Vernon Primary School

Science Policy

The intent of the Science curriculum at Vernon Primary School is to provide every pupil with:

- A positive attitude towards Science and an awareness of its fascination.
- Pupils develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- An understanding of the nature, processes and methods of science through different types of science enquiries.
- Confidence and competence to answer scientific questions about the world around them.
- To equip pupils with the scientific knowledge required to understand the uses and implications of science, today and for the future.
- An understanding of the nature, processes and methods of science through different types of science enquiries.
- An ability to communicate scientifically.
- The initiative to work both independently and in co-operation with others.

Aims

At Vernon Primary School, our Science Policy follows the National Curriculum. 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.

Purpose

Our purpose is to spark pupil's curiosity as scientists, developing a thirst for learning and finding out why things happen in the way that they do. The teaching of science at Vernon Primary School, follows the objectives in the National Curriculum.

At Vernon, we acknowledge that a high-quality science curriculum not only identifies the important concepts and procedures for pupils to learn, it also plans for how pupils will build knowledge of these over time. This starts in the early years. Our curriculum is organised so that pupils' knowledge of concepts develops from component knowledge that is sequenced according to the scientific disciplines as set out in the Educational Programmes and the Early Learning Goals for the end of Reception Year. Strong links are made with the Communication and Language Educational Programme as this is the questioning and listening to deepen understanding of scientific knowledge. Our science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils are encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

We value science as a core subject and want our pupils to learn key scientific vocabulary and knowledge as well as the skills linked to working scientifically. We want our pupils to develop the ability to think independently and raise scientific questions, developing an enthusiasm and enjoyment of scientific learning and discovery so that they have an excitement and passion to pursue science further.

Teaching and Learning

The science curriculum at Vernon follows the progression outlined in the National Curriculum. The skills that pupils will develop throughout the programme of study are progressive and are informed by the Association of Science Education (ASE) Planning Matrices as well as the National Curriculum for Science.

The key knowledge identified by year group is informed by the National Curriculum and builds towards identified phase 'end points' in accordance with National Curriculum expectations. Key skills are also mapped for each year group and are progressive throughout the school. These too ensure systematic progression to identified skills end points which are in accordance with the working scientifically expectations in the National Curriculum.

The curriculum is designed to ensure that pupils are able to acquire key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining

concepts confidently. At Vernon, our approach to science uses the PLAN Progression in Knowledge and PLAN Progression in Working Scientifically Skills documents to provide the development of our long-term curriculum map. To support the teaching and learning of science at Vernon, the PLAN Matrices are used to support teachers and give clear guidance on the content to be covered within each topic in each year-group in the National Curriculum, including how that learning fits with the prior and future learning.

Please refer to the science long term plan, science knowledge progression summary and working scientifically progression summary documents for further guidance.

Assessment

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study as set out in the National Curriculum. These are set out as statutory requirements. We also draw on the non- statutory requirements to extend our pupils and provide an appropriate level of challenge.

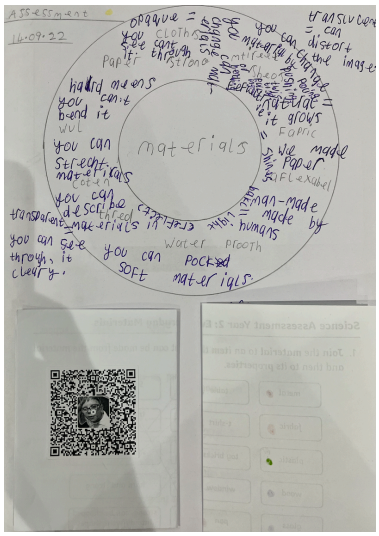
Assessment of this is achieved through:

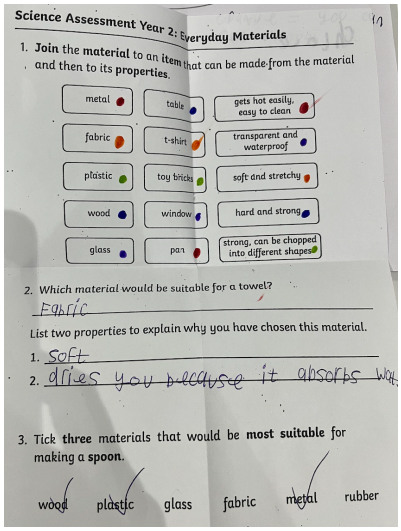
- Discussion with pupils.
- Observation of pupils.
- Marking work.
- Monitoring pupil progress through our science tracking assessment tool.

Years 1, 2, 3 and 4

Pupil's existing knowledge of the topic and the key related knowledge from previous year groups, is checked at the beginning of each unit, using a circle map assessment and a set of key knowledge questions.

Pupils' knowledge and skills are continually assessed and developed by the teacher during lessons, in accordance with the lesson's objectives – objectives to always be presented as a question. At the end of the unit pupils reassess their knowledge in the circle map and annotate to add their new knowledge – pupils use purple pen. Pupils also return to the same set of key knowledge questions to adapt and enhance their previous answers – again pupils use purple pen to highlight end of unit assessment.




Science Assessment Year 2: Everyday Materials

1. Join the material to an item that can be made from the material and then to its properties.

metal	table	gets hot easily, easy to clean
fabric	t-shirt	transparent and waterproof
plastic	toy bricks	soft and stretchy
wood	window	hard and strong
glass	pan	strong, can be chopped into different shapes

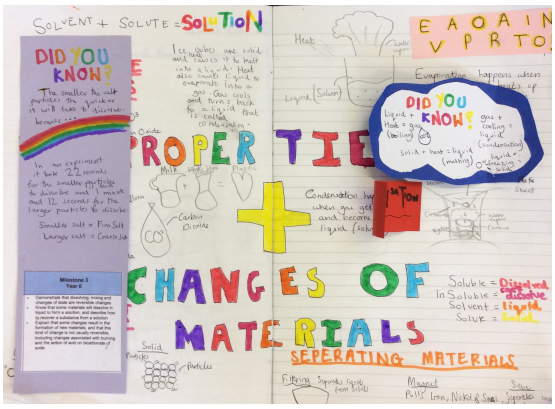
2. Which material would be suitable for a towel?
Fabric
List two properties to explain why you have chosen this material.
1. Soft
2. dries you because it absorbs

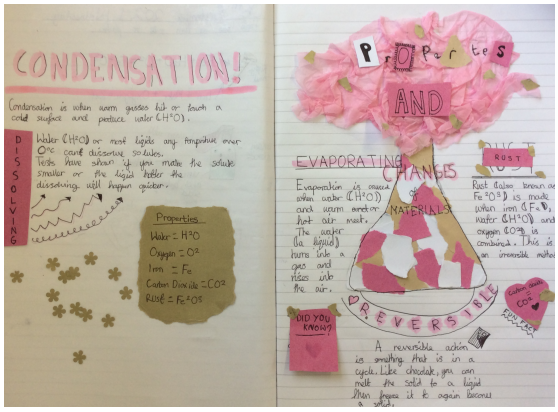
3. Tick three materials that would be most suitable for making a spoon.
wood plastic glass fabric metal rubber

Years 5 and 6

Pupil's existing knowledge of the topic and the key related knowledge from previous year groups, is checked at the beginning of each unit, using a set of key knowledge questions. Pupils return to the same set of key knowledge questions at the end of the unit to adapt and enhance their previous answers – pupils use purple pen to highlight end of unit assessment.

At the end of each unit, pupils will create a double page spread assessment – this is a creative way for each pupil to showcase the key learning they have acquired:





Pupil Principles

- **Science is exciting when** we carry out practical investigations that are hands-on and have the wow-factor!
- **Science is rewarding when** we have opportunities to make mistakes, discuss them and learn from them.
- **Science is meaningful when** our experiments and learning link to real world problems, ideas and situations.
- **Science is interesting when** we build on our knowledge and explore links to different subjects.
- **Science is engaging when** we ask open-ended questions and work scientifically in a team to discover the answers.
- **Science is inspiring when** we learn about famous or local scientists and careers in STEM.
- **Science is fun when** we have special visitors or events, including going on visits and learning outside the classroom.

Inclusion and Equal Opportunities

All pupils regardless of race, gender, or ability should have the opportunity to contribute and develop skills throughout the curriculum that will prepare them as a global citizen. We aim to promote equal opportunities in Science by ensuring:

- All pupils have equal opportunities to develop their communication skills. We value Science as a vehicle for the development of language skills, and we encourage our pupils to talk constructively about their science experiences.
- All pupils have access to planning and resources that are appropriate to their ability and values individual pupil experiences.
- We recognise the particular importance of first-hand experience for motivating pupils with learning difficulties.
- We recognise that Science may strongly engage our gifted and talented pupils, and we aim to challenge and extend them.
- We recognise and use Science's special contribution to pupils developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking.

- We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds. Using examples from other cultures, recognising that simple technology may be superior to complex solutions.

Health and Safety

It is important that pupils undertake investigations and experiments in a safe environment. In planning practical activities, teachers anticipate safety issues and discuss these with pupils. We also endeavour to teach them to recognise hazards and risks to themselves and others, when working with living things and materials; and follow simple instructions to control the risk to themselves, and to act. Pupils should always be encouraged to consider safety when they plan and carry out their investigations. The school follows the Cheshire East policy for health and safety

Parents/Carers

Pupils progress is reported to parents/carers in an annual written report at the end of the year and verbally throughout the year during parents evenings and on an informal basis, in line with the school's 'open door' policy of communication.

- Parents/Carers are invited into school three times a year to share their child's work and discuss their child's progress and are encouraged to speak to class teachers when queries arise
- Parents/Carers are invited to an Open Evening in the summer term
- Parents/Carers are welcomed into school to work within the classroom
- Parents/Carers are encouraged to access the school website and Remote Learning Platforms for further opportunities to enrich and extend their child's learning beyond the classroom environment.

Monitoring and Review:

We are aware of the need to regularly review our policies to consider new initiatives, changes in curriculum or developments in technology.

Julie Bartlett - Subject Leader for Science

Policy date – January 2023
Review Date – January 2025
Ratified by Governors – January 2023