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

**MEMORANDUM OF UNDERSTANDING**

What is this research about and why is it important?

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. TDTS is being evaluated to help us understand the value of using it as a CPD programme to improve outcomes in Year 5 science.

The impact of TDTS will be evaluated and compared with “business as usual”, i.e. usual teaching, using a randomised controlled trial (RCT). This means that half of the 180 participating schools will be randomly assigned to receive the TDTS CPD and deliver TDTS to all Year 5 classes in their school (the “intervention” group). The other 90 schools will continue with their science lessons as usual and form the vital “control” group. Random allocation is essential to the evaluation as it is the best way of investigating what effect TDTS has on pupils’ attainment. It is important that schools understand and consent to this process.

All Year 5 teachers in the schools receiving TDTS will be expected to attend 4.5 days of CPD on five dates spread across the academic year. These sessions will take place at a local venue. Between training sessions, teachers will be asked to try some strategies with their classes and then to feed back and discuss at the next session. Where a school only has one Year 5 class, they will be asked to nominate a second teacher (ideally the science co-ordinator) to attend. Teachers will be encouraged to provide informal peer support for each other within their schools.

The project will run across two years and the Year 5 teachers should remain teaching Year 5 pupils from Sept 2022 – July 2024, unless circumstances make this impossible. Although the CPD is only delivered in the first year, the expectation is that teachers will continue to use TDTS in their science lessons in the second year.

The TDTS programme is delivered by The Oxford Trust (the “Delivery Team”), 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 York Trials Unit (the “Evaluation Team”) at the University of York. During this project, you will be contacted by both the Delivery Team and the Evaluation Team.

The evaluation is jointly funded by the Education Endowment Foundation (EEF), an independent charity dedicated to breaking the link between family income and educational achievement, and Wellcome Trust as part of the Improving Science Education grant partnership. A report will be published on the EEF website at the end of the project.

This memorandum of understanding (MoU) explains what your school’s participation in the study will entail. If you agree to take part and accept the terms and conditions outlined, please provide the information requested, sign a copy of this form and return by email to the contact provided.

Who can take part in the study?

Schools are eligible to take part if they are state-funded primary schools, or middle schools with both Year 5 and Year 6, and 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 here.

Please note:

* Schools within a MAT will be eligible to participate on the understanding that schools within the same MAT must agree that they either do not usually, or will not during the 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. Also the 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.

What does your school get for taking part?

* Participation in research that aims to improve the evidence-base surrounding primary science learning
* A 50% chance of receiving FREE access to the TDTS programme
* If assigned to the intervention group, a resources grant of between £400-£1000, depending on the number of teachers from the school participating in the CPD
* If assigned to the control group, £1000 for providing all the data that is required in the first year
* All schools will receive £500 for providing all the data required in the second year

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. You are one of 180 schools recruited across 6 regions in England, and you have an equal chance of being allocated to the intervention or control 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

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 the 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.

| **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.* |

All teachers in the intervention group will be asked to complete feedback forms after each training day.

**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. Informed consent will be sought from the staff concerned and the parents/carers whose children are invited to participate in the focus group. For intervention and control schools, it could also include audio recordings of science lesson delivery and providing anonymous examples of pupils’ work.

If there are any issues that could prevent the effective implementation of the intervention, or if they have to withdraw from the project for operational or other unavoidable reasons, schools should notify the Delivery Team and Evaluation Team as soon as possible. If a school does have to withdraw from the project, they will be asked still to allow the collection of assessment data for the evaluation wherever possible.

More about the study

**Who is running the TDTS study?** Two teams are involved in this study. An Evaluation Team from York Trials Unit (YTU) at the University of York will evaluate the impact of the TDTS CPD. The YTU team will be responsible for managing the assessment process and associated data collection. A Delivery Team from Science Oxford is responsible for the implementation of the TDTS CPD and will not have access to the evaluation data during the study.

**Has the study received ethical approval?** The study has received ethical approval from the University of York Health Sciences Research Governance Committee (15/05/2020: HSRGC/2020/391/C).

**Where can I find out the results of the TDTS study?** At the end of the study a final report, which does not identify any individuals or schools, will be made publicly available on the [EEF](https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/thinking-doing-talking-science-effectiveness-trial-2) website (educationendowmentfoundation.org.uk), for anyone who is interested in the findings of the research.

Data sharing and data protection

**What will happen to data collected as part of the study?** All information collected as part of this study will be processed and stored in accordance with the Data Protection Act 2018. A detailed Data Sharing Agreement will be put in place between your school and the Evaluation Team.

**Who will children’s data be shared with and why?** For the purposes of this study, for children whose parent/carers have not withdrawn them from the evaluation, identifiable information about children provided by the school will be shared with the Department for Education (DfE)/Office for National Statistics (ONS) Secure Research Service (SRS) in order to make use of routinely collected information in the National Pupil Database (NPD). Further matching to the NPD and other datasets or administrative data may take place during subsequent research to better understand the impact of the project. There will be no international data transfers outside of the EU. YTU will act as data controller and data processor throughout the evaluation period.

At the end of the study, data will be submitted to the ONS SRS for archiving in the EEF data archive (managed by the EEF’s archive manager) and will include data only individually identifiable to the Department for Education. For the purposes of research and archiving, the data will be linked with information about the pupils from the National Pupil Database (NPD) and shared with the Department for Education, the EEF, the EEF’s archive manager, the Office for National Statistics and potentially other research teams. Further matching to NPD and other administrative data may take place during subsequent research. Education Endowment Foundation will act as the data controller for the archive which is managed on their behalf by FFT and held in the ONS Secure Research Service.

All individually identifiable data held by the Evaluation Team will be destroyed 5 years after the end of the study (2029). Anonymised data will be kept indefinitely by the Evaluation Team and potentially shared with other research teams, subject to appropriate approvals. All results will be anonymised so that no schools or individual children will be identifiable in the report or dissemination of any results. 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).

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 submitpupil data to the Evaluation Team for Cohort 2 pupils (Year 5) | September 2023 |
| Cohort 2 (Year 5):End of year teacher surveyPupil science assessment/attitude to science questionnaireCohort 1 (Year 6):End of year teacher surveyPupil science assessment | June – July 2024 |
| Results of project published | July 2025 |

TDTS STUDY: MEMORANDUM OF UNDERSTANDING SCHOOL AGREEMENT

The requirements of schools taking part in the research study are summarised below. This form is to be completed by the Head Teacher. Please read carefully and, if you are happy to take part, please **initial** beside each statement and complete the subsequent sections.

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| --- | --- | --- |
| 1. I confirm we have read the Memorandum of Understanding (*TDTS Main Trial MOU v1.0 20220114*) for the TDTS study.
 |  | *Initials* |
| 1. I confirm we will nominate a member of staff who will act as the main point of contact for the Evaluation Team and the Delivery Team.
 |  | *Initials* |
| 1. I confirm that, if at all possible, the nominated Year 5 teachers will remain teaching Year 5 pupils for the duration of the study (from September 2022 - July 2024).
 |  | *Initials* |
| 1. I will agree to the terms of a Data Sharing Agreement (provided by the Evaluation Team) and provide the data requested.
 |  | *Initials* |
| 1. I confirm our school is committed to completing the TDTS CPD if we are randomly allocated to follow the programme.
 |  | *Initials* |
| 1. I agree to distribute information sheets to parent/carers, keep a record of children who have been withdrawn from the research project, and inform the Evaluation Team of the number of children who have been withdrawn. I understand that the school should not send the personal data of children who have been withdrawn to the Evaluation or Delivery Team.
 |  | *Initials* |
| 1. I agree to facilitate a visit(s) by a research assistant(s) to administer a science assessment during June/July 2023 to Year 5 pupils and in June/July 2024 to the same children (now Year 6) and the new Year 5 pupils.
 |  | *Initials* |
| 1. I agree that school staff will administer a science attitudes survey during June/July 2023 to Year 5 pupils and during June/July 2024 to the new Year 5 pupils.
 |  | *Initials* |
| 1. I agree participating teachers will complete surveys. We will consider participating in interview(s)/observation(s)/audio-recording lessons/submitting photographs of (anonymous) pupil work.
 |  | *Initials* |
| 1. I agree to notify the TDTS Delivery Team and the Evaluation Team, at the earliest opportunity, if the school has any issues that could affect the continuation of the TDTS CPD within our school, if we are allocated to the intervention group.
 |  | *Initials* |
| 1. I agree to still allow assessment data to be collected for the evaluation (where possible) if our school choses to withdraw from the TDTS CPD (if allocated).
 |  | *Initials* |
| 1. I agree for this school to take part in the TDTS study and accept the terms and conditions outlined in this Memorandum of Understanding (*TDTS Main Trial MOU v1.0 20220114*).
 |  | *Initials* |

**Head Teacher**

Name:

Signature:  Date: [Insert date]

Email Address:

School Name:

Telephone No:

School Address:

Postcode:

School URN:

**Main school contact for Evaluation/Delivery team**

Name:

Email address:

Job title:

**School baseline information**

**Teacher and class information**

Number of Year 5 classes (not mixed year groups) in academic year 2022-2023:

**Please provide details of all the teachers of these classes. If there is only one Year 5 class another teacher should be named to attend the CPD (if possible science subject lead/co-ordinator).**

|  |  |
| --- | --- |
| Teacher name | Email Address |
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If the teacher names are not yet known when do you expect to have this information:

**Thank you for agreeing to take part in this research. Please return this form to your local TDTS trainer or** **tdts@scienceoxford.com**