

Science at Oakridge School

Oakridge School & Nursery





Science Leader

Mr. H. Khan is the Science Lead at Oakridge School



Vision

Our aim at Oakridge is to build a love of Science, enthusing children by building on their natural curiosity and sense of awe in the natural world. Science provides children with opportunities to learn through practical, first-hand experiences as well as secondary sources and to develop understanding of the world in which they live through the specific disciplines of biology, chemistry and physics. These experiences should enable the children to question, investigate, make sense of, communicate and evaluate their findings.

Intent

- Children will learn that Science is a powerful tool to solve problems across the globe and will study key scientists whose contributions have made a difference, for example Mae Jemison in Year 5, linking Space with Black History Week and Charles Darwin in Year 6, linking with their English unit studying "On the Origin of Species". All six of the Oakridge Threads are represented in the Science curriculum across the school, with a focus on Technology and Progress, Environment and Equality & Diversity. Each unit has an associated thread question for example when studying light in Year 6 the children answer the question "How did Ibn al-Haytham change our scientific understanding of how humans see?." This focus serves to contextualise their learning in line with possible future careers in this subject whilst providing all children with the opportunity to imagine themselves as future Science leaders.
- Through building up a body of key foundational knowledge and concepts, children will be encouraged to recognise the power of rational explanation backed by evidence. They will learn to make sense of the world that they live in and understand how and why things happen. They will develop their communication and language skills through using technical vocabulary to ask their own questions and investigate their own solutions whilst working safely with others.
- Children will receive opportunities to extend their Science learning beyond the classroom within our local area, including through links made with local secondary settings (e.g. Wycombe Abbey School and John Hampden Grammar). Other examples of enrichment activities within Science include a visit from the inflatable Planetarium in Year 5, Zoo Lab visits in school, trips to the The Living Rainforest and the Science Museum, London, along with visits from working scientists.

How we teach Science?

- At **Oakridge School**, we deliver a broad and balanced **Science** curriculum that enables pupils to build securely on their prior learning. Our progression of skills document outlines the key knowledge and skills taught across each year group, covering the three core disciplines of the National Curriculum: **Biology, Chemistry and Physics**, alongside the essential strand of **Working Scientifically**. These areas ensure pupils develop a secure understanding of living things and their habitats, materials and their properties, forces, energy, light, electricity and Earth and space, while also learning how scientists investigate the world. These strands build upon each other to help children develop a deeper understanding of scientific concepts and the natural world.
- Our **Threads** allow us to weave core concepts such as **Culture, Diversity, Social Aspirations, Technology and Press, Democracy and Environment** across subjects, helping pupils make meaningful connections and understand the role of science in society. Through these threads, pupils explore how scientific discoveries impact people, communities and the wider world, creating an ambitious and personalised curriculum that builds knowledge, develops enquiry skills and celebrates curiosity.
- Each unit is driven by a **Big Question**, which encourages pupils to think deeply and remain inquisitive about the world around them. These questions focus learning on key scientific ideas rather than isolated facts. They encourage pupils to ask their own questions, investigate, collaborate and apply their understanding through practical enquiry. By exploring these big questions, pupils develop critical thinking skills and recognise how science connects to everyday life and the wider world.

How we measure Progress?

Progress in Science is measured by how much pupils know, remember, and can apply – from key scientific facts and vocabulary to enquiry skills and their understanding of the world around them.

At **Oakridge School**, we measure progress in Science through a range of approaches:

- At the start of each unit, pupils recap prior learning within the scientific strand and are introduced to the new learning ahead. This helps teachers identify what pupils already know about scientific concepts such as living things, materials, forces, energy or Earth and space.
- Key knowledge points ("**Golden Nuggets**") show whether pupils can remember important scientific facts and vocabulary. Teachers use targeted questioning during lessons to assess pupils' understanding of key concepts and their ability to explain scientific ideas using accurate vocabulary.

How we measure Progress?

- **Big Questions:** Pupils respond to open-ended questions that encourage deeper thinking about scientific ideas and how they apply to real-life situations.
- We also assess pupils' **Working Scientifically skills**, such as:
 - Asking scientific questions
 - Making predictions
 - Planning and carrying out investigations
 - Observing and measuring carefully
 - Recording and interpreting data
 - Drawing conclusions using evidence
- Progress is demonstrated when pupils can carry out these enquiry skills with increasing accuracy, independence and confidence.
- **Book looks** show how scientific knowledge and enquiry skills develop over time, while **classroom discussions and pupil explanations** help teachers understand how well pupils remember and apply their learning.
- Using a range of assessment strategies allows teachers to identify strengths and gaps in pupils' understanding, adapt teaching accordingly, and ensure all pupils make meaningful progress in Science.



Science - Overview

Science Curriculum Overview and Big Questions 2025-2026

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Everyday Materials & Seasonal Changes <i>Why do we use different materials to make things?</i>	Everyday Materials & Seasonal Changes <i>How do we know which material is best for the job?</i>	Animals and Humans & Seasonal Changes <i>Why do people keep pets and how do they change our lives?</i>	Animals and Humans & Seasonal Changes <i>What happens when the seasons change?</i>	Plants & Seasonal Changes <i>How does the weather change the way animals and people live?</i>	Plants & Seasonal Changes <i>Why are wild spaces important for people and animals?</i>
Year 2	Living things <i>How do animals and humans stay alive?</i>	Materials <i>How do the materials we use keep us safe?</i>	Plants <i>What do plants need to grow strong and healthy?</i>	Plants <i>Why do people all over the world depend on plants?</i>	Animals Including Humans <i>Why is it important for humans to keep clean?</i>	Animals including Humans <i>Why is it important to keep healthy?</i>
Year 3	Forces and Magnets <i>How have magnets helped people to explore and discover the world?</i>	Animals including humans - skeletons <i>How does what we eat and discover help us to grow strong and healthy?</i>	Light <i>What can shadows tell us about light?</i>	Plants <i>Is it fair that some people find it harder to grow food than others?</i>	Rocks <i>Why are rocks and soils important for plants, animals, and people?</i>	Rocks <i>How do fossils help us understand the past?</i>
Year 4	Sound <i>How does sound help us to communicate and enjoy the world?</i>	Electricity <i>Why do we remember inventors like Lewis Latimer?</i>	States of Matter <i>Why do we need to look after the world's water?</i>	Animals including humans <i>Why are animals' teeth different from humans?</i>	Living things and their habitats <i>Why do scientists group living things?</i>	Living things and their habitats <i>How do humans impact the places where animals and plants live?</i>
Year 5	Earth and Space <i>Why is Earth the only planet known to sustain life?</i>	Forces <i>How did Isaac Newton change the way we understand the world?</i>	Properties and Changes of Materials <i>How do changes like melting and burning help people solve everyday problems?</i>	Living Things and their habitats <i>How can technology help plants grow and make more food when there isn't enough to feed everyone?</i>	Properties and Changes of Materials - changes of state <i>How does changing something from solid to liquid or gas affect what it can do?</i>	Animals including humans <i>How do people's roles and responsibilities change as they grow older?</i>
Year 6	Electricity <i>How has electricity changed the way people live, work, and stay safe every day?</i>	Light <i>How does light help us to see the world around us?</i>	Evolution and Inheritance <i>How do inherited features help living things survive over time?</i>	Living things and their habitats <i>How did Carl Linnaeus help us sort living things into groups, and why is it still important today?</i>	Animals including humans <i>How does water help our bodies work properly and how have we used this knowledge to keep people healthy?</i>	Animals including humans <i>How does diet, exercise and lifestyle help top athletes to reach optimal performance?</i>

Pupil Voice



I like Science because we get to find things out. We planted seeds and watched them grow. I know plants need water, light and warmth to stay healthy' Y2

"Science is fun because we look at animals, plants and materials. I like finding out new things." Y1

'Science is fun because we do experiments. I liked learning about plants and finding out what they need to grow' Y2

"I enjoy Science because we get to explain things using evidence. I liked learning about electricity because we built circuits and tested how changing the voltage affected the brightness of a bulb."

"In Science, I learnt that fossils can tell us about animals and plants from a long time ago. I liked looking closely at rocks and comparing them." Y3

"I enjoy Science because we do investigations and learn how things work. I liked making circuits because we found out how to make a bulb light up." Y4

"I enjoy Science because we learn about things that explain the world around us. I liked learning about Earth and space because it helped me understand why we have day and night." Y5



Enrichment

Variety of animal visits including: llamas, snakes, iguanas and other reptiles!

Cotswold Wildlife Park

Beale Wildlife Park

Science Experiences at Oakridge

Science Museum

Science experience day at local secondary school

The Living Rainforest

Science at Oakridge

Thursday 22nd January 2016
L.C. can I describe materials changing state when they are heated or cooled?

What do these objects use gases for?



gas cylinder, float, gas

Label each diagram solid, liquid or gas.



Solid, liquid, gas

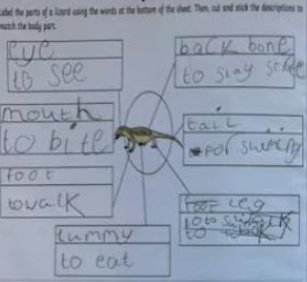
Match the material to its melting point.



-31°C, 10°C, 1000°C, 1004°C, 140°C, 185°C

Parts of a Lizard

Label the parts of a lizard using the words at the bottom of the sheet. Then, cut and stick the descriptions to match the body part.



February 2016
L.O. I can name parts of a bird.
I can identify the characteristics of a bird.
I can sort images of animals by their characteristics.
I can compare different animal bodies.

beak, tail, feathers, wing, feet, tarsi



The peacock makes very noisy sounds. It lives in the beach. The swan lives in the water.

February 2016
L.O. What makes a fly so noisy?



antenna, abdomen, eye, head, leg, thorax, wing

What makes a fly so noisy?



antenna, abdomen, eye, head, leg, thorax, wing

What makes a fly so noisy?

Science at Oakridge

Thursday 12th February 2026
 Q: Can I understand the process of condensation?

Label the diagram and use the space to explain what the experiment is showing. Use the word bank to help you.

In this experiment you can see evaporation and condensation happening. The water in the beaker evaporates, creating water vapour. This ices to the top of the beaker where the ice cubes cool the gas, making it condense. As more water vapour condenses, water droplets form and drop down again.

evaporation condensation ice cubes condensed
 water droplets water vapour warm water evaporates
 rises condenses evaporates

YEAR 4 ANIMALS, INCLUDING HUMANS

DIGESTIVE SYSTEM - Every organ and part in the process of digestion which takes food in, that it breaks down and then gets rid of. The digestive system is made up of the mouth, oesophagus, stomach, small intestine, large intestine, rectum and anus.

FOOD CHAINS - A series of organisms that eat each other to get their energy. The sun provides the energy for plants to grow. Plants are eaten by herbivores. Herbivores are eaten by carnivores. Carnivores are eaten by other carnivores.

TEETH - The mouth is the first part of the digestive system. It is where food is broken down into smaller pieces. The tongue helps to move food around in the mouth. The teeth are used to chew food. There are different types of teeth: incisors, canines, premolars and molars.

KEY VOCABULARY AND SPELLINGS

DIETITIAN - the person or profession that studies and gives advice on the diet and health of people.

HERBIVORE - an animal that eats only plants and other vegetation.

CARNIVORE - an animal that eats only meat.

OMNIVORE - an animal that eats both plants and animals.

DIET - the food and drink that a person or animal eats.

CHALLENGE - a task or problem that requires you to use your knowledge and skills to solve it.

Thursday 11th December 2025
 L.C. can I make circuits using a range of components?

Label the conductor and the insulator

A labelled diagram of your switch

A diagram showing your switch closed in a circuit

Does your circuit work here? Why or why not?
It works because the switch is closed, making the flow of electrons.

A diagram showing your switch open in a circuit

Does your circuit work here? Why or why not?
It does not work because the switch is open, so there is no flow of electrons.

Friday 12th December 2025

Year 3 Living things and their habitats - Year 3

Knowledge Organiser

Life Cycles of Animals

A life cycle is the different stages a living thing goes through during its life.

MAMMALS

The mother has an egg. The baby bird is born inside the egg. The egg is kept warm and protected by the parent. After hatching, the young bird is fed and protected by the parent. The young bird can look after itself in the parent's nest. The young bird can look after itself in the parent's nest. The young bird can look after itself in the parent's nest.

BIRDS

The mother has an egg. The baby bird is born inside the egg. The egg is kept warm and protected by the parent. After hatching, the young bird is fed and protected by the parent. The young bird can look after itself in the parent's nest. The young bird can look after itself in the parent's nest. The young bird can look after itself in the parent's nest.

AMPHIBIANS

The mother has an egg. The baby frog is born inside the egg. The egg is kept warm and protected by the parent. After hatching, the young frog is fed and protected by the parent. The young frog can look after itself in the parent's nest. The young frog can look after itself in the parent's nest. The young frog can look after itself in the parent's nest.

INSECTS

The mother has an egg. The baby insect is born inside the egg. The egg is kept warm and protected by the parent. After hatching, the young insect is fed and protected by the parent. The young insect can look after itself in the parent's nest. The young insect can look after itself in the parent's nest. The young insect can look after itself in the parent's nest.

Reproduction in Plants and Animals

All living things need to reproduce to make young for their species to survive.

SEXUAL REPRODUCTION

Plants

The part of the plant responsible for reproduction is the flower. The flower has a male part (stamen) and a female part (pistil). The stamen produces pollen. The pistil receives pollen. The pollen travels from the stamen to the pistil. The pollen travels from the stamen to the pistil. The pollen travels from the stamen to the pistil.

Animals

The female has an egg. The male has a sperm. The egg and sperm join to form a zygote. The zygote develops into a young animal. The young animal is fed and protected by the parent. The young animal can look after itself in the parent's nest. The young animal can look after itself in the parent's nest. The young animal can look after itself in the parent's nest.

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Useful Links

- <https://www.bbc.co.uk/bitesize/primary>
- <https://www.nhm.ac.uk/schools/teaching-resources.html>
- <https://www.sciencemuseumgroup.org.uk/learning/resources>
- <https://www.rigb.org/learning/activities-and-resources>
- <https://spaceplace.nasa.gov/>