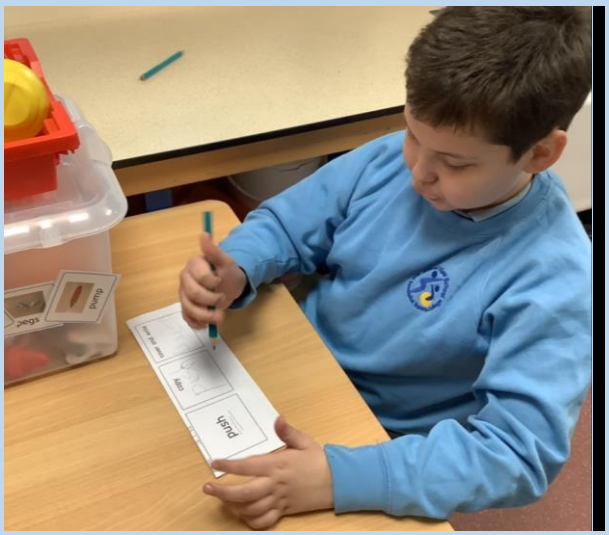
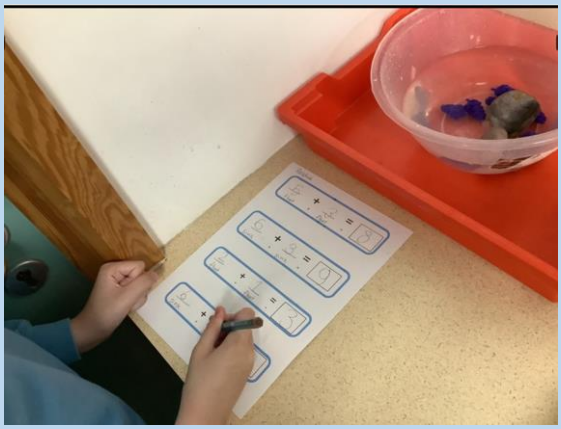
Science Handbook

Amwell View School

Photos





Science at Amwell View School

INTENT

Science is a practical way for children to find out about the world around them. Science at Amwell View School focuses on developing curiosity, looking and listening, fostering good communication and learning with others. The topics in Science intend to expose pupils to a range of resources, approaches and outcomes and they focus on ways to communicate their learning with others and practise skills to build on each lesson.

Understanding the World (UW) is one of the four specific areas of learning in the EYFS framework. It is designed to help children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.

At Post-16 the Science curriculum focuses on accessing the CREST Award schemes, Star, Superstar and Bronze practical activities.

For PMLD pupils a sensory curriculum aims to develop their attention and interest in the world around them.
For higher learners the activities intend to focus on using reading and writing skills to record information, opportunities to ask questions and guide their learning within the topic.

IMPLEMENTATION

Each Science lesson is thirty minutes in duration. Pupils attend one science lesson per week. Every academic year there is a Science Week at Amwell View School, which coincides with British Science Week.

A hands-on approach to Science activities encourages children to actively explore and make connections in a cause and effect manner, allowing children to practise, anticipate and embed understanding and knowledge during their learning journey. Each pupil has an individualised learning objective per half term. The level of support, the pace and resources are used to support the individual learner achieve their objective. The overview for Science covers a majority of National Curriculum topics and other areas that are meaningful for Amwell View learners, working towards using a range of skills used throughout the school. Such as, recognising colours, reading, counting, using sentence openers, pouring, matching, classifying and fine motor / writing.

Science lessons cover health related fitness, nutrition, first aid and keeping safe when using electricity. The majority of lessons are in the purpose built science

room but classes have regular access to outdoor learning in the area outside the room, fitness suite, the large astro-turf play area and The Dell. To supplement activities outside visitors and offsite visits are booked to provide pupils with varied experiences on a topic for example, animal visits and Rye Mead Nature Reserve. At Amwell View School UW enables children to communicate and interact with the appropriate levels of support and explore what they want to do, increasing physical mobility and dexterity, gaining a sense of predictability, following a routine, sharing with others and finishing an activity.

In the Star and Superstar activities students are presented with challenges and scenarios related to their knowledge and understanding; they need to test and comment on the outcomes. In the Bronze activities, the students focus on experiments that relate to everyday life and how to apply them when supported visually. Post-16 pupils also focus on First Aid skills, recognising when someone needs help and recognising ways they can help.

PMLD pupils learn through using sensory stories, the sensory room for small partner learning and access to specific learning activities that promote pupil involvement and choices in using equipment and wanting 'more' or 'finished'. TacPac activity boxes are used to explose pupils to a variety of experiences and resources using specific senses.

Higher attaining pupils focus on topic information and activities. They are encouraged to ask questions about what they are learning, use key topic vocabulary and what they want to know more about, using a range of resources to search and record relevant information to share with others. Experiments focus on naming specific equipment, such as light beams and a prism – testing to see what changes happen to the light when the two are used together.

IMPACT

Pupils in Science are provided with individualised supports and prompts to communicate their learning and understanding. The framework of the lessons help pupils to predict successfully and remember how to share their understanding through choices of presented information. Pupils confidently interact with a range of resources, using them appropriately and importantly sharing with peers. They are encouraged to act responsibly and collaboratively, focusing on how they can do actions with varying degrees of independence as the academic year progresses. Knowledge and skills from Science lessons are used in other class activities, and vice versa, when handling and using equipment, remembering key skills such as colours and reading and writing. Using sentence openers help pupils to communicate with clarity and this becomes embedded in their understanding and

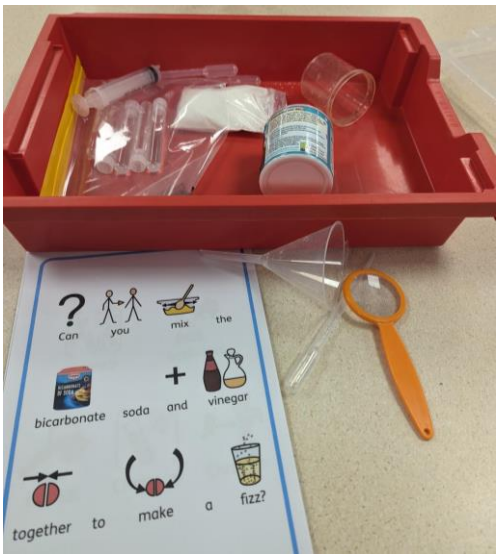
communication. Pupil outcomes aim to generalise learning outside the confines of the Science lesson and carry over into class activities and home, via Tapestry. For example, inserting a plug into the mains socket, finishing desired resources when requested, using VOCAs/symbols to comment on what is happening and gathering resources needed for an activity.

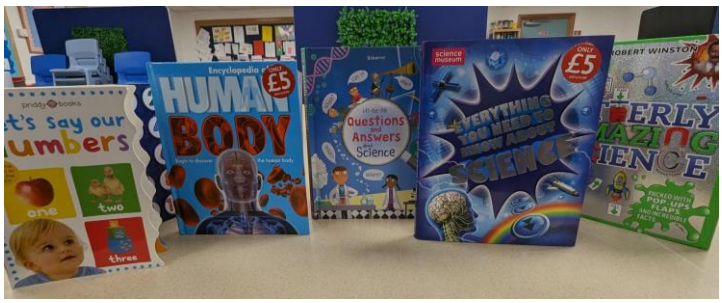
Pupils in Science are assessed at the end of each half term. Learning outcomes are commented on in every lesson with accompanying video or photographic evidence that is uploaded to Tapestry to track progression. The half termly assessments are recorded on the formative evidence spreadsheet. Each term there is an assessment window that uses the BSquared Connecting Steps criteria to record pupil progress in specific skills and areas of development. Learning and progression are documented on Tapestry for parents to view and comment on. Parents also have access to online learning shared on the school website that encourages family to explore and learn together.

Science Resources

We have a huge collection of Science resources in the cupboard in the specialist Science room that used to support pupil learning activities and also used by classroom teachers for cross-curricular lessons.

The Science Subject Leaders will be able to guide you to the resources location.





Science Resources

Science has the following resources for:

- Magnets and Forces
- Animals, including humans
- Chemical changes
- Lights and Sound waves
- Earth and Space
- Plants and Flowers
- Dinosaur and rocks
- Everyday Materials
- Life Processes
- Numbers in Science
- Literacy in Science
- Exercise and Heartrate
- TacPac boxes to support PMLD learning and experience
- Crest Star and Superstar Awards

There also small Science activities for classes to use.

The boxes need to be signed out and returned at the end of the day.

All the Science resources are stored in the cupboard in the specialist room. These resources are used in specific lessons and are available to class teachers when they request resources to support learning in class.

Subject Overview Example

Science Subject Overview Key Stage 2

	Autumn		Spring		Summer		
Continuing Skills/ Key skills/ Enquiry Skills	Pupils will begin to show an understanding of the format of the weekly lesson and predict what they need to do and where to positon themselves for their learning opportunities. Pupils will be encouraged to build on their curiosity and begin to extend their attention levels. Pupils will participate in simple practical activities using simple equipment, requiring some demonstration and initial support – i.e. putting goggles on, squeezing the bulb of the pipette, stirring with a spoon and holding the bowl. Pupils will be encouraged to remember how to use equipment each week, including symbol choice boards and sentence strips. (i.e.) putting the symbol on the strip to complete the sentence, making a choice between two or more symbols, photos or objects. Focus on remembering familiar animals (i.e.) farm and water animals and identifying two or more colours of lights and objects; pushing and pulling; lights on and off; and naming parts of our body.						
	A	Plants and Flowers	Earth and Space	Forces	Everyday Materials & Science Week	Numbers in science	Animals including humans
	B	Chemical Changes	Magnets and Materials	Energy and electricity	Life Processes – animals and habitats & Science Week	Stories in Science	Sound Waves and Light

Science Subject Overview Key stage 4 and 5

	Autumn	Spring	Summer
Continuing Skills/ Key skills/ Enquiry Skills	Pupils will access Science challenge activities through the CREST Star and Super Star Award. These challenges focus on solving a practical problem by using resources to test and decide if it solved the problem. Pupils have opportunities to apply previous learning and knowledge to the challenges. Pupils are encouraged to check if they have the right equipment for the task and share the resources with others, encouraging patience and tolerance. Pupils are encourage to use their communication skills to share and comment on the outcome of their challenge. In Students 2 pupils will use the knowledge, understanding and skills learnt in throughout previous lessons by applying them in a more mature activity, focusing on developing their independence, responsibility and resilience. Pupils will begin to work alongside the school and wider community to gain experience in a variety of activities. For pupils within the Community Class provision, it is essential that they gain a wide range of experiences to prepare them for life after Amwell View. Science topics for the Community Class intends to provide our pupils with experiences of the working world, how science impacts on their homes and lives and learning new skills to contribute to their local community.		

Students 2	A	Plants and Flowers / independent jobs	Earth and Space – requesting from others / independent jobs	Forces – moving objects, testing ways to safely move objects	Everyday Materials – use & Science Week	Numbers in science	Humans – heartrate and exercise / animal studies
	B	Chemical Changes – making bath bombs, safe slime and cleaning up	Magnets and Materials – naming materials and deciding which material is best for activity, counting	Energy and electricity – safety and hazards	Life Processes – foods animals eat & Science Week	Stories in Science – Windy Ways	Creating sensory and light calm bottles Sounds that calm and soothe – Ask others

The Science Subject Overview can be found in:

Staff/ Curriculum/ Subject Overviews/ Current Overviews/ this year/ Science

Year Plan Example

You need to input your Subject topics from the Subject Overview into your year plan. Year plans need to be saved in:

Staff/ Planning/ Year Plans/ this year

	AUTUMN		SPRING		SUMMER	
SCIENCE	Plants and flowers	Space	Forces	Everyday materials	Numbers in Science	Animals including humans

Science	Exercise and heart rate	Chemical Changes – making bath bombs, safe slime and cleaning up	Physics- making Rockets and mixtures that grow

Planning for Science

Through Science, pupils will learn to:

- Develop attention, anticipation, responding and communicating, and choice making skills
- Develop metacognitive, collaboration, problem solving, perseverance and organisational skills that transfer between into class activities
- Develop and extend their vocabulary focused on a range of topics
- Practise and embed learning related to literacy and numeracy activities
- Develop transferable skills which are used in future provision and adult life

When creating learning objectives for Science, the EHCP outcomes, communication outcomes and what the pupils need to learn is at the forefront of developing plans that meet the learning needs for all.

When planning for Science, activities create interest and motivation, with opportunities to develop skills in different contexts. Included in the Science plans are opportunities for over learning and practise of the retrieval process.

Each key stage has a subject overview for the year, including activity, resource and location suggestions. Classes requiring specific curriculums, for example Class 4 and Community Class, have a bespoke yearly plan that is suited to the needs of those groups.
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British Science Week activities are based on a yearly theme and include a range of interactive and practical activities for pupils to engage with after the teacher provides a demonstration. The activities encourage working with a partner, sharing resources and trying a new activity. The week's focuses on being resilient, collaborative, curious and patient. Planning for the British Science Week take into account the learning and sensory needs of each pupil and class. The structures of the lesson remain the same but the content changes for that week.

Why teach Science?

“The study of science fires pupils’ curiosity about phenomena in the world around them and offers opportunities to find explanations.

To develop attention, anticipation and problem solving skills.

SCIENCE STIMULATES YOUNG CHILDREN'S CURIOSITY AND MOTIVATES THEM TO BECOME INTERESTED IN THEIR ENVIRONMENT AND IN THE MECHANISMS OF NATURE.

How do we teach Science?

British Science Week

Implementation in Science