**Thinking, Doing, Talking Science (2022-2024) Research Study**

**Invitation to participate**

***We are seeking schools to participate in a randomised controlled trial of Thinking, Doing, Talking Science (TDTS) from September 2022 – July 2024.  
Half the schools recruited will be selected at random to receive TDTS (“intervention schools”), the other half will continue teaching science as usual (“control schools”).***

What is Thinking, Doing, Talking Science?

Thinking, Doing, Talking Science (TDTS) is a continuing professional development (CPD) programme designed to improve science outcomes by making science lessons more focused, creative, and effective. Teachers are trained to develop and teach challenging lessons that incorporate more practical activities, deeper thinking and discussion, and enquiry-based learning. The programme has been developed for teachers in **Year 5** who will be trained over 4.5 days of face-to-face CPD. This is spread across the academic year, with gap tasks for teachers to try out specific strategies. The TDTS CPD supports teachers to:

develop their delivery of science lessons so that they actively encourage their pupils’ higher order thinking,

enable their pupils to think and talk about scientific concepts in every science lesson, through dedicated discussion slots linked to the topic being taught, and

facilitate their pupils’ thinking through practical science, providing them frequent opportunities for creative investigations and problem solving.

The TDTS programme is delivered by The Oxford Trust, an independent charity whose public brand is Science Oxford. Science Oxford is experienced in the provision of innovative STEM education programmes for young people aged 4-18 years, with particular expertise in primary science and the provision of CPD for teachers.

TDTS is being independently evaluated by the Evaluation Team at York Trials Unit, the University of York. The evaluation is funded by the Education Endowment Foundation (EEF, an independent charity dedicated to breaking the link between family income and educational achievement) and Wellcome Trust.

The TDTS programme has been evaluated in an EEF-funded trial twice before. The [first trial](https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/thinking-doing-talking-science/), in 41 schools, demonstrated a positive impact on pupils’ attitudes towards science and +3 months additional progress in science outcomes. The [second trial](https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/thinking-doing-talking-science-effectiveness-trial), in 205 schools, showed a positive impact on pupils’ attitudes towards science and a small positive impact on science outcomes for pupils on free school meals. This new evaluation will explore whether the TDTS programme, with a stronger focus on the process of training TDTS trainers, will have positive impacts on primary pupils’ science attainment outcomes.

What are the benefits for my school taking part?

If you are randomly allocated to the **intervention** group, you will receive:

* Free TDTS CPD for all Year 5 teachers from September 2022 – July 2023.
* 4.5 days training over three academic terms for all teachers involved.
* Hard copies of all TDTS course resources and access to online versions via a dedicated website.
* A Resources Grant of between £400-£1000 (depending on the number of participating teachers) and £500 in the second year of the study (2023-2024 academic year).

If you are randomly allocated to the **control** group you will receive a financial incentive of £1,500: £1,000 for taking part in the first year of the study (2022-2023 academic year), and £500 for participating in the second year of the study (2023-2024 academic year).

The results of the overall evaluation will contribute to an understanding of the value of using TDTS as a CPD programme to improve outcomes in Year 5 science. A report on the evaluation will be published on the EEF website once the project is completed.

What will taking part in the study involve?

The study is designed to evaluate the impact of TDTS on the science attainment and attitudes of Year 5 pupils. 180 schools will be recruited across 6 regions in England. There is an equal chance of being randomly allocated to the intervention (90 schools) or control (90 schools) group. This will allow us to determine the impact of TDTS in intervention schools compared to business-as-usual control schools. If you are allocated to the intervention group all Year 5 teachers in intervention schools will be expected to:

* attend 4.5 days of CPD spread across the year (September 2022 – July 2023) at a local venue, and
* implement the TDTS strategies introduced in the CPD sessions with their class, to discuss in the next training session.

Participation will not create additional workload, as TDTS strategies are slotted into existing science lesson plans, building on current practice. The evaluation includes two cohorts: cohort 1 involves Year 5 pupils in 2022-2023 who will be followed up in Year 6, and cohort 2 involves Year 5 pupils in 2023-2024.

The TDTS strategies are exemplified by using the following topics during the CPD sessions:

Day 1: Materials

Day 2: Forces

Day 3: Earth and Space

Day 4: Living things

Because teachers will receive resources and ideas for each science topic, it will be really helpful for them to adapt their planning to cover each area after the relevant session. Day 5 is a half day and will cover OFSTED priorities for science, additional TDTS resources, and dissemination of TDTS.

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| **Evaluation requirements for all schools** | | |
| Cohort/year | **2022/23** | **2023/24** |
| **Cohort 1** | **Year 5**  Pupils receive: -Science assessment.  -Survey about science lessons and attitudes to science.  Teachers in the intervention group receive: -4.5 days of CPD spread across the year.  All teachers receive:  -Survey about science lessons, attitude to teaching science and, where relevant, experience of TDTS (start and end of year). | **Year 6**  Year 6 pupils receive: -Science assessment.  Teachers receive: -Survey about science lessons, attitudes to teaching science (end of year). |
| **Cohort 2** | N/A | **Year 5**  Pupils receive:  -Science assessment. -Survey about science lessons and attitudes to science.  Teachers receive: -Survey about science lessons, attitude to teaching science (end of year). |
| *Invigilation and marking of the assessments will be carried out by members of the Evaluation Team. The surveys will be online and confidential.* | | |

**Case Study Schools:**

A small number of intervention schools will be contacted and invited to be part of a case study involving school visits, including brief teacher interviews, a pupil focus group, and observation of a science lesson.

For intervention and control schools, it could also include audio recordings of science lesson delivery and providing anonymous examples of pupils’ work.

How will data sharing work?

Schools will be asked to share information about the project with parents/carers (information sheets will be provided by the Evaluation Team), providing them with the opportunity to decline sharing their child’s data with the Evaluation Team and to withdraw their child from the assessment and survey. No individual children, teachers or schools will be named in any report arising from the study. A Data Sharing Agreement (DSA) with full details of the data to be collected, how it will be transferred and stored will be put in place with schools before any data is provided to the Evaluation Team. Detailed information about how participant data will be used for this project can be found in the [Privacy Notice](https://www.york.ac.uk/healthsciences/research/trials/research/trials/tdts/tdts-privacy/) (https://tinyurl.com/tdts-privacy).

All schools will be expected to agree and sign the TDTS Memorandum of Understanding (MoU).

Who can take part in the study?

All state primary schools in England, or middle schools with both Year 5 and Year 6, can take part in the trial as long as the following criteria are met:

* The school has a minimum of one full class of Year 5 pupils (mixed year group classes will not be eligible to take part).
* The school does not operate a two-year science curriculum that involves Year 5 pupils (i.e. either Year 4/Year 5 or Year 5/Year 6).
* The school will allow all Year 5 teachers to be available for the 4.5 days of training. If a school only has one Year 5 teacher, another teacher (ideally the science co-ordinator) would also need to attend the training.
* The school commits to keeping the same teacher(s) in Year 5 for both 2022-23 and 2023-24 academic years, wherever possible.
* The school or individuals involved have not been involved in the previous trials of TDTS, been trained in TDTS or taken part in the pre-trial.
* The school is not involved in the EEF Stop & Think trial.
* The school has not been involved in the EEF Focus for Teacher Assessment of Primary Science (Focus4TAPS) trial.
* The school agrees to all project requirements outlined in the Memorandum of Understanding (MoU).

Schools within a single MAT will be eligible to participate if they agree that they either do not usually, or will not during the two year period of the trial, collaborate on science teaching. This is essential to minimise the risk of contamination between schools in the intervention and control groups. MATs must accept that their schools will be randomised individually and so may be allocated to different groups. Alternatively, a MAT can nominate just one school to take part.

Key Dates

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| Activity | Date |
| Schools sign up to the project and are notified of their allocation to intervention or control group. | January – June 2022 |
| Schools distribute parent/carer information sheet and submit pupil data to the Evaluation Team for Cohort 1 pupils (Year 5) | September 2022 |
| Cohort 1 (Year 5):  Baseline teacher survey | September 2022 |
| TDTS CPD sessions (4.5 days) | Autumn Term 2022 – Summer Term 2023 |
| Cohort 1 (Year 5):  Teacher survey  Pupil science assessment/attitudes to science questionnaire | June – July 2023 |
| Schools distribute parent/carer information sheet and submit  pupil data to the Evaluation Team for Cohort 2 pupils (Year 5) | September 2023 |
| Cohort 2 (Year 5):  End of year teacher survey Pupil science assessment/attitude to science questionnaire  Cohort 1 (Year 6):  End of year teacher survey  Pupil science assessment | June – July 2024 |
| Results of project published | July 2025 |

Next steps

**IF YOU ARE INTERESTED IN TAKING PART, OR HAVE FURTHER QUESTIONS, PLEASE CONTACT YOUR LOCAL TDTS TRAINER or** [**TDTS@SCIENCEOXFORD.COM**](mailto:TDTS@SCIENCEOXFORD.COM)