Godalming Junior School

Subject: Science	Report prepared by: Erin Coleman

*Our curriculum **intent** for science* at GJS

At Godalming Junior School, we strive to produce young inquisitive learners who are curious and driven to explore Science and the world around them.

'I like the way it's taught – no matter what it's about, it's taught in a fun way that means we learn more about it' – 3AR

- As a subject, Science has two areas of focus, **substantive knowledge** that comes from the National curriculum outlines and **disciplinary knowledge** which focusses on the skills needed to conduct scientific enquiry.
  This includes: asking questions, making predictions, setting up tests, observing and measuring, recording data, interpreting and communicating results and evaluating.
- To ensure there is a clear and appropriate **progression of knowledge and skills** throughout the children's time at GJS, we have developed a progression of skills document outlining how each of the above skills should be developed and how children can demonstrate their understanding of how to apply these, independently in their lessons.
- There is also a progression of knowledge document which outlines the **concepts** which are to be taught, what knowledge this **builds on** and where this is **leading to** so that children have a clear understanding of where their learning fits in their overall science **learning journey**. Alongside this, it also includes possible enquiry activities, reading opportunities in Science and key scientists that children could be directed towards if they wish to explore an area further. We believe that these documents ensure that knowledge and skills are built on at a **gradual** and **appropriate** pace whilst making sure that children are well prepared for 'Secondary Science' when they leave GJS.
  'If something is complicated or seems 'grown up' it gets broken down in different ways using songs, videos or pictures. It's made to seem really cool to learn about'. – Sophia and Beth
- As with all subjects, we strive to ensure that Science has a high profile within the school, not only because of its status as a 'core' subject, but also because we want to encourage as many children as possible to take an interest in the scientific world around them. Therefore, Science has a focussed **10richment** week, aligned to the annual British Science Week, where children can explore areas that are not explicitly outlined in the National Curriculum. The themes for these weeks are chosen based on local, national or global links/news or they are taken from areas that children across the school have voiced an interest in. In previous years, these themes have included Chemistry, intergalactic exploration and what 'adapt and change' looks like.
  'It's enjoyable - it feels different to normal science lessons when we have Science Week!' – Gracie
  'teachers challenge us to do stuff which isn't in the curriculum - Wilf
- At GJS, we pride ourselves on aiming to be a **language rich** school with an **ambitious** curriculum that allows children to develop their understanding and use of language in each area. We achieve this through the use of carefully chosen **topic vocabulary**. Each unit includes a '*Never Heard the Word*' resource which outlines the vocabulary for that unit. At the start of each unit, children are introduced to the vocabulary and they then identify their levels of familiarity with each word and possibly give what they think is the correct definition. This sheet is then referred back to each lesson where, following teaching and modelling of vocabulary, children will demonstrate their understanding by adding a new, more detailed and accurate definition of the word. This tool not only allows us to document the development of children's substantive knowledge but it also allows children to continuously refer back to vocabulary so that they can make sure they use it in an **appropriate** and **purposeful** way.
- During lessons, all teachers are aware of how to model the correct vocabulary and will encourage children to do the same. This is sometimes referred to in our **success criteria** or will likely be highlighted on the interactive whiteboard or classroom displays.
- Science is a very practical subject and children regularly enjoy the opportunity to participate in investigations that will help to develop and deepen their understanding of the different **scientific concepts**. However, it's also important that children have the opportunity to develop their **speaking** and **written** skills in Science. Therefore, each unit has a Cross –Curricular writing opportunity where children will apply their understanding of topic vocabulary to a piece of written work.
  'They make us fun tasks to do and explain it clearly before so we know what to do'- 3EC

*How we **implement** the curriculum at GJS*

- Science is taught each week across the school. Sessions are planned and taught by the class teacher and the Subject lead regularly monitors planning and adaptations made based on recent research from EEF or Ofsted Curriculum Reviews.
- Teachers use the **progression of skills, knowledge and enquiry** document (mentioned above) to plan and review their units in order to ensure that children are developing the correct skills at an appropriate place.
- Each unit that is taught clearly outlines the **substantive knowledge** that children need to develop and focusses on developing one **disciplinary** skill at a time. Meaning that children can develop that skill to a good standard without the risk of experiencing cognitive overload.
- These skills are carefully planned throughout the year to fit with the content and enquiries planned in each unit. References may be made to previously taught skills but these will be additional opportunities for children to demonstrate their understanding and not the assessment focus.
- Towards the end of each unit, there is an assessed task that has been carefully chosen to assess the pupils' **disciplinary** and **substantive** knowledge. Alongside this, the '*Never Heard the Word*' resources are continuously referred back to by the class teacher in order to assess that children have the correct understanding of the topic words and concepts. These are also referred to beyond the unit to ensure the knowledge is embedded. During a pupil voice session, one child reported that *"The Never Heard the Word sheets let us understand the vocab that's used in the unit and lessons"*.
- This model follows each year group until our Year 6s leave us as secondary school ready, keen scientists.

*The **impact** of our science curriculum at GJS*

- Pupil voice and engagement shows clearly that children enjoy Science at Godalming Junior School. When asked in 2024, 'what's good about Science at GJS?' children reported the following:
    - *The teachers help us to understand the reasons behind why things happen* and *they challenge and push us to do more*
    - *By the end of the lesson, I feel like I understand everything* and *you always know why it happened*
    - *The teachers always make it fun and inclusive for* everyone and *everyone at GJS joins in with Science*
    - *You always learn something new* and *it helps children to discover new things that they didn't know before*
    - *It's not all just sitting down, experiments are so immersive and never stops surprising me*
    - *It's made really fun and challenges, it's never boring*
- Following pupil surveys, we have run **Science Clubs**, adapted the 10richment theme around their areas of interest and reflected on our planning to ensure that lessons are as **practical**, **demanding** and **engaging** as possible whilst still ensuring that children are able to develop their knowledge and understanding of key concepts.
- Parents have spoken very positively to the Science lead about their children's attitude and interests in Science improving since joining Godalming Junior School.
- Science Week is a high profile 10richment week where children know they are likely to SEE Science in action. Teachers report back high engagement, children asking a number of questions and even on occasions requesting purposeful science homework so that they can continue to develop their skills at home. Children really appreciate being given '*the chance to choose what we want to learn about. It makes it so interesting*'.
- Work that children produce shows clear development of skills and understanding. Year 6s are skilled enough to be given 'big questions/problems' to answer independently. They are then able to plan a possible enquiry or conduct their own research into how this problem could be solved. For example: when given the problem 'What if Woolly Mammoths were no longer extinct?' Children were shown child friendly Newsround reports about current research and then began to explore themselves how these animals would be reintroduced to their habitats. ALL children were engaged and able to produce and present their findings clearly.
- Staff have worked together to outline what an 'End of Year 6 Scientist' looks like and thanks to staff hard work and a clear progression of skills, knowledge and enquiry, we are able to send off keen scientists, ready to explore the next level of Science.
- Following twice-yearly data drops in all foundation areas, this allows the subject lead to scrutinise content of the curriculum, the pitch and expectation of activities and overall aims of units of work. This is then fed back to colleagues to make slight alterations to ensure the curriculum is fit for purpose each year.

Action Plan Review 2024-25 🚦

Intent	Implementation	Costs	Actual Impact
Ensure that across the school, children are demonstrating an improvement in their understanding of focus vocabulary by adding in a new or improved definition to their 'Never heard the word' sheets in pink pen. This will demonstrate clear AFL and highlight areas that require consolidation.	• EC to show a 'WAGOLL' from Year 3 books when the SIP is launched. This will clarify to all teachers what the expectation is on how frequently these sheets are referred to and definitions are reflected on. If there are children, who at the start of the unit already knew the meaning of a certain word, they can be stretched to try and give a more detailed definition or an example. • EC to monitor books each half term and where needed, remind teachers of the consistency with which we should be referring to these and using them as an AFL tool.	0	***This is strong in many areas across the school and is used as a clear indicator of how children's knowledge of scientific vocabulary and concepts has improved over the course of the unit. Where it's particularly strong, teachers also encourage students to think in greater depth about the explanation they give. As the subject leader, it demonstrates quickly and clearly that lessons are being planned and taught effectively.***
For each topic, in each year group, identify common misconceptions that may arise and how they will be corrected in order to ensure these are not missed.	• EC to research common misconceptions that arise in different topics using ASE/PSTT resources to support. • EC to work in accordance with class teachers to add this information to planning and then ensure it is picked up on if/when it arises during the learning journey.	0	***Progress is being made on this area but greater time has been taken to explore how this will 'look' within different topics and year groups. This was discussed at length within the GLP Science leaders group so together, we are compiling a list of possible strategies, questions and AFL tools that could be used and rolled out to teachers. Therefore this target will continue for another year.***

Action Plan for 2025-26

Intent	Implementation	Costs	Projected Impact
Have an overarching question for each science topic, then have a question rather than WALT for each lesson that will help children to eventually answer the 'BIG' unit question.	• The subject lead has already begun collaborating with GLP schools and exploring what overarching questions they have in place for their units. This can then help us to inform what our questions might be. • Subject lead to collate suggestions for staff that they can then choose from in order to ensure teachers still have some autonomy over their planning. • At the start of each half term, the subject lead will check that planning has been updated and that questions are in place for both the topic and individual lessons. Where necessary and will support year groups in ensuring that this is ready to go.	0	***Lessons to follow the format of history and geography in focussing on subject questions as areas of focus for better quality lessons***
Embed initial AFL session at the start of each unit, across the school, in order to assess whether there are any misconceptions from previous units that need correcting before children can build on their learning.	• Subject lead has been collaborating with GLP schools and exploring which AFL strategies are already used at the start of a unit. • Science lead will then work with different year groups to ensure that this session is in place, at the start of each unit and that teachers are confident that they can correct any misconceptions that children may have **before** moving onto the new learning. • Subject lead will create a 'go to' bank of resources for staff who wish to seek alternative ideas. • If staff, particularly those who are new, are unsure about the objectives that they are assessing, and will direct them back to the learning journeys and whole school **Progression of knowledge, skills and enquiry** document that clearly outlines what units are building on, where it is leading to and the concepts that need to be covered.	0	***Pitch and expectations are more accurate in science lessons across the school thus leading to better quality lessons and better outcomes for all***