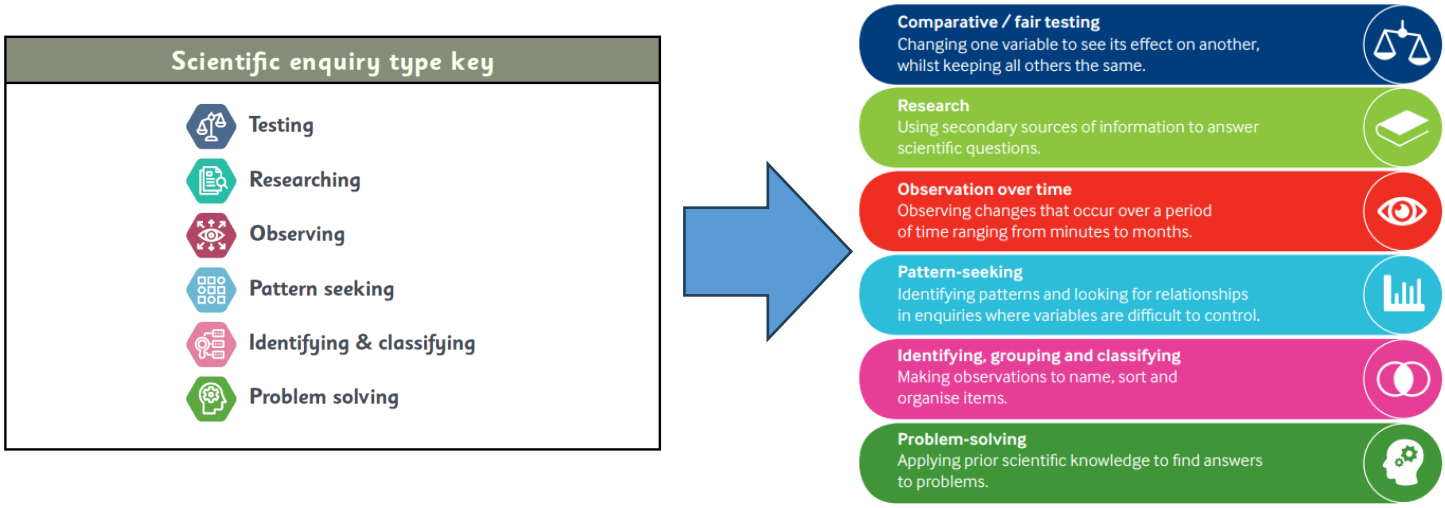
**Working Scientifically –** This strand from the National Curriculum focuses on the pupils being taught to use practical scientific methods, processes and skills.




These working scientifically skills will be taught and developed progressively through Science investigations from EYFS to Year 6.

The logos representing each of these skills will be present within classrooms and on teaching slides. As pupils move through school, they will develop an increased awareness and knowledge of the working scientifically skills represented by each logo. They will be involved in discussions within Science lessons to identify the skill they have been developing in investigations.

Working Scientifically skills are taught and developed through six key investigation types. They are:




## Science and the curriculum

Science is a core subject in its own right and various elements of science need to be taught specifically. However, curriculum links can be made, especially within Literacy, Numeracy, ICT, Design and Technology, PE, Eco-Schools and Healthy Schools.

### Some examples of how Science and Literacy can support each other:

- Report writing as a result of a Science investigation.
- Note writing as part of planning Non-fiction writing Poetry following an Science investigation
- Illustrative activities related to the senses – music sound and touching etc.
- Speaking and listening skills are also an integral part of teaching science through asking questions, talking about their ideas, justifying their thinking
- Exploring concepts through drama.

As part of this, it is important that children are encouraged to develop their scientific vocabulary through specific word level work.

### Some examples of how Science and Maths support each other:

- Using a range of instruments which use scales of measurement
- Thermometers, stopwatches, clocks.
- Balances and scales
- Various measuring cylinders and beakers
- Using various tables and charts to record observations and present their results.
- Using a systematic approach to problem solving.

## Some examples of how Science and Design Technology support each other: Using and applying knowledge of measurements.

- Using and applying knowledge of measurements.
- Applying their knowledge of materials, their purposes and properties.

## Some examples of how Science and PE can support each other:

- Developing understanding of forces through dance
- Focuses on the human body and how we move and grow.
- Explaining concepts such as the movement of solids, liquids and gases.

These reflect just a few ways in which Science can be linked to other curriculum areas. It is important to identify clearly the focus for these sessions to ensure the correct time allocation is given to the different subjects.

## Ways of recording:

It is important that mathematical skills are taught within Numeracy and then applied within the science lesson, and, that Literacy lessons are used to record scientific concepts and findings when appropriate. Other ways of recording could include the use of photographs, videos, whiteboards and laminated planning boards. Work completed in Literacy can be referred to in the science book or photocopied. Children's work will be recorded in the following books: Early Years will use either their Learning Journals, tapestry or Understanding the World floor book. Key Stage 1 and 2 will use lined green books.

## Time allocation

(In accordance with Government guidelines) Science is to be taught weekly, using the time allocation shown below. However, a greater amount of time may need to be reallocated to the weeks where a Science investigation is being carried out. This will allow for the whole process to be followed through by the children and allow the teacher to assess a focus area of the investigation. Key Stage 1 – 2 hours per week Key Stage 2 – 2/2.5 hours per week. Science is to be taught in an allocated morning or afternoon, by the Class Teacher.

We greatly encourage teachers to ensure Science is occasionally taught in the morning sessions if their timetable allows.

# Knowledge and understanding

Children should be taught to:

- Be curious about the things that they observe and experience and explore the world around then using all their senses.
- Use these experiences to develop their understanding of key scientific ideas and make links between different phenomena and experiences.
- Begin to think about models to represent things they cannot directly experience.
- Try to make sense of phenomena, seeking explanations and critically thinking about claims and ideas. Process and skills Children should be taught to:
- Acquire and refine the practical skills needed to investigate questions safely.
- Develop skills of predicting and asking questions, making inferences, concluding and evaluating based on evidence and understanding and use these skills in investigative work.
- Practice scientific and mathematical skills in real contexts.
- Learn why numerical and mathematical skills are useful and helpful in understanding. Language and communication Children should be taught to:
- Think creatively about science and enjoy trying to make sense of the phenomena.
- Develop language skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds
- Use scientific and mathematical language including technical vocabulary and conventions and to draw diagrams and charts to communicate scientific ideas.
- Read non-fiction and extract information from sources such as reference books or the internet. Building on children's earlier experience Children should be taught to:
- Ask questions as to why things happen
- Investigate a wide variety of objects and materials in the natural and man-made world.
- Learn about themselves and living things.
- Look closely at similarities and differences, patterns and change.
- Talk about their observations and sometimes record them. Values and attitudes Children should be taught to:
- Work with others, listening to ideas and treating these with respect
- Develop respect for evidence and evaluate critically ideas which may of may not fit evidence available
- Develop a respect for the environment and living things and for their own health and safety. Features of progression Children should be taught to:
- Move on from using everyday language to increasingly precise use of technical and scientific vocabulary, notation and symbols
- Move from personal scientific knowledge on a few areas of understanding to a wider range of areas and make links between them.
- Move from describing events and phenomena to explaining about events and phenomena

- Develop their independence in investigations from explaining modelled investigations to teacher led practical work then independent investigations.
- Move from explaining phenomena in terms of their own ideas to explaining in terms of accepted ideas or models
- Participate in practical science activities to building increasingly abstract models of real situations
- Move from unstructured exploration to more systematic investigation of a question
- Move from using simple drawings, diagrams and charts to represent and communicate scientific information to using more conventional diagrams and graphs.

## Special Educational Needs

At Ladygrove Primary School and Nursery we follow the guidelines set out in the 2015 Code for Special Educational Needs: for 0 to 25 years. The key elements of the statutory framework in Part 3 of the Children and Families Bill reflect the principles below:

- Involving children, parents and young people in decision making.
- Identifying children and young people's needs.
- Greater choice and control for parents and young people over their support.
- Collaboration between education, health, and social care services to provide support.
- High quality provision to meet the needs of children and young people with SEND.
- Supporting successful preparation for adulthood.

As a school we work together with colleagues, parents, outside agencies and children to ensure pupils with special educational needs are identified and their emerging needs are met to allow them to access the science curriculum.

## Children working above the expected standard

As a school, we strive to meet the needs of our G&T learners. We enable children to stretch and challenge themselves, through the development of

- Thinking skills
- Enquiry skills
- Questioning skills
- Reasoning skills
- Evaluative skills

We expect these children to make accelerated progress. In Science we do this by digging deeper with the children's learning similar to the concept of the Mastery Curriculum in Maths. Children will be moved forwards with their explanations and uses of Scientific Vocabulary. The most gifted learners will strive to apply their findings within a new context.

## Assessment and Tracking in Science

We assess learning in a variety of ways. Each unit begins with a “Big Question” to check prior knowledge and ends with a review to show progress. At the start of lessons, “Marvellous Memory” questions help children recall previous learning and strengthen understanding. At the end of each unit, a formal “Hot Task” assesses overall knowledge and identifies any gaps or misconceptions.

Teachers continuously monitor learning during lessons through strategies such as asking targeted questions to check understanding, encouraging children to explain their thinking, and reviewing written work. Marking is used to highlight strengths and identify areas for improvement. Where misconceptions are found, teachers use “Think Pink” prompts in books to guide children in correcting their work and deepening their understanding. Evidence from books and teacher observations is then used to make informed judgements about each child’s progress.

We use the Grammarsaurus Science Scheme to support planning and assessment. This scheme provides clear expectations for what children working below, at, and above age-related standards should achieve. Teachers use these guidelines to assess progress and adapt teaching to challenge pupils and address misconceptions.

Adaptations may include revisiting key concepts in small groups, providing additional practical investigations to reinforce understanding, or offering extension tasks for children who are ready for greater challenge. Teachers also use targeted questioning and guided discussions to deepen understanding and correct misconceptions during lessons.

Planning is adapted based on assessment outcomes. For example, teachers may adjust the sequence of lessons to spend more time on topics where misconceptions were identified, incorporate extra retrieval activities to strengthen memory, or include more hands-on experiments to support practical understanding. For pupils needing additional support, teachers might plan scaffolded tasks or use visual aids and vocabulary banks. For higher-attaining pupils, planning may include opportunities for independent research or problem-solving challenges.

Assessment includes evaluating children’s understanding of “Working Scientifically” skills through questioning and discussion. From Years 1 to 6, science knowledge and understanding are assessed at the end of each unit. These assessments are recorded in line with the whole-school policy, indicating whether a child is working below, at, or above national expectations. Teachers record this as a ‘best fit’ on termly grids, and the science coordinator reviews the data to identify next steps and improvements. End-of-term assessments are stored on Sonar for tracking and analysis.

## Planning

Science planning is outlined in the school’s Long-Term Plan, available on OneDrive. Teachers use resources from the Grammarsaurus website, which is regularly updated to align with the National Curriculum. Each term, teachers adapt these resources to ensure **equity in learning**, so all children have an equal opportunity to achieve the learning objectives and develop a clear understanding of the concepts. Lessons are designed to be inclusive and engaging, whether through practical investigations, research activities, or discussion-based tasks.

Every lesson is planned to include a strand of *Working Scientifically*, as this is central to science teaching at Ladygrove. Objectives are selected from the Engage Science scheme, which links directly to the National Curriculum and our long-term plans.

Planning adaptations may include adding extra practical experiments for hands-on learners, incorporating visual aids and vocabulary banks for pupils needing support, or designing extension tasks such as independent research for higher-attaining pupils. Teachers also plan retrieval activities to strengthen memory and adjust lesson sequences to revisit areas where misconceptions were identified. Resources are provided and adapted to ensure **equity**, giving all pupils the tools they need to succeed.

Resources are monitored and replenished throughout the year to maintain high-quality materials for investigations and experiments.

## Health and Safety

All science activities are carried out with care, and children are taught how to use equipment safely and responsibly. Before any work involving the senses, such as touching or food tasting, teachers check for allergies. Parents provide this information when registering their child at school.

Our school is registered with CLEAPSS, ensuring we follow national safety guidance for science. A detailed science risk assessment is available in the science cupboard and on the school's OneDrive. If a teacher is unsure about the safety of an activity, they must consult the science lead before proceeding.

Children are shown how to conduct practical sessions safely, including using appropriate equipment correctly and understanding how to behave during experiments. This includes following instructions, handling materials with care, and respecting safety rules at all times.

## Role of the Science Co-ordinator

The Science Lead is responsible for driving high-quality science teaching and learning across the school. In this role, the Science Lead will:

- **Provide training and support for staff** by delivering up-to-date INSET sessions, sharing new resources, and attending relevant courses to improve personal subject knowledge.
- **Support teachers with planning** by reviewing medium- and short-term plans, suggesting adaptations for inclusion, and ensuring lessons reflect the National Curriculum and include *Working Scientifically* skills.
- **Monitor teaching and learning** through lesson observations, learning walks, and reviewing planning to check for progression and quality.
- **Review children's work** by sampling books across year groups to ensure accuracy, progression, and appropriate use of scientific vocabulary.
- **Provide feedback** to the Headteacher, Senior Management Team, teachers, and Governors through written reports and meetings.

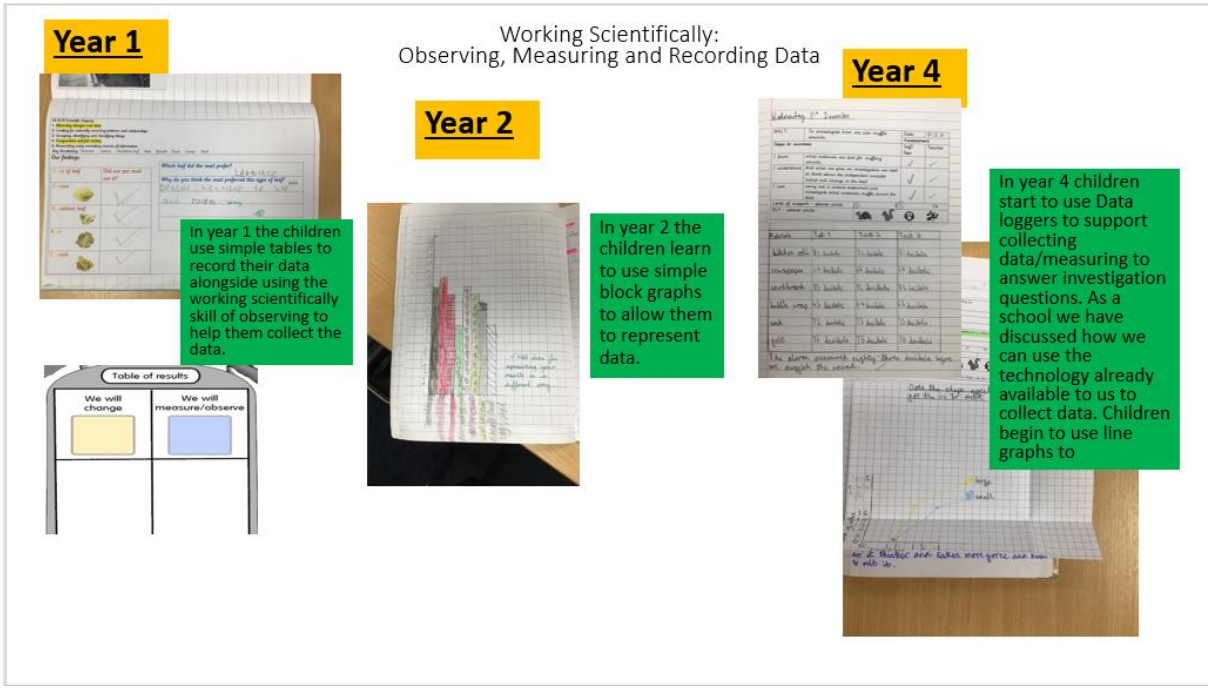
- **Work closely with the link Governor** to share developments and progress, and collaborate with other science teachers to exchange best practice.
- **Ensure curriculum compliance** by staying informed of any changes and guiding staff on implementing them effectively.
- **Model best practice** by teaching exemplar lessons and demonstrating effective strategies for engaging pupils.
- **Monitor and maintain resources** through regular audits, ensuring equipment is replenished and suitable for all year groups.
- **Promote a positive ethos for science** by raising its profile across the school and encouraging enthusiasm for the subject.

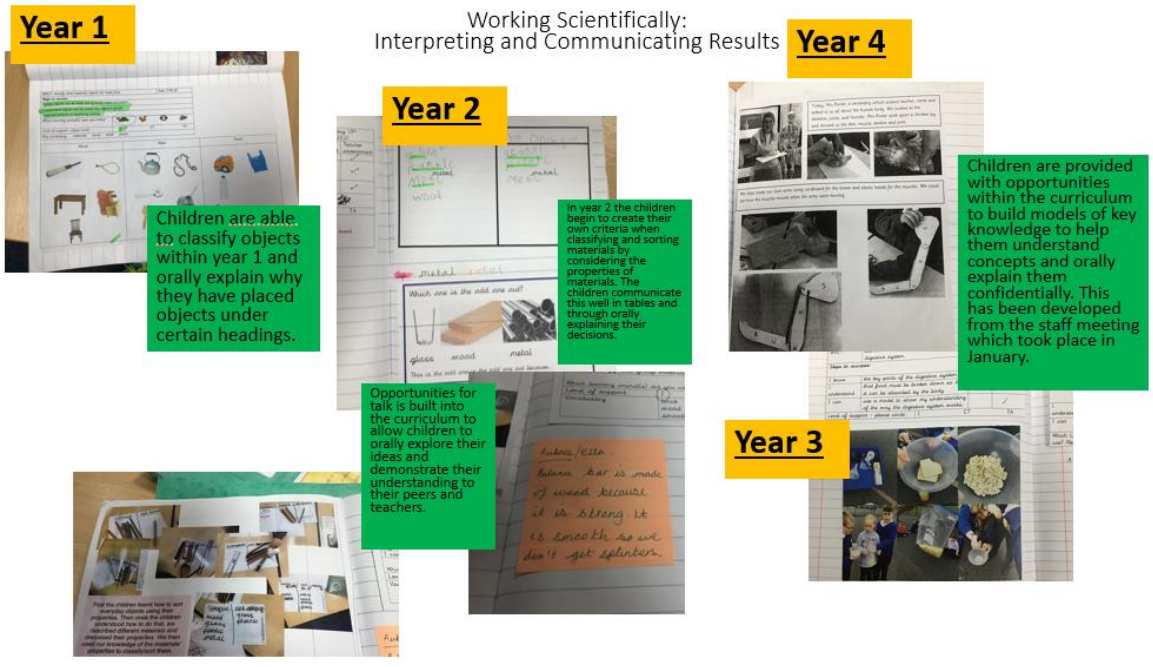
**Success Criteria for the Role:**

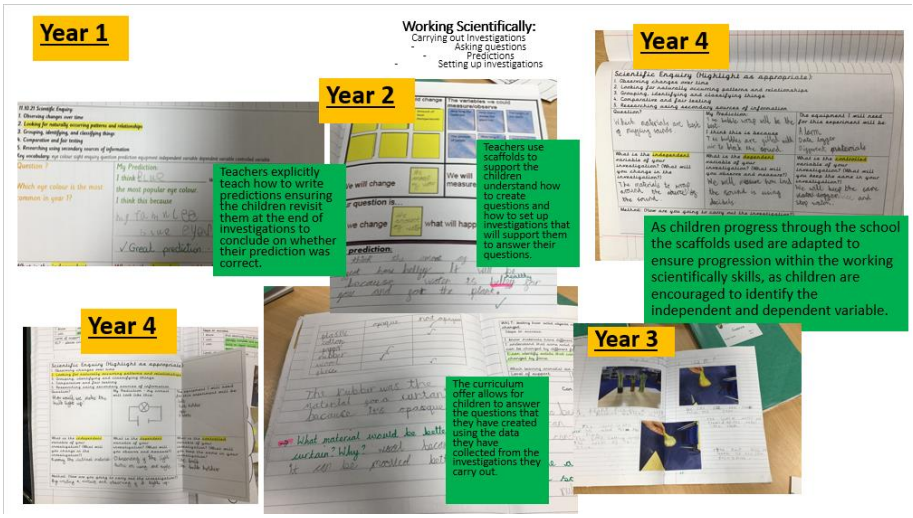
- Improved resources available across the school.
- All pupils receive the required amount of science teaching each week.
- Children become confident scientists who use technical vocabulary appropriately.
- Teachers feel confident teaching all aspects of the science curriculum.
- High-quality work is evident in children's books.
- The link Governor understands how science is taught in school.
- Science has a raised profile within the school.
- Progress is clearly tracked and evidenced.
- Pupils are explicitly taught *Working Scientifically* skills appropriate for their age.
- A balance of illustrative and investigative science is taught throughout the school.

| **Policy- Document Status** | | | |
|---|---|---|---|
| | | | |
| **Date of Policy Creation** | **September 2024 – reviewed annually** | **Named Responsibility** | Max Trusler |
| **Date of review completion** | **December 2025** | **Named Responsibility** | Pupils, Staff, Parents and Governors |
| **Inception of new Policy** | **December 2025** | **Named Responsibility** | Joanne Weichlbauer |
| **Date of Policy Adoption by Governing Body** | | **December 2025** | |

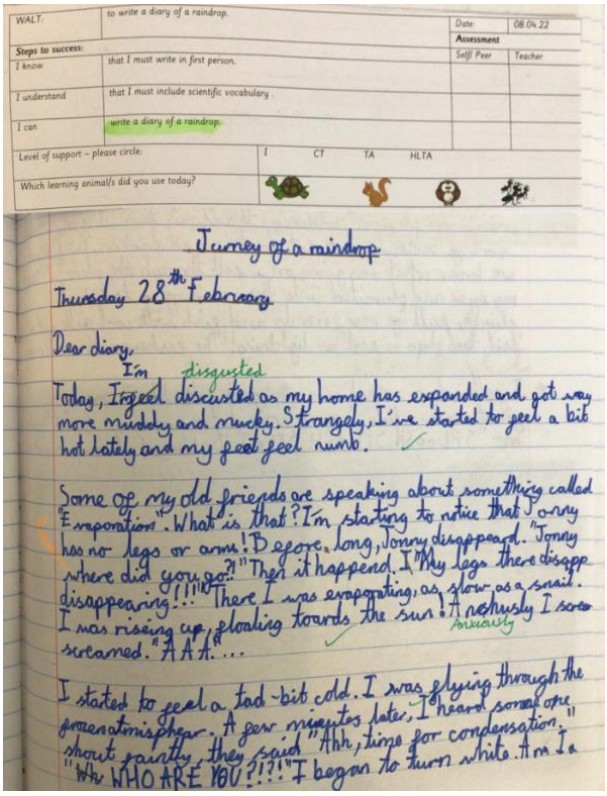
# Appendix 1 – Examples of working scientifically across the school



# Appendix 2 – Writing in science



| | | | |
|---|---|---|---|
| WALT: | to write a diary of a raindrop. | Date: | 08.04.22 |
| Steps to success: | | Assessment | |
| | | Self/ Peer | Teacher |
| I know | that I must write in first person. | | |
| I understand | that I must include scientific vocabulary. | | |
| I can | write a diary of a raindrop. | | |
| Level of support – please circle: | I CT TA HLTA | | |
| Which learning animal/s did you use today? | | | |

Journey of a raindrop

Thursday 28th February

Dear diary,

I'm disgusted

Today, I feel disgusted as my home has expanded and got way more muddy and mucky. Strangely, I've started to feel a bit hot lately and my feet feel numb.

Some of my old friends are speaking about something called "Evaporation". What is that? I'm starting to notice that Jonny has no legs or arms! Before long, Jonny disappeard. "Jonny where did you go?" Then it happend. "My legs there disapp disappearing!!!" There I was evaporating, as slow as a snail. I was rising up, floating towards the sun! Anxiously I soon screamed. "AAA!...

I started to feel a tad-bit cold. I was flying through the atmosphere. A few minutes later, I heard some one shout faintly, they said "Ahh, time for condensation." "Wh WHO ARE YOU?!?!" I began to turn white. I'm I a

I felt like I was getting extremely hot. A few moments later I was boiling! And Suddenly... POOFF!!! I was a big, fluffy cloud and it was great! I just turned into a cloud which is also known as condensation! I just evaporated into a cloud!

A couple delightful days later, something horrible happened... precipitation was happening. I knew what was going to happen next as it has happened to me before. As I fell I surprisingly landed in a large river...

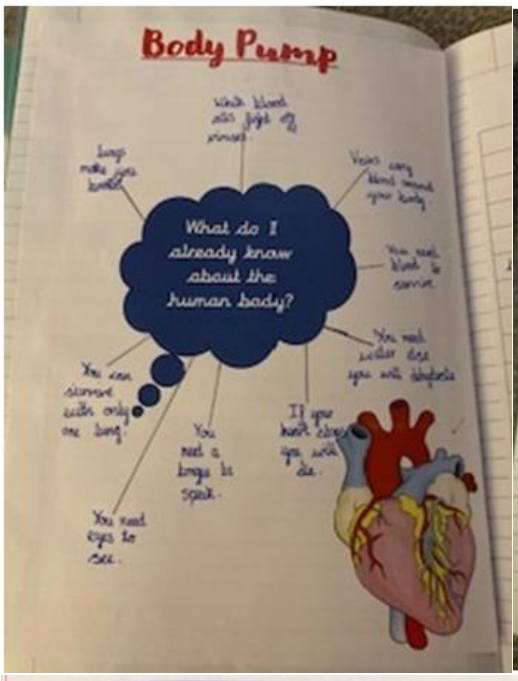
I was falling down the river at rapid speed over the rocks... through the dark, long tunnels, and also getting closer to the gigantic ocean and I was getting more excited by the minute and not long after I was inside the big deep ocean...

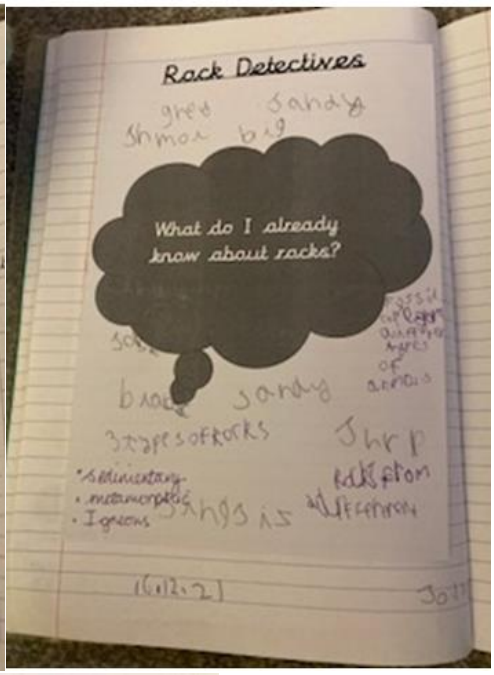
CLOUD? I turned out I was as fluffy as a cotton ball. Soon my new drumbe drums felt like they were going to burst, as a raindrop my age ran away through the misty air. I followed, my hair flopping in the wind as I ran. When I got through the fog, I opend opened my mouth in delight because there was a millions upon billions of drops like me. I asked "Who are you?" They said "Bobby."

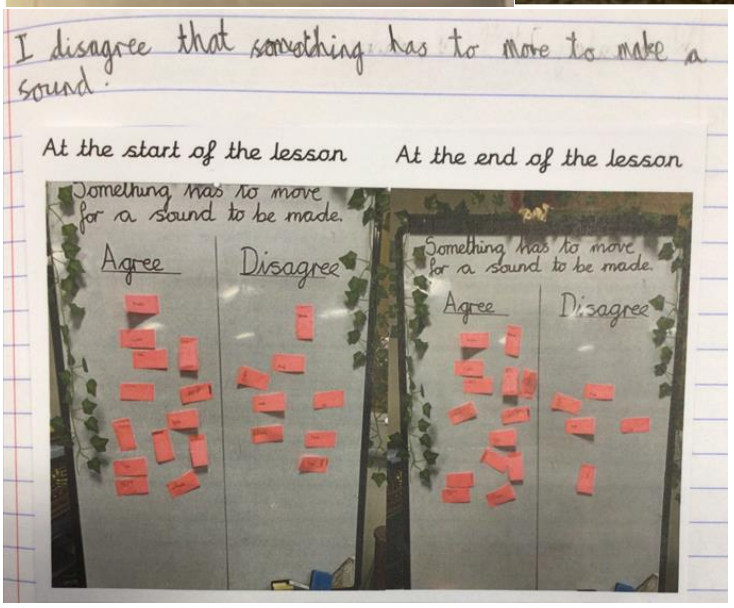
Soon after, holes started form in the floor where my new friend was playing. Suddenly, the cloud turned a charcoal sort of colour. It got darker and darker. Be Before we knew what was going on I fell through the floor, I opened my eyes and plumited into the ocean, of a tropical climb, full of new friends and fish with cool gills and a tail, that flops as fast as lightning! The fishes name was Nemo.

* I fell into a weard river thing, it felt like I was on a giant water slide. Several hours later someone said "help m- "SPLOOSH, SPLASH, SPLAT. Bubbles I flew up around me!

Appendix 3 – Mind-maps to recap what we know and add new knowledge as we learn and remember more.

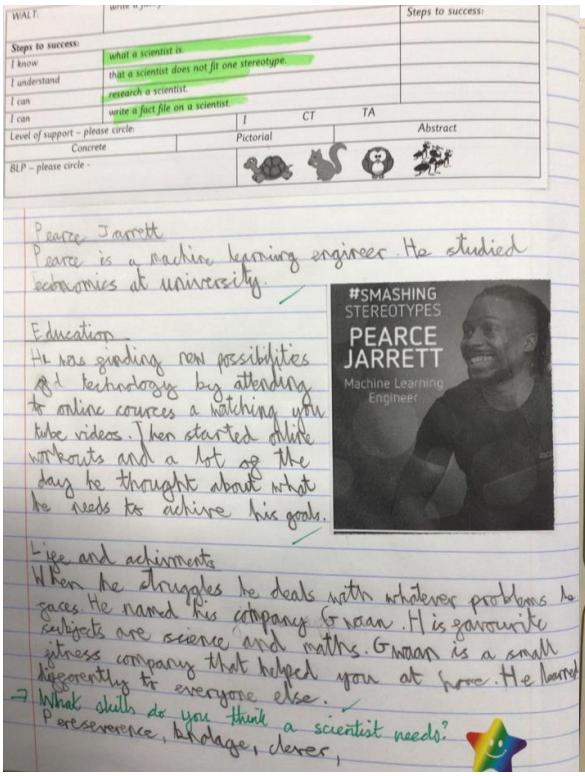


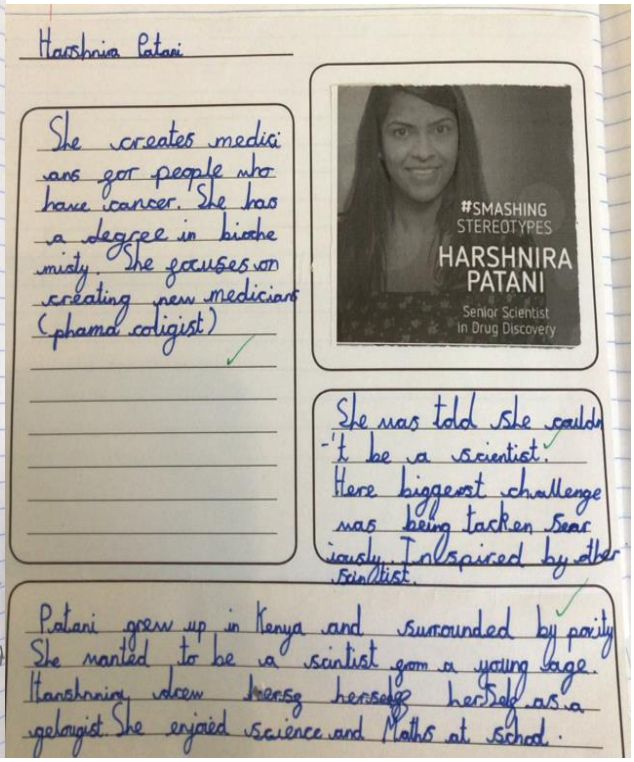



# Appendix 4 – Diversity in Science

At Ladygrove we use modern scientists that reflect our school community so that our children can see people like themselves as scientists. These are selected from the Primary Science Teachers Trust, as they are linked to our units of learning.




## A Scientist just like me

**Hi there! I am Danial Azahan – A mechanical engineer**



### Where do I work?

I currently work at an energy consultancy company. We help other companies to design safe and sustainable way of harvesting energy.

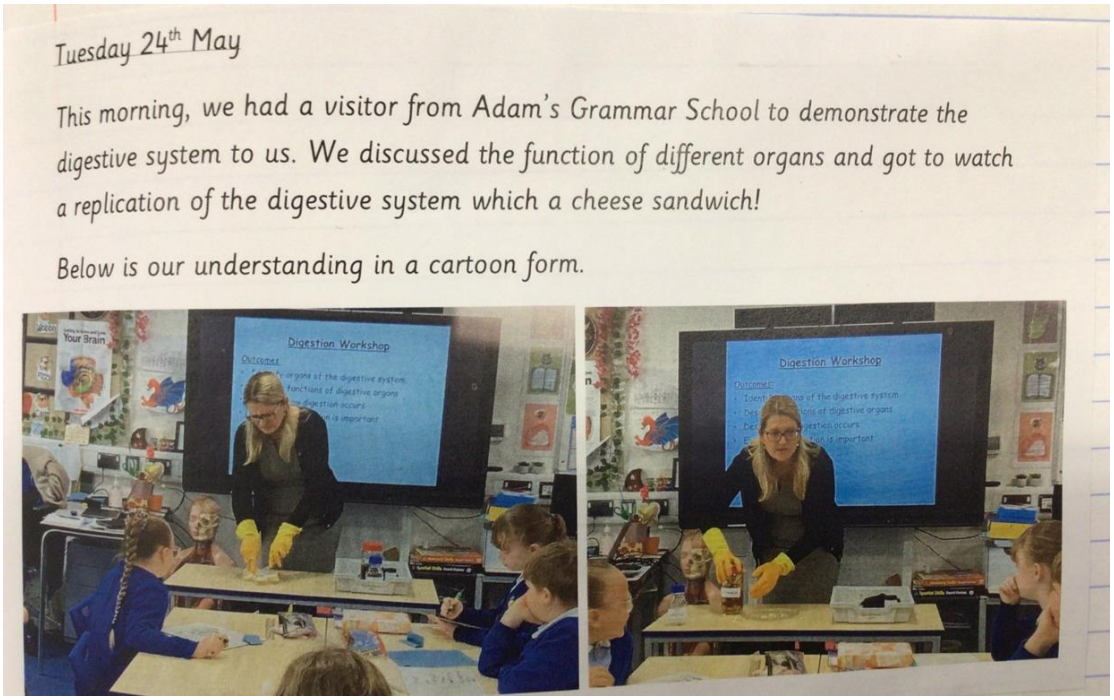
### What did I like doing when I was at school?

I loved doing science experiments and figuring out how things work.

### What do I like doing in my spare time?

I love like to write codes and programs and I love listening to music.

Appendix 5– We work with experts from other schools to upskill and develop our science curriculum offer.



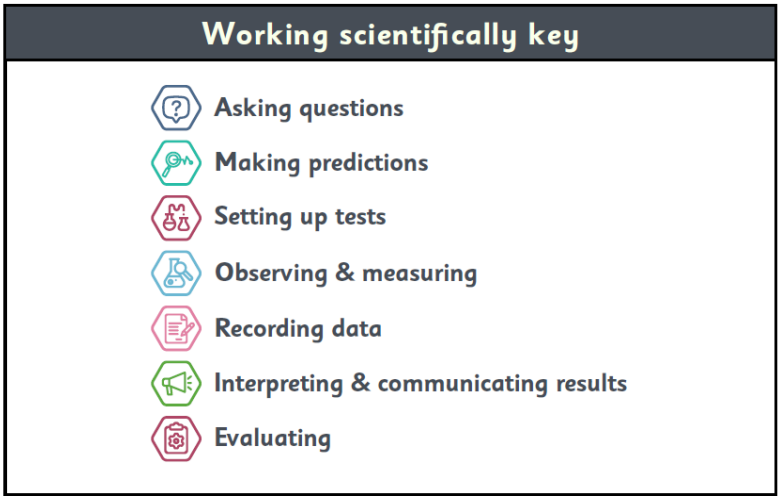
Tuesday 24th May

This morning, we had a visitor from Adam's Grammar School to demonstrate the digestive system to us. We discussed the function of different organs and got to watch a replication of the digestive system which a cheese sandwich!

Below is our understanding in a cartoon form.

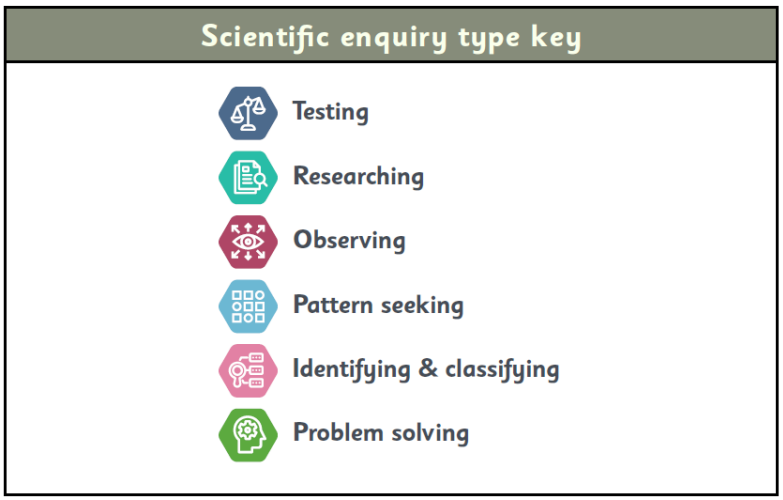


Appendix 6 – Working scientifically images



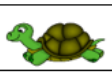


Appendix 7 – Scientific enquiry types images



# Appendix 8 – Example WALT and My Marvellous Memory

## Lesson 2: What are sound vibrations?

| | | | | |
|---|---|---|---|---|
| Thursday 20th November 2025<br>**WALT: Understand that sounds are created by vibrations** | | | | Self/Peer Assessment |
| **LOOKING FOR LEARNING:** | | | | Child |
| **PRIOR KNOWLEDGE**<br>I **know** that vibrations cause sound | | | | |
| **NEW SKILL**<br>I **can** use scientific terms to describe how sound travels | | | | |
| **CONCEPT**<br>I **understand** how sounds are made and associate them with something vibrating | | | | |
| Level of support – please circle: | I | CT | TA/HLTA | Peer |
| Which learning animal/s did you use today? |  |  |  |  |

Vocabulary: **vibration, sound vibration, sound wave, solids, liquids, gases, particles.**

MY MARVELLOUS MEMORY

**Retrieval Starter**

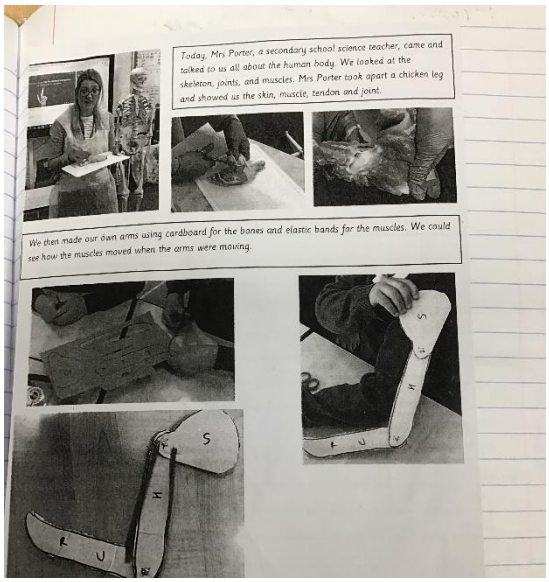


Answer these questions from prior learning to test your 'Marvellous Memory'.

1. Sound is made when an **object**…
   a. Spins
   b. Vibrates
   c. Breaks
2. Volume is a **measure** of…
   a. How high or low a sound is
   b. How loud or quiet a sound is
   c. How enjoyable a sound is

# Appendix 9 – Use of models to support children with remembering more.





# Appendix 10 – Hot Task – End of topic test

## Y4 Animals including Humans
## End of topic test

1. Explain what these words mean: /3

**predator**

**prey**

**producer**

2. **Create** a **food chain** using these **animals**. Draw the food chain in the box below. Make sure to include the arrows. /5

**shark, seaweed, small fish, seal**

## Y4 Animals including Humans
## End of topic test

3. The pictures below show some of the things Tom sees in a pond. /1










The stickleback fish is a **predator**. Explain why.

4. Tick **ONE** box to show which life process a food chain shows. /1

- ☐ **movement**
- ☐ **nutrition**
- ☐ **growth**
- ☐ **reproduction**

5. **Match** the type of tooth with its function. /5

| | |
|---|---|
| **incisors** | **tearing and ripping food** |
| **canines** | **holding and crushing food** |
| **premolars** | **does not have a function** |
| **molars** | **biting and cutting food** |
| **wisdom** | **grinding food** |