St Helen's Church of England Primary School

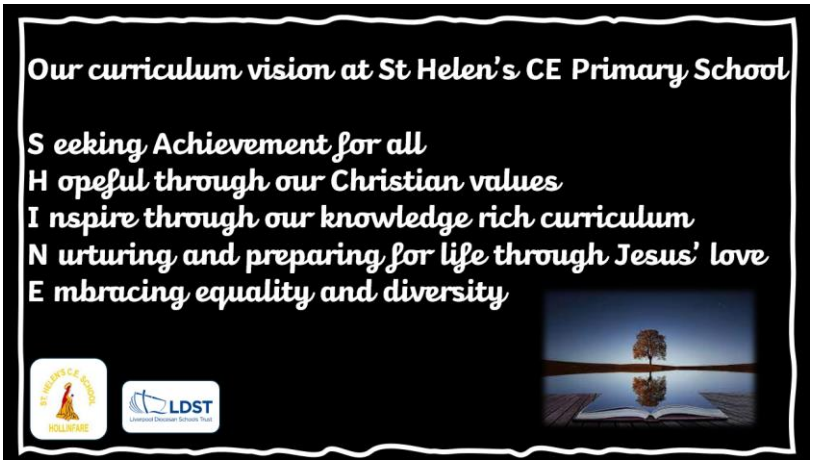
Science Policy

In His footsteps, we love, learn and shine together.

Shine Curriculum Intent

At St Helens CE Primary School, we envision a future where all children shine brightly, achieving their full potential and making positive contributions to society through our high-quality, progressive curriculum and nurturing Christian values. Through our knowledge-rich approach and commitment to equality and diversity, we inspire confident, inquisitive learners who are prepared for life's challenges with love and support.

Shine Curriculum Values



Seeking achievement for all.
At St Helens CE Primary, we aspire for all children to succeed, achieve and flourish, embracing a high-quality, progressive curriculum. Our students will make positive contributions to the school, society and the world, fostering curiosity and a thirst for knowledge.

Hopeful, through our Christian Values.
At St Helens CE Primary, we empower children with Christian values and biblical teachings to support their families, friends, and community, inspiring them to make a positive impact in the world they live in.

Inspire, through our knowledge-rich curriculum.
At St Helens CE Primary, we are dedicated to provide a knowledge-rich curriculum that empowers all children to become confident, inquisitive, and independent learners. Our sequenced and planned approach ensures that every child leaves our school with a vast knowledge across all subjects, setting them up for success in their academic and personal journeys.

Nurturing and preparing for life, through Jesus' love.
At St Helens CE Primary, we strive to empower every child to reach their full potential by nurturing them with our Christian values. Through our SHINE enrichment programme, we provide opportunities for personal development, equipping our students with cultural capital and essential life skills. Our vision is to create a community where every child can shine brightly and make a positive impact on the world around them.

Embracing equality and diversity.
At St Helens CE Primary, we believe in the inherent potential of every child to achieve and succeed. We foster a culture where each student is valued as a unique individual, treated with dignity, respect and kindness. Our vision is to create a nurturing and inclusive environment that empowers students to flourish academically, socially, and emotionally, preparing them to positively impact their community and the world.

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Curriculum Implementation

Teaching Expectations

Science at Foundation Stage is covered in the **'Understanding the World'** area of the EYFS Curriculum and is taught at St Helen's CE Primary using the 'Development Matters' guidance.

Science is taught for one full afternoon each week in Key stage One and Key Stage two. Science is taught as a core subject and is included in retrieval tasks and sticky knowledge assessment practise on a weekly basis.

Structure of lessons:

Retrieval:

- All children will participate in a short task focused on retrieving previously learned knowledge.
- The varied tasks aim to reinforce key knowledge and help students make progress across the curriculum.
- The knowledge being retrieved may come from past lessons, units of work or even previous school years.
- The intention is for students to permanently retain this knowledge and apply it in their learning.

Introduce new Vocabulary:

- All children will be introduced to key vocabulary at the start of each lesson.
- Teachers will provide definitions, examples and actions to help students remember the key vocabulary effectively.
- Students will be challenged to learn and correctly apply the meaning of these words throughout the lesson and in future lessons.

Teach:

- The teacher will share the core knowledge for the lesson with the children using a range of teaching strategies and quality resources.

Tasks- Collaborative

- Children are encouraged to work with a partner for collaborative learning.
- Tasks assigned are short and aim to facilitate discussion and cooperation.
- Students are expected to apply their understanding of new information taught.
- Collaborative learning helps students to deepen their understanding and build on each other's ideas.

Tasks- Independent/Group

- The children will work independently on a task or as part of a small group.
- These tasks will vary lesson by lesson and will require the children to apply what they have learned or apply their newly acquired skills.

Summarise-

- The teacher will summarise the learning that has taken place in the lesson explaining how it builds on previous learning and where their learning will take them next.

Reading in our curriculum

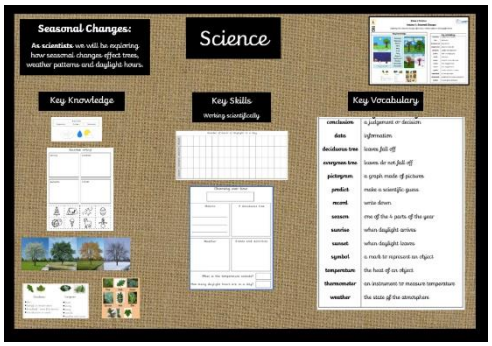
- Reading is a priority in all lessons for children. It is seen as the key to all learning and is essential for overall academic success.
- Children will read a variety of texts including fiction, information, poetry, online glossaries, information from websites and blogs.
- Quality texts based around the subject and unit will be planned for and indicated on long term plans. These texts may be used as a hook into the learning, referred to in the lesson or in the learning environment for inspiration and for children to access independently.

Use of resources

- The subject lead and class teachers must ensure they have the required resources for teaching including the texts that will be used to enhance the learning.
- The subject lead will carry out an audit of the resources in school for their subject.
- Teachers should discuss with the subject lead if any additional resources are needed.

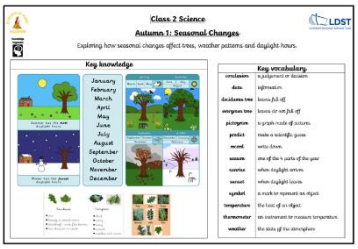
Working walls

- Working walls will have the subject title and a description of the unit being taught starting with the phrase 'As Scientists we are learning to…'.
- Working walls should be used as a tool to support and retrieve learning and include key vocabulary and definitions, key (substantive) knowledge and how this is applied through key skills (disciplinary knowledge).



Presentation in books

- Each new unit of work will have a unit cover followed by the unit knowledge organiser
- Each lesson will have a lesson label which will include:
  -Date
  -Unit title
  -Retrieval task
  -Learning objective
  -Key vocabulary for the lesson
- Units will finish with an exit task
- Teachers are expected to have high expectations of presentation



25/ 6/ 2024- **Seasonal Changes**

Retrieval task: Test me: Today we quizzed our partner using our knowledge organisers.

LO: I can recognise how trees change across the seasons

Key vocabulary: deciduous tree evergreen tree season temperature weather

Assessment

- Assessment should be used continuously to inform teaching strategies.
- Teachers should assess students on their knowledge after every lesson and plan for the next steps in teaching accordingly
- Lesson retrieval tasks, unit exit tasks and sticky knowledge jar retrieval exercises will be used to assess children's learning and are effective in addressing gaps in students' knowledge.
- Feedback and marking should be used in accordance with the school's policy to indicate student progress and next steps.

Impact

By the end of EYFS our pupils will be able to:

- explore the natural world around them, making observations and drawing pictures of animals and plants.
- know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

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By the end of KS1, our pupils will be able to:

Scientific enquiry

- ask simple questions and recognise that they can be answered in different ways
- observe closely, using simple equipment
- perform simple tests
- identify and classify
- use their observations and ideas to suggest answers to questions
- gather and record data to help in answering questions.

Plants

- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- identify and describe the basic structure of a variety of common flowering plants, including trees.
- observe and describe how seeds and bulbs grow into mature plants
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Animals including humans

- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- identify and name a variety of common animals that are carnivores, herbivores and omnivores
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
- notice that animals, including humans, have offspring which grow into adults
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Living things and their habitats

- explore and compare the differences between things that are living, dead, and things that have never been alive
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- identify and name a variety of plants and animals in their habitats, including microhabitats
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Everyday materials

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties.
- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Seasonal changes

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

By the end of KS2, our pupils will be able to:

Scientific enquiry

- plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

Living things and their habitats

- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals.
- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics.

Animals including humans

- describe the changes as humans develop to old age.
- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans.

Properties and changes of materials

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Earth and space

- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Forces

- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Evolution and inheritance

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Light

- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Electricity

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram.