



Thinking, Doing, Talking Science (TDTs) is a four day primary science teacher training programme developed for teachers of Year 5 pupils. The training is interactive, practical and enjoyable and provides strategies and activity ideas that can translate immediately into classroom practice without the need for extra expense and excessive planning. The four training days are spread out across a school year and the training is delivered locally by primary science experts.

It's been thought provoking, inspiring, challenging and a great deal of fun! I now enjoy teaching science more than anything else - Thank you!

The training has given me a range of new strategies to engage children more effectively in science generally, plus lots of well exemplified practical lessons linked to specific areas of the science curriculum which I have been able to use and which my pupils have greatly enjoyed.



The TDTs approach focuses on the development of cognitively challenging, practical, and interactive primary science lessons. Teachers enable their pupils to think and talk about scientific concepts through dedicated discussion times, they provide pupils with a wide range of opportunities for creative investigations and problem solving and they focus the pupils' recording so that there is always time for practical science.

A Prestigious National Project

TDTs was developed and evaluated during 2013-15 with funding from the Education Endowment Foundation (EEF). The EEF invests in evidence-based projects that focus on tackling the attainment gap. TDTs was originally developed and delivered by Science Oxford and Oxford Brookes University and was evaluated by the Institute for Effective Education at the University of York. The results showed that overall, the Year 5 pupils in schools using the approach made approximately three additional months' progress in science. The programme had a particularly positive effect on girls and on pupils with lower prior attainment (4 months progress) and there were indications that the approach had most impact on pupils eligible for free school meals (5 months progress), but further research is needed to explore this.



The children are more confident in talking about scientific ideas and they share more without worrying that they might be wrong. They love the practical sessions and the responsibility of planning it.

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A Win–Win-Win scenario

The results showed that not only did the pupils attain more highly in science but that the approach also had a positive impact on their attitudes towards science, science lessons and practical work. Teacher feedback revealed that all participating teachers had made changes to their classroom practice as a consequence of the training and that they enjoyed teaching science more.

It has just been a truly amazing project. Thanks so much to all concerned. I've been teaching 15 years and have never felt so inspired and motivated to get up and go to work in the morning



“It’s fantastic when our evaluations produce solid evidence that a particular approach has a positive impact on attainment. It’s especially rewarding when they boost children’s attitudes towards learning too. But the reality of robust educational research is that these results are the exception and not the rule.” **Sir Kevan Collins, CEO, Education Endowment Foundation**

Thinking, Doing, Talking Science 2016-18

As a consequence of the exciting results from the first phase of the project, TDTS is being scaled up nationally for delivery to a minimum of 180 primary schools across England during 2016-17 and 2017-18, with half the participating schools receiving the training programme in the first year and the other half in the second year.

The schools who agree to participate in the project during 2016-18 commit to:

- Sending at least two teachers (or more if there are more than two Year 5 classes in the school) to the 4 days of training. The training is spread over one academic year so that teachers can try out the project strategies between sessions
- Providing data: schools will facilitate the administration of a science test and the completion of attitude questionnaires by all Year 5 pupils in June 2017. Teachers will be asked to complete a brief 10-15 minutes survey about their science teaching practice. The project evaluators will also require the UPNs for all Year 5 pupils. The EEF is highly respected and schools can be assured that all data are kept securely and anonymity is guaranteed.

The schools who agree to participate in the project during 2016-18 will get:

- Four days of high quality, locally delivered, training for at least two teachers (with lunch and refreshments included)
- Science equipment for each school worth £200 – distributed over the four training days
- An additional financial grant for science resources – detailed below .



The Financial Grant

Each school will be asked to send **all** their Year 5 teachers. Schools with only one Year 5 teacher will be asked to send another teacher e.g. the Science Coordinator. The financial grant is related to how many teachers a school needs to send:

- 2 teachers £400
- 3 teachers £700
- 4 teachers £1000

The children have a 'buzz' about science - very confident to express opinions, speculate and give justifications as to why they think as they do.

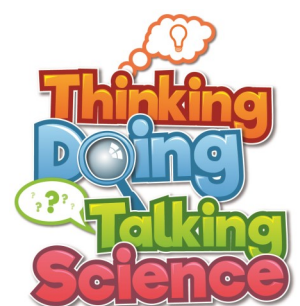


The project design

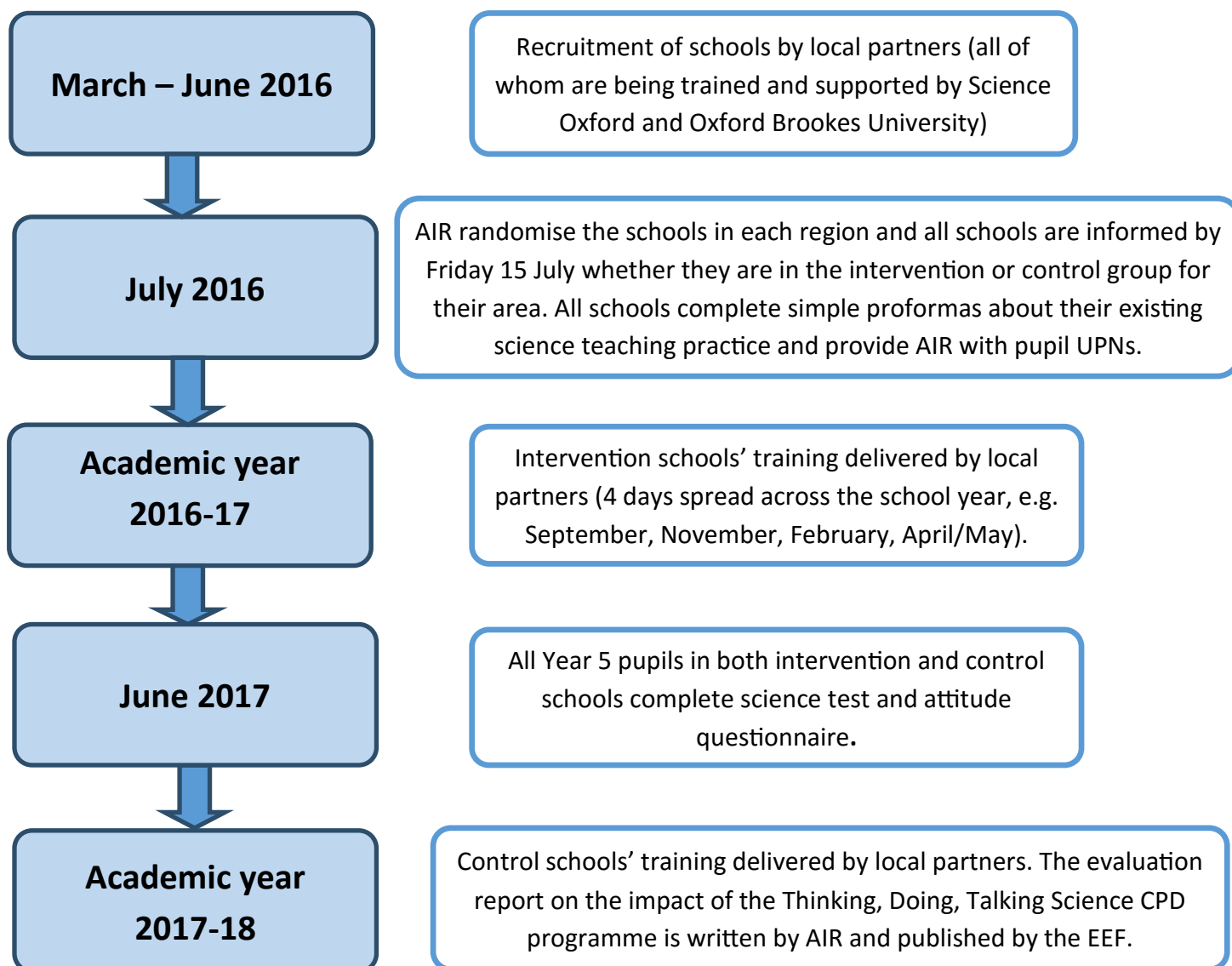
The TDTS training is being provided to schools **free of charge** in 2016-18 because it is still the focus of a research project where the impact of the teacher training on pupils' attainment and attitudes is being evaluated by independent experts. The project will involve a minimum of 180 primary schools across seven regions of England.

As a research project, TDTS is being run as a Randomised Controlled Trial (RCT) by the American Institutes for Research (AIR). In order to fully research the impact of TDTS on pupils' learning, AIR will randomly assign the participating schools in each English region to either the 'intervention group' or the 'control group'. The intervention group in each region will receive the training during the 2016-17 academic year and the control group in each region will receive the training during the 2017-18 academic year. Schools agreeing to be part of TDTS during 2016-18 need to do so on the understanding that they are happy to be in either group, since all schools have to be recruited to the project before the randomisation takes place in July 2016.

All participating schools will agree to their Year 5 pupils taking a science test in summer 2017. Before pupils can be assessed, schools will be asked to distribute opt-out consent forms to current Year 4 pupils. Only pupils whose families do not opt-out of this evaluation will be asked to complete the test. These tests will not require any preparation at all and will be administered by NatCen, who are a respected research organisation. A date and time for the tests will be agreed in advance with each school by telephone. Schools will need to ensure a member of staff is available to support the testing on the day.



The Project Timeline



If you would like your school to participate in this project or would like to find out more about it, your local contacts are:

Mathematics and Science Learning Centre

University of Southampton

mslc@soton.ac.uk

Phone: 023 8059 8810

