

# Science



# Vision

*Our aim in school is to ensure we truly understand the pupils we teach.*

## *Our school values*

*We believe in ourselves and each other.*

*We all belong in our community.*

*Everyone becomes the best they can be.*

*Longford Park is a school for pupils with identified social, emotional and mental health difficulties, and its policies must reflect this. Whilst this is a primary diagnosis for the majority of pupils here, our pupils can be best summarised as having 'multiple vulnerabilities'. Due to the nature of the difficulties experienced by all of our pupils, the curriculum has to be flexible and adaptive to individual needs.*

*A great deal of emphasis is placed upon the social and emotional development of the pupil, the ability to co-operate, share, to tolerate each other, respect themselves and each other and to contribute to a positive atmosphere within the school. The school is dedicated to creating a safe and secure learning environment with the intention of raising the pupils' self-esteem and eradicating any feelings of worthlessness and failure. In order to reach these goals, the school encompasses a variety of teaching methods and learning styles.*

*The curriculum provided is flexible in its approach and delivery. This is to facilitate learning at all levels, accommodating pupils who have not had recent experience of the National Curriculum. In response to this, each overview for the core curriculum areas is a basic framework from which to work from so as to allow for the needs of a changing pupil population.*



# Aims

*At Longford Park School, the curriculum is designed to recognise children's existing knowledge. Within each subject, we have identified a very succinct outline of the knowledge that pupils need to acquire by the end of each year. As a result of careful planning, pupils consistently relate back to previous learning when exemplifying learning related to their current topics or themes. Through carefully considered first hand learning experiences, we will allow the children to develop interpersonal skills, build resilience and become creative, critical thinkers.*

*Our curriculum is a powerful vehicle utilised to maximise the potential of each individual and overcome all barriers to learning.*



# Our Curriculum Drivers



*Believe, Belong, Become*



*Problem solving*



*Mental health  
and well-being*



*Vocabulary*



# Our Curriculum Drivers



## ***Believe, Belong, Become***

*In order for our pupils to Believe, Belong, Become, our curriculum offers opportunities for pupils to express themselves appropriately in various different ways; therefore developing their emotional intelligence alongside their academic skills. When pupils feel unsettled, they need to have reassurance from their key adult to help with emotional regulation. Using psycho-educational interventions from their Class Team, pupils are able to receive the bespoke support they need to so that pupils are ready to learn.*

*We have the same academic aspirations for our pupils as our mainstream friends, so pupils are expected to learn the National Curriculum, but with lessons that are tailored to the needs of pupils. To do this, we have to make sure pupils understand how their learning now links to their future. Pupils, parents and staff are expected to have the highest possible aspirations for their futures.*

***We believe in ourselves and each other, we belong to our school's community and we become the best we can be.***

## ***Problem solving***

*Enabling children to express themselves supports their wellbeing. Social skills and the ability to communicate and cooperate with others is also a key life skill which our children need support to develop in order to feel a sense of belonging throughout their lives. We feel our pupils greatly benefit from learning the key Mathematical and English skills through real-life activities, for example shopping, café, cooking or role play situations within school. This will help pupils to see the purpose of their learning whilst also motivating them and enabling them to learn life skills at the same time.*

***Finding answers for ourselves makes learning exciting!***



# Our Curriculum Drivers



## **Mental health and well-being**

*Discussing mental health and well-being is a part of daily life at LPS, for staff and pupils. As well as recognising what we can do to help ensure good mental health, it is important pupils can recognise the full spectrum of their own emotions and have the appropriate, age-related*

*vocabulary to discuss these. Well-being is taught about within the wider context of building self-esteem, emotional well-being, relationships and healthy lives. This begins in EYFS and develops through to Year 6. The intention of our work in this area is to prepare our pupils for the opportunities, responsibilities and experiences of adult life.*

*We recognise the need to work as a whole school community to ensure a shared understanding of RSE and the values underpinning it and to deliver an effective programme that meets the needs of our pupils, taking into account their SEMH and complex needs.*

***I understand I might experience different emotions at different times and can use the words to talk about how I feel.***

## **Vocabulary**

*When teaching vocabulary, it is important for pupils to learn the meaning of the word. This is called semantics. Pupils also need to learn the sound pattern, which is called phonology. Once pupils are confident in using the words, they then need to learn how to write it down. This is called orthography. Using appropriate vocabulary is useful for not only academic progression, but this is also essential for the acquisition of inter-personal skills.*

***It's important I learn the right words so that people understand what I say. This is important not only for me when I speak, but also when I write.***



# Important Terms

*Curriculum drivers shape our bespoke curriculum. They are derived from evaluating the SEN and themes of our pupils, our beliefs about addressing barriers to learning, mental health awareness and our core values. They are used to ensure we give our students appropriate and ambitious curriculum opportunities underpinned with mental health understanding.*

*Curriculum breadth is shaped by our curriculum drivers, cultural capital, subject topics and our ambition for children's experiences to bring learning to life.*

*Our curriculum distinguishes between subject topics and **golden threads**. Curriculum threads are the specific aspects of subjects that are woven throughout the subjects to build and strengthen the concepts being taught and reinforce progression over time.*

*Vocabulary is how we teach pupils to learn about words; including mental health and subject specific vocabulary. We enable pupils develop the language and interpersonal skills needed throughout life.*

*Core values are how we underpin the curriculum with the believe, belong, become core values. We believe in ourselves and each other, we belong to our school's community and we become the best we can be. Pupils can reflect daily on how their SEMH need has been addressed by linking to the core values.*

*Mental health is how our specialist teaching of SEMH supports the learning of individuals who have SEMH needs through teaching useful strategies, such as; social skills, emotional wellbeing, and mental health. Teaching children how to recognise the signs of positive and problematic mental health and knowing how to get the support in an effective way.*

*Problem solving is engaging with our pupils at the initial signs of encountering a problem. SEMH needs may manifest through challenging behaviour or low mood. Our specialist teachers maximise the potential of children by working with them to overcome their barriers to learning, and on how recognising and explicitly teaching the specific skills needed to support identified individuals.*

*Pedagogy is the method and practice of teaching, especially as an academic subject or theoretical concept. Staff have a shared pedagogy of supporting children with SEMH and complex needs and core values that align with a unique skill set and understanding for our pupils, often fed by latest research and up-to-date training.*



# Intent

*We hope for children to achieve their curriculum targets through the five principles of scientific enquiry - Observation over time, fair test, classifying, pattern seeking and research.*

*We hope through this children should establish skills in observation, measurement, classification, collation, communication, investigation, prediction, problem-solving, questioning and reasoning, revising hypotheses, controlling variables, interpreting data, experimentation and evaluation, recognising a fair test.*

*Also, developing and encouraging curiosity, questioning, originality, creativity and inventiveness, perseverance, open-mindedness, self-criticism, responsibility and safety. On top of all this, a willingness to co-operate, independence of thought, sensitivity to their environment and that of others.*



# Implementation

*Science books reflect the ability range within the class-pupils may be working on different National Curriculum objectives. Inclusion and pupil voice paramount to lessons here.*

*Books evidence a minimum of one pupil-led scientific enquiry per term.*

*Pupils are made aware of the school's science principles and reflect on them at the end of each lesson. This is recorded in each pupil's toolkit.*

*Ongoing assessment will help teachers to make decisions about next steps for pupils. KS2 pupils will complete formative science assessments.*

*Questions not only of an enquiry nature will be encouraged at all times. Opportunities will be given for pupils to find their own answers through using scientific enquiry.*

*Following the marking policy, the level of support given will be clearly indicated.*

*Each term, teachers will pass on their whole-class set of books for scrutiny by the Science subject lead.*



# Implementation

*Practical resources will be used to aid pupils, who may prefer a visual, auditory or kinaesthetic approach to their learning.*

*Pupils who are ready to learn will be focused, engaged and enthusiastic!*

*Mistakes will be encouraged within a 'growth mind-set'. Adults will encourage risk taking and support pupils to find their own answers.*

*All photographs will be accompanied by a written explanation by pupils.*

*Unless working in a specific group, only photographs of the pupil should be recorded in their book.*



# Impact

*First-hand experiences, including visits from relevant scientific experts;*

*A mixture of individual, group and whole-class teaching;*

*Planned and appropriate groupings of pupils for tasks. In this we will be aware of the requirements of children with Special Educational Needs and expected outcomes will differ according to these needs;*

*We aim to use good oral techniques to set the scene and to explain tasks to the whole class or to a group;*

*We will provide opportunities for children to raise questions about their tasks of activities and for the teacher to listen to the pupils;*

*Use of visual aids*

*Use of Information Technology;*

*Use of scientific resources to aid enquiry work and understanding of scientific concepts;*

*We will, through skilful questioning, encourage the children to think and use knowledge already required;*

*Science learning over the course of a topic will be displayed on Science Working Walls;*

*Close observation of children's work and of children at work to help with assessment and regular monitoring of children's progress;*

*Use of science working walls to promote pupils' retention of scientific vocabulary and to chart the learning journey of a particular topic.*

▫ *Whole school science events e.g. Celebration of British Science Week Assemblies, science enquires taking place across a morning,*



# Long Term Plan

*This focuses on a strategic overview of the year. Providing a forward vision focusing on broad progression of skills from EYFS to Year 6.*



## Science Long Term Plan 2023 – 2024



Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Science Week
Reception	Colour Ourselves	Celebrations Fairy Tales	People who help us	Science week	Animals	Animals	Spring 2
Year 1	Seasonal Changes	Animals including humans	Animals including humans	Materials	Plants		Spring 2
Year 2	Catch up curriculum	Living things and their habitats	Materials	Animals including humans	Plants		Spring 2
Year 3	Rocks	Light	Forces and Magnets	Animals including humans	Plants		Spring 2
Year 4	Animals including humans	Sound	States of matter	Electricity	Living things		Spring 2
Year 4	Animals including humans	Living things and Plants	States of matter	Forces and magnets Electricity	Light and sound		Spring 2
Year 5	Animals including humans	Properties of matter	Space	Forces	Living things and their habitats		Spring 2
Year 6	Animals including humans	Evolution and Inheritance	Electricity	Light	Living things and their habitats		Spring 2

*Click here to view our long term plan for this academic year*



# Cultural Capital

*Cultural capital, broadly, is about the values, knowledge, skills, and ideas that are valued in a given culture, society, or social group.*

In year 1, we visited Beechwood park looking at the trees we were able to identify Evergreen and Deciduous trees.

In year 3, we have been investigating the properties of different igneous, sedimentary and metamorphic rocks.



# Knowledge Organisers

Plymouth Science

## Knowledge Organiser

Year 6  
Animals including Humans

### VOCABULARY

**Heart** - the organ in your chest that pumps the blood around your body.

**Blood vessels** - the narrow tubes through which your blood flows include the arteries, veins and capillaries.

**Blood** - this is pumped by the heart and supplies the body with nutrients and oxygen.

**Veins** - blood vessels that carry blood to the heart.

**Arteries** - blood vessels that carry blood away from the heart.

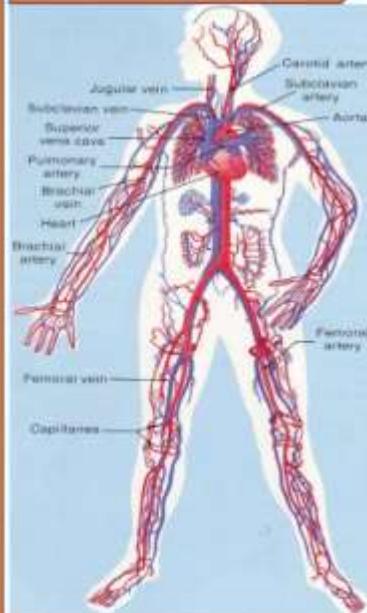
**Capillaries** - microscopic blood vessels found in the muscles and lungs.

**Oxygen** - a colourless gas that exists in large quantities in the air. All plants and animals need oxygen in order to live.

**Lungs** - two spongy organs inside the chest which fill with air when you breathe in.

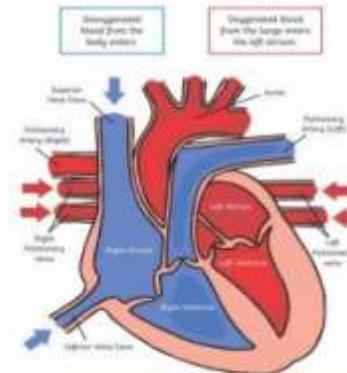
**Carbon dioxide** - is a gas produced by animals and people breathing out.

### The Circulatory System



The circulatory system is the system that circulates blood through the body.

### The Heart



It is about the size of your fist and located in the front and middle of your chest, behind and slightly left of your breastbone.

It works as a pump forcing blood around the body. The heart is mainly muscle and it works from the moment you are born until death. It works harder when you exercise.

- Deoxygenated blood flows into the heart from the body through veins.
- This blood is pumped out to the lungs through the pulmonary artery.
- Blood returns to the heart through the pulmonary vein.
- The oxygenated blood is then pumped out of the heart through the aorta.
- The blood travels around the body delivering oxygen and nutrients to the organs.



# Use of Technology

*During Science lessons technology can be utilized in different ways:*

*Accessibility - It can be used a tool to make science more accessible to a variety of learners.*

*Exploration - It can be used to immerse children in a particular concept.*

*Research - Children can use technology to help them discover information for themselves.*



# British Values

Democracy	Rule of Law	Individual Liberty	Tolerance	Mutual Respect
<p>Take the views and opinions of others into account.</p> <p>Take turns and instructions from others.</p>	<p>Understand the importance of safety rules when working scientifically.</p> <p>Make choices when planning an Investigation.</p>	<p>Working independently.</p> <p>Expressing personal opinions during debatable issues.</p>	<p>Scientific discoveries have come from other cultures.</p> <p>Religious beliefs often compete with scientific understanding.</p>	<p>Work as a team.</p> <p>Discuss findings.</p> <p>Offer support and advice to others.</p>



# Pupil Voice

I've enjoyed learning about how babies grow. It helps me to understand when my Mum had a baby.

We do experiments to find things out.  
I like to be given a question to find out.

I find Science tricky at times because I have to explain why.

I sometimes wonder: why do things work?  
We can find out in science.

I like to work practically.

We made blood model to explain the different components.

