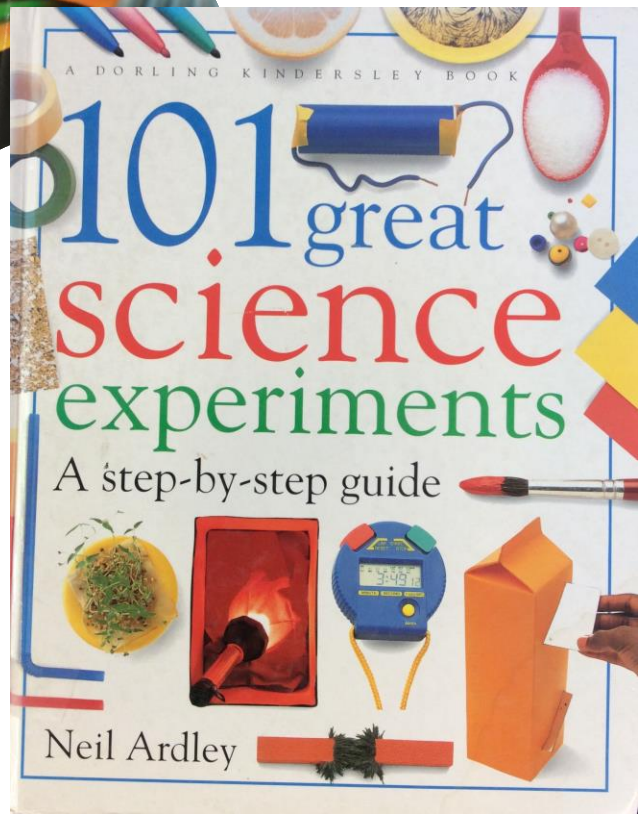
Science at the River Wye Federation

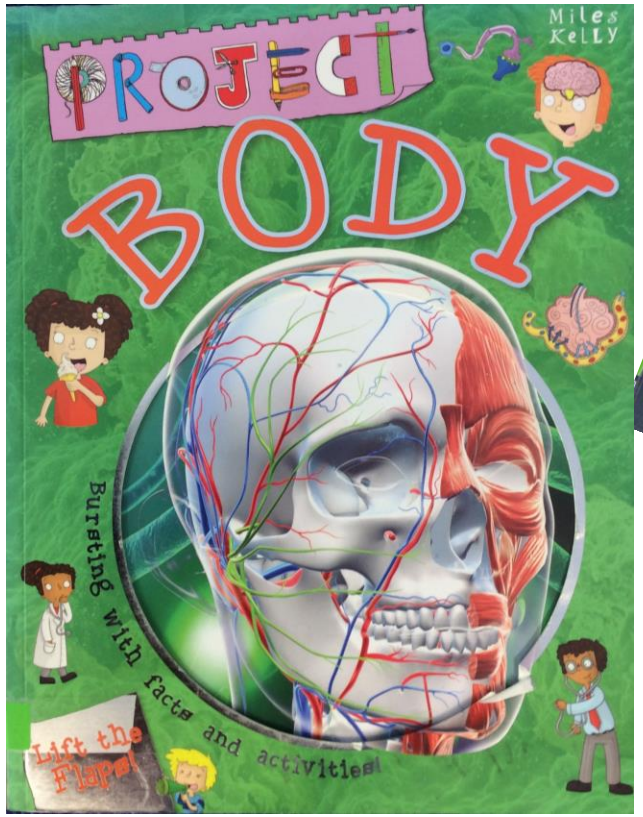
Local context

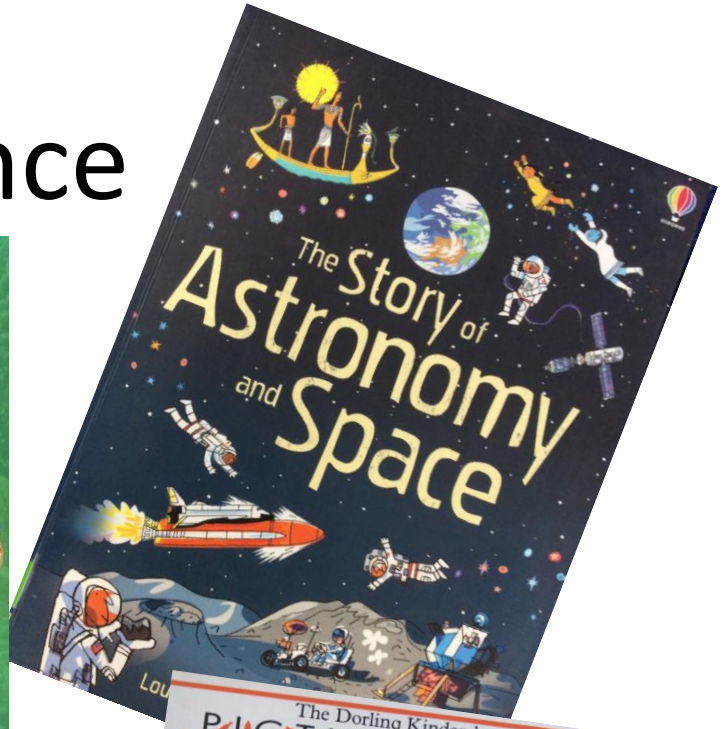
Whitchurch CE Primary School is a short walk from its own forest school base, a butterfly zoo and the River Wye, all of which provide a potentially rich basis for science activities, as do the grounds of both schools. As a farming county, and with many of our children coming from a farming family, there are numerous opportunities to develop links with agriculture, including visits to a farm run by one of our governors, while Ross town also offers the Community Garden project.

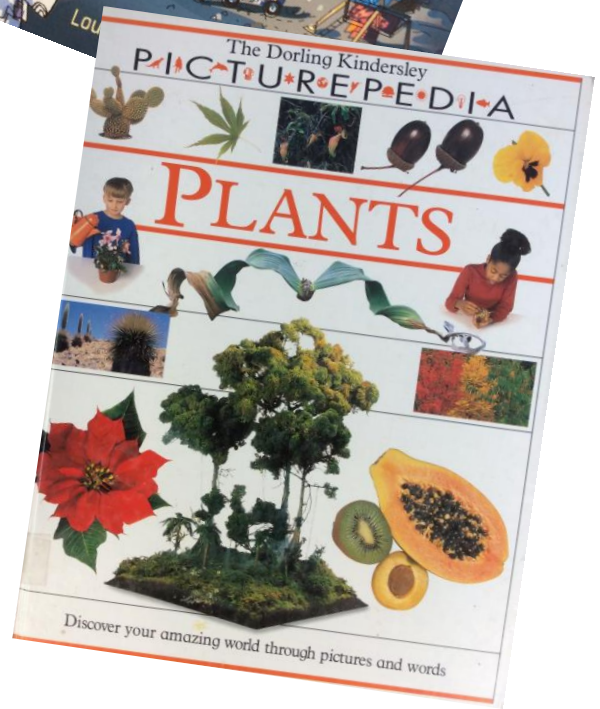
As an alternative to the biological sciences, Bromyard also offers a Time Machine Museum of Science Fiction, Starlab has visited the school to help us study space and the local hillsides adjacent to both schools provide opportunities to investigate rocks and soils.

Books to promote Science









Subject Progression

- Click here to link to our Subject Progression document for Science.

Knowledge Organisers

We use these to summarise the core content in any particular science based Learning Journey.

River Wye Federation - Science

Topic: Plants	Year: 1	Strand: Biology

What should I already know?

- **Plants** can grow.

What will I know by the end of the unit?

The names of some common garden plants

- People may grow **plants** in their gardens and care for them.
- They may grow **flowering plants** which are beautiful to look at or beans and **seeds** to grow **plants** for food.
- When **plants** are grown for food, this may be called a **herb garden** or **vegetable** patch.

vegetable patch

rose

poppy

sunflower

The names of some common wild plants

- A **wild plant** will grow by itself.
- It does not need to be cared for.
- If it grows somewhere unwanted, it may be a **weed.**

dandelion

daisy

buttercup

nettle

clover

Deciduous and **evergreen trees**

- **Deciduous trees** lose their **leaves** in the autumn every year. Their **leaves** are generally broad, flat and have veins running through them.
- **Evergreen trees** have green **leaves** all year round. Their **leaves** are generally thick, waxy and narrow like needles.

deciduous

evergreen

What are the parts of **common trees** and **plants**?

Vocabulary

branches	parts that grow out from the **tree trunk** and have **leaves**, **flowers**, or **fruit** growing on them
bulb	a root shaped like an onion that grows into a **flower** or **plant**
common	something that is found in large numbers or it happens often
deciduous	a **tree** that loses its leaves in the autumn every year
evergreen	a **tree** or bush which has green **leaves** all the year round
flower	the part of a **plant** which is often brightly coloured and grows at the end of a **stem**
flowering	**trees** or **plants** which produce **flowers**
fruit	something which grows on a **tree** or bush and which contains seeds or a stone covered by a substance that you can eat
garden	a piece of land next to a house, with **flowers**, **vegetables**, other **plants**, and often grass
herb	a plant whose leaves are used in cooking to add flavour to food, or as a medicine
leaf / leaves	the parts of a tree or plant that are flat, thin, and usually green
petal	thin coloured or white parts which form part of the **flower**
plant	a living thing that grows in the earth and has a **stem**, **leaves**, and **roots**
roots	the parts of a **plant** that grow under the ground
seed	the small, hard part from which a new **plant** grows
stem	the thin, upright part of a **plant** on which the **flowers** and **leaves** grow
tree	a tall **plant** that has a hard **trunk**, **branches**, and **leaves**
trunk	the large main **stem** from which the **branches** grow
vegetable	**plants** such as cabbages, potatoes, and onions which you can cook and eat
vegetation	**plants**, trees and **flowers**
weed	a **wild plant** that grows in **garden** and prevents the **plants** that you want from growing properly
wild	animals or **plants** that live or grow in natural surroundings and are not looked after by people

Investigate!

- **Plant** a bean or a **seed** and watch it grow. Record your observations in a diary.
- Go on a **wild plant** hunt! Create a **tally chart** to show how many of each **plant** you have found and then use the information to answer questions.
- Plant some **garden plants,** care for them and watch them grow.
- Go on a **tree** hunt around the Country Park - what types of **trees** can you see? Collect fallen **leaves** and identify which **tree** they came from using pictures to help you. Sort the **leaves** between **deciduous** and **evergreen trees.**
- Label the parts of a plant showing where the **leaves**, **flowers** (blossom), **petals**, **fruit**, **roots**, **bulb**, **seed**, **trunk**, **branches**, and **stems** are.

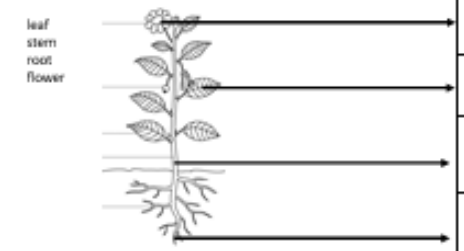
River Wye Federation - Science

Topic: Plants	Year: 1	Strand: Biology

Question 1: If you are caring for a plant, which of these should you do?	Start of unit:	End of unit:
put your plant in the fridge		
water your plant regularly		
put it in a cupboard		

Question 2: To grow a plant, you must first place a _____ in soil.	Start of unit:	End of unit:
seed		
flower		
petal		
stem		

Question 3: Label these parts of a plant:



Start of unit:	End of unit:

Question 4: Match these words to the correct description:

		Start of unit:	End of unit:
deciduous	a tree that loses its leaves in the autumn every year		
evergreen	a tree that has leaves all year round		

Question 5: Match these words to the correct description:

		Start of unit:	End of unit:
wild	a piece of land that is part of a house, where plants, trees and vegetables can grow.		
garden	animals and plants that are not looked after by people		

Support and Deepen

Support

Children use knowledge organisers to help their understanding

Quizzing helps improve retention of knowledge

Books, the internet and practical resources and investigations are used to support understanding of scientific ideas

Visits are well-planned to address the interests and abilities of the children

Staff support children by using questioning adapted to the needs of the individual

Deepen

Children are encouraged to pose questions and follow their own lines of enquiry

Open-ended questioning and tasks enable children to demonstrate their depth of understanding

Quality, up-to-date texts and apps are available for children to research further

Quality texts improve the children's technical vocabulary and understanding of the subject in a context

Our skills progression for working scientifically enables children's understanding of the process to be deepened

Cultural Capital

- Examples of Cultural Capital through Science:

- Children will gain an understanding of materials, objects and their properties. Pupils may demonstrate knowledge of a variety of environments and the physical features surrounding it. They will have a knowledge of diverse environments around the world and how materials, matter and objects differ in different environment.

- Children will gain an understanding of aspects of chemistry. Pupils may demonstrate knowledge of a variety of experiments linked to chemical reactions and properties. They will have a knowledge of chemical elements, and how these elements can change if subjected to a range of tests. Children will learn about testing and how to make a test fair. Their knowledge of chemistry can lead to a wide range of jobs beyond, not just in, science fields.

- Children will gain an understanding of plants and trees and environments they need to flourish. Pupils may demonstrate knowledge of a variety of plants and trees that live in different environments. They will develop their understanding of the importance of plants and trees throughout the world and know the effect of global change on these plants and trees.

- Children will gain an understanding of humans, what they need to flourish, how they work and what they need to stay healthy. Pupils may demonstrate knowledge of a variety of parts of the human body and how they work and what their purpose is. They will develop their understanding of the importance of the human body and how it functions. This could encourage a career in medicine.

- Children will gain an understanding of animals and their habitats. Pupils may demonstrate knowledge of a variety of environments and the animals that live there. They will have a knowledge of diverse environments around the world and know the effect of global change on these environments.

- Children may demonstrate an understanding of a fair test and following key enquiry questions and know the fundamental principles of meaningful science and that throughout time, scientists have developed and refined this method with peer review. Scientists throughout history such as Copernicus, Darwin, Newton and Higgs & Boson have advanced this endeavour despite opposition and resistance from society and faith bodies.

Rights Respecting School

Article 15 Every child has the right to meet with other children and to join groups and organisations, as long as this does not stop other people from enjoying their rights

- The Science Ambassadors in our schools run lunch time Science clubs, which are open to all children, depending on the nature of the activity.

Article 24 (health and health services) Every child has the right to the best possible health.

- Though topics on the human body and keeping healthy, etc, children will learn what a healthy lifestyle involves, so that they can make informed choices

Article 28 – Every child has the right to a good quality education.

- Support for colleagues, science and curriculum leaders, through in-house CPD, strengthens the ability of staff to promote good learning in science

Article 29 – Education should help children to develop their talents and abilities.

- Science provides opportunities for children who are possibly more interested in the scientific world. Our Science ambassadors were chosen from children who showed a particular talent for or interest in the world of science.

Eco-School and Learning in the Environment

Forest School is an important part of what we do and enables us to support children's learning in relation to nature, land conservation and the care for and identification of animal species. Similarly, the school garden is used for planting, nurturing, harvesting, cooking and eating produce, also supporting the Healthy Eating agenda.

Local water courses near both schools have been used for stream dipping and water cleanliness investigations.

School grounds can be used for a range of activities, including rainfall levels, air pollution, animal habitats and biodiversity.

In recognition of our work in these areas, the school has had 6 consecutive Green flags (and is applying for a 7th!), is a RHS Level 5 Star School and has been awarded a Gold in the School in Bloom awards. Our status as Silver Rights Respecting Schools involves global education and encourages the children to promote ecological thinking.

International School

We have strong links to our partner school in Uganda, which, due to the nature of our respective localities, have involved the study of crops grown, particularly tomatoes, beans and sweetcorn; naming and comparing plants that grow in the UK and in Uganda and scientific drawing. These projects, combined with visits to the school by our Ugandan colleagues, have and will continue to enrich our curriculum.