Why&How? Magazine

Spring 2025: **Issue 23**

Slime:
the law has changed

Get a daily dose of nature with WWF

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

In this issue...

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

In this issue we share vital news on a change in the law and highlight achievable steps for including more nature connection in the classroom. Read our **Health and Safety** feature to understand how the change in law affects your school. In **Climate Science**, the World Wide Fund for Nature share research on children's relationship with nature and simple strategies for facilitating daily and regular nature connection.

In **news**, we are delighted to celebrate more achievements. Explorify has again been recognised as an excellent resource for teaching primary science with another national award. PSTT Fellow, Sharon Pascoe, has been acknowledged for her excellent contribution to inspiring the next generation in STEM in Wales. In news from Scotland, two PSTT Fellows and our key partners SSERC are involved in an Education Scotland group looking at improving the Scottish Sciences Curriculum.

Don't miss the opportunity to sign up for one of our **Professional Learning Opportunities**. There are staff development opportunities for everyone: enhance your science subject leadership skills with our Primary Science Leadership Webinar Series; explore how to make your science teaching and learning experiences more socially just with the Equity Compass Webinar, or take an in-depth course on how to deliver purposeful practicals whilst developing children's higher-order thinking skills with Thinking Doing Talking Science. If you are looking for a whole school approach to British Science Week, our Inspirational Science Days could be for you.

Our regular **resources** section highlights Thinking Doing Talking Science with a deeper look at what's involved in the approach. We share a Did You Know about the impact of flooding on one of the United Kingdom's most popular sports. Read our regular Health and Safety feature to update yourself on how changes in the law affect making slime in the classroom. The Royal Society also share a case study highlighting the benefits of applying for a Partnership Grant to develop a primary science project.

Readers will be delighted to see the return of the Explorify Art Competition in the **Explorify** section, along with a feature summarising the wealth of resources and tools on offer to support science teaching, learning and leadership.

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.

Please do keep sharing Why & How? with anyone who would like to receive free resources, classroom guidance, and updates from PSTT and other organisations who support primary science.

Primary Science Teaching Trust

News

Teach Primary Awards recognise the best educational resources.

Explorify Wins Teach Primary 2024 Award

Explorify is thrilled to have been honoured with a prestigious Teach Primary 2024 Award within the STEM category. This recognition highlights Explorify's impact on primary science education and its role in empowering teachers to spark curiosity and nurture a love for science among young learners. This award comes on top of the BETT award earlier in 2024.

Judges described Explorify as 'an outstanding, easy-to-use resource that is relevant to every year group and all settings'. The Teach Primary Awards shine a spotlight on innovative teaching tools that truly make a difference.

Congratulations to Explorify on this well-deserved achievement!

PSTT Fellows involved in Scottish Sciences Curriculum Improvement Cycle

PSTT Fellows Cath Milne and Paul Tyler, along with representatives from SSERC, have been invited to join the newly formed Sciences Curriculum Improvement Cycle Collaboration Group for Scotland.

This group will be contributing to improvements in the Scottish Sciences Curriculum for ages 3-18.

Around 120 people are involved in the group. Over 70% of the group are practitioners across Early Learning and Childcare (ELC), Primary, Secondary, Additional Support Needs (ASN), and Community Learning and Development (CLD), with the remaining 30% being key stakeholders and organisations.

The group has been set up to establish a systematic review cycle for Scottish education. The Cabinet Secretary for Education and Skills announced the establishment of the Curriculum Improvement Cycle (CIC) for Scotland in December 2023. Education Scotland was commissioned by the Scottish Government to lead the work in April 2024.

For more information on The Curriculum Improvement Cycle (CIC) visit the Education Scotland website here.

Sharon Pascoe winner of STEM Ambassador of the Year at the Wales STEM Awards.

Wales STEM Awards Winner

Congratulations to PSTT Fellow, Sharon Pascoe, who won the STEM Ambassador of the Year category at the Wales STEM Awards 2024.

The awards 2024 shine a light on the organisation and individuals advancing STEM in Wales. These awards honour leaders in the Welsh STEM sector, businesses contributing to the Welsh economy, those addressing the diversity gap and skills shortage in STEM, and those inspiring and motivating the next generation. The black-tie ceremony was held on 17 October at Mercure Cardiff Holland House Hotel. Sharon Pascoe, headteacher of Fochriw Primary School, was honoured for her dedication to inspiring young minds in STEM fields during her 26-year career.

Climate Science

Get your daily dose of nature at school with WWF

Pupils from Green Lane Infant School in Leicester taking part in nature friendly activities in their school grounds © Into The Dark / WWF-UK

Connecting with nature has been proven time and time again to work wonders for our wellbeing (WWF-UK, 2024, A Prescription for Nature: The Evidence Base).

At school, nature connections can help boost children's moods, improve self-esteem and confidence, improve focus and help them to feel less stressed and anxious. Connecting with nature can also help children feel closer to the natural world, more likely to care for it and, therefore, more likely to want to take action on environmental issues such as climate change and biodiversity loss. But busy school lives mean that making time for nature can be tricky.

Schools for Nature report

In Autumn 2024 WWF released the Schools for Nature report (The Education Company & WWF-UK, 2024, Schools for Nature) with input from 1,885 schools across the UK. The report found that despite the hard work of many dedicated teachers, only 30% of primary schools provide daily opportunities for pupils to experience nature. The report also highlighted the 'nature gap' between schools in more affluent and more deprived areas. This means that pupils' chances of benefitting from spending time in nature – including benefits to their physical health, mental wellbeing and attainment – are a lottery, depending on their school year group, school size, school location, and affluence of school catchment area.

Opportunities for pupils to experience nature at school typically take place during lesson time, as part of free time, through school trips or extra-curricular activities and clubs. But for pupils to have daily or regular access to nature, this usually requires either a natural environment onsite or very close by, or natural elements like trees, flower beds and wildlife areas introduced to the school grounds. Many of our UK schools do not have these sorts of grounds available. In fact, in the Schools For Nature report, half of schools responding said that none of their pupils have daily opportunities to spend free time or play in a nature-rich environment at school. Instead, it's most common for nature connection activities to occur during school trips or extra-curricular activities. Whilst these activities are important, they're also infrequent, often optional and not necessarily available to all pupils.

The benefits of improving nature engagement in schools

There is a growing body of evidence to show that when children connect with nature through their learning, there are a wide range of positive outcomes:

- **Mental wellbeing**: Children who experience nature-rich, outdoor learning are more likely to show greater resilience and improved self-esteem, improving their wellbeing.
- **Attainment**: Pupils can be more motivated, less stressed, and more positive when learning in a natural setting, leading to better educational outcomes. Outdoor learning can help children develop important skills like team working and problem solving. Teachers also report a reduction in disruptive behaviour, allowing pupils to focus on their work, and benefits to pupils who struggle in traditional classroom-based settings (Kuo et al., 2019, Frontiers in Psychology).
- **Benefits for teachers**: It's not just pupils who benefit from time out in nature. Teachers involved in the Natural Connections Demonstration project said they saw positive effects on their teaching practice and professional development, accompanied by a rise in their job satisfaction. They also reported feeling less stressed as a result of spending time outside the classroom and engaging with nature.
- **Benefits for nature**: The UK is in the top 10% of the most nature-depleted countries in the world, with over 40% of our species in decline. For the next generation to care about, and take action to protect and restore nature, they must first develop a relationship with the natural world around them. Learning in nature and about nature at school plays an essential role in nurturing this relationship.

Get your daily dose of nature at school

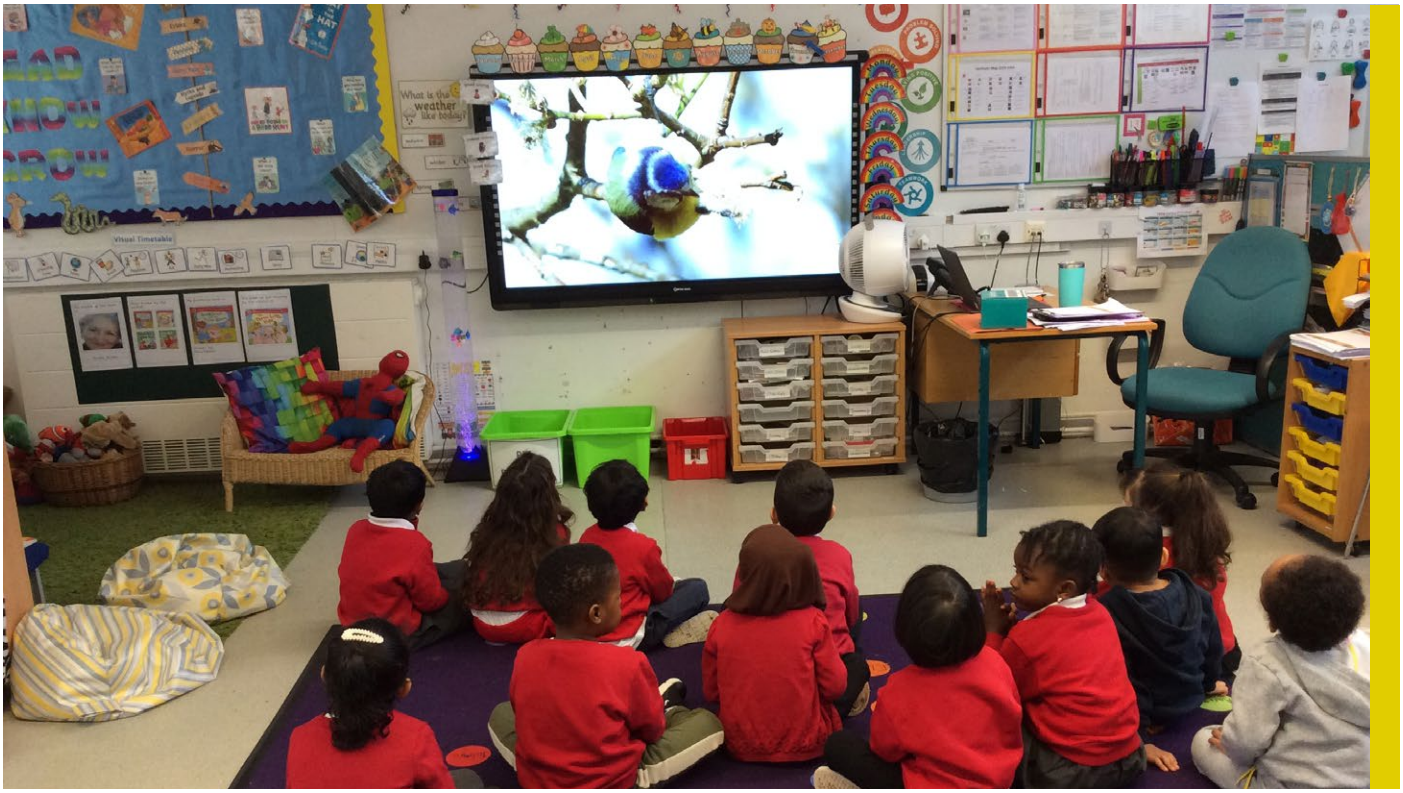
In Autumn 2024, WWF launched its Prescription for Nature public outreach campaign to encourage everyone in the UK to tap into nature to benefit their mental wellbeing. As part of this, the WWF education team created their 'get your daily dose of nature at school' resources aimed at primary schools. **All resources** are freely available to UK schools and have been designed with input from primary teachers to encourage schools, wherever possible, to facilitate daily and regular connections with nature for their pupils, inside and outside of the classroom.

- **Classroom wall planner poster and sticker pack** for facilitating quick and simple daily doses of nature and recording how much time you and your pupils spend connecting with our amazing natural world. A spring-summer edition of the wall planner poster is now available.
- Series of 10 three-minute **mindful nature videos for the classroom**. Explore buzzing wildflower meadows, dappled woodlands, and peaceful underwater habitats through beautiful and calming WWF video footage.
- **Wellbeing and nature teacher explainer video** filmed at Montrose Primary School in Leicester – great for staff meetings!
- **Get your daily dose of nature activity guide**. A list of simple nature activity ideas you can use with your students inside and outside of the classroom. Split into 5, 10-15 and +15 minute activities, there are numerous ways to get a bit more nature into school life.
- **Get your daily dose of nature reading list** written in partnership with The Reading Agency including fiction, non-fiction, poetry and picture books for all primary ages and reading levels.

Peacock butterflies favour woodland clearings as a habitat

> It makes me feel so good,
> I loved watching the beautiful butterfly.
> I feel so relaxed; it makes me feel
> so calm watching nature.
>
> **NURSERY STUDENTS,**
> **KENSINGTON AVENUE PRIMARY SCHOOL**

> Having my class watch the [WWF daily dose of nature] videos has been incredibly calming for them. They immediately relax and lay their heads down while watching and listening to the videos. The videos have been especially beneficial for my SEN children. When I start the video, they become so mesmerised, their eyes stay focused, and they remain fully engaged. I play the videos each morning as the children arrive, and they settle quickly, ready and focused to learn after watching.
>
> **JALE SAKILLI, KENSINGTON AVENUE PRIMARY SCHOOL, NURSERY CLASS**



Pupils from Kensington Avenue Primary School watching one of the WWF daily dose of nature mindful classroom nature videos

> [My students] love engaging with the calendar and have taken responsibility for checking it every day for the different world days. They have used it to record what they have participated in each day and to plan what activities they would like to engage in. This has undoubtedly enhanced their independence. Some of the children find it difficult to initiate conversations or volunteer what they have been learning. Wearing the stickers has been a great conversation starter as people ask them what their sticker is for. This has encouraged them to share their experiences and helped to develop a sense of achievement and confidence.
>
> We have used the classroom videos and nature soundtracks during our daily meditation session. The children have enjoyed voting for which soundtrack or video we engage with each day. After each meditation they enjoy discussing what their favourite animal shot or sound was, which helps to develop their listening and talking skills. We are also used the Reduce, Reuse and Recycle activities in **WWF's winter resource pack** to create items for our school's Christmas market. The kid's favourite activity has been the Nest and Drey activity. They collaborated in pairs to capture photos on their iPads."
>
> **KIM STARK, SANDWOOD PRIMARY SCHOOL, LANGUAGE AND COMMUNICATION CLASS**

Bird nest found by P6 and P7 pupils as part of a Language and Communication class at Sandwood Primary School in Glasgow.

A few quick and simple ways to get your daily dose of nature at school:

- If it's not too cold or rainy, take your class reading outside for a change of scenery.
- Consider having some plants in the classroom that students can water and look after throughout the year.
- If part of your lesson involves students drawing mind maps, timelines, shapes, tables or flow charts – get them to do this outside with chalk and/or natural materials on the playground.
- Change your smart board display to an image of nature.
- Try some grounding with nature. Ask your students to take off their shoes and socks and stand on the bare earth. Encourage them to spend some time feeling the actual soil, leaves, or grass beneath them.
- During a class conversation or debate use a natural object like a pinecone as a 'talking token'.
- Set your students the task of finding something natural around the school grounds to take a picture of or draw from every colour of the rainbow.

Visit **WWF** to find more activity ideas and to access the daily dose of nature resources.

References

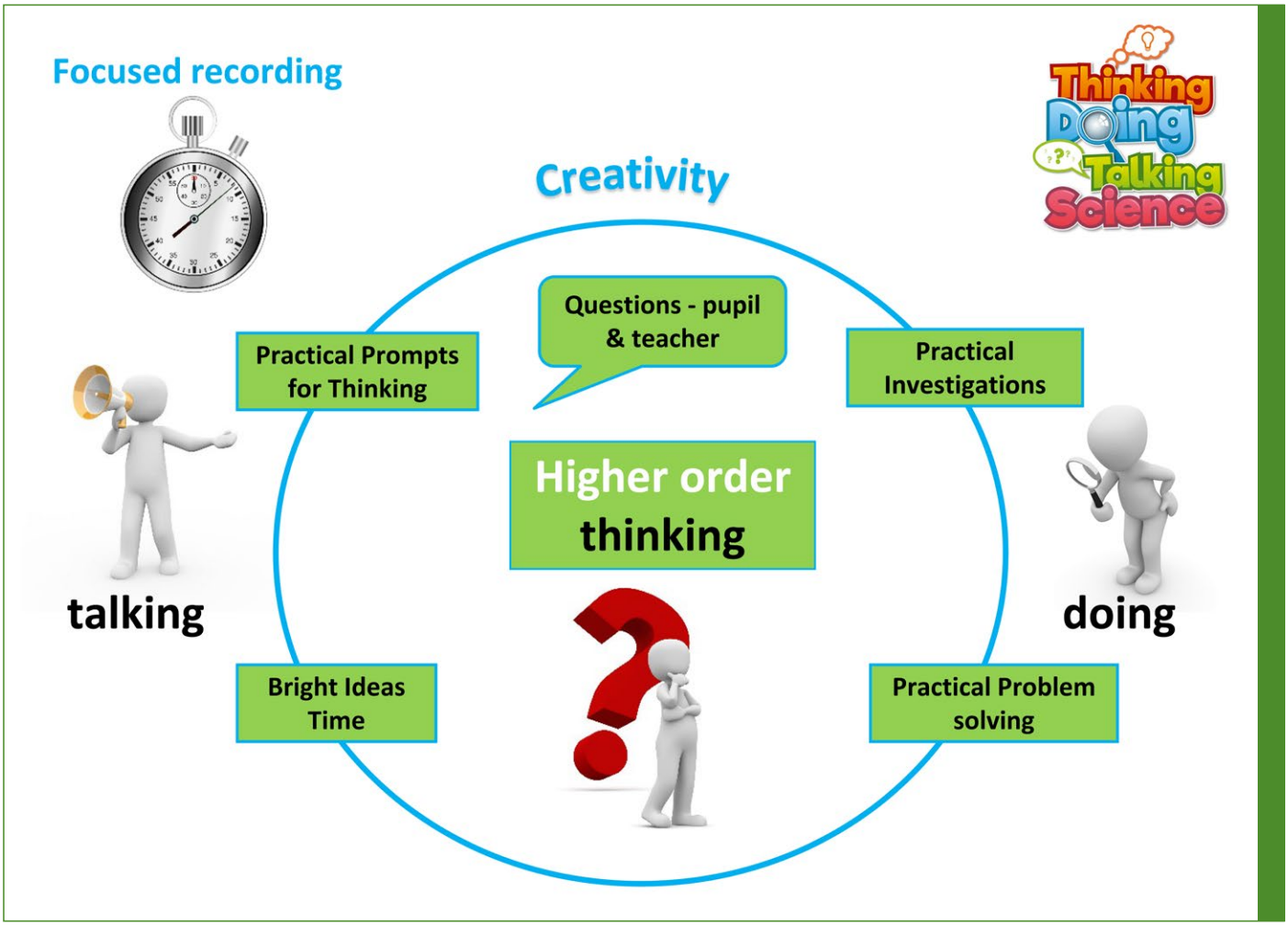
WWF-UK, 2024, A Prescription for Nature: The Evidence Base

The Education Company & WWF-UK, 2024, Schools for Nature

Kuo et al., 2019, Frontiers in Psychology

Resources

Thinking Doing Talking Science



An overview of the TDTScience approach

Thinking, Doing, Talking Science (TDTScience) is an inclusive approach to teaching primary science, suitable for any science curriculum and scheme of work.

TDTScience offers teachers a repertoire of strategies designed to develop children's higher-order thinking (HOT) skills in science. The diagram above gives an overview of the TDTScience ethos.

- **Bright Ideas Time** is a short, dedicated time for thinking and talking, where all ideas and responses are valued and where discussing the big ideas of science is more important than finding the 'right' answer. A variety of strategies can be used from Early Years through all primary age ranges and across all topic areas.
- **Practical Prompts for Thinking** is a teacher-led demonstration presented with higher-order questioning to stimulate children's thinking and talking for deeper understanding.

- **Practical Investigations** become 'purposeful practicals' when they maximise the opportunities for thinking (inclusive challenge) in the way that they are structured. Children's recording is focused on a knowledge-based or an enquiry-based learning objective chosen by the teacher.
- **Practical Problem Solving**, a particular type of practical investigation, always provides opportunities for HOT as children must apply their skills and knowledge to meet the challenge.

These strategies are flexible (you can tailor them to suit your children) and generic (they can be used for all topics and all ages). Teachers following the TDTScience approach learn to 'craft a lesson' by layering and linking these strategies to develop children's HOT through the delivery of the science curriculum.

As well as significantly improving children's attainment and attitudes in science (**EEF Efficacy Trial 2015**), teachers have reported a positive impact on children's higher-order thinking and oracy skills.

TDTScience has all the features identified as good practice in the EEF's 2023 **Improving Primary Science Guidance Report**. In fact, TDTScience research was one of the sources of evidence for this report.

> Pupils are finding it easier to ask questions and share what they already know. There is more confidence in discussing science and more thinking.
>
> **TEACHER, DEVON, 2023**

> My class are now definitely better at talking about their understanding rather than the activity.
>
> **TEACHER, TEESSIDE, 2023**

> Pupils are more able to verbalise in a scientific way. They have retained more knowledge and applied skills more efficiently as they have progressed. Their acceptance of others' ideas and the ability to change their own, as they listen to one another, especially during the Bright Ideas Time is having an impact in all areas.
>
> **TEACHER, STAFFORDSHIRE, 2023**

EEF Summary of recommendations for primary science and the TDTScience approach.

Summary of recommendations from EEF	Thinking Doing Talking Science
1. Develop pupils' scientific vocab	**Bright Ideas Time** focuses on thinking and talking
2. Encourage pupils to explain their thinking, whether verbally or in written form	**HOT** is at the heart of the TDTScience approach
3. Guide pupils to work scientifically	**TDTScience guides pupils to work scientifically throughout**
4. Relate new learning to relevant, real-world contexts	Strategies such as **PMI** and **problem solving** provide real-world contexts
5. Use assessment to support learning and responsive teaching	**Bright Ideas Time** and **Practical Prompts** inform responsive teaching and **focused recording** supports assessment
6. Strengthen science teaching through effective professional development, as part of an implementation process	TDTScience is professional development with **evidence of impact** on children's attainment

Problem solving with TDTScience.

If all this isn't enough to make you want to come on a TDTScience course, we know from qualitative research, also undertaken by the EEF efficacy trial, that teachers enjoy the TDTScience way of teaching science.

An interactive TDTScience training programme has been created for primary teachers to enable them to successfully implement TDTScience in their classrooms, and PSTT is delighted to be delivering Thinking Doing Talking Science courses across the UK. Four days of TDTScience training are spread out across a school year and are delivered by primary science experts. Where possible, schools are encouraged to send more than one teacher to a course to maximise the positive impact in school. TDTScience strategies are exemplified through a different science topic each day and gap tasks between training days embed practice and enable peer support.

To find out more visit **tdtscience.org.uk**

Learning about friction with TDTScience

Register for TDTScience training 2025

Courses will run from approximately 9:30 – 15:30

COST FOR 4-DAY COURSE:

£600 for the first teacher from a school

£400 for additional teachers from the same school

Houndsfield Primary School, Ripon Road, Edmonton, London, N9 7RE

- Tuesday 4 March
- Monday 28 April
- Wednesday 21 May
- Wednesday 25 June

Tattenhall Park Primary School, Chester Rd, Tattenhall, Chester, CH3 9AH

- Tuesday 25 March
- Thursday 1 May
- Tuesday 10 June
- Wednesday 2 July

Book your place here.

If you have any questions about TDTScience, email: **tdtscience@pstt.org.uk**

Resources

Topic: Soil / Weather / Climate

Dr Rebecca Ellis and Dr Alison Trew, PSTT College Fellows, link cutting-edge research with primary science

rebecca.ellis@pstt.org.uk
alison.trew@pstt.org.uk

Did you know?

Why are football pitches flooding?

Do you like to play or watch football? From the top teams to the local park, football is a popular game. It is often voted the UK's favourite sport. Did you know that climate change might be causing problems on the pitches (Figure 1)?

Is there a grass pitch, park or playing field near you?

Does it ever get very wet or flood?

What is happening to football pitches?

Football players are used to playing in the rain and don't mind getting wet. However, too much water on the ground is a big problem. Footballers say that their pitches are flooding more and more often. Sometimes the rain just can't drain away quickly enough. Sometimes nearby rivers are flooding the football grounds. The pitches can take months to recover. This means that tens of thousands of matches are cancelled each year. Players miss out on exercise and skills practice.

Where could flood water come from?

What other sports could be affected by flooding?

Is our winter weather changing?

In the UK, storms occur more often in the autumn and winter. Storms with high wind speeds are dangerous. Trees can fall, powerlines can break, and buildings can be damaged. Heavy rainfall can cause flooding. Weather forecasters try to warn us about these storms by naming them. The first severe storm each autumn is given a name starting with A. The next storm has a name beginning with B and so on. You can find out what this year's names will be on the UK Storm Centre **website**.

What type of damage is caused by storms?

Do you know the name of a recent storm?

In 2023-2024 the British Isles had twelve storms. The last one was storm Lilian in August 2024. It was the first time that the letter L had been used to name a storm.

You might think that this proves that our winter weather is getting worse. However, scientists know that the number of storms we get changes a lot from year to year. For example, in the previous year, 2022-2023, there were only two named storms.

What did climate scientists already know?

Some human activities are changing Earth's **atmosphere**. We cut down trees and burn **fossil fuels**. As a result, there are more heat-trapping gases like **carbon dioxide** in the atmosphere. These gases act like a blanket around our planet. Earth has warmed by almost 1.2°C in the last 200 years. The ten most recent years are the warmest years on record.

Does it really matter if it is warmer? You might think that a rise of 1 or 2 °C where you live would not be a problem. However, over the whole Earth, it can make a big difference. **Global warming** affects the **water cycle**. It is changing weather patterns across the world. Scientists use **climate models** to help us understand and get ready for these changes.

When might we use fossil fuels?

How do you think warmer temperatures affect the water cycle?

What did the climate scientists find out?

Firstly, the scientists studied the past weather records. They found that 2023-2024 was one of the wettest years ever. Then, they looked at the amount of rain falling on stormy days. They found it had increased in recent years.

Next, the scientists used climate models. They compared the climate of now with that of the past. This showed that the UK's wetter winters are due to global warming. The models predict that rainfall on stormy days will get heavier in the future. This might not happen all the time because our weather is very variable.

Who do you think might need to know about our winters getting wetter?

What does this mean for football?

A quarter of UK football pitches could be flooded by 2050. It is important to remember that we can avoid this by acting now.

Firstly, football clubs can prepare their football pitches to cope with heavy rain. To reduce the likelihood of flooding, they **aerate** grass pitches so that water can drain away quickly (Figure 2).

Figure 2. An aerating machine puts holes in the ground to let water drain away. © Birmingham County FA

What do we mean by aerate?

What types of soils will let water drain away rapidly?

How do you think we can improve water draining in soils?

Football clubs can also try to reduce the amount of energy they use. This lowers their impact on the climate. For example, floodlights with LED bulbs use less electricity. Meanwhile, inside lights could work on sensors. Some football clubs have solar panels which make electricity but not heat-trapping gases (Figure 3). Diesel lawn mowers can be replaced with electric ones. Many clubs are collecting pre-loved football boots to be reused. This saves money and is better for the planet.

Figure 3. Solar panels on the roof on this football club house produce clean energy. © Birmingham County FA

Many sports clubs across the world have joined 'Sports for Climate Action.' They are working to the reduce the impact of sports on climate change. You can find out more on their **website**.

How can you, your family and your school use less?

What is your local football club doing for climate action?

Glossary

aerate – put air into a material

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 change – long-term change in the average weather patterns on Earth

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

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

fossil fuels – such as coal, oil, petrol, diesel and natural gas are formed from the remains of ancient plants and animals and are found in Earth's crust

water cycle – the journey that water takes as it moves from the land to the sky, and back again. As water goes on this journey, it can be a liquid (water), a gas (vapour) or a solid (ice)

The paper that inspired this work was:

Autumn and Winter storms over UK and Ireland are becoming wetter due to climate change.

By S. Kew, M. McCarthy, C. Ryan, J. S.R. Pirret, E. Murtagh, M. Vahlberg, A. Amankona, J. O. Pope, O. Claydon, B. Coonan, I. Pinto, C. Barnes and Sjoukje Philip.

Published in Grantham Institute for Climate Change *collection* (2024). Last accessed 3.12.24

Acknowledgement:

XAIDA

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

A Teacher Guide (slideshow) describes related investigations for children and ideas for teaching children about climate change. Visit PSTT's **Did you know?**

Resources

Health & Safety Updates & Reminders

The Law on Slime Has Changed!

If you're holding on to an old slime recipe, chuck it out!

Across the UK, from the start of 2025, the law relating to boron compounds which includes borax has changed. This means you can no longer use borax or other boron compounds to make slime, or for anything else in a primary school. Ingredients in products such as eye wash solution and slime starter kits are also affected.

If you are in Scotland, read SSERC's new guidance on **Making Slime**. If you are in England, Northern Ireland or Wales, read the new **SLIME TIME** guidance from CLEAPSS for instructions on creating two new, boron free, slime-like substances children can make and then use to explore and marvel at non-Newtonian materials. If you need to know more, please consult SSERC (for Scotland) or CLEAPSS (for England, Wales and Northern Ireland).

Slime is a non-Newtonian material

Using hot water to dissolve jelly.

Staying Out of Hot Water

There are many occasions when you might wish to use hot water during a practical activity in the primary classroom. For example, you'll need hot water to make one of the new slimes from CLEAPSS. Did you know there's a maximum temperature for hot water that children can use when they're doing practical work? In fact, the guidelines on hot water temperatures differ depending on what the children are doing.

Fortunately, your health and safety advisor has you covered. Contact SSERC directly for their guidance. CLEAPSS has a document dedicated to heating, including using hot water, called **Safe Heating for Practical Science**. Its purpose is to make sure you and your children can safely and successfully use heat during enquiries.

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.

CLEAPSS primary

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

sserc

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

Resources

Royal Society Partnership Grants

Supporting STEM enquiry skills with up to £3,000

Practical science, technology, engineering and maths (STEM) in the classroom can often be a powerful and engaging vehicle for strengthening key curriculum skills. It can help students to embed the method of working scientifically by developing their enquiry skills as well as being an easy way of increasing career-related learning within the curriculum.

To support more work like this in schools and colleges across the UK, the Royal Society's Partnership Grants scheme provides grants of up to £3,000 to help educators undertake a practical project on the topic of their choice in partnership with STEM professionals.

One teacher who has undertaken such an investigative project via the grant scheme is Vicky Walsh, Science Lead at Monk Fryston and Saxton Primary Schools in the North Yorkshire region. The project undertaken by Vicky supported not only the students' learning and development but also her own professional development.

Speaking about why she was keen to take part in the project, Vicky told us: "As a primary teacher I am always looking for ways to inspire the children I teach, and to bring the real world into the classroom."

In 2021 she viewed a new book called "The Most Important Animal of All". The book combines real photographs and illustrations and tells the story of a class of children who want to find out what is the most important animal of all. Vicky found the book to be a terrific way of introducing the concept of keystone species to young children and was inspired to use it more practically in her own classroom.

She explained: "First, I made a story sack, adding non-fiction books about each of the animals featured in "The Most Important Animal of All". I also put in small world models and a copy of the original book. I then planned a series of lessons based on the animals, including live web cams and lots of opportunities for discussion. Right from the first lesson, the children were hooked."

The story sack based on a 'The Most Important Animal of All' that led to the idea for a Partnership Grant.

She worked with the author and science advisor for her school's Multi Academy Trust (MAT) and by the next science lead meeting, teachers from across the MAT were talking about the book and how they had been using it in their classrooms. From this, an idea began to grow of developing a collaborative project across all the primary schools, using the book as inspiration and getting each school to investigate one of the keystone species from the book in detail with support from the STEM professionals who contributed to the writing of the book.

Vicky Walsh representing the UK at Science on Stage in Finland with her Partnership Grant work.

Vicky Walsh with her stand, sharing her Partnership Grant project at Science on Stage, Finland.

Whilst the project idea was great in principle, funding was an issue. Vicky explored the possibility of a Partnership Grant; "I signed up for a webinar to find out more, and the incredibly helpful presenter not only gave me lots of useful information to share with my MAT but also stayed on after the session to answer more of my questions. This support was a constant thread throughout the process of applying for a Partnership Grant with the Royal Society, and one of the reasons that I continue to recommend them to teachers."

Vicky and others from the MAT were successful with their grant application, using the funding to purchase items such as microscopes, hand lenses and collecting trays that are still being used to support the curriculum to this day. The project was soon underway with Vicky's school being given the dung beetle to explore with their STEM partner from the University of Bristol. "The children really enjoyed asking the STEM professionals lots of questions and going on a dung beetle safari to see them in real-life. It really built their confidence and communication skills too."

This was not the end of the story though, as the grants often have long-term legacy. "I did not think that I would still be sharing my project 3 years later, but that has been the impact of the grant and support from The Royal Society. I first presented the project at the ASE conference in 2023. Several teachers attending the conference took the model of the project and then ran their own, either as a whole school, or a class. Then in September 2023, I received confirmation that I had been selected to attend the Science on Stage Festival in Turku, Finland."

Attending Science on Stage, Vicky presented to peers, ambassadors and VIPs from across the world, bringing back new ideas to use in her classroom.

"I highly recommend contacting The Royal Society to start a Partnership Grant. The support is incredible, and you never know what it will lead to!"

If you have been inspired by this project, the grants are open to all primary schools in the UK. There is plenty of guidance, including case studies and ideas, available to support those keen to apply **here**.

Explorify

Unleash the Power of Explorify:
A Fresh Look at a Familiar Friend

You're probably familiar with Explorify, a valuable tool that has been enhancing primary science education for years, but have you taken a deep dive into its resources recently?

The PSTT/STEM partnership has taken the site to new heights winning BETT and Teach Primary awards in 2024.

Beyond the Surface

While you may rely on tried-and-tested activities, Explorify offers a wealth of new and exciting resources that can revitalise or enhance your science lessons. Let's explore some of Explorify's gems:

- **Early Years**: Engage even the youngest learners with activities that spark curiosity and develop essential science understanding. Check out the **What Just Happened?** new activity type for Early Years.
- **Climate Change Education**: Equip your students with the knowledge and tools to become responsible global citizens. Take a look at all our Climate Challenge activities.
- **Inspiring Scientists**: Introduce children to a diverse range of scientists who make a significant contribution to our world with our Celebrating Scientists activities.
- **Inclusive Science**: Ensure that all learners, regardless of their abilities, can participate in meaningful science learning.
- **New resources** on **Materials**, **Light** and **Sound** have been added in the last year. Each of these topics has a guide identifying Explorify activities that are particularly useful for formative assessment, science enquiry and retrieval practice.

Dig deeper than the front page

Some teachers admit to never looking beyond the front page of Explorify but the **Teacher Support** section has a wealth of resources. One teacher commented at a training event recently, "I had no idea there was so much there to help me. This is so exciting."

Utilise the search bars

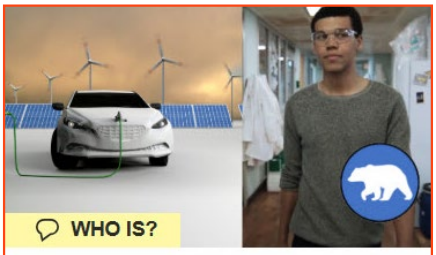
There is a search bar at the top of the **Teacher Support** page as well as on the front page to help you find what you are looking for quickly.

Bulb growing

Put your class' observation skills to the test with these images of a daffodil growing.

Early Years

• Plants • Living things and their habitats

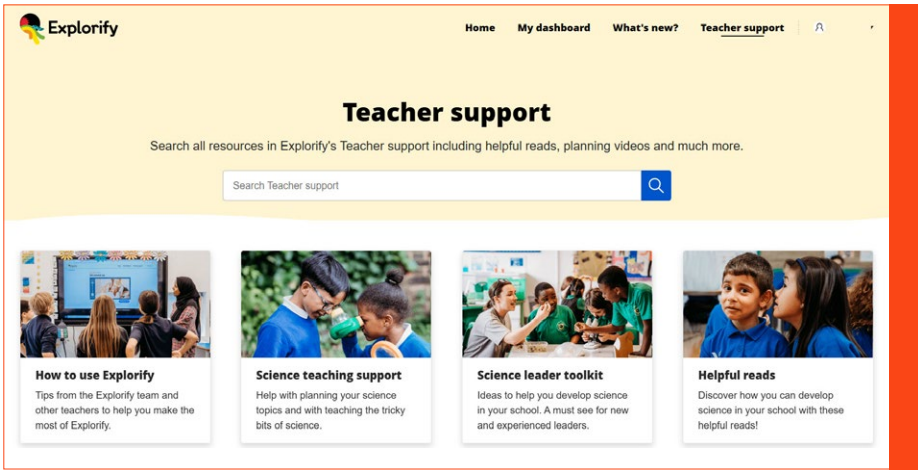


Haydn Francis?

Get your class talking about this question and use the photographs to deduce what type...

Year 3 – 4, Year 5 – 6

• Electricity • Climate challenge • Celebrating scientists



Planning Support

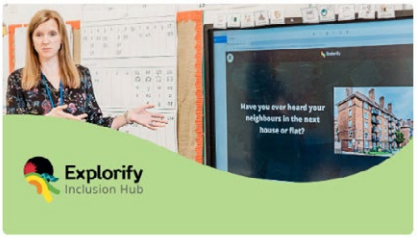
Before planning a unit of work watch one of our eighteen 30 min **science topic videos** to get fresh ideas and download the accompanying PDFs. All Explorify activities have a Background Science section for you to read but in addition there are **12 topic guides** covering the different areas you need to teach. They've got all you need to know to confidently tackle common misconceptions in science.

Inclusion Hub

Check out **Explorify's Inclusion hub** which has brilliant Ideas and resources to help you make primary science accessible for all learners including those with SEND. Illustrated with case studies from practising teachers, this guidance is organised into four sections, including top tips and clearly explained strategies for using Explorify to support inclusive primary science. Because we know you are busy people, there are short videos featuring our expert teachers where strategies are explained alongside the key outcomes for children.

Free Explorify Planning Support

Would you like support finding just the right Explorify activities to enhance your science planning?



Explorify for Inclusion Hub

Ideas and resources to help you make primary science accessible for all learners including those with SEND.

Downloads

Tucked away in the **downloads** part of science teaching support are some useful documents. Trying to think of a particular type of science enquiry? The **maps** guide you to Explorify activities that can help children practice and improve the key skills they will need for science enquiry. You will also find a **vocabulary list** divided by age group. Additionally, the Explorify team have created a glossary of key words linked to Materials. There is a **5 –7 years old** version and a **7 – 12 years old** version.

Science Leader Toolkit

This provides the 'must-haves' for every **science leader**; either to get you started or help reinvigorate your leadership. It has advice for newly appointed subject leaders with sheets for audits and surveys and advice on book looks, lesson observations, managing resources and enrichment. For those who have been doing the job for longer, there is lots of advice and suggestions about what you could be doing. There is also a helpful blog that keeps you up to date with the **latest research in primary science**.

Maximising the Impact of Explorify

To get the most out of Explorify, consider these tips:

- **Explore the Teacher Support Section**
- **Utilise the Search Functions**: Quickly find activities and teaching resources.
- **Collaborate with Colleagues**: Share ideas and best practice for using Explorify in your classroom.
- **Stay Updated**: Keep an eye on the latest developments and resources from Explorify.

Do make sure you share the new resources you have discovered on Explorify on social media and with colleagues.

Explorify

Start with Art Competition 2025

The Explorify Art Competition 2025 is open to primary children across the UK

After last year's success, the Explorify Art competition is back for 2025, inviting more pupils across the UK to showcase their science learning and creativity.

The competition is inspired by Explorify's Start With Art activities, which spark discussion by linking art with science topics and help children reflect on connections between the two.

For the competition, children are invited to create their own artwork—whether drawing, painting, sculpting, or photographing—that links to something they've learned in science. They may draw inspiration from featured artists, their own experiences, or newly acquired art skills. The aim is to create a piece that prompts a conversation about science.

Winning entries will become part of a new Start With Art activity for use by teachers around the world. Last year's winners became activities such as **What is changing?** and **Ocean habitat**. Winners also receive a £50 book token.

Entries are open to all UK educational settings, including home education. Each child can submit one entry, and each entry can involve up to two children.

To participate:

1. Plan the competition in your spring term.
2. Familiarize children with Start With Art to help them create science-linked artwork.
3. Encourage them to reflect on their science learning and create original, thought-provoking pieces.
4. Each entry must include a brief (up to 150 words) explanation of the science behind the artwork.
5. Schools can submit up to three entries per age group, but we encourage celebrating all children's work.
6. Submit your entry by 31 March 2025.

Get ready to inspire creativity and spark science conversations!

Learn more **here**.

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

Primary Science Leadership webinar series

PSTT's Primary Science Leadership webinar series continues with three half termly webinars scheduled for the rest of the academic year. The webinars are designed to support science leaders with the demands of science leadership covering essential topics such as monitoring, moderation and reviewing impact over the year.

Details of the full schedule are below:

Primary Science Leadership Webinar Series			
Title	**Presenter/s**	**Date & time**	**Cost**
Effective monitoring in primary science	Kathryn Horan	4 March 2025 16.00 – 16.45	£20
Different approaches to moderation in primary science	Kate Redhead	14 May 2025 16.00 – 16.45	£20
Reviewing impact in science teaching and learning - reflection and next steps	Kulvinder Johal	4 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.

TDTScience

4 day TDTScience courses are launching in March 2025

TDTScience is an inclusive approach to teaching primary science has been shown to significantly improve children's attainment and attitudes in science. Teachers will experience ready-to-use strategies for developing children's higher-order thinking skills and oracy, and purposeful practicals for developing pupils' scientific knowledge and enquiry skills. These in-depth series of training sessions equip primary teachers as TDTScience Practitioners. Training is delivered by PSTT's accredited TDTScience trainers.

To find out more visit **tdtscience.org.uk**

Register for TDTScience training 2025 – Courses will run from approximately 9:30 – 15:30

COST FOR 4-DAY COURSE:

£600 for the first teacher from a school

£400 for additional teachers from the same school

Houndsfield Primary School,
Ripon Road, Edmonton, London, N9 7RE

Tuesday 4 March
Monday 28 April
Wednesday 21 May
Wednesday 25 June

Tattenhall Park Primary School,
Chester Rd, Tattenhall, Chester, CH3 9AH

Tuesday 25 March
Thursday 1 May
Tuesday 10 June
Wednesday 2 July

Book your place **here**. If you have any questions about TDTScience, email: **tdtscience@pstt.org.uk**

The Equity Compass:

A comprehensive tool to guide your equity practice

29 April 2025
16.00 - 17.30
£20 Book **here**

The equity compass tool designed to support the orientation of practices towards the goals of social justice and equity

This webinar is an introduction to the equity compass which is a tool designed to support STEM practitioners and educators in orienting their practices towards the goals of social justice and equity.

STEM education has been criticised repeatedly for not being able to diversify participation and remaining an exclusionary discipline. While we find that children often enjoy science and other STEM subjects in early educational experiences, this does not always translate into participation in STEM as they move ahead in their educational trajectories. One of the key reasons for this is embedded inequalities within STEM educational programmes and practices. The equity compass can be used by anyone trying to rethink their approach and practice as they develop lessons, programmes or schemes to support young people's STEM educational experiences. Keeping equity and justice at its heart, the compass provides practical ways of moving your practice towards equity along 8 dimensions. This session will introduce these dimensions and support practitioners in thinking about the key areas of equity that need active re-orientation within STEM education practice. The tool was designed through a collaborative project called **YESTEM** that brought together academics from the UK and the USA, as well as STEM education providers across both countries.

Please see our **website** for more information.

Dr Meghna Nag Chowdhuri

Dr Meghna Nag Chowdhuri is a research fellow at IOE, UCL focusing on educational inequalities in Science, Technology, Engineering and Mathematics (STEM) education. Her research explores why these patterns of inequalities persist and how these can be disrupted. From 2019-2022, she was a leader on the **Primary Science Capital Teaching Approach** research project which focused on developing social justice-oriented teaching pedagogies that can be used by primary school science teachers. She is currently leading the **Making Spaces** research and development project, which is an international collaboration between seven Makerspaces across five countries. The research project explores how these informal STEM learning spaces can develop equitable youth practices, to support diverse young people to engage meaningfully with STEM (within their educational trajectories, careers as well as their home lives and communities).

Inspirational Science Days

for the whole school this British Science Week 2025 for just £95!

DATES:

10 March 2025
11 March 2025
14 March 2025

Audience: Whole school (Age ranges: 3-5, 5-7, 7-9, 9-12)

Primary Science Teaching Trust

For British Science Week 2025, the Primary Science Teaching Trust (PSTT) will be running inspirational science days for schools.

Our award-winning teachers will deliver four online lessons – one for each key stage (including EYFS) – which can be accessed by all schools in your region.

Each lesson introduces a scientific investigation linked to this year's theme, 'Change and Adapt', which will be curriculum linked and easy to resource. Our teacher will talk directly to the children, introduce the context and explain what to do. Lessons for each Key Stage will happen at different times during the morning with teachers logging on for their allotted time. Each school's class teacher will need to support the investigation and later in the day, children from participating schools will have the opportunity to feedback their discoveries.

Participating schools will receive a guidance pack before the event detailing the Zoom link, timings and resources needed for the event.

Lessons are delivered by PSTT's expert team of Regional Mentors.

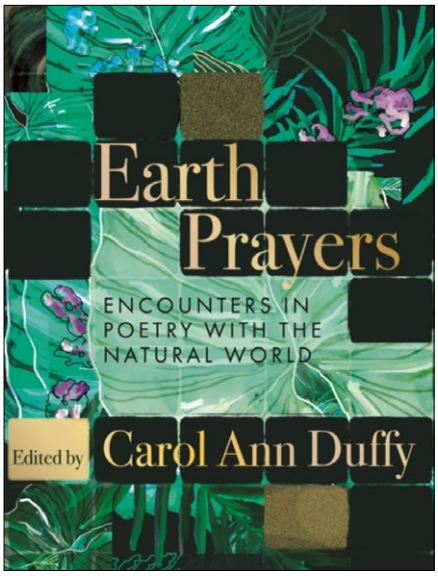
For more information, email **tom.holloway@pstt.org.uk**

Register **here** or via this QR code.

Book Reviews

Teacher Book Review: **Earth Prayers**

A Tapestry of Voices Honouring Our Planet



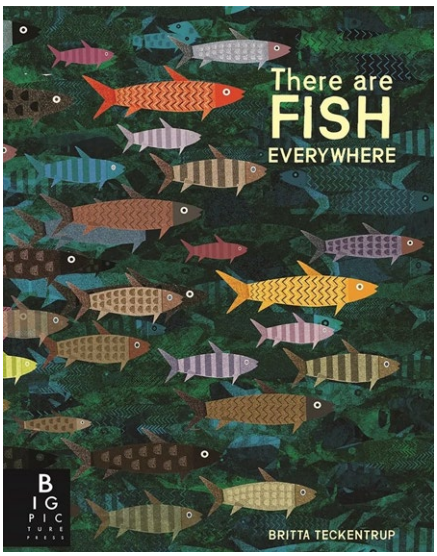
Carol Ann Duffy's *Earth Prayers* is a captivating anthology that weaves together a diverse tapestry of poetic expressions celebrating and honouring our planet. Spanning centuries and cultures, the poems within this collection offer a poignant reflection on humanity's interconnectedness with the natural world.

Duffy's curation blends ancient wisdom with contemporary voices. The poems range from contemplative odes to passionate pleas, each one a unique lens through which to view the wonders and fragility of our Earth. The inclusion of works from poets as diverse as William Wordsworth, Emily Dickinson, and contemporary writers like Alice Oswald ensures a rich and varied reading experience.

One of the strengths of *Earth Prayers* is its ability to evoke a profound sense of awe and reverence for the natural world. The poems explore the complexities of our relationship with the Earth, highlighting both our dependence on nature and our capacity to harm it. The collection serves as a powerful reminder of our responsibility to protect and preserve our planet for future generations. For teachers, this collection can be used as a tool to help process one's own feelings towards the climate and biodiversity emergency.

Children's Book Review: **There Are Fish Everywhere**

by Britta Teckentrup



There Are Fish Everywhere by Britta Teckentrup is a beautifully illustrated picture book that offers a captivating exploration of the underwater world. With a balance of images and text, this book is both accessible and suitable for a range of primary readers. The book is a great choice for primary school teachers looking to introduce young students to marine life, species diversity, and environmental themes.

The book takes children on a journey through various aquatic habitats – rivers, reefs, oceans - showcasing the wide variety of fish that inhabit them. The text invites readers to imagine how fish live in oceans, rivers, and lakes. It encourages a sense of wonder about the natural world while subtly weaving in important messages about ecosystems and the interconnectedness of life.

This is an excellent text to support the acquisition of subject specific vocabulary. Different types of fish are defined using labelled diagrams supporting children's understanding of classification. The common adaptations of fish in different habitats are also described. Teckentrup's signature vibrant artwork style stands out with bold, vivid colours, which make the reading experience immersive and interactive. The illustrations are not only visually engaging but also offer a glimpse into the life of each fish, helping young readers understand their environments and behaviours. *There Are Fish Everywhere* is an excellent addition to any primary science library or reading corner.

Key dates

4 **MARCH 2025** World Engineering Day	7-16 **MARCH 2025** British Science Week	22 **MARCH 2025** World Water Day
22 **APRIL 2025** Earth Day	20 **MAY 2025** World Bee Day	17 **JUNE 2025** The Great Science Share

Primary Science Teaching Trust

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