



Why&How?

Summer 2025: Issue 24

Magazine



How to begin your school's
decarbonisation journey

PSTT's Northern Hub:
developing science in the region

Supporting excellent teaching and learning in primary science
Why & How? is the magazine of the Primary Science Teaching Trust

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PSTT recommends that before undertaking any of the practical investigations contained in this publication you engage with the guidance and up-to-date advice from your Health and Safety adviser / organisation on how to do so safely.

In England, Wales & Northern Ireland refer to CLEAPSS (cleapss.org.uk) and in Scotland to SSERC (serc.org.uk).

Why & How? is the brand name of the Primary Science Teaching Trust

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Welcome

Welcome to issue 24 of the Primary Science Teaching Trust's termly magazine, Why and How?

In **news**, we are delighted to announce that the Nuffield Purposeful Practical Primary Science report has been released: the report summarises findings and provides three key contributions in the support of primary science. We share an update on the Scottish Sciences Curriculum Improvement Cycle which involves PSTT Fellows and SSERC colleagues, alongside some additional updates from Scotland. We are also pleased to celebrate the release of a new book from the Artful Fox Creatives team.

Take time to read our **Climate Science** section. Chris Graham writes about his inspiring and pragmatic sustainability journey towards net zero at Hills Road Sixth Form College. Understandably, teachers are often drawn towards making curriculum adaptations to support children's sustainability education. Chris shares a rationale for why we need to examine the infrastructure and operations of our education settings through a sustainability lens and explains the transferable steps from his own journey.

Don't miss the opportunity to sign up for one of our **Professional Learning Opportunities**. There are development opportunities for everyone: enhance your science subject leadership skills with the last webinar in our Primary Science Leadership Webinar Series; develop your understanding of science enquiry types with our summer term Enquiry Types webinar series, or join us for a Thinking, Doing, Talking Science (TDTScience) taster session. Our TDTScience session looks at Bright Ideas Time, a key component of TDTScience. It is a dedicated discussion slot to encourage children's higher-order thinking at the start of science lessons. Join the session to learn more.

Our regular **resources** section highlights a climate linked Did You Know? which explores how climate models are helpful for planning sports. If sports events are held in conditions which are too hot, this becomes dangerous for athletes. Explore how climate models can help. Read our **Health and Safety** feature to check what you might need to consider for safe summer science teaching and learning in your setting.

In our regular **book review** section, read our recommendations for books to enhance science teaching and learning. We feature both a book suitable for teachers and another for primary-aged children.

Lastly, remember to look at the **key dates** which will help you to organise your primary science calendar for the coming year.

News

Nuffield practical work report and video now out

The Purposeful and Effective Practical Work in Primary School Science project seeks to answer how such work is understood and enacted in primary school science in the UK.

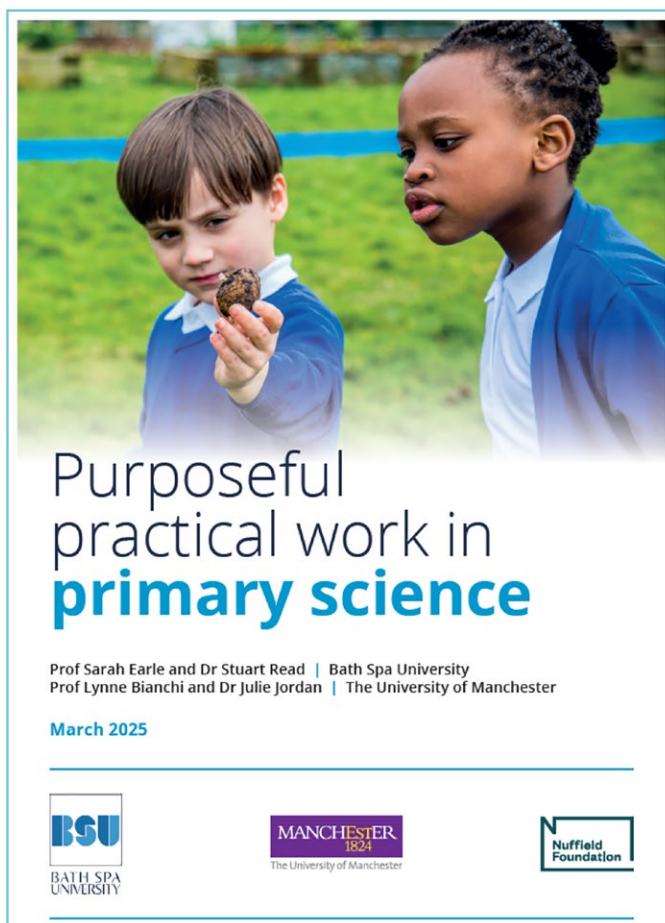
Within the project practical work is viewed from a uniquely primary perspective, to consider its use in science lessons with young children. The research draws on a scoping literature review examining 195 documents, 231 responses to a stakeholder survey and 34 teacher interviews.

The guidance report from Prof Sarah Earle and Prof Lynne Bianchi provides full details of the Nuffield Foundation funded research. The report summarises findings and provides three key contributions in the support of primary science:

- new definition of practical work in primary science,
- prioritisation of purposes,
- model for pedagogy.

The research team will be continuing to work with schools over the next year to create further exemplification materials, to support primary science across the UK and beyond.

The project is led by Professor Sarah Earle, in collaboration with Dr Stuart Read and the University of Manchester's Professor Lynne Bianchi and Dr Julie Jordan.



Purposeful practical work in primary science report

➡ **Download the report [here](#).**

➡ **View the key message video [here](#).**

➡ **Find out more about the project on the [Nuffield Foundation website](#).**

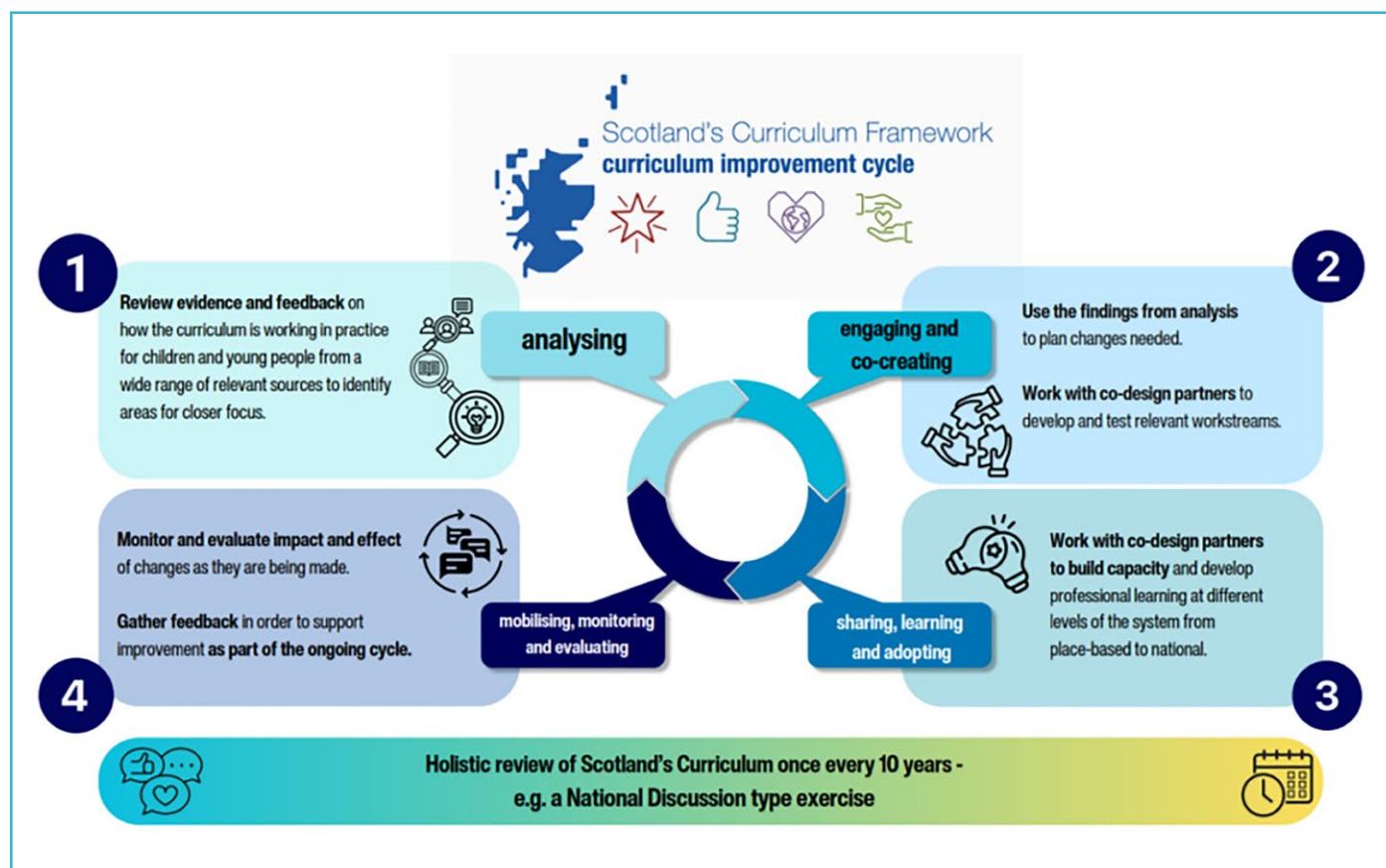
➡ **If you would like to get in contact about the research please email primary.science@bathspa.ac.uk**

➡ **For SEERIH at The University of Manchester visit the [SEERIH website](#) or email fascinate@manchester.ac.uk**

Scottish Sciences Curriculum Improvement Cycle Update

PSTT Fellows Cath Milne and Paul Tyler, along with PSTT Area Mentor Hayley Sherrard, continue to support Scotland's continuing Curriculum Improvement Cycle (CIC). In March the group were invited to participate in the next step of the CIC process for the sciences, a four-day event in Glasgow organised by Education Scotland.

Cath, Paul and Hayley joined 30 others representing settings and institutions from across Scotland, as well as learned societies such as the Institute of Physics, Royal Society of Chemistry and the Royal Society Biology.



Scotland's Curriculum Framework curriculum improvement cycle

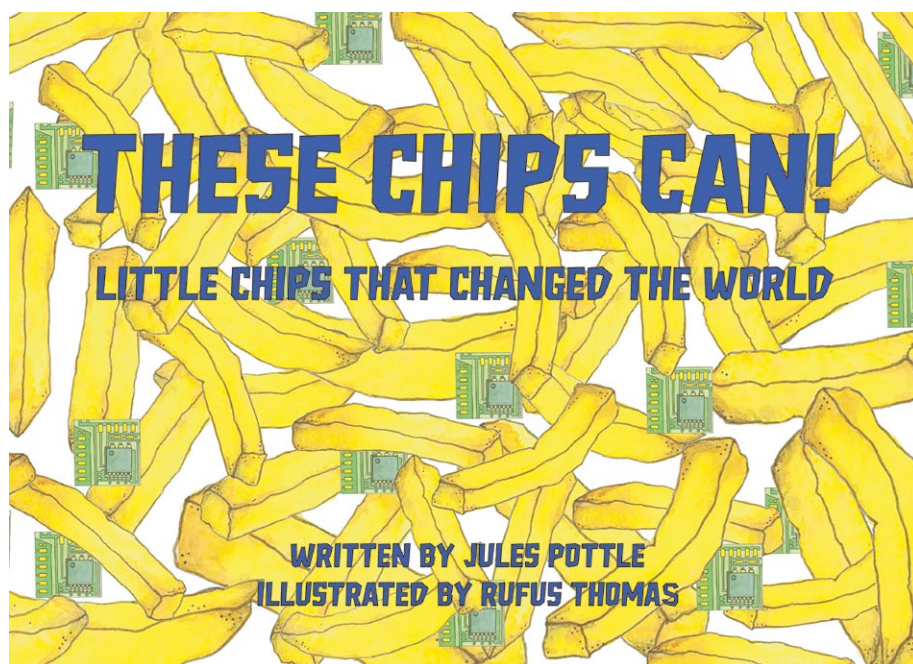
Keep up to date with the latest news from the CIC: visit the Education Scotland website [here](#).

Latest Book from Artful Fox Creatives

PSTT Fellows Jules Pottle and Rufus Cooper, the founders of **Artful Fox Creatives**, have teamed up with Great Science Share for Schools (GSSfS) again to produce a brand-new primary science storybook to inspire scientific enquiry. 'These Chips Can! Little Chips that Changed the World', written by Jules and illustrated by Rufus, profiles the impact of technological change over time inspired by the innovation of the semiconductor in Oldham.

Use the storybook to track the change in the way electrical objects were made and how they have influenced how we live today. The story highlights the impact of the microchip and semiconductor in a way that captures the imagination through three points in history.

The 2025 GSSfS theme is Connected Science. This theme celebrates the connections between science, literacy and history, between science and industry, and collaboration between local organisations and teachers.



These Chips Can! Little Chips That Changed the World by PSTT Fellows Jules Pottle and Rufus Cooper

'These Chips Can! Little Chips that Changed the World', comes in partnership with Diodes Incorporated and the Oldham Enterprise Trust.

➡ The book can be purchased [here](#).

➡ For teaching notes and investigation ideas visit the [Great Science Share for Schools website](#).

STEM Nation Award Open Days

Inspirational educators across Scotland hosted a series of STEM Nation Open Days throughout February and March 2025 including three virtual visits to settings in rural and remote areas. The events were open to practitioners interested in learning more about the STEM Nation Award programme and celebrated the achievements of individual settings within their own local community.

Thirteen settings across Scotland were involved in the programme of events and the SSERC Early Years and Primary Team were delighted to support Rosebank Primary School's event in Dundee on 24 March. Look out for the interactive virtual tours on the STEM Nation [website](#).

➡ Find out more about the events [here](#).



Primary Science Teaching Trust

Supporting primary science since 1997



PSTT Fellow Joshua Piggott

Joshua Piggott shortlisted for STEM Educator of the Year

PSTT Fellow Joshua Piggott, Science Lead and Y3 Teacher at St Nicholas CE First School, has been shortlisted for STEM Educator of the Year.

This national award celebrates educators who go above and beyond to inspire girls and young women to pursue STEM. Joshua's work in embedding inclusive practice,

raising aspirations and broadening participation across the curriculum has had a powerful impact within his school and wider community.

Supporting Scottish teachers through the RAiSE programme

The Raising Aspirations in Science Education (RAiSE) programme aims to encourage young people into science, technology, engineering and maths (STEM) careers by improving teacher confidence in delivering inspiring science learning. As the RAiSE programme approaches its conclusion in June 2025, we're pleased to share an opportunity for primary practitioners in Scotland to celebrate its impact and explore what comes next.

The RAiSE Expo, taking place on **Wednesday 21 May 2025 at The Social Hub, Glasgow**, will offer valuable opportunities to engage in STEM professional learning, reflect on the RAiSE journey from its inception and connect with partners to inspire future learning.

To accommodate different schedules, the event will run twice on the same day. Please see the registration options below.

10:00 to 15:00 ([register here](#))

16:00 to 19:00 ([register here](#)).

RAiSE

Raising Aspirations in Science Education

Climate Science

Taking Action on Climate Change



Figure 1: Chris Graham, Sustainability Lead and Rachel Hooper, Chief Operating Officer, with Luciana Almeida, one of Let's Go Zero's Climate Action Advisors.

Chris Graham, Sustainability Lead at Hills Road Sixth Form College, shares steps in the college's sustainability journey designed to support any school with their climate action plan. He explores what steps can be taken to establish an organisation's carbon footprint and how this data can be used to implement a decarbonisation strategy. The approaches taken are transferable to any education setting.

As education institutions, our aim is to give our learners, whatever their age, the brightest future possible. One of the greatest impacts on how bright that future will be, is how society responds to the climate crisis. We should be setting our learners up to be part of this response by teaching them about the problem and the ways it can be addressed and by giving them opportunities to get involved.

However, this is not enough. By doing all this, but nothing more, we are putting the burden of addressing this critical issue onto our learners and not dealing with it ourselves. If we want our learners to see that climate change is a problem that needs addressing urgently, we need to act like it is one. This includes addressing not just the curriculum we teach our young people but also the school infrastructure and operations. We must take ownership of building a sustainable future whilst preparing our learners to take over the reigns from us when it's their time to lead.

At Hills Road Sixth Form College (HRSFC), we are about 5 years into our sustainability journey. This article reflects on our journey in the hope that it will support others, no matter where they are in their journey, and whatever the ages of their learners. The steps taken are transferable to any educational setting.

The first point to make is that there is excellent free support available – you don't have to do this alone. HRSFC joined Let's Go Zero to get free support from a Climate Action Advisor which has been particularly helpful (figure 1). The time they give supporting a school, their knowledge of the experiences of other schools, and their advice on navigating all the other support available, free and otherwise, saves significant time and effort as well as allowing decisions to be made with confidence.

Categories in the baseline carbon footprint (2018-19)	% of total	What we're doing so far (but much more to do!)
Student Commuting	46.9	Working with and lobbying the council and bus companies. We already don't supply parking spaces for students. Lots of bike parking in a secure site.
Procurement of goods and services	17.6	Collaborating on an IT carbon footprint project. Paper reduction through 'Bring your own device' policy.
College trips: Flights only	11.4	No flights.
Staff Commuting	10.8	EV charging points. Lots of bike parking in a secure site. EV and cycle-to-work salary sacrifice schemes.
Gas	6.7	Air Source Heat Pumps in new and renovated buildings.
Electricity	5.6	Renewable energy supplier, solar panels, LED and motion activated lighting.
Waste (recycling + landfill)	0.5	Café brought 'in house' so we can use Vegware and collect compostable waste separately, new bins for separating recyclable waste.
Minibuses + Tractor	0.3	Electric minibuses.
Water (supply and waste)	0.2	
Air con	0.0	

Figure 2: Hills Road Sixth Form College's baseline carbon footprint (2018-2019) with some steps that have been taken to reduce it.

To embark on an honest, evidence-led, journey to sustainability one of the most important things to do is calculate a baseline carbon footprint. Let's Go Zero can advise on how to calculate this. At HRSFC the baseline carbon footprint showed that nearly half of our emissions were due to students commuting to and from college, about 20% was from procurement of goods and services, approximately 10% from staff commuting and another 10% from college trips that used flights and then roughly 5% from each of our electricity and gas use. Interestingly waste accounted for less than 1% of the carbon emissions. There are very good reasons to cut waste, by reducing, reusing and recycling but if that is the main focus of sustainability initiatives then they are not effectively addressing the issue. Figure 2 shows our carbon footprint and some actions we've taken to reduce it.

The baseline carbon footprint allowed evidence-based conversations to be had with the school's senior management. It also provided the evidence needed to engage the whole staff with the nature of the problem and supplied the context for the reasons for making certain decisions. The most significant of which, for us, was to stop using flights for student trips. That's not to say we

stopped trips. A rethink was required and some trips found places closer to the college that gave students an equally enriching experience, thus reducing HRSFC's carbon footprint. This example is highlighted as it was significant for our setting and each setting will need to decide what is significant and actionable.

The decision to stop using flights could only have been made by the senior management. This highlights an important step in undertaking a sustainability journey that an organisation is truly committed to. Becoming a sustainable organisation requires sustainability to be a component in all decision-

making and this can only happen if sustainability is embedded within an organisation's strategy, policies, ways of working and organisational structure. This isn't the headline-grabbing side of a sustainability journey, but it is essential, as it is with any other component of our core mission such as safeguarding and outcomes for learners.

HRSFC is lucky to have a principal who is fully committed to the sustainability journey. We also have a Sustainability Lead who has one day a week's worth of time to focus on the journey (that's me) and a member of the senior leadership team, the Chief Operating Officer, who has sustainability as a named component of their remit. The current 4-year strategic plan, which had to be ratified by the governing body, has one of its four strands dedicated to sustainability (see figure 3) and so we will now be formally held to account for our progress towards sustainability by the governors.

Part of the strategic plan was committing to decarbonisation targets. We went for a 50% reduction in all emissions by 2030 and net zero by 2050 to be in line with national targets. With student commuting being nearly half of our emissions there is much that is out of our

3. Planet

► We will do this by:

- Ensuring that sustainability and carbon literacy learning become embedded within our Educational Commitment.
- Embedding sustainability education opportunities wherever they present themselves within our curriculum subjects.
- Delivering on our commitment to reduce our carbon footprint by 50% (against 2018-19 levels) by 2030.
- Taking opportunities to share and promote our passion for the environment with all stakeholders, including addressing climate anxiety where we can.
- Developing robust data systems for measuring and addressing emissions, including Scope 3, in order to contribute to the 50% reduction by 2030.
- Continuing to invest in our site infrastructure to ensure it is as green and energy efficient as possible.
- Providing opportunities for our students to learn about green jobs and careers, including through annual focal events – both local and national.
- Finding creative ways to develop the biodiversity of our campus through innovative use of outdoor space.
- Developing a food and waste strategy and driving improvements on energy reduction.
- Implementing measures that enable staff and students to make greener travel choices more readily.
- Supporting training for all staff in climate change to support the College's delivery goals including through an annual training session.
- Investing in a new role to help us drive forward our sustainability goals.

Figure 3: The 'planet' strand of Hills Road Sixth Form College's 2024-2028 Strategic plan.



direct control and so we felt that we couldn't commit to going any faster. It did, however, highlight the importance of using our voice and influence to campaign for more sustainable travel options for our students and staff.

Whilst the carbon footprint shows the biggest emitters, there are other factors in determining what to prioritise. The easy wins, although they might be difficult choices, are an obvious place to start, whether that's because there is financial support available for them (e.g. replacing old gas boilers with air source heat pumps) or because they are under our direct control. Another aspect is to have some initiatives that learners can engage with. There may be a bigger impact of switching to air source heat pumps, getting more insulation, and installing solar panels, but they are not things that learners can easily get involved with. This is where waste reduction can come into play. Just remember that those, behind the scenes, initiatives that address much larger percentages of emissions also need to be done. This is so that we effectively do our bit to produce the brightest future possible for our learners and don't just rely on them to do the hard part themselves.

The sustainability journey is by no means all easy wins and engaging activities. There are some very hard aspects to it: the funding might not be available to make it happen; the data needed to make the right choices can be very time consuming to obtain; or the solution isn't under our direct control. We can only move as fast as the education and other sectors will allow us to. As educators we are constrained by funding, grant opportunities, and curriculum reform. Schools are also limited in how fast we can decarbonise as this is influenced by other sectors, most notably public transport, and the suppliers of electronic equipment. However, none of the above should stop us actioning what we can or using our voice to encourage, and implore, others to generate the conditions that allow us to accelerate towards sustainability.

When reflecting on the first 5 years of our sustainability journey, there have been many successes but even more things that we haven't managed to address yet. We have a long way to go but I am confident that we have set ourselves up to move at the scale and pace required, driven by the machinery of the organisation and not just the passion of a committed few.

Here are some suggestions for developing a robust commitment to sustainability that will help produce the brightest possible future for our learners:

1. Sign up to [Let's Go Zero](#) and speak to a Climate Action Advisor.
2. Establish a baseline carbon footprint.
3. Gain support for the journey from senior leaders and governors.
4. Set formal decarbonisation targets.
5. Get the commitment to sustainability and the targets written into formal documentation (e.g. a strategic plan).
6. Give a member of the senior leadership team sustainability as one of their formal responsibilities.
7. Invest in the time of another member of staff to work on all aspects of sustainability, including both the organisation's sustainability journey and educating learners about sustainability.
8. Engage all staff with the organisation's journey and ensure everyone knows how they can contribute and are motivated to do so (e.g. by making sustainability a core part of the annual CPD programme).
9. Use your networks in education to encourage and support others on their journey towards sustainability.
10. Use your voice to press other organisations and the leaders of the education sector to provide the conditions you need to accelerate your sustainability journey.

Chris Graham is the Sustainability Lead and a Biology Teacher at Hills Road Sixth Form College. He has been a teacher for over 20 years and led biology departments for 15 years before changing role to focus on sustainability in education.

Chris Graham cgraham@hillsroad.ac.uk

Resources

Health and Safety – Being Summer Ready



The summer term brings its own unique opportunities and activities. You may be planning more outdoor learning, inviting science visitors to school, and preparing your oldest children for the transition to secondary or high school. Use the health and safety advice below to support you.

Outdoor learning

As the days get warmer, there is more of an incentive to take science learning outdoors. What do you need to consider for a safe and successful outdoor lesson? Remember, children go outdoors safely all the time. However, you will need to risk assess for the specific activity you want to carry out and with the children you are working with in mind. The guidance below will support you.

CLEAPSS – [Working safely outdoors](#)

SSERC – [Outdoor Learning](#)



Children learning outdoors



EXPLORE issue 16

Science visitors

Bringing visitors to school can be an excellent way to enhance children's learning in science. How can we plan for an excellent visit? What are the risks which we might need to consider? There is guidance available which can help you to understand the questions you need to ask in order to prepare for a safe and successful visit.

CLEAPSS – [Risk Assessments from External Enrichment Providers](#)

SSERC – [School Visits](#)

Transition

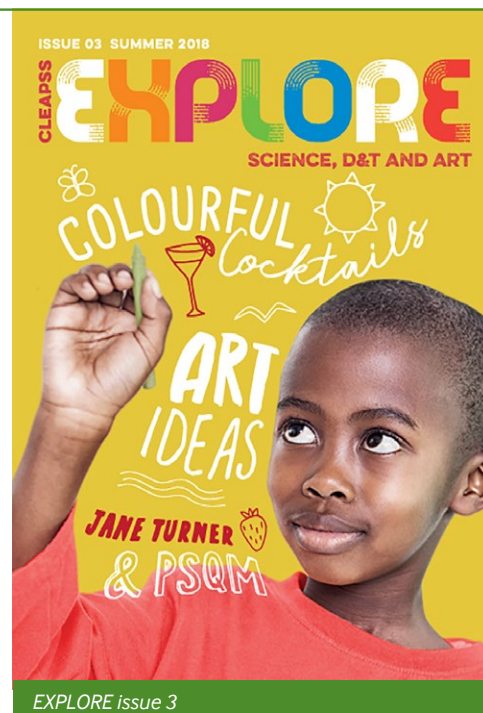
Trips to their new secondary or high school can be both exciting and nerve wracking for children. Let's make sure any experiences in the science department aren't cause for alarm. Science teachers who are used to working with older children may need guidance and support to understand the health and safety requirements of working with primary pupils. Have a conversation with the science teacher about what they plan to do and if needed share the guidance available.

CLEAPSS – [EXPLORE issue 3](#)

CLEAPSS – [Hosting primary aged children in a secondary lab](#)

CLEAPSS – [Practical activities for primary aged children visiting a secondary school](#)

If you are in Scotland and have questions about transition contact SSERC directly.

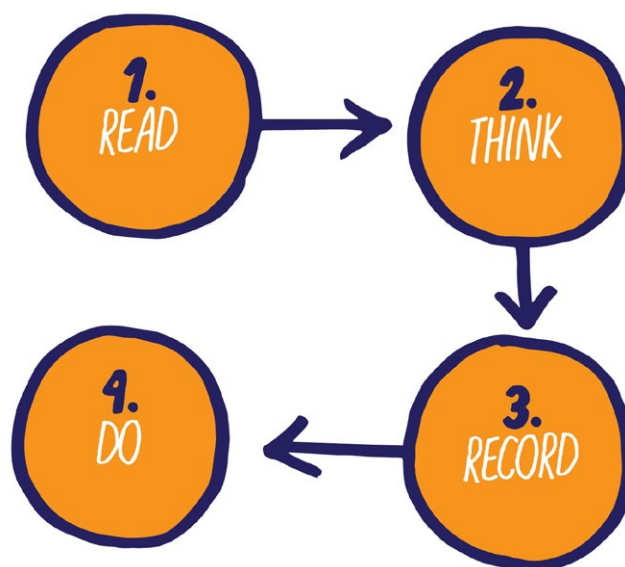


Managing Risk in Primary Science

Remember, managing risk looks like this:

1. **Read** – Find out from CLEAPSS or SSERC what the hazards are and the safety measures that will minimise the chances of the hazard(s) causing harm.
2. **Think** – Decide how you will implement the safety measure(s) that CLEAPSS or SSERC recommend, to keep your children safe.
3. **Record** – Record these in a place/way that helps you to implement them.
4. **Do** – Make sure your safety measures are carried out.

For full details see the health and safety article in Why & How? [issue 21](#)



The steps to managing risk

Using your advisor's guidance directly from their site means you can be sure it's their most up-to-date advice. **CLEAPSS** and **SSERC** are there to help you have safe and successful practical lessons. If you have a question about safety or how to make an activity successful, contact them via their helplines.

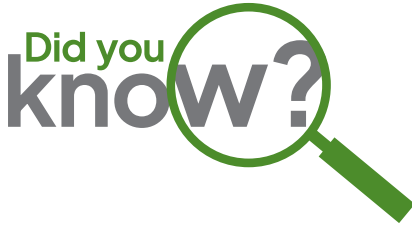


Web: www.cleapss.org.uk
Email: primary@cleapss.org.uk
Helpline: 01895 251496



Web: www.sserc.org.uk
Email: primary@sserc.org.uk
Helpline: 01383 626070

Resources



Topic: Exercise / Staying healthy / Climate

Dr Rebecca Ellis, PSTT College Fellow, links cutting-edge research with primary science

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Climate models help us plan sports events

The Earth is about 4.5 billion years old and it has warmed up and cooled down in the past. Now, it is warming faster than ever before. Burning **fossil fuels** has increased **carbon dioxide** in the **atmosphere**. This is a heat trapping gas and acts like a blanket around the Earth. Average temperatures have risen by about 1.2 °C in the last 200 years.

We need to think carefully about summer sports events so that they are safe for athletes and spectators. How hot will summer sporting events (such as the Olympic Games) be in the future? Some scientists suggest that we must plan for the worst possible cases.

Have you ever been hot when watching or taking part in a sport?



Figure 1. Exhausted runner resting in the shade.

Should we worry about getting too hot?

Our bodies try to maintain a temperature between 36-38 °C. When it is very hot, our heart works harder. We can get heat rashes or swollen feet. Symptoms of heat exhaustion include headaches, dehydration, cramps and feeling dizzy. If we do not cool down, there is a risk of heat stroke. A doctor is needed urgently for body temperatures above 40 °C.

How do you know that your heart is working harder?

What types of exercise make your heart beat faster?

If we get too hot, we sweat. When the sweat **evaporates** it uses our body heat. This cools the skin and the blood just under the skin. As the blood moves round the body, the body is gradually cooled.

What happened in the 2020 Olympic Games?

Thousands of athletes from around the world compete in the Olympics Games every four years. The 2020 Summer Olympics took place in Tokyo, Japan. It was the hottest Games in history. Temperatures reached 35 °C and **humidity** was high.

The athletes were fit and had trained for the heat. They drank plenty of water and rested in cool places. Ice packs, slush drinks and ice jackets helped the athletes to cool down. The organisers provided mist sprays and ice baths.

There were special arrangements for some events. The water in Tokyo Bay reached 29 °C and was described as 'hot as soup'. To avoid the hottest part of the day, long distance swimmers raced at 6.30am. The marathon took place 800km away in a cooler location.

Despite all this, newspapers reported that Olympic athletes were 'tortured in the hottest Games ever'. The sand was almost too hot for the beach volleyball players to stand on. Some tennis players suffered heat exhaustion. They had to stop their match and one left the court in a wheelchair. The world number one tennis player, Novak Djokovic, explained why the conditions were so tough. He said, "You're constantly dehydrated. You feel like you have weights on your shoulders." It was recommended that in the future, more breaks were planned for sports like tennis.

What did the organisers do to help athletes cope with the heat?

Which of these ideas would be useful for children taking part in school sports day?

How hot could Paris get in the future?

The 2024 Paris Olympic Games were held in Paris in July and August. This is the time of year when Paris is hottest. In 2003, there was a record-breaking **heatwave** in August lasting 15 days. It was the hottest summer for 500 years. There were 'tropical nights'. These are when temperatures do not drop below 20 °C. Tropical nights make it hard for people to sleep and recover.

During heatwaves, Paris can be 10 °C warmer than the nearby countryside. Water evaporates from ponds, vegetation and soil in the countryside. This helps to cool the air. Plants reflect more sunlight than tarmac, and trees also provide shade from the sun.



Figure 2. The Olympic rings in Paris. © Anne Jea

Which month do you think would be good for sporting events? Why?

What did the climate scientists do?

The climate scientists used **climate models**. These are computer programmes based on our understanding of the world's weather systems. Climate models can be 'set' to represent our current climate (where humans are burning fossil fuels and there is **global warming**). They can also be 'set' so that they represent a climate without global warming. Scientists can compare the weather possibilities from the models at these different settings.

Climate scientists wanted to find out how hot heatwaves in the future could be. Usually, climate models take weeks or months to work out the weather possibilities. The scientists knew that winds from the south bring heat from Africa and so they used these conditions in the models. This saved time. The weather possibilities were calculated by the computers in a few hours!

What did the climate models show?

The climate models did not give us an accurate weather forecast for the Paris Olympics. They did show that future heatwaves in Paris could be 4 °C hotter than the 2003 heatwave (see table below).

Heatwave	Average temperature over 15 days (°C)	
	Daytime	Nighttime
The 2023 heatwave	36.8	16.8 (possibly some tropical nights)
Heatwaves that might occur in the future	40.8	20.8 (likely to have many tropical nights)

How will this information help?

The City of Paris is working with climate scientists. They plan to plant more trees. They also want more buildings to be covered with greenery. Rooftops may be painted white. Blackout blinds and open windows should be used instead of air conditioning. People might need to adapt their working hours to avoid the hottest part of the day.

Climate models can be used to help other cities prepare for sports events. Climate scientists cannot tell us the exact year of the next major heatwave. They can tell us how often we can expect to have a heatwave and how hot it might be. This information can be used to plan for the future.

Glossary

atmosphere – the layer of gases surrounding the Earth or another planet

carbon dioxide – a colourless gas with no smell that is naturally present in air. It is made from carbon and oxygen

climate models – a computer simulation of the Earth's climate system, including the atmosphere, ocean, land and ice

evaporates – the process by which a liquid turns into a gas (vapour)

global warming – the long-term increase in the Earth's overall surface temperature

fossil fuels – such as coal, oil and natural gas are made from decomposing plants and animals and are found in Earth's crust

heatwave – at least three consecutive days of unusually hot weather

humidity – a measure of the amount of water vapour in the air

The paper that inspired this work was:

Ensembles of climate simulations to anticipate worst case heatwaves during the Paris 2024 Olympics.

By P. Yiou, C. Cadiou, D. Faranda, A. Jézéquel, N. Malhomme, G. Miloshevich, R. Noyelle, F. Pons, Y. Robin, M. Vrac

Published in *Clim Atmos Sci* **6**, 188 (2023). last accessed 23.5.24

Acknowledgement:



This resource contributes to XAIDA – a project supported by the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003469.

Investigations for children are described in the Teacher Guide which can be accessed [here](#).

Support

Regional Mentors in the North

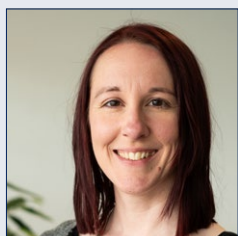
Primary science teaching is a constantly evolving landscape, and having the right support can make all the difference. Across the North of England, a newly formed Northern Hub of Regional Mentors is working to help teachers bring science to life in their classrooms.



Angharad Pass has been working in education for over 20 years, with 12 as a science subject leader. She is passionate about practical, inclusive science learning and supporting teachers and children to take learning outdoors. She began her career as a medical scientist, moving into marine biology outreach before stepping into primary teaching. In addition to her role as a Regional Mentor, Angharad is Chair of the ASE Primary Committee, and an Outdoor Education Specialist. Based in Bradford in West Yorkshire, she is committed to developing science in schools across the region as well as getting out into the great outdoors in Yorkshire and beyond. angharad.pass@pstt.org.uk



Chris Lawson, based in the North East, has taught for over 30 years, with 16 years as a science lead. She has a particular passion for science in EYFS and is an avid believer that it is never too early to become a scientist. She is dedicated to ensuring all children can access high quality science lessons and extra-curricular experiences, believing that science has something for everyone, and that excellent primary science is the place to start a lifelong love of the subject. chris.lawson@pstt.org.uk



Kathryn Horan, with extensive experience working in primary schools, leading science and also as a PSQM Hub leader and award-winning author, is keen to ensure that the 'wow' moments in science lessons are not only fun, but purposeful and meaningful too. With a special interest in developing links between science and literacy, Kathryn is skillful at finding ways to work stories, drama and speaking and listening activities into science lessons. kathryn.horan@pstt.org.uk



Stacey Reid, an experienced science leader, Assistant Headteacher, Explorify Champions Co-Ordinator and PSQM Hub leader, is passionate about science and excellent science teaching. She is dedicated to making science practical, meaningful, and relevant for children while empowering teachers to feel confident and enthusiastic about the subject. Stacey has a special interest in oracy in science, encouraging excellent speaking and listening skills within the classroom and providing children with opportunities to communicate their science knowledge and understanding in different ways. stacey.reid@pstt.org.uk



The role of Regional Mentors is to provide bespoke support and guidance to schools, and one of the ways this is done is by facilitating and leading networks for science leads and primary teachers. One of our notable primary science networks is on the Wirral, which has already demonstrated the power of collaboration. Bringing together teachers, subject leaders, and experts, this network has provided high-quality CPD, lesson-sharing opportunities, and practical workshops, leading to increased confidence and enthusiasm among teachers. So far the network has focused on the following:

- local opportunities and updates
- sharing best practice
- science in EYFS
- assessment
- supporting SEND learners

Building on this success, a new network has recently been created in Bradford, West Yorkshire, which had its first meeting in March. This emerging community aims to

create the same level of impact by fostering connections, providing support, and ensuring that every primary teacher has access to high-quality support for their science teaching and learning. A new network is due to launch in the Liverpool area and, in response to requests from teachers, another in Northumberland. See details of how to book onto our networks below.

Excitement is also building for a northern primary science conference summer, with the theme 'Igniting Creativity in Science.' This event, taking place on Tuesday 1st July at Ness Botanic Gardens in Chester, is designed to inspire and empower teachers with fresh ideas, practical strategies, and engaging activities that bring creativity to the heart of science learning. Featuring interactive workshops and opportunities to collaborate with like-minded educators, this exciting event promises to be unmissable for anyone passionate about primary science. Whether you're looking to enhance outdoor learning, integrate art into science, or use storytelling to spark curiosity, it will leave you brimming with ideas to take back to your classroom. To find out more visit our [events page](#) or book your place [here](#).

With so much happening across the north, there has never been a better time to get involved with PSTT networks and events. Whether you are looking for support, inspiration, or professional development, these initiatives are here to help. Get in touch with one of the team, using the contact details above.

Network	Sign up/express interest
Bradford	booking form
Liverpool	stacey.reid@pstt.org.uk
Northumberland	booking form
Wirral	stacey.reid@pstt.org.uk



Bespoke science support for you and your school from the PSTT

The Primary Science Teaching Trust has a team of Regional Mentors who are all primary science experts and award winning teachers. The team provides bespoke support and guidance, either face-to-face or online, to schools, groups of schools, Multi Academy Trusts, Initial Teacher Education providers, and other STEM organisations on any aspect of primary science.

Regional Mentors can provide support either in person or online.

How can a Regional Mentor support you?

- 1-2-1 science leadership support
- Teacher training
- Curriculum development
- Planning support
- Network meetings
- INSET days

PSTT's Regional Mentors

Regional Mentor	Regions Covered	E-mail
Christine Lawson	North-East	chris.lawson@pstt.org.uk
Kathryn Horan	North-West, Yorkshire and Humber	kathryn.horan@pstt.org.uk
Angharad Pass	North-West, Yorkshire and Humber	angharad.pass@pstt.org.uk
Stacey Reid	North-West, Yorkshire and Humber	stacey.reid@pstt.org.uk
Kate Redhead	West Midlands	kate.redhead@pstt.org.uk
Rebecca Ellis	West Midlands	rebecca.ellis@pstt.org.uk
Sarah Eames	East Midlands	sarah.eames@pstt.org.uk
Alison Trew	East of England	alison.trew@pstt.org.uk
Kulvinder Johal	London & South-East	kulvinder.johal@pstt.org.uk

For more information about the Regional Mentor programme and how it could benefit your school, please visit our [website](#).

Professional Learning Opportunities

Enquiry Types Webinar Series



The Enquiry Types Webinar Series is designed to support teachers at all stages of their careers in developing a deeper understanding of enquiry types and how to teach them effectively across the primary age range, including early years. Whether you are new to teaching, moving year groups, or looking to strengthen your approach to teaching science, this series will provide practical guidance and examples to use in your classroom.

Each session explores a different enquiry type, highlighting how it fits within the curriculum, progression across age groups and practical examples for classroom application.

Enquiry Types Webinar Series			
Title	Presenter/s	Date & time	Cost
Pattern Seeking	Rebecca Ellis and Ruth Shallcross	10 June 16.00 – 16.45	£20
Comparative and fair testing	Angharad Pass	24 June 16.00 – 16.45	£20
Research	Sarah Eames	8 July 16.00 – 16.45	£20

Please see our webinar series [page](#) for more information. Bookings can be made directly via this [form](#).

Thinking, Doing, Talking Science Taster session



Thinking, Doing, Talking Science (TDTScience) is an inclusive approach to teaching science which has been shown to significantly improve children's attainment and attitudes in science. One of the key components of the TDTScience approach is the Bright Ideas Time – a dedicated discussion slot to encourage children's higher-order thinking at the start of science lessons. Join this taster session to explore creative ways to effectively develop higher-order thinking skills through dedicated discussion slots at the start of science lessons.

Title	Presenter	Date & time	Cost
Thinking, Doing, Talking Science Taster Session – Bright Ideas Time	Alison Trew	11 June 16.00 – 17.00	FREE

Please see our events [page](#) for more information. Bookings can be made directly via this [form](#).

Further information about TDTScience approach can be found [here](#).



Primary Science Leadership Webinar Series

PSTT's Primary Science Leadership webinar series continues with the final webinar looking at reviewing the impact of science subject leadership over the academic year.

Primary Science Leadership Webinar Series

Title	Presenter	Date & time	Cost
Reviewing impact in science teaching and learning - reflection and next steps	Kulvinder Johal	4th June 2025 16.00 – 16.45	£20

Please see our webinar series [page](#) for more information. Bookings can be made directly via this [form](#).

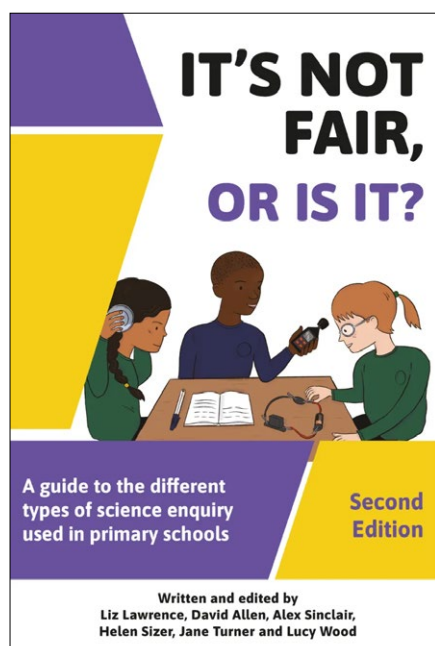
Be sure to visit our professional learning [page](#) to catch-up on previous webinars at your convenience

Book Reviews

Teacher Book Review:

It's Not Fair - or Is It? Second Edition

Authors: Liz Lawrence, David Allen, Alex Sinclair, Helen Sizer, Jane Turner and Lucy Wood



This second edition of *It's Not Fair – or Is It?* has been revised in response to the needs of the current primary science education landscape. The book draws on a new understanding of science enquiry, its place in the curriculum and how best to teach it. The authors utilise their extensive experience of how teachers plan from and teach the current curriculum to inform the content of the book. Through the book they seek to establish clarity on the following: the difference between each enquiry type; the difference between science skills and enquiry types; a definition of disciplinary knowledge and its relationship to enquiry types.

The chapters in *It's Not Fair – or Is It?* define the five different types of science enquiry carried out in the primary classroom. These enquiry types enable children to learn and consolidate science skills and concepts whilst learning about how scientists work to establish scientific knowledge.

Broken into six chapters, the book begins with an overview of primary science enquiry with the remaining five chapters focussing in-depth on each of the enquiry types. Each enquiry chapter contains:

- definitions of and information about the enquiry type
- a science skills progression grid to support planning
- examples of how to teach children to answer specific enquiry questions, from age 4 to the end of primary
- a list of other suggested science enquiry questions

This book is suitable for teachers at all stages of their career who wish to deepen their understanding about enquiry types and how to teach them. For subject leaders, the book is a resource to develop understanding of pedagogy, understanding of scientific enquiry and to improve their science curriculum.

Children's Book Review: Curiositree: Natural World

Authors: AJ Wood & Mike Jolley
Illustrator: Owen Davey

Curiositree: Natural World: A Visual Compendium of Wonders from Nature is a stunning text which uses 67 illustrated charts to explore the myriad ways in which plants and animals have adapted for survival in our world. It is most suited to children from age 8 upwards.

The book begins with introductory content clarifying a definition of living things, exemplifying our living world, and definitions of habitats. Content then progresses to more specific

charts showing different examples of spines or types of eggs.

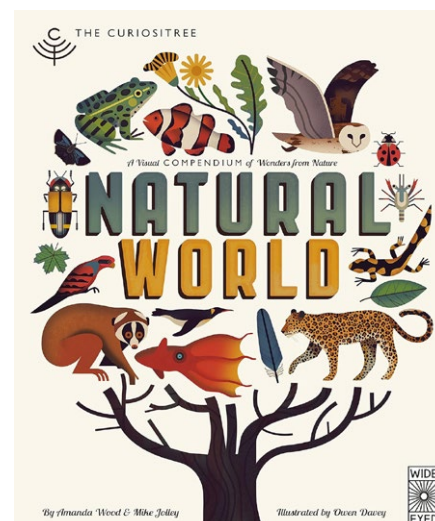
Each chart is colour coded for ease of use according to subject matter:

- Yellow for habitats or environments
- Orange for particular species or groups of plants and animals
- Blue for animal behaviour or adaptations

The authors celebrate curiosity and the on-going scientific discoveries which continue to reveal the 'boggling complexity' of the natural world. This text is an excellent resource for research questions. Find the answers to a multitude of questions: What bird lays the smallest egg? Why do animals migrate? How do bees make honey? Use the

book to spark additional research questions for your class.

An undoubted bonus is that the jacket of this book unfolds into a large wall poster of bird adaptations.





Key dates

5

**JUNE
2025**

World Environment Day

17

**JUNE
2025**

Great Science Share

17

**JUNE
2025**

Royal Society of Chemistry
Education Prizes deadline
for nominations

23

**JUNE
2025**

International Women
in Engineering Day

20

**JULY
2025**

National Moon Day

8-10

**JANUARY
2026**

ASE annual conference

pstt.org.uk

The Primary Science Teaching Trust
(formerly the AstraZeneca Science
Teaching Trust) was fully endowed
with a grant from AstraZeneca PLC



Why & How? is the brand name of the **Primary Science Teaching Trust**

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PSTT recommends that before undertaking any of the practical investigations contained in this resource you engage with the guidance and up-to-date advice from your Health and Safety adviser / organisation on how to do so safely.

In England, Wales & Northern Ireland refer to **CLEAPSS** and in Scotland to **SSERC**.