Thinking, Doing, Talking Science (second re-grant – a two-armed, cluster randomised trial)

Technical Notes

June 2025

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- **Putting evidence to use.** Supporting education practitioners, as well as policymakers and other organisations, to use evidence in ways that improve teaching and learning.

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Department for Education

What Works Network

Appendix 1 – Recruitment Documents

Included in this Appendix:

- TDTS Main Trial MOU v1.2 20220321
- TDTS Main trial School Information Sheet v1.2 20220802rev
- Main Trial TDTS Parent-Carer Information Sheet v1.0_20220913
- Main Trial TDTS Parent-Carer Information Sheet (Cohort 2) v1.0_20230904

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 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 Evaulation 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://tinyurl.com/tdts-privacy).

Key Dates

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

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.

1. I confirm we have read the Memorandum of Understanding (*TDTS Main Trial MOU v1.0 20220114*) for the TDTS study.	Initials
2. 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
3. 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
4. I will agree to the terms of a Data Sharing Agreement (provided by the Evaluation Team) and provide the data requested.	Initials
5. I confirm our school is committed to completing the TDTS CPD if we are randomly allocated to follow the programme.	Initials
6. 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
7. 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
8. 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
9. 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
10. 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
11. 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
12. 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

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:

[Delivery Team Contact details]

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, in 41 schools, demonstrated a positive impact on pupils' attitudes towards science and +3 months additional progress in science outcomes. The second 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.

Evaluation requirements for all schools		
Cohort/year	**2022/23**	**2023/24**
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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://tinyurl.com/tdts-privacynotice).

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

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 [SO contact details] by [Date]

Thinking Doing Talking Science (TDTS) Study
INFORMATION FOR PARENT/CARERS

What is the TDTS study?

Your child's school is taking part in the Thinking Doing Talking Science (TDTS) study. This information sheet provides you with details about what the study will involve for you and your child.

The study is being jointly funded by the Education Endowment Foundation (EEF) and the Wellcome Trust. They have asked the University of York to carry out research to help understand how Year 5 pupils benefit from being taught science lessons using the TDTS approach. The research is fully supported by your child's school and will be carried out under strict ethical and data protection guidelines.

TDTS trains teachers to develop creative and challenging science lessons by using strategies to engage children in science and help them develop their thinking skills. The programme has been developed by Science Oxford, an independent charity with particular expertise in primary science and running training courses for teachers.

How is the study designed?

To find out how well TDTS works, Year 5 teachers in half of the participating schools will receive the TDTS training and the other half will not (decided randomly by a computer). In schools randomly selected to receive the TDTS training, Year 5 teachers will attend four and a half separate training days across 2022/23 and will receive support from the TDTS trainers to use TDTS within their science lessons. Science teaching will continue as normal in the schools not selected to attend the training. If you have any questions about TDTS, you can ask your child's teacher or contact the TDTS Team using the details at the end of this information sheet.

The Evaluation Team will compare end-of-year science assessments from children in schools where teachers have been trained in TDTS with assessments from children in the schools not receiving training. They will also compare children's attitudes to science.

This type of research is called a randomised controlled trial.

What does the study involve for my child?

We will ask your child's school to provide some details about your child, including their first name, surname, date of birth, gender, and unique pupil number. The 'Frequently Asked Questions' section below tells you more about how we will use, store and share the information collected in the study.

Towards the end of Year 5 and again towards the end of Year 6, your child – along with all the other children in their class who are participating in the study - will be asked to complete a 45-minute written science assessment in school.

If, at any point, your child indicates that they do not want to continue, then they can stop. Invigilators, recruited and trained by the Evaluation Team, will administer the assessments within schools. All Invigilators will have completed safeguarding and data protection training and will have undergone a recent Disclosure and Barring Service (DBS) certificate check.

Your child will also be asked to complete a short survey about their science lessons and their attitudes towards science. This will be completed in-class supervised by class teachers.

So that we can see if the TDTS programme results in any broader changes to education, we will also look at your child's Early Years Foundation Stage Profile assessment (completed by your child's reception teacher at the end of the first year of school) and (once they have completed Year 6) their Key Stage 2 SATs Maths and Reading results. We will do this by applying to a government database (National Pupil Database) which stores this information. We will also request information on your child's free school meal eligibility from the National Pupil Database. We explain more about this in the Privacy Notice (https://tinyurl.com/tdts-privacynotice).

What do I need to do now?

Your child does not have to take part in the study – you and your child can decide.

If you are happy for your child to take part:

You do not need to do anything – your child will be included in the study. Your child will be asked to complete the science assessments and survey and their data will be shared with the Evaluation Team. Please keep this information for future reference. You are free to change your mind about your child's participation later – please see the Frequently Asked Questions below for how to do this.

If you do NOT want your child to take part in the science assessments or survey or to share their data with the Evaluation Team:

Please return the attached withdrawal form to your child's school or communicate your wishes to the school via email, telephone, or in person by the date specified by your child's school. The school will make a note of your child's withdrawal and will ensure their data is not passed to the Evaluation Team and they are not assessed as part of this study.

All Year 5 children at schools which are randomly selected to receive the TDTS training will be involved in TDTS, as teachers will be using TDTS within science lessons, even if you choose for your child not to take part in the assessment and data sharing elements of the study.

THANK YOU FOR READING THIS INFORMATION

Frequently Asked Questions

What is the Education Endowment Foundation (EEF)? The EEF is an independent charity founded in 2011 with funding from the Department of Education. Its aim is to build the evidence for what works in raising attainment. Ultimately, this means demonstrating the impact of its projects on children's attainment from Early Years through to post-16. For more information visit: educationendowmentfoundation.org.uk/.

What is the Wellcome Trust? The Wellcome Trust is a global charity that aims to help everyone benefit from science, and this includes improving science education. For more information visit: https://wellcome.org/

Is my child's participation in the study confidential? All participant data will be treated with the strictest confidence and will be stored in compliance with the General Data Protection Regulation (GDPR) and Data Protection Act 2018. We will not use your child's name or the name of participating schools in any report arising from the study.

I've agreed for my child to take part, can I withdraw my child from the study later? You are free to withdraw your child from the study at any time during the course of the study (information already collected about your child will be retained). In this event, please tell your child's school who will communicate this to the Evaluation Team, or you can contact us directly using the contact details provided.

Who will your child's data be shared with and why? For the purposes of this study, your child's school will share information about your child with the Evaluation Team. At the end of the study, pupil data, individually identifiable solely by the Department for Education, will be submitted to the EEF data archive. Please see the Privacy Notice for full details (https://tinyurl.com/tdts-privacynotice).

Questions or concerns: If you have any questions about this information sheet or concerns about your child taking part, please contact the Evaluation Team at ytu-tdts@york.ac.uk. If you have any complaints about the study, please contact the Chair of the Research Governance Committee (stephen.holland@york.ac.uk). If you are unhappy with the way the University has handled your data or your child's personal data, you have a right to complain to the Information Commissioner's Office. For information on reporting a concern to the Information Commissioner's Office, see ico.org.uk/concerns.

Where can I find out the results of the evaluation? The Evaluation Team have to produce a final evaluation report. This is due in July 2025 and will be published by the EEF on their website (https://educationendowmentfoundation.org.uk); this final report will not name any schools or individual children.

Questions about the TDTS programme?	**Questions about the study?**
Please contact the TDTS Team: TDTS Team Science Oxford Stansfeld Park Quarry Road Oxford OX3 8SB Email: tdts@scienceoxford.com Tel: 01865 810000	Please contact the Evaluation Team: TDTS Evaluation Team York Trials Unit 1st Floor, ARRC Building University Of York YORK YO10 5DD Email: ytu-tdts@york.ac.uk Tel: 01904 326842

TDTS Study

PARENT/CARER CHILD WITHDRAWAL FORM

Your school is taking part in the Thinking Doing Talking Science study.

If you DO NOT want your child to take part in any assessments/surveys as part of the evaluation of Thinking Doing Talking Science, and you DO NOT want their data to be processed as outlined in the Information for Parents/Carers, please complete, sign and return this form to your child's school OR contact your school in person, or via email or telephone.

If you are happy for your child to complete the assessments and surveys and their data to be processed as outlined in the Information for Parents/Carers, please do not complete this form - you do not need to do anything.

Your child's name: _____

Your child's date of birth: _____

Name of parent/carer: _____

Signature of parent/carer: _____

Date: _____

Thinking Doing Talking Science (TDTS) Study
INFORMATION FOR PARENT/CARERS

What is the TDTS study?

Your child's school is taking part in the Thinking Doing Talking Science (TDTS) study. This information sheet provides you with details about what the study will involve for you and your child.

The study is being jointly funded by the Education Endowment Foundation (EEF) and the Wellcome Trust. They have asked the University of York to carry out research to help understand how Year 5 pupils benefit from being taught science lessons using the TDTS approach. The research is fully supported by your child's school and will be carried out under strict ethical and data protection guidelines.

TDTS trains teachers to develop creative and challenging science lessons by using strategies to engage children in science and help them develop their thinking skills. The programme has been developed by Science Oxford, an independent charity with particular expertise in primary science and running training courses for teachers.

How is the study designed?

To find out how well TDTS works, last year (school academic year 2022/23) TDTS training was delivered to half of the participating schools, whilst the other half of schools did not receive this training (which schools received the training was decided randomly by a computer). In the schools who received the TDTS training, Year 5 teachers attended training days across 2022/23 and received support from the TDTS trainers to use TDTS within their science lessons. Science teaching continued as normal in the schools not selected to attend the training. This type of research is called a randomised controlled trial.

The Evaluation Team will compare end-of-year science assessments from Year 5 and 6 children in these schools with assessments from children in the schools where no teachers received any training; this is in order to understand the effect of your child's teacher having received TDTS training or not. They will also compare children's attitudes to science.

If you have any questions about what TDTS involves, you can ask your child's teacher or contact the TDTS Team using the details at the end of this information sheet.

What does the study involve for my child?

We will ask your child's school to provide some details about your child, including their first name, surname, date of birth, gender, and unique pupil number. The 'Frequently Asked Questions' section below tells you more about how we will use, store and share the information collected in the study.

Towards the end of Year 5 your child, along with all the other children in their class who are participating in the study, will be asked to complete a 45-minute written science assessment in school. If, at any point, your child indicates that they do not want to continue with the assessment, then they can stop. Invigilators, recruited and trained by the Evaluation Team, will administer the assessments within schools. All Invigilators will have completed safeguarding and data protection training and will have undergone a recent Disclosure and Barring Service (DBS) certificate check.

Your child will also be asked to complete a short survey about their science lessons and their attitudes towards science. This will be completed in-class supervised by class teachers.

So that we can see if the TDTS programme results in any broader changes to education, we will also look at your child's Early Years Foundation Stage Profile assessment (completed by your child's reception teacher at the end of the first year of school). We will do this by applying to a government database (National Pupil Database) which stores this information. We will also request information on your child's free school meal eligibility from the National Pupil Database. We explain more about this in the Privacy Notice (https://tinyurl.com/tdts-privacynotice).

What do I need to do now?

Your child does not have to take part in the study – you and your child can decide.

If you are happy for your child to take part: You do not need to do anything – your child will be included in the study. Your child will be asked to complete the science assessments and survey and their data will be shared with the Evaluation Team. Please keep this information sheet for future reference. You are free to change your mind about your child's participation later – please see the Frequently Asked Questions below for how to do this.

If you do NOT want your child to take part in the science assessments or survey or to share their data with the Evaluation Team:

Please return the attached withdrawal form to your child's school or communicate your wishes to the school via email, telephone, or in person by the date specified by your child's school. The school will make a note of your child's withdrawal and will ensure their data is not passed to the Evaluation Team and they are not assessed as part of this study.

Questions about the TDTS programme?	**Questions about the study?**
Please contact the TDTS Team: TDTS Team Science Oxford Stansfeld Park Quarry Road Oxford OX3 8SB Email: tdts@scienceoxford.com Tel: 01865 810000	Please contact the Evaluation Team: TDTS Evaluation Team York Trials Unit 1st Floor, ARRC Building University Of York YORK YO10 5DD Email: ytu-tdts@york.ac.uk Tel: 01904 326842

Frequently Asked Questions

What is the Education Endowment Foundation (EEF)? The EEF is an independent charity founded in 2011 with funding from the Department of Education. Its aim is to build the evidence for what works in

raising attainment. Ultimately, this means demonstrating the impact of its projects on children's attainment from Early Years through to post-16. For more information visit: educationendowmentfoundation.org.uk/.

What is the Wellcome Trust? The Wellcome Trust is a global charity that aims to help everyone benefit from science, and this includes improving science education. For more information visit: https://wellcome.org/

Is my child's participation in the study confidential? All participant data will be treated with the strictest confidence and will be stored in compliance with the General Data Protection Regulation (GDPR) and Data Protection Act 2018. We will not use your child's name or the name of participating schools in any report arising from the study.

I've agreed for my child to take part, can I withdraw my child from the study later? You are free to withdraw your child from the study at any time during the course of the study (information already collected about your child will be retained). In this event, please tell your child's school who will communicate this to the Evaluation Team, or you can contact us directly using the contact details provided.

Who will your child's data be shared with and why? For the purposes of this study, your child's school will share information about your child with the Evaluation Team. At the end of the study, pupil data, individually identifiable solely by the Department for Education, will be submitted to the EEF data archive. Please see the Privacy Notice for full details (https://tinyurl.com/tdts-privacynotice).

Questions or concerns: If you have any questions about this information sheet or concerns about your child taking part, please contact the Evaluation Team at ytu-tdts@york.ac.uk. If you have any complaints about the study, please contact the Chair of the Research Governance Committee (stephen.holland@york.ac.uk). If you are unhappy with the way the University has handled your data or your child's personal data, you have a right to complain to the Information Commissioner's Office. For information on reporting a concern to the Information Commissioner's Office, see ico.org.uk/concerns.

Where can I find out the results of the evaluation? The Evaluation Team have to produce a final evaluation report. This is due in July 2025 and will be published by the EEF on their website (https://educationendowmentfoundation.org.uk); this final report will not name any schools or individual children.

THANK YOU FOR READING THIS INFORMATION

TDTS STUDY

PARENT/CARER CHILD WITHDRAWAL FORM

Your school is taking part in the Thinking Doing Talking Science study.

If you DO NOT want your child to take part in any assessments/surveys as part of the evaluation of Thinking Doing Talking Science, and you DO NOT want their data to be processed as outlined in the Information for Parents/Carers, please complete, sign and return this form to your child's school OR contact your school in person, or via email or telephone.

If you are happy for your child to complete the assessments and surveys and their data to be processed as outlined in the Information for Parents/Carers, please do not complete this form - you do not need to do anything.

Your child's name: _____

Your child's date of birth: _____

Name of parent/carer: _____

Signature of parent/carer: _____

Date: _____

Appendix 2 – Research Instruments

Included in this Appendix:

- TDTS IPE Lesson Observation
- TDTS IPE Pupil Focus Group 1
- TDTS IPE Pupil Focus Group 2
- TDTS IPE Teacher Interview 1
- TDTS IPE Teacher Interview 2
- TDTS IPE Training Interview Topic Guide
- TDTS IPE Training Observation Schedule Template

TDTS IPE Lesson Observation

Thinking, Doing, Talking Science

Classroom session observation

Observer: _____

Setting ID: _____

Teacher ID: _____

No. in class: _____

Lesson topic/LO: _____

Start time: _____

Length of lesson: _____

Date: _____

Other context: _____

TDTS IPE Pupil Focus Group 1

Thinking, Doing, Talking Science

Focus group guide (draft) – Year 5 pupils

We would like to talk to you about what you think about your science lessons. Please remember there are no right or wrong answers to these questions, just opinions and discussion. This means you are going to have to take turns to speak, carefully listen to others when they speak, and when they are finished, you can have a go and try to give some good reasons why you agree or disagree with each other.

Learning science at school

1. Can anyone give me some examples of the things you have been doing in science lessons this year?
2. Can you think of the things you have learnt from the things you have been doing?
3. Do you always know what you're meant to be learning in a science lesson? *Prompt: If so, how? [We are trying to get at LOs here]*
4. Do you think science lessons are the same as last year? If not, what is different? *Prompt: is the teacher doing different things, are you doing different things? It may be a new teacher, of course, so the pupils may need a bit of help disentangling the TDTS changes from the teacher changes. And there are new topics, of course, in year 5 compared to year 4, but we are after TDTS-related differences, so steer them away from the obvious. Elements to focus on, perhaps in turn: discuss as a class, discuss in pairs/small groups, learn scientific facts, solve scientific problems [use child-friendly language for these elements!]*

TDTS strategies in science lessons

Thinking about practical work in science lessons - 'doing' in science:

5. What do you, and the teacher, do when you design or plan practical experiments?
6. What do you do when you carry out practical experiments? *Prompt: do you work on your own, in pairs, in groups? What kind of materials do you use? Have you noticed these materials being different compared to last year, apart from the topic? Do you have to work independently (alone or as a group), and what does the teacher do when you are working independently? What if you get stuck - who do you ask?*
7. What do you do once you have your results from your experiment - what do you do with them? What do you do when you are stuck? *Prompt: do you work with the results on your own, independently, or do you work together? Who do you ask for help? What does the teacher do when you are working with your results?*
8. How have you found doing practical experiments this year? Have you noticed any differences compared to last year?
9. Is there anything else you are 'doing' differently in science this year? *Prompt: materials may be different, but also the amount of writing up, and the focus of writing could be different because of TDTS*

Thinking about thinking - 'thinking' in science:

10. What sort of activities do you do to get your thinking going? *Prompt, if they can't think of anything themselves: Odd One Out, Bright Ideas Time/Big Question, Practical Prompts for Thinking (perhaps not to use all these labels, but hint at in some way)*

TDTS IPE Pupil Focus Group 1

11. How have you found these 'thinking exercises'? Have you noticed any differences compared to last year?

Thinking about discussions - 'talking' in science:

12. Have you noticed any differences in the way discussions are done in your class this year, compared to last year?

How do you feel about the ways the 'thinking', 'doing' and 'talking' is happening in science this year? What is better? Is anything worse?

Engagement

[Perhaps giving all the members of the group the chance to answer these in turn]:

13. On the scale of 1 to 10, with 10 being the absolute best, how good is science in school? How would you compare science with other subjects in school? Why do you say that? Is your answer now different from what it would have been this time last year? Why?

Just for information: Research questions to be answered from pupil focus groups:

RQ1b: To what extent was TDTS implemented as planned - classroom practice

RQ4: How do pupils respond to TDTS?

a. What is their experience of, and reaction to, the different TDTS strategies?
b. What is their experience of practical work in the science classroom?
c. What is their engagement with science lessons?

The different TDTS strategies are, according to the teacher interview schedule:

a. Practical tasks
b. Thinking strategies (OOO, Bright Ideas Time/Big Question, Practical Prompts for Thinking
c. Time to discuss with others

TDTS IPE Pupil Focus Group 2

Thinking, Doing, Talking Science

Focus group guide (draft) – Year 5 pupils

We would like to talk to you about what you think about your science lessons. Please remember there are no right or wrong answers to these questions, just opinions and discussion. This means you are going to have to take turns to speak, carefully listen to others when they speak, and when they are finished, you can have a go and try to give some good reasons why you agree or disagree with each other.

Learning science at school

1. Can you think of the things you have learnt in science lessons recently, from the things you have been doing?
2. Do you always know what you're meant to be learning in a science lesson? *Prompt: If so, how? [We are trying to get at LOs here]*
3. Do you think science lessons are the same as at the beginning of year 5? If not, what is different? *Prompt: is the teacher doing different things, are you doing different things? It may be a new teacher, of course, so the pupils may need a bit of help disentangling the TDTS changes from the teacher changes. And there are new topics, of course, in year 5 compared to year 4, but we are after TDTS-related differences, so steer them away from the obvious. Elements to focus on, perhaps in turn: discuss as a class, discuss in pairs/small groups, learn scientific facts, solve scientific problems [use child-friendly language for these elements!]*

TDTS strategies in science lessons

Thinking about practical work in science lessons - 'doing' in science:

4. What do you, and the teacher, do when you design or plan practical experiments?
5. What do you do when you carry out practical experiments? *Prompt: do you work on your own, in pairs, in groups? What kind of materials do you use? Have you noticed these materials being different compared to last year, apart from the topic? Do you have to work independently (alone or as a group), and what does the teacher do when you are working independently? What if you get stuck - who do you ask?*
6. What do you do once you have your results from your experiment - what do you do with them? What do you do when you are stuck? *Prompt: do you work with the results on your own, independently, or do you work together? Who do you ask for help? What does the teacher do when you are working with your results?*
7. How have you found doing practical experiments this year? Have you noticed any differences compared to last year? Has it changed since the beginning of year 5?
8. Is there anything else you are 'doing' differently in science this year? *Prompt: materials may be different, but also the amount of writing up, and the focus of writing could be different because of TDTS*

Thinking about thinking - 'thinking' in science:

9. What sort of activities do you do to get your thinking going? *Prompt, if they can't think of anything themselves: Odd One Out, Bright Ideas Time/Big Question, Practical Prompts for Thinking (perhaps not to use all these labels, but hint at in some way)*
10. How have you found these 'thinking exercises'? Have you noticed any differences compared to last year?

TDTS IPE Pupil Focus Group 2

Thinking about discussions - 'talking' in science:

11. Have you noticed any differences in the way discussions are done in your class this year, compared to last year?

How do you feel about the ways the 'thinking', 'doing' and 'talking' is happening in science this year? What is better? Is anything worse?

Engagement

[Perhaps giving all the members of the group the chance to answer these in turn]:

12. On the scale of 1 to 10, with 10 being the absolute best, how good is science in school? How would you compare science with other subjects in school? Why do you say that? Is your answer now different from what it would have been this time last year? Why?

What about next year

Soon you will be going into year 6.

13. How do you feel about science, going into year 6?
14. Can you think of things about science that you would like to change? How about things you hope are going to be the same?

Just for information: Research questions to be answered from pupil focus groups:

RQ1b: To what extent was TDTS implemented as planned - classroom practice

RQ4: How do pupils respond to TDTS?

a. What is their experience of, and reaction to, the different TDTS strategies?
b. What is their experience of practical work in the science classroom?
c. What is their engagement with science lessons?

The different TDTS strategies are, according to the teacher interview schedule:

a. Practical tasks
b. Thinking strategies (OOO, Bright Ideas Time/Big Question, Practical Prompts for Thinking
c. Time to discuss with others

TDTS IPE Teacher Interview 1

RECORD!

UNIVERSITY of York

Thinking, Doing, Talking Science

Interview guide (draft) – teacher

If there are any questions you would like to skip, please tell the researcher when they ask. Please note that should you disclose any illegal activity, we may be legally bound to pass this on to relevant authorities.

General questions for background

1. What were you expecting when you first got involved in the Thinking, Doing, Talking Science project?
2. How would you describe the main aims of TDTS? *Prompt*: Anything/Anyone else?
3. How well has the project met your expectations? *Prompt, if necessary:* why do you say that?

Questions about training

4. How well has the training met your expectations? *Prompt, if necessary:* why do you say that? *Prompt, if they did not attend the training themselves:* how is the training cascaded in your school?
5. Were there any parts of the training you found more helpful/useful than others? *Prompt for examples, if none are forthcoming*
6. Are there any parts of the training you would have liked to spend more time on? *Prompt all four listed here, in order, and ask for examples/elaboration where appropriate*
    a. Background and ethos
    b. Practical tasks
    c. Thinking strategies (OOO, Bright Ideas Time/Big Question, Practical Prompts for Thinking)
    d. Time to discuss with others
7. Are there any changes you would suggest to the training so far? *Prompt if not mentioned*: how have you found the pace and intensity of the course?

Questions about implementation

8. What impact has TDTS had on your usual teaching practice since starting this training? *Prompt*: If you think back to how you would have run a science lesson before the start of the training, and compare that to now, what would the differences be?
9. We would like to hear from you whether there are any features of your school, your teaching or your class group that have made the use of TDTS particularly difficult or easy.

    a. Is there anything that has made it difficult to integrate what you have learnt from the TDTS course into your science lessons? *Prompt for examples, if none are forthcoming, in particular related to processes individual teachers and schools have to follow, and to different groups of pupils, eg. disadvantage/SEN or more able*

    b. Is there anything that has made it easy to integrate what you have learnt from the TDTS course into your science lessons? *Prompt as for 9a.*

Questions about impact on pupils

10. In relation to science lessons, what sort of impact have you seen on your pupils? *Prompt, if necessary*: (a) engagement/learning environment: have you noticed any effect on their levels of engagement? On the level or amount of discussion with you and amongst themselves? (b)

TDTS IPE Teacher Interview 1

RECORD!

Knowledge/skills: On skills to do with working scientifically, such as designing investigations, drawing conclusions based on evidence and so on? Anything to add about the impact on different groups of pupils, eg. disadvantage/SEN?

11. In relation to science lessons, do you think there is anything that could have improved the impact on your pupils? *Prompt, if necessary*: anything related to the materials of TDTS, or the environmental context of the school/classroom? Anything to add about disadvantage/SEN?

Questions about teacher development and confidence

12. ONLY IF NOT CLEAR FROM ANSWERS SO FAR, AND TRY TO SUMMARISE IF ANSWERED ALREADY: How well do you feel you understand TDTS? *Prompt if relevant*: which elements would you like more input on?
13. What would you do if a pupil in a science lesson asks you a question you cannot answer?

Questions about other subjects

ONLY IF TIME AVAILABLE:

14. How would you judge your confidence in your teaching of other subjects?
15. What would you do if a pupil in a lesson in a different subject asks you a question you cannot answer?
16. How, if at all, have you been able to use the things you have learnt for TDTS in other subject teaching? Can you see a place for this (scientific) approach across the curriculum?

Final question/comment

Is there anything you would like to add here which you have not been able to say because the questions did not prompt you at the time?

Thank you very much for your time. We will be in touch when the transcript of this interview becomes available, so that you can comment on it, should you wish.

TDTS IPE Teacher Interview 2

Thinking, Doing, Talking Science

Interview guide (draft) – teacher

If there are any questions you would like to skip, please tell the researcher when they ask. Please note that should you disclose any illegal activity, we may be legally bound to pass this on to relevant authorities.

General questions for background

1. Now that you have had further training, how would you describe the main aims of TDTS? *Prompt*: Anything/Anyone else?
2. How well has the project met your expectations? *Prompt, if necessary:* why do you say that?

Questions about training

We have asked you these questions at the previous visit but we would like to find out if anything has changed.

3. Were there any parts of the training you found more helpful/useful than others? *Prompt for examples, if none are forthcoming*
4. Are there any parts of the training you would have liked to spend more time on? *Prompt all four listed here, in order, and ask for examples/elaboration where appropriate*
    a. Background and ethos
    b. Practical tasks
    c. Thinking strategies (OOO, Bright Ideas Time/Big Question, Practical Prompts for Thinking)
    d. Time to discuss with others
5. Now the training is close to completion (or completed already), are there any changes you would suggest? Do you think the length and intensity of the course was right, or should it be longer or shorter? *Prompt if not mentioned*: how have you found the pace and intensity of the course?

Questions about implementation

6. What impact has TDTS had on your usual teaching practice since starting this training? *Prompt*: If you think back to how you would have run a science lesson before the start of the training, and compare that to now, what would the differences be? How about the changes over time, from one training session to the next, for example?
7. We would like to hear from you whether there are any features of your school, your teaching or your class group that have made the use of TDTS particularly difficult or easy. Is there anything about these aspects that you would like to add at this point? *Prompt for disadvantage etc.*

Questions about impact on pupils

We have asked you these questions at the previous visit but we would like to find out if anything has changed.

8. In relation to science lessons, what sort of impact have you seen on your pupils? *Prompt, if necessary*: (a) engagement/learning environment: have you noticed any effect on their levels of engagement? On the level or amount of discussion with you and amongst themselves? (b) Knowledge/skills: On skills to do with working scientifically, such as designing investigations, drawing conclusions based on evidence and so on? Anything to add about the impact on different groups of pupils, eg. disadvantage/SEN?

TDTS IPE Teacher Interview 2

9. In relation to science lessons, do you think there is anything that could have improved the impact on your pupils? *Prompt, if necessary*: anything related to the materials of TDTS, or the environmental context of the school/classroom? Anything to add about disadvantage/SEN?

10. Have you noticed whether or not your pupils are recognising the changes in your teaching or the science lessons? Is any of this related to the novelty of new activities, or is there merit in establishing routines with these kinds of activities and pupils recognising the systems and developments? [We are trying to get at teachers' views of whether the developers need to keep thinking of new components and activities, or whether establishing routines is the more important aspect of TDTS - some children thrive on new challenges all the time, whereas others thrive on consistency and routine]

Questions about costs

11. Is there any cost associated with cover? How is cover organised for TDTS training in your school? Does it have any impact on school organisation? [both related to training days and research participation]
12. Is there any cost associated with resources other than those provided during training? [example: "this really good book costs only £1.99"] Have you found yourself buying any additional resources in order to implement the programme?
13. Has your cost for printing/photocopying increased or decreased through TDTS?
14. How has TDTS affected your planning? Is more or less time needed for planning lessons? Any other time-related costs involved? How about other perhaps less obvious or non-financial costs related to TDTS?

Questions about confidence and other subjects

15. Has your confidence in teaching science changed in any way?

16. How, if at all, have you been able to use the things you have learnt for TDTS in other subject teaching? Can you see a place for this (scientific) approach across the curriculum?

What about next year

17. If you are teaching year 5 again, will you continue to use TDTS? Any thoughts on what you might do differently? Anything you definitely want to keep?

18. If you will be teaching a different year group, will you continue to use TDTS? Any thoughts on what you might do differently or definitely want to keep? If you are going to move with the pupils to year 6, you will encounter TDTS through the assessment towards the end of next year. What are your plans with your group regarding this?

Final question/comment

Is there anything you would like to add here which you have not been able to say because the questions did not prompt you at the time?

Thank you very much for your time. We will be in touch when the transcript of this interview becomes available, so that you can comment on it, should you wish.

TDTS IPE Training Interview Topic Guide

IPE Trainer interviews Day 3

Topic guide

Just a reminder that everything you say here is anonymous and if we use any of the information in the report your names won't be used and it won't be linked to your region. I'm going to record it so that I don't have to make loads of notes. Is that ok?

1. How did you prepare for the training session today?/ how well prepared did you feel?
2. What personal tweaks did you make to the delivery compared to how Bridget and Helen delivered it? [prompt: how about fidelity? Your own objectives? Do they matter?]
3. Were there any other changes you would like to have made? If yes: What were they? What stopped you?
4. How did you decide how to allocate the different sections between you? Did this go as planned?
5. Was there anything you were worried or concerned about before the training began today?
6. Did the day go as planned? Is there anything that went better or worse than you anticipated?
7. Were there any areas you felt more/less confident delivering?
8. Is there anything you will change next time?
9. Did you feel as though the teachers were engaged with the training? (if yes, expand. If no, why do you think this was and how may you address it for the next session)?
10. Do you have any idea of which parts of the day the teachers found the most/least useful?
11. Do you feel as though the training you received adequately prepared you for delivering the training yourselves today? Is there anything you would have liked more training on before delivering it today?

That's all the questions I've got. Is there anything you'd like to add?

In the next couple of days, we'll send you an online survey about today's session. It might seem to overlap a bit with this, but please could you fill it in anyway – it's so we get all the trainers' responses in the same format, as well as being able to get more detail from you here.

TDTS IPE Training Observation Schedule Template

Day 4: Living Things

Observer:

Date:

Venue:

Trainers:

[fill in Activity in first column and intended timing in second column from Agenda; add in actual timings and who delivered during observation + fieldnotes]

Activity	Who/when	Notes
Registration	9:00;	
The Bright Ideas Time	9:30; actual time:	

TDTS IPE Training Observation Schedule Template

Sharing good practice	13:10; actual time	

Life cycles	11:20; actual time	

TDTS IPE Training Observation Schedule Template

Practical Prompt for Thinking	14:50; actual time	

Famous scientists: the TDTS way	15:00; actual time	
Plenary	15:20; actual time	

Observation Reflection

Date of previous training day		
		Notes, including specific examples
Timing	As on agenda? Record on	

	agenda.	
Pace		
Shared delivery	Balance of delivery. Playing to strengths, handovers, humour, warmth Course logistics	
Fidelity to course	Tweaks, adjustments, deviations? Clarity of TDTS strategies & theory	
Ownership	Personal anecdotes Using notes? Confidence	
Reading the room	Pick up signals	

	Respond appropriately	
Engagement of teachers	Sufficient time, quality Gap task feedback enthusiasm	
Clarity of purpose of each activity & practical		
Other comments		

Appendix 3 – Data Sharing Agreement

Included in this Appendix:

- EEF TDTS - Data Sharing Agreement update v1.0 20220405
- TDTS DSA Addendum_20221018

Data Sharing Agreement

Between

UNIVERSITY OF YORK

and

DATED [insert date] (the "Effective Date")

1. Parties

1.1. **UNIVERSITY OF YORK**, whose registered office is at University of York, Heslington, York, YO10 5DD (the "University"); and

1.2. [Insert school name and address] (the "Setting").

Each known as a 'Party' and together as the 'Parties'.

2. Background

2.1. The University is conducting a research project entitled 'Thinking Doing Talking Science Second re-grant (TDTS)' (the "Project") on behalf of the Educational Endowment Fund (EEF) and the Wellcome Trust who have funded the Project.

2.2. The Parties have entered into a memorandum of understanding which sets out the role of the University and the Setting in relation to the Project.

2.3. The Project requires that data is shared by the Parties including Personal Data and this Agreement will set out the arrangements between the Parties for the sharing of that data for the purposes of the Project.

3. Definitions and interpretation

3.1. For the purposes of this Agreement:

- 'Agreement' means, this data sharing agreement, its attachments, and any agreed amendments.
- 'Data Protection Laws' means, the General Data Protection Regulation (EU) 2016/679 and Data Protection Act 2018 and all applicable laws and regulations relating to the processing of the personal data and privacy, including where applicable the guidance and codes of practice issued by the Information Commissioner.
- 'Data Controller', 'data processor', 'data subject' 'personal data', 'processing', 'special category data' have the meanings as defined by the General Data Protection Regulation (EU) 2016/679.

3.2. The headings of the articles and clauses in this Agreement are for convenience only and have no legal effect.

3.3. References in this Agreement to any statute or statutory provision include reference to the same as amended, re-enacted, or replaced from time to time.

4. Nature and purpose of the sharing

4.1. The parties agree to share data for the following purposes only:

The purpose of sharing pupil data is to assist the evaluation team (researchers at the University of York) to independently evaluate the effectiveness of the TDTS CPD, developed by Science Oxford, on behalf of the Education Endowment Foundation (EEF) and the Wellcome Trust (a global charity that aims to help everyone benefit from science, and this includes improving science education).

The EEF is an independent charity founded in 2011 with funding from the Department of Education. Its aim is to build the evidence for what works in raising children's attainment. EEF evaluations require data on the background characteristics of participating pupils (e.g. free school meals eligibility) and their attainment, in this case from schools and from the National Pupil Database (NPD). This data will be stored in an EEF data archive held by the Office for National Statistics Secure Research Service (ONS SRS) with the aim to eventually make it publicly available in an anonymised form for further research for the benefit of the wider education and research communities.

5. Data items to be shared

5.1. The Setting has agreed to provide to the University the personal data set out in Appendix 1 (the "Data").

5.2. The parties will share the minimum amount of data necessary for the purpose specified in this Agreement. For a breakdown of data categories being shared see Appendix 1.

5.3. An anonymised version of the data may be retained by the University upon expiration of this Agreement and used for future research purposes.

6. Data protection

6.1. Each Party shall in relation to the processing of the personal data comply with its respective obligations under the Data Protection Laws.

6.2. Each Party shall act as a Data Controller in respect of the processing of the personal data that is the subject of this Agreement on its own behalf and in particular each shall be a Data Controller of the personal data acting individually and in common, as follows:

6.2.1. The Setting shall be a Data Controller where it is Processing the Personal Data in relation to its usual business as a provider of education; and

6.2.2. The University shall be a Data Controller where it is processing the personal data in relation to the research Project. Once the data has been submitted to the Office for National Statistics (ONS) for archiving in the EEF data archive and passed quality checks, the EEF hold data controller responsibility for the data.

6.3. Each Party shall assist the other Party in complying with all applicable requirements of the Data Protection Laws in relation to the processing of the personal data.

6.4. A Party sharing information under this Agreement will ensure it is not subject to any prohibition or restriction which would:

6.4.1. prevent or restrict it from disclosing or transferring the personal data to the other Party as required under this Agreement;

6.4.2. prevent or restrict it from granting the other Party access to the personal data as required under this Agreement; or

6.4.3. prevent or restrict the Party from processing the personal data, as envisaged under this Agreement.

7. Legal basis for processing personal data

7.1. In line with the University's charter which states that the University advances learning and knowledge by teaching and research, the University processes personal data for research purposes including this Project under Article 6 (1) (e) of the GDPR:

- Processing is necessary for the performance of a task carried out in the public interest

If special category data is being shared under this Agreement, it will be processed by the University under Article 9 (2) (j):

- Processing is necessary for archiving purposes in the public interest, or scientific and historical research purposes or statistical purposes

7.2. Research will only be undertaken by the University where ethical approval has been obtained, where there is a clear public interest and where appropriate safeguards have been put in place to protect data.

7.3. At the end of this Project, the University, as the project team, are expected to submit data to the EEF data archive, managed by the EEF's archive manager and held by the Office for National Statistics (ONS). When the data is transferred to ONS via the Secure Research Service (SRS), the EEF becomes the Data Controller and is responsible for determining the purpose and means of the data processing. The data archived within the ONS is only individually identifiable to the Department of Education. The EEF processes personal data from evaluations on the basis of legitimate interests, according to the General Data Protection Regulation (GDPR), Article 6, paragraph 1(f). Further information about how the data is processed by the EEF can be found in their privacy notice: https://educationendowmentfoundation.org.uk/public/files/Grantee_guide_and_EEF_policies/Evaluation/Data_protection/Privacy_notice_-_EEF_evaluations.pdf.

8. Access and individuals' rights

8.1. The parties recognise that data subjects have the following general rights under data protection law:

- a right to be informed
- a right of access
- a right to rectification
- a right to erasure
- a right to restrict processing
- a right to data portability
- a right to object
- rights in relation to automated decision making and profiling

8.2. Where a request is received by a data subject to exercise any of these rights set out in 8.1, the receiving party will promptly (and in any event within 48 hours), notify the other Party. The parties will take necessary steps, as required by the Data Protection Laws, to comply with such requests.

8.3. In the event that a Freedom of Information Request is submitted for the shared data, the receiving party will notify and consult the other Party. The decision to disclose (in full or in part) or not will rest with the receiving party.

9. Governance and security

9.1. The Parties agree to ensure that all personal data disclosed or transferred to, or accessed by, the other Party is accurate and up-to-date, as well as adequate, relevant and not excessive to enable a party to process the personal data as envisaged under this Agreement;

9.2. Notwithstanding 9.1, the Parties agree to take the following steps to ensure data accuracy: the pupil data provided by the Setting at the start of the Project will be imported into a University database and cross-checked with the original to ensure consistency. A dedicated member of the University's team will ensure that all research data collected during the study is correctly completed, assigned and input.

9.3. Electronic data sent by the Setting to the University's evaluation team will be encrypted and transferred via the University of York's DropOff service. Any paper assessment sheets and assessment registers will be delivered and returned by courier service or Royal Mail recorded delivery.

9.4. The parties agree to maintain appropriate technical and organisational measures to safeguard data from unauthorised or unlawful processing, accidental loss, destruction or damage. The agreed technical and organisational security measures are set out in Appendix 2.

9.5. All personal data will be destroyed five years after publication of the final Project report (due mid-2025).

9.6. Each party agrees to provide the other with all information necessary to demonstrate compliance with the terms of this Agreement. This includes a general right to audit, inspect or otherwise verify the steps taken.

9.7. The Party receiving personal data will not share that data with a third party without the other Party(s) prior consent, save in relation to disclosures to recipients as set out in this Agreement as having permitted access including those set out in section 5, clause 7.3 and Appendix 2.

10. Data breach management

10.1. Each Party shall within 24 hours notify the other Party on discovery of accidental or unlawful destruction, loss, alteration, unauthorised disclosure or access to personal data or (where applicable) special category data which is the personal data of the other Party as set out in this Agreement.

10.2. The Parties will within such timescale to be agreed between the Parties (acting reasonably) implement any measures necessary to restore the security of compromised personal data and support the other Party to make any required notifications to the ICO and/or other equivalent relevant regulator and affected data subjects.

10.3. Notwithstanding 10.2, on discovery of a data breach, the University will follow its Information Security Incident Management Policy as set out in Appendix 2.

10.4. Each Party will, where relevant, support the other Party with such investigations.

11. Term and termination

11.1. This Agreement will commence on the date when the last party has signed the Agreement and remain in force until the Parties have completed their respective obligations under this Agreement, or unless terminated earlier as provided in 11.2 or extended with Agreement of the Parties.

11.2. A Party may terminate this Agreement upon written notice to the other Party if the other Party has breached the terms of this Agreement, and such breach is not cured within thirty (30) days of written notice. Where the University is the Party in breach, the University shall securely delete the Data under its control on termination of the Agreement in accordance with this clause 11.2.

11.3. Termination or expiry of this Agreement shall not affect the survival of any clauses or provisions herein which are stated, or which by their nature are intended, to continue after termination or expiry.

12. General provisions

12.1. No one who is not a party to this Agreement is intended to or may benefit from its terms.

12.2. This Agreement and the attached appendix constitutes the entire agreement between the Parties with respect to the subject matter of this Agreement and supersedes all prior and contemporaneous agreements or communications.

12.3. The Parties may not amend this Agreement, except by a written agreement of authorised representatives of the Parties.

12.4. This Agreement (and all non-contractual liability arising from it) is governed by, and is to be construed in accordance with, the laws of England and Wales. The English Courts will have exclusive jurisdiction to deal with any dispute which arises out of, or in connection with, this Agreement and the Parties irrevocably submit to such jurisdiction.

12.5. This Agreement may be executed in any number of counterparts, each of which shall be an original, but all of which together shall constitute one legal document. Signatures transmitted in an Adobe Portable Document Format (PDF) file attached to an email shall be acceptable to bind each Party and shall not affect the validity of the Agreement in any way.

The Parties have signed this Agreement by their respective duly authorised representatives.

SIGNED FOR AND ON BEHALF OF **The University of York**	**SIGNED FOR AND ON BEHALF OF**
Signed: 	Signed: 
Name:	Name:
Title:	Title:
Date:	Date:

Signatories should be members of the senior leadership/management team or other individual authorised to sign documentation of this nature on behalf of the organisation.

Appendix 1

Description of Data

Item	Purpose/Use	Source	When collected	Format
Pupil details: Name, DOB, Unique Pupil Number (UPN) and Gender	To allow the University's evaluation team to coordinate the study and link to the National Pupil Database to obtain further information.	School	September - October 2022 (Cohort 1) September - October 2023 (Cohort 2)	Encrypted Excel spreadsheet
Year 5 Pupil Science Assessment	Primary outcome measure. To allow the University's evaluation team to explore potential impact of TDTS CPD.	Pupils to complete in school under supervision of University of York employees	June/July 2022 (Cohort 1) June/July 2023 (Cohort 2)	Paper forms
Year 5 Pupil Science Attitudes Questionnaire	Secondary outcome measure. To allow the University's evaluation team to explore pupils' attitudes to science.	Pupils to complete in school under supervision of class teachers.	June/July 2022 (Cohort 1) June/July 2023 (Cohort 2)	Paper forms
Year 6 Pupil Science Assessment	Secondary outcome measure. To allow the University's evaluation team to explore potential impact of TDTS CPD.	Pupils to complete in school under supervision of University of York employees.	June/July 2023 (Cohort 1)	Paper forms
Assessment Registers	To allow the University's evaluation team to coordinate the evaluation and complete the assessments in schools. To identify pupils to assess when visiting the school and to record participation.	Provided by evaluation team to School for school staff and University of York employees to access.	Used at assessment periods: June/July 2022 (Cohort 1) June/July 2023 (Cohort 1) June/July 2023 (Cohort 2)	Paper
Teacher baseline survey	To establish a baseline of school and teacher contextual factors, current science provision (both the amount of science teaching and the strategies used) and teacher attitudes towards and confidence in teaching science.	Provided by the evaluation team and completed by school staff.	September/October 2022	Online (Qualtrics survey software)
Teacher follow-up survey	To explore feedback about training sessions, use of the TDTS approach in the classroom and the effect on their confidence and practice of teaching science. Teachers will also be asked about the perceived effects on pupils,	Provided by the evaluation team and completed by school staff.	June/July 2022 Cohort 1 (Year 5 teacher) June/July 2023 Cohort 1 (Year 6 teacher) June/July 2022 Cohort 2 (Year 5 teacher)	Online (Qualtrics survey software)

Item	Purpose/Use	Source	When collected	Format
	including engagement and confidence in their understanding of science.			
Year 5 Pupil survey	To explore pupils' experience of science lessons.	Pupils to complete in school under supervision of class teachers.	June/July 2022 (Cohort 1) June/July 2023 (Cohort 2)	Paper forms
School staff consent forms for interviews/observations.	To gain consent from school staff for interviews and observations/recordings and to allow the University's evaluation team to coordinate these.	Completed by school staff.	September 2022 – July 2023	Paper/Electronic forms
Interview data (a sample of teachers across schools will be interviewed by the evaluation team)	To explore and assess implementation fidelity and the attitudes/engagement of teachers.	From participating school staff, collected by the evaluation team at the school or via phone/video call	September 2022 – July 2023	Paper/electronic files and audio voice recordings
Observation data (a sample of teachers across schools will be observed and possibly recorded by the evaluation team)	To explore and assess implementation fidelity and potential impact of TDTS CPD on schools.	From participating school staff, collected by the evaluation team at the school	September 2022 – July 2023	Paper/electronic files and audio voice recordings
Focus group data (a sample of pupils across schools will take part in a focus group run by the evaluation team)	To explore and assess implementation fidelity and the attitudes/engagement of pupils.	From pupils in participating schools, collected by the evaluation team at the school	September 2022 – July 2023	Paper/electronic files and audio voice recordings
Sample of pupils' science work	To explore a sample of pupils' work to assess the move to more focused recording of investigations.	From pupils in participating schools, collected by the evaluation team from the school	September 2022 – July 2023	Digital images.

Appendix 2

Security arrangements

All electronic data will be stored on central servers with access through authorised network computers or via the secure Remote Desktop using the University of York encrypted VPN. Audio recordings will be will be temporarily stored on encrypted portable devices; all other data will be held centrally.

Pupils' personal details will be held separately from all other pupil data. Pupils will be allocated a unique identifier (PupilID) that will be used to label all data collected by the University's project team.

The University wide information security policy is publicly available at: https://www.york.ac.uk/media/it-services/docs/policy/policies/InformationSecurityPolicy.pdf

The University's Information Security Incident Management policy is available at: https://www.york.ac.uk/about/departments/support-and-admin/information-services/information-policy/index/information-security-incident-management-policy/

Item	Transfer to/from project team	Storage	Access	Destruction of personal data
Pupil details: Name, DOB, Unique Pupil Number (UPN) and Gender	Encrypted and sent by the University of York's DropOff service	In a password-protected database on university servers.	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Year 5 Pupil Science Assessment	By courier (no identifying details will be on the record form, labelled with the PupilID only)	Paper forms will be held in locked filing cabinets stored in a room with restricted access. Digital data will be stored in a password protected database on the university servers	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Year 5 Pupil Science Attitudes Questionnaire	By courier (no identifying details will be on the record form, labelled with the PupilID only)	Paper forms will be held in locked filing cabinets stored in a room with restricted access. Digital data will be stored in a password protected database on the university servers	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Year 6 Pupil Science Assessment	By courier (no identifying details will be on the record form, labelled with the PupilID only)	Paper forms will be held in locked filing cabinets stored in a room with restricted access. Digital data will be stored in a password protected database on the university servers	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Assessment Registers	By courier	Registers will be held in locked filing cabinets stored in a room with restricted access until ready to dispatch via courier	Restricted to members of the University's evaluation team and relevant school staff	In school secure waste, immediately after assessment is administered

Item	Transfer to/from project team	Storage	Access	Destruction of personal data
Teacher baseline survey	Downloaded from Qualtrics	Stored in Excel/NVivo/SPSS files on the university servers	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Teacher follow-up survey	Downloaded from Qualtrics	Stored in Excel/NVivo/SPSS files on the university servers	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Year 5 Pupil survey	By courier (no identifying details will be on the record form, labelled with the PupilID only)	Paper forms will be held in locked filing cabinets stored in a room with restricted access. Digital data will be stored in restricted access files on the university servers	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
School staff consent forms for interviews/observations.	Sent by email or given to researcher in person	Paper forms will be held in locked filing cabinets stored in a room with restricted access. Digital data will be stored in restricted access files on the university servers	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Interview data (a sample of teachers across schools will be interviewed by the evaluation team)	With the researcher on encrypted voice recorder; sent to and from the transcription service via University of York's DropOff service	Uploaded to university servers and deleted from voice recorder	Restricted to members of the University's evaluation team and the transcription service. The transcription service will have no information about the schools or teachers.	End of June 2030, five years after report publication
Observation data (a sample of teachers across schools will be observed and possibly recorded by the evaluation team)	With the researcher on paper	Paper forms will be held in locked filing cabinets stored in a room with restricted access. Digital data will be stored in restricted access files on the university servers.	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication
Focus group data (a sample of pupils across schools will take part in a focus group run by the evaluation team)	With the researcher on encrypted voice recorder; sent to and from transcription service via University of York's DropOff service	Uploaded to university servers and deleted from voice recorder	Restricted to members of the University's evaluation team and the transcription service. The transcription service will have no information about the schools or students.	End of June 2030, five years after report publication
Sample of pupils' science work	With the researcher on encrypted mobile phone	Uploaded to university servers and deleted from mobile phone	Restricted to members of the University's evaluation team	End of June 2030, five years after report publication

TDTS DSA Addendum_20221018

Research, Innovation and Knowledge Exchange
University of York
Ron Cooke Hub
Deramore Lane
York
YO10 5GE

04 October 2022

To whom it may concern,

Amendment to Data Sharing Agreement

This letter is written with reference to the recently signed Data Sharing Agreement between the University of York and the party listed in Schedule One to govern the project 'Thinking Doing Talking Science Second re-grant (the "Agreement").

With effect from the 8th September 2022, the parties hereby agree as follows:

1. A new clause 5.4 shall be added to the Agreement and shall read as follows:

   "For the purposes of this research, Data (see Appendix 1) will be shared with the Department for Education (DfE) and Office for National Statistics Secure Research Service (ONS SRS) in order to link to children's Early Years Foundation Stage Profile (EYFSP) data (completed at the end of Reception year at school) and subsequently their Year 6 SATs Mathematics and Reading data, as well as the indicator EVERFSM_6_P, held within the National Pupil Database (NPD). With the identifiable personal data provided, the DfE will 'match' children's details to their EYFSP/Year 6 SATs/FSM data and will allow specified members of the evaluation team to access and conduct analyses using this data within the SRS."

2. Except as expressly amended by this letter, the Agreement shall continue in full force and effect.

3. This amendment letter and the Agreement constitutes the entire agreement between the Parties relating to the subject matter hereof and supersedes all prior and contemporaneous agreements or communications.

4. This Amendment is governed by and shall be construed in accordance with the laws of England and Wales.

Your continued participation in the Project shall deem your acceptance to this amendment letter.

Yours sincerely,

DocuSigned by:
Michael Gwinnett

Michael Gwinnett
Head of Research & Knowledge Exchange Contracts

SCHEDULE ONE

PARTY DETAILS

Sent as a separate document

This document is available for download at https://educationendowmentfoundation.org.uk

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