A randomised controlled trial of the effectiveness of the Action Tutoring Programme
Evaluation Protocol

Evaluator (institution): NFER
Principal investigator(s): Dr Stephen Welbourne

Evaluation summary

Project title	A randomised controlled trial of the effectiveness of the Action Tutoring Programme
Developer	Action Tutoring
Evaluator	National Foundation for Educational Research (NFER) Behavioural Insights Team (BIT)
Principal investigator(s)	Dr Stephen Welbourne Nimble Trial: Dr. Patrick Taylor
Protocol author(s)	Ruth Staunton, Stephen Welbourne, Sarah Lynch and Eleanor Bradley Nimble Trial: Callum O'Mahony, Niall Daly, Lal Chadeesingh, Dr. Patrick Taylor, Lily Margaroli
Trial design	Three two-armed RCTs with randomisation at pupil-level within school blocks Nimble trial within main trial
Trial type	Effectiveness with incorporated nimble trial
Pupil age range and Key stage	Years 7, 10 and 11 (age 11-16) Key stages 3, 4
Number of schools *(at design stage)*	62
Number of pupils *(at design stage)*	5,208 (average 28 per year group, per school)
Primary outcome measure and source	Maths Attainment: GCSE maths fractional grades collected from schools (Year 11)
Secondary outcome measures and sources	Access Maths assessment (Years 7 and 10) Mathematical self-perceptions and enjoyment of maths scales from Maths and Me Survey: Reduction in school absence: School absence data (authorised and unauthorised absence)

Primary outcome measure and source (Nimble Trial)	Sense of belonging: Two survey items added to the Maths and Me survey administered at endpoint
Secondary outcome measure and sources (Nimble Trial)	Maths attainment: GCSE maths z-score (Y11); Access Maths test z-score (Y10)

Protocol version history

Version	Date	Reason for revision
1.0 [*original*]	30/07/2025	
2.0	15/08/2025	Content added for nimble trial

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Study rationale and background

Pupils from disadvantaged backgrounds have less access to the tools that support them to progress in school and reach their full academic potential. This results in an attainment gap at GCSE level. Just 52% of PP pupils achieved a GCSE grade 4 in maths in 2024 compared with 79% of other pupils. The Action Tutoring small group tuition programme aims to help close the attainment gap in GCSE maths between pupils from disadvantaged backgrounds and other pupils, contributing to improved longer-term education, training and other life outcomes associated with improved grades.

The EEF toolkit (EEF, 2021) pages on small group tuition show that it can be an effective intervention. Effect sizes vary across studies, with an average impact of two months additional progress for secondary schools and four months additional progress for primary schools. A key finding is that the smaller the group and the more aligned it is to pupils' needs, the more effective the intervention. The toolkit on small group tuition also provides evidence that frequent sessions, three times a week or so, lasting up to an hour over about 10 weeks typically show greatest impact. Meta-analyses have shown that tutoring programmes yield consistent and substantial positive impacts on learning outcomes: the EEF Teaching and Learning Toolkit meta-analysis estimates the average effect size of tutoring to be 0.28 SD for small group tuition and 0.39 SD for 1:1 tuition; (Nickow, Oreopoulos and Quan, 2020) found an overall pooled effect size estimate of

0.37 SD; (Dietrichson et al., 2017)found a pooled effect size of 0.36 SD; and (Ritter et al., 2009) found a pooled effect size of 0.30 SD.

There is evidence to suggest that small group tuition can improve educational achievement and progress for disadvantaged pupils. For example, a systematic review and meta-analysis carried out by (Dietrichson et al., 2017) sought to identify effective academic interventions for primary and middle school-aged pupils with low socioeconomic status. The review showed tutoring to be especially promising at improving educational achievement. Another study (Torgerson et al., 2018) exploring the impact of the Tutor Trust's maths tuition on pupils in Year 6 (aged 10-11) found at pupils eligible for free school meals (FSM) who received tutoring made three months' additional progress in maths compared with FSM pupils in control schools.

The evaluation of the second year of the National Tutoring Programme (Lucas et al., 2023), introduced as a response to disruption to education caused by Covid-19, with a particular focus on disadvantaged pupils, found that School-Led Tutoring led to small improvements in Key Stage 2 and Key Stage 4 maths. Similar results were found in the evaluation of the third year of the National Tutoring programme (Moore et al., 2024). The evaluation in the third year revealed that an optimum number of hours of tutoring for greatest impact is likely to lie above 20 hours per pupil.

However, both of these evaluations were limited by the fact that they could not directly manipulate the experimental condition and had to rely on quasi-experimental methods - comparing schools that had participated in the National Tutoring Programme with those that had not. This will probably have resulted in an underestimation of the effect of tutoring, as not all pupils in the participating schools will have received tutoring, which will have diluted the effects.

Action Tutoring's secondary maths intervention was independently evaluated by the National Institute of Economic and Social Research (NIESR) (Lucchino, 2016) also using a quasi-experimental design that matched over 700 Action Tutoring pupils with a control group. This study found pupils attending at least seven sessions gained half a grade more at GCSE than their peers. Additional statistical modelling further confirmed that increased session attendance correlates with higher pass rates in maths. Moreover, additional analysis led by Action Tutoring, summarised in their 2018-19 impact report (Action Tutoring, 2020) suggests that the average chance of a pupil achieving a grade 4 or above in GCSE maths increases from 42% after three Action Tutoring sessions, to 64% after 12 sessions, while attending 17 sessions implies a 75% chance of passing. However, this study was also limited by the need to rely on quasi-experimental approaches. In this case it avoided the dilution problem by focusing on individual pupil attainment, but this will have made it susceptible to the problem of selection bias, where pupils are selected for tutoring because they are at risk of falling behind but which cannot be accounted for in the comparison group, which will tend to result in an underestimate of the effect size.

This Randomised Controlled Trial (RCT) offers a much stronger approach to establishing whether receipt of Action Tutoring has an impact on pupils' attainment. For this trial, suitable pupils will be selected by schools before being randomly assigned to the intervention or control groups. This avoids the twin dangers of dilution and selection bias because it measures impact at the pupil level (avoiding dilution) whilst ensuring that all pupils in the trial have been selected for tutoring regardless of whether they are in the intervention or control groups. The trial will also add to the

evidence of impact of specific models of tutoring (e.g. face-to-face versus online delivery) and the optimal length for tutoring.

Alongside evaluating the impact of tutoring on attainment, this study includes a nimble trial to test whether a brief social belonging intervention can improve pupils' sense of belonging within tutoring sessions, particularly for disadvantaged pupils who are more likely to experience belonging uncertainty (Walton & Cohen, 2007; Steele, 1997).

Belonging uncertainty is a psychological state in which individuals, especially those from underrepresented or negatively stereotyped groups, feel unsure whether they truly belong in a setting. When pupils interpret normal setbacks (e.g., struggling with a maths question) as signs that they do not belong, this can undermine motivation, participation, and longer-term outcomes (Walton & Cohen, 2007).

Prior studies have shown that even brief social belonging interventions can lead to improved engagement and educational outcomes, especially among disadvantaged pupils (Walton & Cohen, 2021). While previous studies have focussed on the transition from elementary to middle school and high school to higher education, this intervention aims to support pupils beginning small group tutoring in Maths. The intervention is a short activity delivered in Week 3 or 4 of tutoring. It is expected that by this point, pupils may have encountered some common worries or challenges in their transition to tutoring, but it will still be early enough for the intervention to reframe those worries and challenges as common and not a sign pupils don't belong, and help pupils respond positively to them. The intervention preserves the core elements of the social belonging interventions used in prior studies - pupils read messages from former Action Tutoring participants, reflect on their own experience, and write a 'saying is believing' message of their own to future pupils. However, the intervention has been adapted for the context of small group tutoring and the age and ability of the pupils. Notably, the intervention duration is 15 minutes rather than 30 minutes or an hour, to balance the time needed to complete the activity meaningfully, with the need to cover core curriculum content in sufficient depth. The decision to deliver the whole activity in a single 15 minute session, rather than over two separate sessions was made for two reasons. Practically, it would mitigate the risk of pupils not being able to complete the activity due to absence in one of the two sessions in which the activity was being delivered. Previous evidence also suggested that writing their own message immediately after reading the messages from former pupils helps pupils to better internalise the core concepts shared in the messages through a 'saying-is-believing' effect (Walton and Brady, 2021). To ensure the activity is as engaging and accessible as possible, pupils completing the activity online will have the option to listen to audio-recordings of the messages from former pupils. To minimise the amount of writing required to complete the activity, the reflection component of the activity has been shortened and pupils are not asked to write their own reflections, but asked to focus on their message to future pupils. To support pupils who may find writing a message to a future pupil difficult, tutors are given explicit guidance on how to support pupils through this part of the activity.

This nimble trial is designed to provide evidence on whether a short belonging intervention can boost pupils' sense of belonging in small group tutoring sessions, and whether this has an impact on maths attainment and mathematical self-perception. This nimble trial builds on the nimble trials BIT ran to evaluate the impact of three behavioural interventions designed to increase attendance at tutoring sessions delivered during the first year of the National Tutoring

Programme (NTP), when the programme was being managed by the EEF (Tagliaferri et al, 2022; Chadeesingh et al, 2022; Malik et al, 2022). It will add to the literature on mechanisms that support the effectiveness of tutoring for pupils from disadvantaged backgrounds.

The nimble trial is being evaluated as a separate strand within the wider study. Full details of its aims, design, and methods are provided in the Nimble Trial Protocol in **Appendix C.**

Intervention

The Action Tutoring programme is a targeted secondary maths small-group tutoring programme that deploys volunteer tutors to work with pupils from socio-economically disadvantaged backgrounds who are at risk of achieving below grade 4 in GCSE maths. For the purpose of the trial, the programme will be delivered to pupils in Years 10 and 11 in the 2025-26 academic year. A variation of the programme, in an earlier stage of development, will be delivered in Year 7 (summarised below). There are separate Theories of Change (ToC) for Key Stage 4 and Year 7 (particularly because the Year 7 programme is in an earlier stage of development and evaluation); see below. Schools will pay Action Tutoring £2,250 for participation in the programme, which is 8% of the total cost of tuition. Part of this cost (£500) will be refunded once a school has submitted data required for the evaluation.

A detailed description of the intervention in the context of the TIDieR (template for intervention description and replication) framework is presented below.

Rationale

As noted in the study background above, the Action Tutoring programme aims to close the attainment gap in GCSE maths between pupils from disadvantaged backgrounds and other pupils. There is evidence to suggest that small group tuition can improve educational achievement and progress for disadvantaged pupils.

What (materials)

Tutors deliver a bespoke scheme of work developed by curriculum experts (Action Tutoring's Curriculum Lead for maths and Curriculum and Quality Manager). The curriculum resources (and online session templates, in which material identical to the workbook contents is reformatted for use in the virtual classroom) are designed to limit tutors' pre-planning and are structured to optimise pupils' learning.

Before they begin tutoring, tutors are given access to a digital pre-programme pack which contains guidance on:

Planning, preparation, and using the curriculum resources appropriately

- What to expect in their first session
- How to monitor pupil progress
- Managing pupil behaviour
- Answers to other frequently asked questions from volunteers.

At Key Stage 4, tutors support pupils to complete activities in a skills workbook before moving to an exam workbook towards the end of the Year 11 programme. Year 7 pupils progress through a workbook designed to support the transition to secondary school and build confidence in foundational maths skills from the Key Stage 2 curriculum which will form part of pupils' progression throughout secondary school towards their GCSEs.

Action Tutoring assessments

Action Tutoring has developed a baseline assessment - carried out before tutoring begins - and an intermediate assessment, which is carried out during week 12–15. The results of these assessments are used to inform personalised tutoring and monitor progress. The baseline assessment is used to generate a gap report for individual pupils, which summarises information captured in the assessment showing gaps in skills and understanding across the main curriculum areas. Gap reports are shared with schools and with volunteer tutors to inform the delivery of tutoring sessions. Schools are then provided with a summative report after 12-15 sessions have been offered to pupils, detailing pupil attendance and progress made against the baseline assessment score. Cohorts offered less than 15 tutoring sessions may not sit the progress check, in order to prioritise tutoring time.

Year 10 and 11: Skills workbook sessions

Year 10 pupils will spend all their sessions focused on content from the skills workbook. Year 11 pupils will spend at least ten sessions using the skills workbook (and may start partway through the workbook, if they already covered content when participating in Year 10).

Tutors can select the order of sessions in the skills workbook, informed by data in the pupil's gap report (see 'Action Tutoring assessments').

All resources for Key Stage 4 are aligned with the national curriculum and focus on foundational topics to develop maths fluency, before moving to high-value topics for the GCSE exam. Tutors are instructed to apply a similar structure consistently each week, building a session that lasts up to one hour:

1. Warm-ups activities to improve arithmetic fluency with repetition
2. A diagnostic question identifies pupils' starting points
3. Tutors model a skill through a worked example
4. Pupils replicate through independent practice
5. Pupils work through 'intelligent practice':

Intelligent practice involves carefully sequenced questions where each varies only slightly from the one before. Pupils are encouraged to pause and consider how the question differs from the previous one attempted and predict what the answer will be before working it out. This introduces pupils to a range of applications of a topic in a controlled way, to reduce overwhelm and build confidence. Supported by their tutor, intelligent practice enables pupils to make connections between concepts and deepen their understanding.

6. Pupils complete exercises designed to enable 'purposeful practice', or explore questions with the 'same surface different depth':

Purposeful practice and 'same surface different depth' activities interweave skills across topics to solve a problem, encouraging pupils to identify and meet the specific requirements of an exam-style question.

Year 11: Exam workbook sessions

Year 11 pupils typically move from the skills workbook to the exam workbook after the February half-term, provided they have covered enough content in the first workbook; Action Tutoring programme coordinators will usually advise tutors on when to make this switch, generally when a pupil has completed at least 10 sessions. All pupils do not necessarily have to move on to the exam workbook (for example, when tutors and Programme Coordinators feel that a pupil still needs to secure concepts from the skills workbook, even having done 10 sessions). There is an element of judgement on the part of the Programme Coordinators and tutors in making the decision to switch. It is made clear to tutors that both the skills workbook and the exam workbook cover the concepts that pupils need in order to be successful in their examinations. If the switch is made, the exam workbook focuses on areas relevant to the foundation and higher papers, and its content is relevant to all exam boards.

Tutors are advised to follow a similar one-hour session structure each week while using the exam workbook:

1. Exam skills: This section is used in place of a warm-up and focuses on helping pupils revise the formulae they need for the exam and revisit proper calculator use.

2. Mixed practice: Each week, pupils can select one question from each of five topics shown in a revision grid. This ensures a range of topics are revised ahead of the exam.

3. Exam questions: Pupils work on three or four multi-step GCSE exam-style questions each week, supported by their tutor.

Year 7 workbook sessions

Curriculum resources (a scheme of work) are structured to limit pre-planning and optimise learning, aiming to secure pupils' grasp of high-priority Year 6 topics and skills that will in turn enable them to access and master Key Stage 3 topics. The first ten sessions cover high-priority topics – those awarded the most marks in Key Stage 2 SATs papers, which Year 7 pupils may not have fully grasped before leaving primary school. Tutors are advised to complete those initial sessions in chronological order. Further sessions go deeper into these topics but can follow any order informed by the needs of the group. The third and final section of the workbook comprises of review sessions, designed to give pupils a chance to revisit topics already covered, through additional tasks. Sessions scheduled to last one hour are structured as follows:

1. Greeting and check-in, to build rapport

2. 'Five minute maths': a hook into learning for pupils arriving on time

3. Starter activity, recapping learning from prior session (known as 'recall rumble')

4. Modelling by tutor, then group and individual working

5. End of session review, to assess learning outcomes

Tutors can also access and use an optional pupil progress tracker in the back of the Year 7 workbook to fill out weekly after the end of the session, to indicate pupil confidence against each of the learning aims.

What (procedures)

Outside of the trial, the typical Key Stage 4 Action Tutoring programme for a school would be 30 weeks of tutoring (20 weeks for Year 11s then ten weeks for Year 10s in the summer term). Other combinations are possible but less common. The trial explores the effectiveness of different programme lengths: 20 weeks for Year 11; 15 or 20 weeks for Year 10; and ten or 15 weeks for Year 7.[1]There is an initial set-up meeting between Action Tutoring and an identified link teacher at the school, to set expectations around pupil selection, parental engagement and session scheduling.

During the trial, all selected Year 10 and 11 pupils will complete a baseline assessment prior to being randomly assigned to receive the tutoring intervention or to the control group. Key Stage 2 scores are missing or unreliable for Years 10 and 11 due to the COVID pandemic so this alternative baseline assessment was required. Year 7 pupils will not complete the baseline assessment prior to being randomly assigned to groups, as Key Stage 2 scores are available and will be used as a baseline measure, meaning the assessment is not required for the evaluation. Instead, the Year 7 intervention group will complete the assessment upon joining the programme so that the results can inform delivery. At the first tutoring session, all intervention pupils receive a short induction from Action Tutoring before meeting their tutor. The baseline assessment will have generated a gap report for intervention pupils which is shared with volunteer tutors and school teachers. All intervention pupils are tutored weekly in sessions that are scheduled to last one hour, at the same place and time and via the same delivery mode (either connecting with the tutor face-to-face or online in a virtual classroom). Outside the trial, Action Tutoring pupils attending programmes that last more than 10 weeks will complete an intermediate assessment, which is carried out after 12-15 sessions have been offered, to provide further information on gaps and a measure of progress to share with school teachers. The intermediate assessment will be completed by Year 11 intervention pupils. During the trial, Year 10 intervention pupils will not sit Action Tutoring's intermediate assessment; this adaptation has been made to reduce the assessment burden on pupils, as the Year 10 cohort will be required to sit a separate end-point assessment to provide an outcome measure for the evaluation. Year 7 pupils will not sit the intermediate assessment either, as it is a shorter programme.

[1] We are unable to test a longer 20-week programme for Year 7, as it is not possible to offer 20 weeks of tutoring to all three year groups within the constraints of a one-year trial. The Year 7 programme is in an earlier stage of development and therefore Years 10 and 11 are prioritised for the trial. Moreover, the Year 7 programme is focused more on supporting pupils to be ready for secondary school maths, which may not need as much time as the Year 10 and 11 programme which aims to cover the GCSE maths syllabus.

Tutors typically sign up to support one cohort of pupils throughout their course of tutoring (for example, 20 weeks for Year 11). They may or may not then continue to volunteer for the following shorter 10- or 15-week summer course, when a new cohort of pupils at the school would receive tutoring.

Who (providers /implementers)

Each school has a dedicated Action Tutoring Programme Coordinator, who is a paid member of Action tutoring staff. They act as a connection between Action Tutoring, volunteer tutors, school staff and pupils, and oversee tutoring at several schools at once.

Tutoring sessions are overseen by the Programme Coordinator who is tasked with the day-to-day management of the programme delivery and logistics, including the delivery by volunteer tutors. Programme Coordinators are either present in person or, for some online programmes, they are connected remotely and oversee virtual classrooms online each week, assisted by a school staff member.

Tutoring is delivered by volunteers who are recruited via an application and training process and must be DBS cleared. They range in age and in background (from university students to retired professionals) and must meet the following criteria:

- educated to degree level, or studying for a degree
- achieved a B grade (or above) at A Level (or an equivalent qualification) in the subject they wish to tutor, or a related subject
- evidence of strong communication skills
- experience working with young people, or able to demonstrate that they would have the skills required
- empathetic towards the young people Action Tutoring supports.

All volunteers attend a compulsory initial tutor training session facilitated by Action Tutoring before they can deliver sessions with pupils. Those volunteering online must also complete an additional compulsory on-demand training module focused on tutoring safely and effectively in the virtual classroom. Tutors are expected to commit to attending every session they sign up for.

Each school will assign a member of staff as a link teacher for each year group and an overall link teacher designated to be the primary contact. Link teachers need to have the capacity to support programme delivery by sharing pupil data, ensuring there is a suitable place for tutoring, and by encouraging pupils to attend. They are not required to hold a specific role in the school. Link teachers regularly attend tutoring sessions and communicate frequently with Action Tutoring's Programme Coordinator about logistics, pupil attendance and pupil engagement. Information Technology (IT) staff will usually help with technical requirements rather than a link teacher.

Who (recipients)

Each school will select between 26 and 40 pupils (half of whom will be randomly assigned to receive tutoring and half to a control group receiving usual practice) in each of Year 7, 10 and 11 who meet the following criteria:

- Year 11 pupils must start the year working at GCSE grades 3–5 in maths
- Year 10 pupils must start the year working at GCSE grades 2–5 in maths
- Year 7 pupils must have narrowly achieved or narrowly missed the expected standard in their maths SATs.

At least 65% of pupils selected by the school to take part in the trial must be eligible for the Pupil Premium grant and all pupils must meet the maths attainment criteria listed above (linked to being at risk of not achieving a grade 4 in their maths GCSE without additional support). All pupils must meet the attainment criteria, but schools can offer up to 35% of places to pupils who are not eligible for the Pupil Premium. To the best of the school's knowledge, no more than 15% of the pupils overall should be accessing professional, paid, private tuition.

If a pupil misses three consecutive sessions, they may be withdrawn from the programme (not the evaluation), in consultation with the school. If a pupil is removed or drops out permanently they would not be replaced on the programme. This is an adaptation to Action Tutoring's normal delivery, as normally those places would be filled by another eligible pupil at the school, but it is expected that the maximum number of eligible pupils in the year group will already be engaging in the trial, and control pupils cannot be used for replacements.

How (mode of delivery, when and how much)

Pupils receive small-group (two or three pupils) tutoring, delivered by trained volunteer tutors. A decision about pupil groupings is typically made by the Programme Coordinator and/or the link teacher, based on assessment results, pupil behaviour in the first assessment session, and the school's knowledge of pupils. Some link teachers will advise on which pupils should not be grouped together. Schools might suggest that a pupil be grouped with a friend to boost attendance, if this is conducive to effective tutoring. Groups can change over the first few weeks based on tutor feedback on pupil abilities or behaviour.

Tutors deliver a bespoke scheme of work developed by curriculum experts for small-group tuition. There are four models of delivery:

- **face-to-face**: everyone is in the same room at the school for the session (tutors, pupils and the Programme Coordinator)
- **standard online**: pupils and the Programme Coordinator are in the same room at the school, while tutors join remotely
- **hybrid**: some pupils receive tutoring consistently face-to-face, and others receive tutoring consistently online (pupils are at school while the tutor joins remotely), while the Programme Coordinator manages the session in person

- **virtual online**: fully online (pupils receive tutoring online at school, while the Programme Coordinator manages the session remotely).

Online tutoring is delivered via the Vedamo platform. Tuition is received in one-hour weekly sessions, typically outside of school hours (often after school), for either 20, 15 or 10 weeks (for the trial).

Action Tutoring has several delivery 'hubs' - locations where Action Tutoring's staff are based and can attend schools regularly in person to coordinate tuition. In these hubs, Action Tutoring may also have established a larger local volunteer community. Tutors may attend the school to deliver the tutoring in person or may deliver it online in a virtual classroom (as described above). A decision about face-to-face or online tuition will be based on school preference combined with Action Tutoring knowledge of local volunteer recruitment and the location of Action Tutoring delivery staff. Some schools may choose to have a blend of online and face-to-face tutoring, but an individual pupil will rarely experience both. In other locations outside of the delivery hubs, virtual online programmes are available.

Where (locations)

To be eligible to participate a school must:

- be a state-maintained, mainstream secondary school in England with pupils in Year 7, 10 and 11
- have a school-wide Pupil Premium eligibility rate of at least 18%
- not have partnered with Action Tutoring or any other external tutoring provider in 2024–25
- not be participating in another maths-focused EEF-funded trial in 2025-26.

Within schools, all pupils are tutored in the same place (e.g. in a large classroom or library) at the same time. If tuition is delivered by tutors online, the small groups of pupils will be in an IT suite with headphones.

Tailoring (adaptation of the intervention)

Curriculum workbooks are codified, and the programme is the same for all schools. There is an operational handbook which sets out expectations for delivery for Action Tutoring staff. Tutors can select the order of sessions in the Key Stage 4 skills workbook, informed by data in the pupil's gap report. Tutors are expected to use Action Tutoring materials throughout their volunteering but may use additional materials up to 25% of the time provided these are shared with and approved by the Action Tutoring Programme Coordinator in advance. Tutors will focus first on the main gaps across the group. Any other variation is most likely to be a result of an absence (tutor or pupil) e.g. pupils changing groups because a tutor is absent.

Strategies to support implementation

Action Tutoring Programme Coordinators oversee the day-to-day management of the programme delivery, including supervising the delivery of tuition by volunteers. They are provided with training on safeguarding, behaviour management, and programme management.

Volunteer tutors are provided with the following training:

- initial two-hour online training (covers safeguarding, tutoring resources, growth mindset development, session planning, the maths GCSE syllabus, and impact)
- (for online tutors) mandatory 30-minute training to develop skills to navigate the online classroom and facilitate engaging online sessions
- continuing development of tutors through live and on-demand optional training sessions on topics such as: common tutoring scenarios; effective questioning; and behaviour management
- (for online tutors) optional training throughout the year from technical support staff (webinars or one-to-one) to develop skills and confidence navigating the virtual classroom.

Action Tutoring has a quality assurance framework, with processes in place to monitor and enable quality tuition at every stage of the volunteer tutor journey. This includes: volunteer tutor application criteria and assessment (including video interviews where required to inform application decisions); comprehensive and compulsory initial tutor training, where volunteer engagement is monitored by facilitators with teaching or training backgrounds; additional compulsory e-learning for those tutoring online; and continuous development, with live and on-demand learning opportunities designed to improve tutors' understanding of education theory, teaching strategies and subject knowledge.

The quality of tuition is monitored on an ongoing basis by Action Tutoring Programme Coordinators, who are on hand to provide support to volunteers during sessions, monitor pupil engagement and learning outcomes, and provide feedback to volunteers to improve their practice. Action Tutoring's Curriculum and Quality team support and advise Programme Coordinators on delivering effective feedback. At the time of writing, for online tutoring sessions only, a quality assurance observation process is in place. A 15-minute observation of a subset of online tutors is carried out within their first 3-10 sessions by a member of Action Tutoring staff, with feedback shared if tutors require improvements or are showing a particularly high-quality demonstration of skills. A recording of the tutoring is observed, not the live session. Tutors are informed of the observation process, but not told in advance that a session will be observed. Indicators of quality are grouped under the following key areas identified as fundamental features of a tutoring session:

1. Create a motivating and aspirational tutoring environment
2. Demonstrate appropriate subject knowledge and understanding for the age and stage of pupils
3. Choose appropriate tutoring techniques to support pupil progress
4. Adjust a session to respond to the needs of pupils
5. Make appropriate use of the planning and resources provided by Action Tutoring
6. Engage all pupils and positively manage behaviour so that learning can take place.

If a quality concern is flagged, an hour-long tutoring session will be observed by a member of Action Tutoring staff with quality assurance responsibilities, followed by detailed feedback to the tutor. This is followed by further observation to ensure feedback is implemented effectively.

Curriculum resources have been developed for the programme to limit pre-planning and optimise learning. Pupils complete assessments to inform gap reports, which guide tutors on priority topics.

Link teachers (school staff) for each year group are identified, who regularly attend tutoring sessions and communicate frequently with Action Tutoring's Programme Coordinator about logistics, pupil attendance and pupil engagement. A school senior leadership team contact is identified, who is available if issues occur that link teachers are unable to resolve.

Theories of Change

The Theories of Change (ToC) for the Action Tutoring programme, for Key Stage 4 and for pupils in Year 7 (reflecting the earlier stage of development of the Year 7 programme) are shown in Figure 1 and Figure 2. They outline the rationale, target population and aims of the programme. They then summarise the inputs (activities), outputs, expected short-term and longer-term outcomes for volunteer tutors, pupils and schools.

ToC for Key Stage 4

Pupils participating in the Action Tutoring programme are expected to achieve short-term outcomes (depicted in the green boxes in the ToC) that are intended to lead to the primary long-term outcome of a grade 4 or above in GCSE maths. This will be measured by the impact evaluation. Other expected long-term outcomes (depicted in pink boxes) include improved access to further education, training and employment opportunities, and a growth mindset and greater confidence in their own ability to learn and overcome challenges in maths. These outcomes will be covered either in the impact evaluation or the IPE.

For volunteer tutors, the expectation is that receipt of training, use of curriculum materials and gap reports, and undergoing quality assurance processes, is expected to result in short-term outcomes (green boxes) that lead to longer-term outcomes for tutors (pink boxes). These are a firm grasp of the knowledge, skills and attitudes required to deliver small-group tuition in GCSE maths, and strong commitment to the mission and belief in rewards of volunteer tutoring. These outcomes for tutors will be covered in the IPE.

For schools, taking part in the Action Tutoring programme is expected to lead to a long-term, established partnership capable of the provision of effective tutoring.

We expect the impact of the programme to be moderated by programme-related factors, as listed in the ToC, including tutor availability, tutor background and experience, use of curriculum materials, the role of Programme Coordinators, and mode of delivery. Contextual factors (including school location, pupil background, staff capacity, and facilities) are also likely to moderate impact.

ToC for Year 7

While the delivery mechanisms are the same for pupils in Year 7, the curriculum materials are different (as described above in the intervention section).

Some expected outcomes for Year 7 pupils are slightly different than at Key Stage 4. The aims include, in the short term, for pupils to confidently access the Key Stage 3 curriculum content – having mastered high-priority skills they may have struggled to secure at Key Stage 2 – to ultimately finding the transition to secondary school easier, working at or above the expected level of their age by the end of Key Stage 3, then going on to achieve a grade 4 or above in GCSE maths.

The expected outcomes for volunteer tutors and schools resulting from the Year 7 programme as the same as those related to the Key Stage 4 programme.

Figure 1: Theory of Change for Key Stage 4

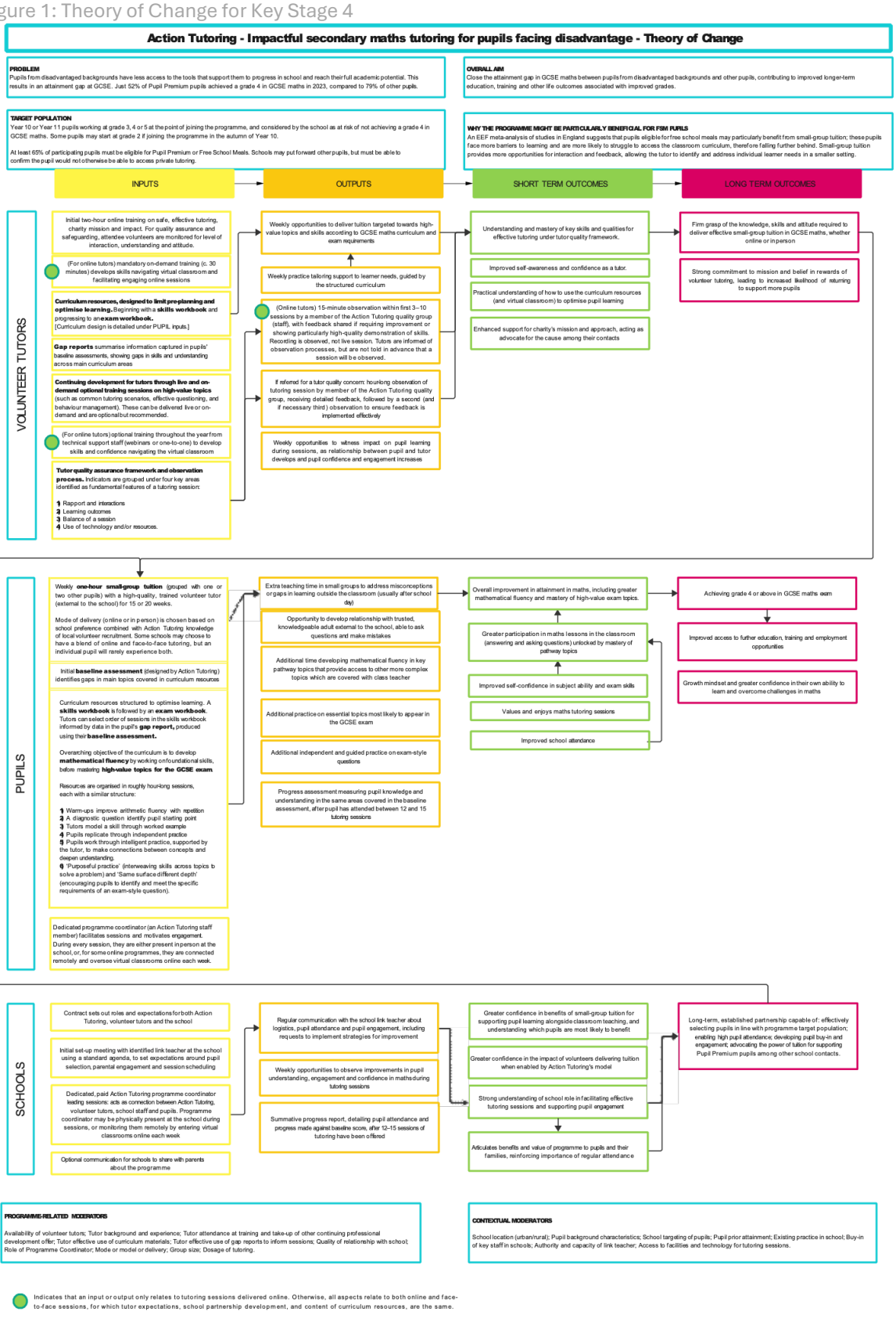
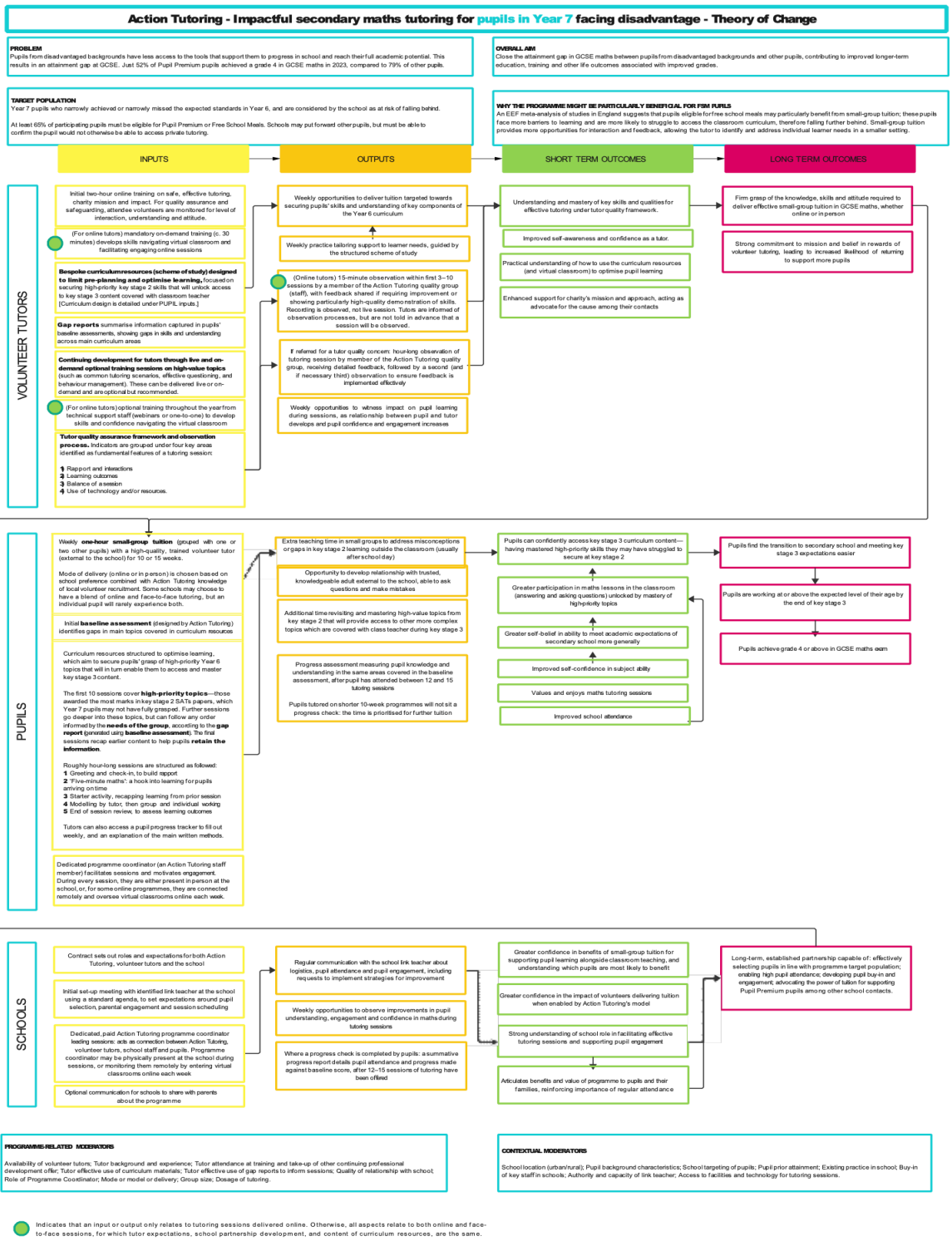


Figure 2: Theory of Change for Year 7



Impact evaluation design

Research questions: primary research question

RQ1: How effective is Action Tutoring at promoting maths attainment among Y11 pupils?

Research questions: secondary research questions

RQ2: How does Action Tutoring effect the proportion of Y11 pupils achieving grade 4 or above in their GCSE maths?

RQ3: How effective is the Action Tutoring programme at promoting maths attainment among Y10 pupils?

RQ4: How effective is the Action Tutoring programme at promoting maths attainment among Y7 pupils?

RQ5: How effective is the Action Tutoring programme at promoting maths attainment among disadvantaged pupils in each of the three year groups (a) Y11, b) Y10 or c) Y7)?

RQ6: How does the effectiveness of the programme at promoting maths attainment vary with dosage offered among a) Y10 and b) Y7 pupils?

RQ7: How does the effectiveness of the programme at promoting maths attainment vary with dosage received among Y11 pupils?

RQ8: How effective is Action Tutoring at reducing absence in Y7, Y10 and Y11?

RQ9a: How effective is Action Tutoring at improving pupils' mathematical self-perception in Y7, 10 and 11?

RQ9b: How effective is Action Tutoring at improving pupils' enjoyment of mathematics in Y7, 10 and 11?

RQ10: Is there any evidence of difference in the effectiveness of Action Tutoring on Y11 pupils depending on the mode of delivery (Action Tutoring's models of delivery – face-to-face; standard online; hybrid; virtual online)?

RQ11: How does the effectiveness of Action Tutoring on GCSE outcomes vary for Y11s with different prior attainment (estimated GCSE grades of 3, 4 or 5)?

Design

Table 1 Trial design

Trial design, including number of arms		Three two-arm pupil randomised RCTs
Unit of randomisation		Pupil, with school level blocks
Stratification variables (if applicable)		None
Primary outcome	**Variable**	Maths attainment in Y11
	Measure (instrument, scale, source)	Maths GCSE fractional grades, 0-9.99, raw scores received by schools then shared with NFER along with exam board and paper to allow conversion into fractional grades
Secondary outcome(s)	**Variable(s)**	• Maths attainment in Y10 and Y7 • Absence • Mathematical self-perception • Enjoyment of mathematics
	Measure(s) (instrument, scale, source)	• Access Mathematics Test, 60-150, Hodder Education • Weekly absence rates (both authorised and unauthorised absences included), 0-100%, recorded by schools then shared with NFER • Mathematical self-perception, Likert, endpoint Maths and Me survey • Enjoyment of mathematics, Likert, endpoint Maths and Me Survey
Baseline for primary outcome	**Variable**	Maths attainment for incoming Y11
	Measure (instrument, scale, source)	Action Tutoring baseline assessment, 0-100%, Action Tutoring
Baseline for secondary outcome	**Variable**	• Maths attainment for incoming Y10 • Maths attainment for incoming Y7 • Absence • Mathematical self-perception

		• Enjoyment of mathematics
	Measure (instrument, scale, source)	• Action Tutoring baseline assessment, 0-100%, Action Tutoring • KS2 maths scaled score, 80-120, NPD • Average weekly absence rates prior to tutoring starting (both authorised and unauthorised absences included), 0-100%, recorded by schools then shared with NFER • Mathematical self-perception, Likert, baseline Maths and Me survey • Enjoyment of mathematics, Likert, baseline Maths and Me survey

This study comprises three two-arm RCTs with randomisation at pupil level. The cohorts of the three trials are Year 11 pupils, Year 10 pupils and Year 7 pupils. Pupils randomised to the intervention arm will undertake the Action Tutoring Programme as described in the Intervention section above. Pupils randomised to the control arm will experience business as usual. The primary outcome in this trial is GCSE maths fractional grade as the primary research question identifies Year 11 pupils. The analyses relating to Year 11 and Year 10 pupils form an effectiveness trial to evaluate the impact of the Action Tutoring Programme. The Year 7 elements of the trial are considered exploratory. All schools providing evaluation data will receive a financial payment of £500.

Participant selection

Action Tutoring will recruit 62 schools for this study. To be eligible to participate in the trial, schools must:

- Be state-maintained, mainstream secondary schools in England with pupils in Year 7, 10 and 11
- Have a school-wide Pupil Premium eligibility rate of at least 18%
- Not have partnered with Action Tutoring or any other external tutoring provider in 2024–25
- Not be taking part in another maths-focused EEF trial for the same year groups in 2025-26

- Be able to put forward at least 26 eligible pupils per year group.

The project will accept interest from schools anywhere in mainland England. However, Action Tutoring will be tracking and monitoring the geographic spread of school interest throughout the recruitment period, aiming to confirm school partnerships in a range of locations to achieve a spread of delivery types across the sample, whilst managing operational constraints and balancing against the programmes the charity expects to deliver outside of the evaluation (for example, its work in primary schools). It is expected that the trial will involve delivery in new locations outside of Action Tutoring's delivery hubs, and therefore that a larger proportion of delivery may be online than in a normal year. However, Action Tutoring's approach to recruitment will encourage clusters of schools to enable programmes to be staffed locally where possible. To achieve a more balanced sample, no more than 6 schools within any one multi-academy trust will be permitted to participate.

Participants in this study will be pupils in Years 11, 10 or 7 during the 2025/26 academic year. Those in Year 11 will be working at maths GCSE grade 3-5 and those in Year 10 at grade 2-5, as estimated by the school. Pupils in Year 11 and Year 10 should plan to sit their maths GCSE in the summer of Year 11. Those in Year 7 will have narrowly achieved or narrowly missed the expected standard in Key Stage 2 maths (Action Tutoring considers that pupils who were far below expected standard in Year 6 would not be able to access the curriculum material, as they target pupils who are assumed to be reasonably secure in certain mathematical concepts). Participants will be attending non-selective, state maintained secondary schools with at least 18% of pupils eligible for PP. These schools will not have partnered with Action Tutoring or any other tutoring provider at secondary levels in the last year. No more than 10% of recruited schools can be from any one MAT. Within each school, a cohort of no more than 40 pupils per year group will be recruited with 65% (or more) PP eligible and another 20% not accessing private tutoring.

Participating schools will select an average of 28 pupils per year group from 62 schools for this study, i.e. 5,208 pupils in total.

Outcome measures

Baseline measures

For RQs 1, 2, 3, 5a, 5b, 6a, 7, 10 and 11, the baseline measure will be the Action Tutoring baseline assessment (see Appendix A; note the introduction will be amended for the trial). This will be administered by Action Tutoring's Programme Coordinators to pupils in Year 11 and Year 10 in both the intervention and control arms before tutoring commences. The test is marked automatically in Action Tutoring's CRM. As the baseline assessment is a core feature of Action Tutoring's delivery model and appears within the programme Theory of Change, the decision was taken to use this measure rather than requiring pupils to sit an additional assessment that is externally validated. This minimises adaptations to Action Tutoring's model and reduces the burden of assessment on pupils before tuition begins, to protect pupil experience and engagement at a critical point in the delivery. The psychometric properties of the measure have not been evaluated but the correlation with GCSE maths score is high at 0.69.

For RQs 4, 5c and 6b, the baseline measure will be Key Stage 2 maths scaled score[2]. This will be accessed through the National Pupil Database (NPD) for all Year 7 pupils in the evaluation.

For RQ8, the baseline measure will be the average % weekly absence for a three week period of the academic year before tutoring starts. This will be the same period for all schools and will be in September/October 2025 for Year 11 and Year 10 and in January/February 2026 for Year 7. All absences will be included i.e. both authorised and unauthorised, in line with DfE's methodology for calculating metrics such as persistent absence. This will be collected from schools for all pupils in the evaluation.

For RQ9, the baseline measures will be the Maths and Me survey[3] consisting of two scales: mathematical self-perceptions (RQ9a) and enjoyment of mathematics (RQ9b). For Years 10 and 11, the baseline Maths and Me survey will be administered online before tutoring commences by Action Tutoring Programme Coordinators (along with the baseline assessment) and then scored/analysed by an NFER analyst. For Year 7, the survey will be administered by schools as they will not be completing the baseline assessment (Key Stage 2 scores are used as a baseline measure.

Primary outcome

The primary outcome measure in this evaluation will be GCSE maths fractional grade. This will be calculated from the raw GCSE maths scores using the published grade boundaries to convert to a fractional grade (assuming a linear relationship between score and fractional grade within each adjacent pair of grade boundaries). The conversion of raw scores to fractional grades is necessary because we anticipate that schools may use different exam boards where the raw scores would not be comparable with each other. The raw GCSE maths scores will be collected from schools for all Year 11 pupils in the evaluation. Due to the evaluation timeline, the first score provided to the school will be used for analysis. Remarks will not be included.

Secondary outcomes

For RQ2, the outcome measure will be a binary variable indicating whether the pupil achieved grade 4 or above in GCSE maths. The GCSE maths grade will be collected from schools for all Year 11 pupils in the evaluation.

For RQs 3, 4, 5b, 5c, 6a and 6b, the outcome measure will be Access Mathematics Test scores. Access Mathematics Tests[4] are a validated measure of maths attainment. The measure is present in the EEF attainment measures database[5], designed for our target age group, UK standardised and curriculum aligned. This outcome has been chosen to assess the theory of change short term outcome "Overall improvement in attainment in maths, including greater

[2] Scaled score is preferred over raw score to account for any pupils who took their KS2 maths in any year other than immediately prior to the intervention year.

[3] http://journals.sagepub.com/doi/pdf/10.1177/0748175611418522

[4] https://www.risingstars-uk.com/subjects/assessment/amt

[5] https://educationendowmentfoundation.org.uk/measures-database/access-mathematics-tests-1-and-2-second-edition1

mathematical fluency and mastery of high-value exam topics" in year groups where no national test is expected.

NFER test administrators will administer these tests to all Year 10 (AMT Form 3) and Year 7 (AMT Form 1) pupils. For Year 10 students this will be after their tutoring block has ended, while for Year 7 there is a slight overlap with the last week of tutoring to allow assessments to take place prior to the end of the summer term. NFER will liaise directly with schools, at the end of the spring term, to co-ordinate dates for NFER Test Administrator assessment visits. NFER will provide some guidance and schools will be asked to consider what works best for them and their pupils in terms of administration (this could be during the school day during their usual tutoring slot or a different time) and confirm to NFER their preferred assessment date and time.

For RQ8, the outcome measure will be the average % weekly absence (all absences i.e. authorised and unauthorised absences will both be included) during the period of tutoring. This will be collected from schools for all pupils in the evaluation.

For RQ9, the outcome measures will be the Maths and Me survey, consisting of two scales: mathematical self-perceptions (RQ9a) and enjoyment of mathematics (RQ9b). The Maths and Me survey is a validated measure present in the EEF SPECTRUM database[6].

The endpoint Maths and Me survey will be administered online by NFER Test Administrator for Year 7 and 10 pupils (after their end assessment) or by school staff for Year 11 pupils (who do not do an end assessment). For Year 10 and 11 students this will be after their tutoring block has ended, while for Year 7 there is a slight overlap with the last week of tutoring to allow surveys to take place prior to the end of the summer term.

For RQs 5a, 7, 10 and 11, the primary outcome measure of GCSE maths fractional grade will be used.

[6] https://educationendowmentfoundation.org.uk/measures-database/math-and-me-survey

Sample size

Table 2 Sample size calculations for Y11- Primary outcome of the trial

		Overall	FSM
Minimum Detectable Effect Size (MDES)		0.166	0.186
Pre-test/ post-test correlations	level 1 (pupil)	0.69	0.69
Intracluster correlations (ICCs)	level 2 (school)	0.10	0.10
Treatment effect heterogeneity (omega)		1	1
Alpha		0.05	0.05
Power		0.8	0.8
One-sided or two-sided?		Two-sided	Two-sided
Average cluster size		21	13.65
Number of schools	Intervention	56	56
	Control	56	56
	Total	56	56
Number of pupils	Intervention	588	382
	Control	588	382
	Total	1176	764

Table 3 Sample size calculations for Y10

		Overall	FSM
Minimum Detectable Effect Size (MDES)		0.17	0.189
Pre-test/ post-test correlations	level 1 (pupil)	0.69	0.69
Intracluster correlations (ICCs)	level 2 (school)	0.11	0.11
Treatment effect heterogeneity (omega)		1	1
Alpha		0.05	0.05
Power		0.8	0.8
One-sided or two-sided?		Two-sided	Two-sided
Average cluster size		21	13.65
Number of schools	Intervention	56	56
	Control	56	56
	Total	56	56
Number of pupils	Intervention	588	382
	Control	588	382
	Total	1176	764

Table 4 Sample size calculations for Y7

		Overall	FSM
Minimum Detectable Effect Size (MDES)		0.178	0.201
Pre-test/ post-test correlations	level 1 (pupil)	0.60	0.60
Intracluster correlations (ICCs)	level 2 (school)	0.11	0.11
Treatment effect heterogeneity (omega)		1	1
Alpha		0.05	0.05
Power		0.8	0.8
One-sided or two-sided?		Two-sided	Two-sided
Average cluster size		21	13.65
Number of schools	Intervention	56	56
	Control	56	56
	Total	56	56
Number of pupils	Intervention	588	382
	Control	588	382
	Total	1176	764

Sample size calculations were undertaken using the *PowerUpR* package in R statistical software. ICCs are taken from the EEF power parameters guide[7]. The Year 11 value is taken from Table 1 – Key Stage 4, EEF studies, Maths. The Year 10 and Year 7 value is taken from Table 36 – median of the Maths rows. The pre-post correlation used for Year 11 and Year 10 is from Action Tutoring and represents the historic correlation between maths GCSE score and their baseline test score. The

[7] https://educationendowmentfoundation.org.uk/projects-and-evaluation/evaluation/eef-evaluation-reports-and-research-papers/methodological-research-and-innovations/improving-power-calculations-in-educational-trials

pre-post correlation used for Year 7 is the median of the Maths rows in Table 36 in the EEF power parameters guide. The treatment effect heterogeneity has been set to 1 in the absence of data as this is the most conservative value. The proportion of pupils eligible for FSM is set at 65% for these calculations. As described in the participant selection section of this document, at least 65% of the study pupils will be eligible for PP and given the large crossover in pupils between these two groups[8] and the fact that this is a minimum threshold for PP pupils in the trial, we believe 65% FSM to be an appropriate estimate for these calculations. The number of schools and pupils shown in the table are the numbers expected to be analysed. We anticipate 25% pupil attrition (from unpublished Action Tutoring data) and 10% school attrition (from previous EEF trials run by NFER) so to achieve the MDES above we will recruit 28 pupils per year group from 62 schools. All pupils remaining in the evaluation after attrition will be analysed i.e. no sampling will take place.

All combinations of year group and overall/FSM subgroup have 80% power to detect effects smaller than 0.201. The EEF Teaching and Learning Toolkit[9] describes effect sizes from 0.19 to 0.26 as equivalent to 3 months' progress or a 'moderate impact'.

Randomisation

The primary randomisation will be 50/50 pupil level randomisation within each year group in each school. No stratification is implemented so simple randomisation within each block will be applied. Randomisation will be done using R statistical software and a seed will be set for reproducibility. Code will be included in the appendix of the final report.

In addition to this randomisation, schools will be randomised into one of two groups for the RQ6 dosage analysis. Each group will be offered different programme lengths in Years 10 and 7. Group 1 will have a 20-week programme in Year 10 and a 10-week programme in Year 7. Group 2 will have a 15-week programme in both Years 10 and 7.

Statistical analysis

The main analyses will be intention-to-treat and will follow the October 2022 EEF Statistical Analysis Guidance[10]. It will not be possible to blind analysts to group allocation due to difference in data structure between groups i.e. tuition dosage only recorded for intervention pupils.

Primary analysis

The primary outcome measure of GCSE maths fractional grade will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Year 11 pupils included in the evaluation.

[8] 27.4% of secondary students were known to be eligible for FSM in the 2024/25 academic year, PP was received for 27.5% of secondary students in the financial year up to March 2025 and all students eligible for FSM are entitled to PP

[9] https://educationendowmentfoundation.org.uk/education-evidence/using-the-toolkits

[10] https://educationendowmentfoundation.org.uk/projects-and-evaluation/evaluation/evaluation-guidance-and-resources/evaluation-design

Secondary analysis

For all research questions where Year 10 or Year 7 pupils are noted as included in the analysis population, this will be regardless of the length of programme that they are exposed to.

For all models including FSM as a variable, this will be defined as a binary variable indicating if the pupil has been recorded as eligible for free school meals on any census day in the last six years, sourced from the NPD (EVERFSM_6_P).

RQ2: The secondary outcome of 'achieved grade 4 or higher in GCSE maths' will be used as the dependent variable in a logistic multilevel model with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Year 11 pupils included in the evaluation.

RQ3: The secondary outcome of Access Mathematics Test score will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Year 10 pupils included in the evaluation.

RQ4: The secondary outcome of Access Mathematics Test score will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Year 7 pupils included in the evaluation.

RQ5a: The primary outcome of GCSE maths fractional grade will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Year 11 pupils included in the evaluation who are eligible for FSM. An additional model will be run repeating RQ1 but with the addition of an interaction term of intervention by FSM eligibility.

RQ5b: The secondary outcome of Access Mathematics Test score will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Year 10 pupils included in the evaluation who are eligible for FSM. An additional model will be run repeating RQ3 but with the addition of an interaction term of intervention by FSM eligibility.

RQ5c: The secondary outcome of Access Mathematics Test score will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Year 7 pupils included in the evaluation who are eligible for FSM. An additional model will be run repeating RQ4 but with the addition of an interaction term of intervention by FSM eligibility.

RQ6a: The secondary outcome of Access Mathematics Test score will be used as the dependent variable in a linear multilevel model with offered dosage as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level. The analysis population will be Year 10 pupils included in the evaluation.

RQ6b: The secondary outcome of Access Mathematics Test score will be used as the dependent variable in a linear multilevel model with offered dosage as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level. The analysis population will be Year 7 pupils included in the evaluation.

RQ7: The primary outcome of GCSE maths fractional grade will be used as the dependent variable in a linear multilevel model with received dosage (number of sessions attended) as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level. The analysis population will be intervention group Year 11 pupils included in the evaluation.

RQ8: The secondary outcome of average % weekly absence will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and year group, and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Years 11, 10 and 7 pupils included in the evaluation.

RQ9a: The secondary outcome of Maths and Me mathematical self-perception subscale will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and year group, and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Years 11, 10 and 7 pupils included in the evaluation.

RQ9b: The secondary outcome of Maths and Me enjoyment of mathematics subscale will be used as the dependent variable in a linear multilevel model with intervention as a predictor, controlling for baseline scores and year group, and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis population will be Years 11, 10 and 7 pupils included in the evaluation.

RQ10: The primary outcome of GCSE maths fractional grade will be used as the dependent variable in a linear multilevel model with mode of delivery as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level. The analysis population will be intervention group Year 11 pupils included in the evaluation.

RQ11: The primary outcome of GCSE maths fractional grade will be used as the dependent variable in three linear multilevel models with intervention as a predictor, controlling for baseline scores and accounting for clustering of pupils at school level as well as school-by-treatment interactions. The analysis populations for the three models will be Year 11 pupils included in the evaluation who are estimated by their school for i) grade 3, ii) grade 4 and iii) grade 5. An additional model will be run repeating RQ1 but with the addition of an interaction term of intervention by estimated grade.

Estimation of effect sizes

Effect size will be calculated as Hedge's g effect sizes, using total variance from a model without covariates. 95% confidence intervals will be computed for the effect size.

Analysis in the presence of non-compliance

Pupils who have attended at least 10 of 20 tutoring sessions will be regarded as compliant. This benchmark has been used by Action Tutoring for its own impact reporting for several years and

is based on attendance patterns as the programme has developed. Pupil participation at tutoring sessions will be collection by Action Tutoring and shared with NFER. A complier average causal effect (CACE) analysis will be undertaken using a two stage least squares instrumental variable approach. This will only be conducted for the primary analysis i.e. the Year 11 cohort.

Missing data analysis

The number and proportion of pupils with missing GCSE maths fractional grades (primary outcome variable) will be reported. If the percentage of pupils missing this outcome variable is less than 5%, no further missing data analysis will take place. If the percentage of pupils missing is greater than 5%, a logistic multilevel model will be run with a binary outcome variable indicating GCSE maths fractional grade. This model will include the intervention variable as a predictor, along with pupil and school characteristics (to be defined in the Statistical Analysis Plan (SAP)). Any of the additional variables which demonstrate a significant association with missingness will be included as a covariate in a rerun of the RQ1 analysis as a sensitivity check.

Implementation and process evaluation (IPE) design

Our IPE follows EEF's Implementation and Process Evaluation Guidance and complements our impact evaluation through exploring the conditions which support the effective implementation of the Action Tutoring programme and the impact of the programmes on pupils. This is an effectiveness trial (for Years 10 and 11), so there is an emphasis on whether the programme works when delivered at scale and whether contextual variation influences implementation. These themes are reflected in the research questions. For the Year 7 programme, there is more emphasis on whether there is evidence of promise for this age group.

Research questions

IPEQ1: To what extent is Action Tutoring delivered as intended? [Fidelity and adaptation]

The following measures of fidelity were agreed with Action Tutoring:

- 65% of the cohort are eligible for Pupil Premium 85% are not receiving private tuition
- Selected students are working at maths GCSE grades 3-5 upon joining the programme (some Y10s might be working at grade 2)
- Baseline and (for Year 11) intermediate assessments are taken and used to produce gap reports
- Volunteer tutors hold or are pursuing a maths-related degree or have at least grade B at A Level maths, use the structured workbooks, and attend 80% of their sessions
- Staff roles are in place (link teacher, programme coordinator)
- Tutoring is delivered in small groups of no more than three pupils
- For 20-week programme, pupils attend at least 10 sessions
- Training is attended by tutors and Programme Coordinators.

With these in mind, the following will be explored.

1. Was the programme delivered as intended (overall and for the different year groups)?

2. How were pupils selected? What criteria were used for pupil selection?

3. Does the training and materials provided enable tutors to deliver the programme as intended?

4. What were the facilitators and barriers associated with being able to deliver the programme as intended? Do they vary for different types of pupils (e.g. FSM/PP-eligible)? What has worked well/less well? How could barriers be overcome?

5. If fidelity was not achieved, why? What adaptations were made?

This research question will provide key information about the extent to which the programme was implemented with fidelity (i.e., as intended) within schools. The programme is highly prescriptive. Programme Coordinators follow a handbook for how sessions should be coordinated. Tutors follow a workbook which highlights how sessions should be delivered and pupils are provided with a parallel workbook which follows the national curriculum. Along with these factors, we will explore other facilitators to delivery with fidelity. Action Tutoring expect, and have experienced in the prior delivery, few major variations to delivery with the exception of those to deal with tutor or pupil absence. However, in cases where fidelity was not achieved, we will explore the barriers to delivering with fidelity, any adaptations that were made, and the reasons for those adaptations.

IPEQ2: What are the moderators and contextual factors that influence the effectiveness of Action Tutoring? [Context and moderators]

2.1 What are perceived as the most significant moderators?

Which moderators are perceived by those involved in the programme as being most influential in terms of the effectiveness of the programme? The moderators might include the following:

- Pupil/family background (FSM/PP)
- Pupil starting point and the GCSE grade they are working at when they join
- Tutor availability, tutor background/experience, and tutor training (including any specific training for Y7 delivery)
- Quality of curriculum materials (it will be important to include a focus on Y7 as the materials are from Action Tutoring's Y6 programme so are not tailored for Y7) and tutor use of curriculum materials
- Existing/other practice (including alignment with other support for Y7 transition, particularly for pupils who were low attaining at Key Stage 2/ vulnerable to the transition)
- Mode/ model of delivery, group size, group composition, dosage/ length of programme
- Student engagement and motivation, and student attitudes to school

- Staffing and staff roles (including the school link teacher and Action Tutoring Programme Coordinator) and interactions e.g. between school/ Action Tutoring and between tutors/ pupils)
- School contextual factors (school size, location, access to facilities and resources, staff capacity).

2.2 What can be learned about moderators to inform future scale-up of the programme?

NFER and Action Tutoring have identified the factors listed above as key contextual and programme-related moderators. Action Tutoring specifically highlight the vital role of the Programme Coordinator and the school link teachers (in terms of their level of authority, capacity and communication) for facilitating implementation of the programme. We will therefore explore the extent to which these factors moderate the effectiveness of the programme across different year groups to determine those most important for supporting successful delivery of the programme and achieving the intended outcomes. The Year 7 programme is utilising resources from the Year 6 programme so we will specifically focus on the appropriateness of the training and curriculum materials for delivering the Year 7 programme. Aligned with this question, the impact evaluation will explore differences in the effectiveness of the programme based on the delivery model (online or in-person) and pupils' prior attainment. Understanding which factors are key for achieving impact will support future iterations of the programme and guidance for effective delivery within schools.

IPEQ3: To what extent have pupils engaged with Action Tutoring? [Pupil responsiveness]

3.1 How do Action Tutoring/ schools engage pupils? Have they engaged the target pupils?

3.2 Have pupils enjoyed tutoring sessions? What have they liked/ disliked and why?

3.3 Have pupils attended tutoring sessions? What factors have influenced attendance (including the timing of the tutoring sessions and the timing of tutoring in the year)?

3.4 Has the tutoring met the needs of the target pupils?

3.5 How is student engagement monitored?

3.6 What are the reasons for drop-out?

This research question will add to the impact evaluation's compliance analysis through providing insights regarding the factors which support and encourage student participation in the programme or present a barrier to participation which in some cases may ultimately lead to student drop-out.

IPEQ4: What is the perceived impact of the intervention? [Perceived impact]

4.1 What is the perceived impact of the intervention for tutors (understanding and mastery of key skills and qualities for effective tutoring, improved confidence as a tutor, use of resources, support for Action Tutoring's mission)?

4.2 What is the perceived impact of the intervention for pupils (attainment, participation in maths lessons, growth mindset, confidence, skills, enjoyment, attendance). Additionally

for Year 7: greater belief in ability to meet academic expectations at secondary school/easier transitions)? Are there different perceived outcomes for pupils eligible for FSM/PP/other pupils?

4.3 What is the perceived impact of the intervention for schools (confidence in tutoring, capability of implementation e.g. selection of pupils, enabling high attendance, supporting pupil engagement, advocates of mission)?

4.4 Do there appear to be any unintended consequences or negative effects?

This research question will investigate the extent to which the intended short-term outcomes outlined in the programme ToC are achieved for tutors, pupils and schools. IPEQ4.2 aligns with the impact evaluation, which will assess the effectiveness of Action Tutoring for promoting maths attainment across the year groups and by student characteristics (i.e., disadvantage, dosage). Impact of Action Tutoring prior to this trial has largely focussed on attainment measures – this trial aims to provide learning on non-academic outcomes as well. To fulfil this, and aligned with the secondary outcome measure, the IPE will explore the impact of Action Tutoring on pupils' enjoyment of maths, their confidence and growth mindset. The impact evaluation will also assess the effectiveness of Action Tutoring for reducing absence, which will further be explored by IPEQ4.2 and 4.3.

In addition, we will explore any unintended or negative effects of the programme which are not identified within the ToC but which may be important considerations for schools, such as increased workload resulting from delivering the programme. We will explore whether any unintended consequences are related to the programme specifically or are linked to the requirements of participating in the trial.

IPEQ5: What is Business as Usual? [Programme differentiation; monitoring of the control group]

5.1 Prior to the Action Tutoring intervention, what strategies/ interventions did schools use to boost GCSE maths grades?

5.2 How is Action Tutoring different from normal practice?

5.3 Has Action Tutoring added to or replaced other maths teaching time?

5.4 What does practice look like for control pupils in the absence of Action Tutoring? Have schools changed usual practice for this group because Action Tutoring is being implemented for other pupils?

This research question will help us to understand schools' usual practice for supporting GCSE pupils prior to engaging with Action Tutoring, and the extent to which Action Tutoring differs from schools' usual practice. We will explore whether intervention group pupils receive Action Tutoring support instead of, or as well as, schools' usual practice support for boosting GCSE grades, as receipt of both forms of support are likely to have implications for the impact demonstrated by these pupils. We will explore the nature of support that control group pupils receive over the course of the trial, including whether schools modify their support for control group pupils to account for them not receiving the Action Tutoring intervention. These questions

will support us to further understand differences between usual practice and the intervention, and attribute differences in pupils' outcome to the intervention.

IPEQ6: What is the cost of implementing the Action Tutoring intervention? [Cost]

6.1 What costs have been incurred by the school (over and above usual practice)? E.g. tutoring fees, staff time (training, preparation, delivery), teacher cover, additional resources required to implement the programme (physical/ digital). How do schools fund these costs?

6.2 What is the actual usual cost of the intervention (outside of the trial)? Are costs (actual and subsidised) perceived as affordable for schools?

6.3 Are any adaptations suggested by schools to help reduce costs e.g. any changes that could help reduce input/time/resources required to the run the programme well?

This research question will support us to understand the affordability of the programme compared to usual practice, and how schools fund the associated costs.

IPEQ7: Is the Year 7 programme feasible to deliver and showing evidence of promise? [Feasibility, Evidence of Promise]

7.1 Is there a perceived need for this programme for Year 7?

7.2 Are any changes to the programme required for delivery to Year 7 (e.g. curriculum materials)?

7.3 Is the Year 7 programme showing promise in terms of outcomes in the Theory of Change?

This research question will specifically explore the Year 7 programme as it is in an earlier stage of development. Findings from this research question will inform whether there is a perceived need for a Year 7 tutoring programme, the suitability of the Year 6 resources for Year 7 pupils and any iterations which should be made to these and the programme more widely to improve their relevance/ appropriateness for Year 7 pupils in the future. Findings will also provide insight into the extent to which the intended outcomes in the ToC are being achieved for Year 7 pupils and inform the further development of the Year 7 programme ToC.

The purpose of the IPE

Except for the IPEQ7 (which is relevant to the Year 7 programme only), all other research questions will be explored across all year groups (Years 7, 10 and 11) by asking participants to note any differences by year group. The questions are designed to test the mechanisms outlined in the programme ToCs. The IPE will explore the extent to which the inputs and outputs set out in the programme ToCs are delivered as intended (IPEQ1) and will gain views on the perceived quality of these, as well as facilitators and barriers for implementing the programmes. We will explore the extent to which pupils have engaged with the programmes, again identifying perceived facilitators and barriers to pupil engagement (IPEQ3). The IPE will explore the extent to which the short-term outcomes outlined in the programme ToCs are achieved at the tutor, pupil and school-level, as well as identifying further unintended or negative outcomes which are not identified by the ToCs (IPEQ4). We will also explore any differential impact of the programmes for FSM/ PP pupils.

A key part of the IPE will be to explore the most significant factors which either facilitate, or create a barrier for, the pathways between input/ outputs and outcomes, and influence the strength of the outcomes that are achieved (IPEQ2). The IPE will collect information on the types of support that schools deliver to pupils in the control group in the absence of Action Tutoring, and any additional support received by pupils in the intervention group, to understand the value-add of the Action Tutoring programmes and provide contextual information to support interpretation of the impact evaluation (IPEQ5). The IPE will also collect data on the financial and time-related costs associated with implementing the programmes (IPEQ6).

The IPE will add to the evidence of impact of specific approaches to tutoring, for example the use of volunteer tutors, online/ face-to-face delivery, the importance of having a coordinator to facilitate tutoring sessions, and strategies to promote engagement [elements of IPEQ2].

The Year 7 programme aims to support pupils who have not fully secured Key Stage 2 skills and topics before transitioning to secondary school. It is trialling the use of curriculum materials developed for Year 6, with the aim of ensuring that Year 7 pupils secure a grasp of high-priority Year 6 topics that will in turn enable them to access and master Key Stage 3 content. Given that the Year 7 programme is in an earlier stage of development, the IPE includes research questions specific to this programme which align more with EEF's pilot framework. Therefore, in addition to exploring the IPE effectiveness trial dimensions (IPEQ1 – 6), IPEQ7 will explore the feasibility of the programme and evidence of impact of this programme for Year 7 pupils. This research question will provide information on the perceived need for the Year 7 programme and the potential of the programme to achieve the outcomes set out in the Year 7 ToC. Learning from this research question will inform future development of the programme, including the ToC, content and materials which have been designed using the existing, well-developed Key Stage 2 tutoring programme.

Research methods

We are planning to use a variety of qualitative and quantitative research methods for the IPE, as detailed below and in Table 5. The quantitative methods will allow us to capture the views and experiences of all schools/ participants involved in the programme, while the qualitative methods will provide in-depth insights across a sample of settings. These methods were confirmed following the project IDEA workshop and set-up meetings which gave the evaluation team the opportunity to speak with Action Tutoring in-depth about the programme and the key areas of interest for the IPE.

Set-up (Autumn 2024)

The IDEA workshop and set-up meetings enabled us to: gain an understanding of the programme and construct the TIDieR framework; refine the ToC to guide the RQs, analysis and reporting; and agree compliance measures. For context, training and curriculum materials were reviewed.

Action Tutoring Management Information (MI) data (Monthly, from the start of delivery)

Our monthly review of MI data from Action Tutoring will allow us to regularly monitor compliance with the programme. This will be reported cumulatively. To support the impact analysis, we will receive the following data:

- Date of sessions

- Time of day of sessions
- Whether the sessions are coordinated in-person or virtually
- Whether the tutor delivers the sessions in-person or online
- Group size
- Session duration
- Total number of tutors identified as working with each pupil / number of sessions a pupil and tutor work together.

Interviews

Delivery team interviews (Autumn 2025, Summer 2026)

At baseline, an NFER researcher will lead two online group interviews with various personnel at Action Tutoring to explore programme set-up, recruitment of schools and tutors, tutor training and QA, the role of Programme Coordinators, and their perceptions of schools' views on potential implementation barriers and facilitators (e.g. mode of delivery). Two online group interviews will also be held at the end of the programme which will explore implementation, fidelity, and impact. At each point, two group interviews will be held to reflect and cover different roles amongst the delivery team.

Programme Coordinator interviews (Spring/Summer 2026)

An NFER researcher will conduct two online (Microsoft Teams) group interviews, each with six to eight Programme Coordinators, at the end of the Year 10/ 11 and Year 7 programmes to explore their role, relationships with schools and pupils, and gain views and experiences of implementation successes and barriers.

Online surveys

Pupil surveys (Autumn 2025, Spring and Summer 2026)

A baseline and endpoint survey will include the Maths and Me survey questions (Adelson and McCoach, 2011) (secondary outcome measure). This comprises two scales which measure pupils' mathematical self-perceptions and their enjoyment of maths. Endpoint surveys for intervention group pupils will also explore their views and experiences of the tutoring they have received (e.g. relationship with tutor, mode of delivery, their engagement and the impact they feel their participation has had). The administration of these large-scale online surveys will allow us to collect data from all pupils who have participated in the trial and enable us to report pupils' own perspective of the benefits of the Action Tutoring intervention, alongside the primary outcome and school staff/ tutor perspectives.

The baseline pupil surveys will be administered online by Action Tutoring Programme Coordinators in Autumn 2025 with all Year 10 and 11 pupils, alongside their baseline assessment. In Spring 2026, schools will be sent links to the baseline survey for all Year 7 pupils

(intervention and control) and asked to administer the survey (there is no baseline assessment administered by Action Tutoring as Key Stage 2 maths scaled scores are used).

Endpoint pupil surveys will be administered online by NFER Test Administrators in Spring 2026 for all Year 10 and in Summer 2026 for all Year 7 pupils (alongside their endpoint assessment). Surveys will be administered to both intervention and control group pupils. In Spring 2026, schools will be sent links to the endpoint survey for all Year 11 pupils (intervention and control) and asked to administer the survey (there is no endpoint assessment administered by Action Tutoring as GCSE maths scored are used).

Where schools are asked to administer the online pupil surveys, the process will be discussed to meet the needs of individual schools (i.e. bringing groups of pupils together in an IT suite at a time that best suits the school). NFER will provide schools with clear communication and guidance for survey administration and will be responsive and flexible to school needs to help facilitate full participation. Regular updates and/or reminders will be sent to schools to maximise response.

Link teacher survey (Autumn 2025/Spring 2026, Summer 2026)

An initial online survey administered to all link teachers in all schools will capture details on their role, capacity, pupil selection (target population/ proportions of FSM/ PP), pupil and parental engagement, relationships with Programme Coordinators, and plans for implementation. The initial Year 10 and 11 link teacher survey will be administered in the autumn 2025, while the Year 7 link teacher survey will be administered early in 2026, closer to the Year 7 delivery. At endpoint, we will seek their views on implementation successes and challenges. Both surveys will include questions on usual practice to understand what support control pupils are receiving in the absence of tutoring and what intervention pupils are missing due to participation in the programme.

Proforma for drop-out pupils (Spring 2026)

Schools will be sent a link to a short online proforma halfway through the 20-week programme to distribute to all pupils in Years 10 and 11 who dropped out of the programme (those who did not attend sessions after randomisation and those who only attended one or two sessions) to explore their reasons for drop out. Administering the proforma at mid-point seems appropriate, as Action Tutoring have suggested most dropouts occur quite early in the programme, so administering it later might make it harder to collect responses and for pupils to recall their reasons for dropping out. This proforma will provide important information on pupils' perspectives and experiences regarding the barriers to participation in the intervention.

Maths teacher survey (Summer 2026)

A survey of maths teachers (estimated up to six per school) who teach the pupils involved in the trial will gather perceptions of impact of the tutoring on pupils' participation in class, confidence and enjoyment in maths, and their progress and achievement. We will explore perceptions of the curriculum materials and the length/ timing of tutoring programme. We will also ask about their usual practice to add to our understanding of programme differentiation. The Head of Maths in each school will be asked to distribute links to the survey to teachers and to encourage response.

Tutor survey (Summer 2026)

An online survey for all tutors involved in the trial will explore their views and experiences of the training and optional CPD provided to them by Action Tutoring, pupil engagement, curriculum materials (content and quality), implementation (e.g. mode of delivery, access to technology/ resources) and perceived outcomes for themselves and pupils. The survey will be administered by NFER, including a number of reminders to maximise response.

Case study visits (Spring/Summer 2026)

NFER researchers will carry out visits to eight case-study schools, to add depth to the survey data and the provide detailed data on the IPE dimensions. A particular focus will be on contextual factors and mechanisms that may influence outcomes. Case-study schools will be purposively sampled to reflect different types of school in different locations (urban/ rural) and the different Action Tutoring delivery models. We will seek access to Action Tutoring's data to support sampling. Interviews will take place with the following staff: the link teacher; up to two maths teachers; and up to two volunteer tutors linked to each school. If staff or tutor interviews cannot occur during the visit they will be conducted online shortly after the visit via Microsoft Teams.

Across the eight schools, we will carry out up to 16 focus groups with pupils (two per school), capturing views from pupils in Y7, 10, 11 separately. We will conduct one Year 7 focus group in each school (eight in total) and either a Year 10 or Year 11 group (four of each in total). Up to six pupils will be invited to participate in each group. Pupils will be selected by school staff, but they will be guided by NFER to select based on certain criteria e.g. background characteristics, different levels of attendance and engagement, and different starting points in terms of maths attainment. Focus groups will be set up by a staff member in schools. They will be carried out in a semi-public space (e.g. library), supervised by a member of school staff (in the same room/in sight).

We will administer an online cost proforma with these schools to inform the cost analysis. To thank them for participating, each case-study school will receive £150 in recognition of their contribution to the research.

IPE Analysis

Qualitative data

Interviews and focus groups will be recorded and fully transcribed and coded using the qualitative data analysis software MAXQDA. High-level deductive coding, based on the IPE dimensions and ToC, will first be conducted to thematically code the data, followed by in-depth inductive coding to identify the key findings within each of the themes. Data will also be sub-coded based on the different year groups, to support us to explore differences in implementation and impact of the intervention across the three different year groups. We plan to use the same coding framework across each of the qualitative data sources to support us to consolidate the findings relating to each IPE dimension. Transcripts will be labelled with interviewees roles and for case studies, an anonymised identification code, to help us report perspectives across different participants and to triangulate experiences within case study schools.

Quantitative data – MI data, online surveys and drop-out proforma

Survey response data will be exported from Questback and quality assured prior to its analysis, with each data source stored in a separate file. All quantitative analysis (descriptive and inferential) will be carried out using appropriate R packages. The required analyses will be set out in detail within the SAP (see impact analysis section earlier for more detail) and will include both the descriptive statistics and inferential statistics required to answer the IPE research questions, including cross-tabulations of key potential moderators (e.g. FSM eligibility, delivery model). We will compare pupils' responses on the Maths and Me measure at baseline and endpoint to explore changes in maths self-perception and confidence over the course of the programme, reported separately for intervention and comparison pupils.

Triangulation of qualitative and quantitative data

We plan to design the surveys and interview/focus group topic guides simultaneously to ensure alignment across the instruments, thus supporting the qualitative data to add insight to the quantitative data. Therefore, data relating to the same IPE dimension and RQs will be gathered using more than one method (see Table 5). Some similar questions will also be asked across survey respondents/interview participants to help us explore issues and gain a variety of perspectives. We will develop an analysis framework outlining how the themes generated from the qualitative data analysis align with the questions from the surveys. This will support us to integrate data relating to each of the IPE dimensions and use the qualitative findings to guide our interpretation of the quantitative findings.

Linking IPE and impact analysis

The findings from the IPE analysis will be used in interpreting the results of the quantitative impact analysis, helping to explain, validate or challenge results. We will explore how faithfully the intervention is implemented and whether it is sufficiently distinct from BAU to make a difference to outcomes. We will also use the IPE to explore which additional factors moderate the impact of the intervention. Impact and IPE findings will be integrated thematically in the report. The combined insights will enhance understanding of the impact of the Action Tutoring programme, providing depth, context and meaning and leading to strengthened conclusions.

Analysis quality assurance

All analysis undertaken by NFER throughout a project is guided by quality assurance processes. To assist with QA and develop good working practices on projects, analysts work to a set of clearly defined principles that govern good coding practice and clear project structure. Quantitative analysis is reviewed by a QA Analyst, exploring: if the analyst has made reasonable and correct assumptions in line with what is set out in the Analysis Plan; whether the data has been processed correctly to ensure the correct records and measures are analysed; if the analysis has been carried out correctly as per the Analysis Plan; and whether the syntax works as intended. Outputs are reviewed by the project statistician.

Qualitative analysis is monitored for accuracy and veracity by the trial manager/IPE lead (for example, checks of coding in qualitative analysis software).

Table 5 IPE methods overview

Research methods	Data collection methods	IPE dimension(s)	IPE RQ(s) addressed	Sample size and sampling criteria	Data analysis methods
MI data	Monthly reviews of MI data	Dosage; Reach; Compliance; Fidelity and adaptations; Pupil responsiveness	1, 3	All schools (N =62)	Statistical analysis
Online interviews/ focus groups	Delivery team interviews (autumn 25/summer 26); Programme Coordinators focus group (summer 26);	Fidelity and adaptations; Context and moderators; Quality; Pupil responsiveness; Perceived impact. Feasibility, Evidence of promise (Y7 only)	1 – 4, 7	Two group interviews at both timepoints covering various roles within the delivery team. Two focus groups each of 6 – 8 programme coordinators	Deductive and inductive coding; Thematic analysis
Online surveys	Pupil baseline survey	For impact secondary outcomes; IPE perceived impact	4	Intervention and control pupils in all schools (N = up to 5208)	Statistical analysis
	Pupil endpoint survey	Pupil responsiveness; Perceived impact.	3-4	Intervention and control pupils in all schools (N = 5208)	Statistical analysis

Research methods	Data collection methods	IPE dimension(s)	IPE RQ(s) addressed	Sample size and sampling criteria	Data analysis methods
		Evidence of promise (Y7 only)			
	Link teacher survey	Fidelity and adaptations; Context and moderators; Perceived impact; Programme differentiation; Monitoring of control group; Cost. Feasibility, Evidence of promise (Y7 only)	1, 2, 4 - 7	Link teachers in all schools (N = up to 186)	Statistical analysis
	Drop-out student proforma	Pupil responsiveness	3	All drop-out pupils in all schools (N = unknown)	Statistical analysis
	Maths teacher survey	Perceived impact; Programme differentiation; Monitoring of control group. Evidence of promise (Y7 only)	4, 5, 7	Maths teachers of intervention pupils in all schools (N = up to 372)	Statistical analysis

Research methods	Data collection methods	IPE dimension(s)	IPE RQ(s) addressed	Sample size and sampling criteria	Data analysis methods
	Tutor survey	Dosage; Fidelity and adaptations; Context and moderators; Pupil responsiveness; Perceived impact; Cost. Evidence of promise (Y7 only)	1 – 4, 7	All tutors (N = approximately 1,860)	Statistical analysis
Case studies	Interviews with school staff and tutors. Focus group with pupils.	Dosage; Reach; Fidelity and adaptations; Context and moderators; Pupil responsiveness; Perceived impact; Programme differentiation; Monitoring of control group; Cost. Feasibility, Evidence of promise (Y7 only)	1 – 7	Eight schools, sampled to cover different school types, locations and AT delivery models. Per case study school, interviews with a link teacher (N = 1), maths teachers (N = 2) and tutors (N = 2). Focus groups with Y7 pupils (all 8 schools); Y10 (N = 4 schools) and Y11 (N = 4 schools). Per focus group, N ≈ 6 pupils.	Deductive and inductive coding; Thematic analysis

Cost evaluation design

In line with EEF's latest cost evaluation guidance, we will design and conduct a cost evaluation that robustly estimates the cost per-pupil-per-school-year of participating in the Action Tutoring Programme, incorporating both financial and time costs. Data for the cost evaluation will be collected via planned IPE activities (e.g. interviews with Action Tutoring, staff surveys, and via a specific cost proforma for case-study schools) to minimise burden for schools. This data will be combined with existing tutoring session delivery data for each school.

Costs will be estimated and compared for the programme as it is implemented in the study and for usual practice outside of the trial (in the absence of trial subsidisation). We will work with Action Tutoring to clearly understand usual practice outside of the trial as we believe usual practice does involve some subsidisation and we will need to be clear how much of the trial subsidisation is usual practice. Only additional resources associated with implementing the programme will be included.

The primary cost categories under scrutiny will include personnel costs, programme costs, equipment and other resources costs, and the cost of other programme inputs. Each will be separately estimated for pre-requisites, start-up and recurring costs. In addition, costs will be estimated separately for the implementation in Y7 (early stage of development) and in Y10 and Y11 (the existing programme). In line with the EEF guidance, time costs for volunteers will not be included.

Integrated nimble trial

This study presents an opportunity to incorporate a nimble trial within the intervention arms. NFER has formed a partnership with the Behavioural Insights Team (BIT) who will lead on this element of the project. The nimble trial will explore the impact of a social belonging intervention on pupils' sense of belonging in tutoring sessions, maths attainment, attendance at tutoring sessions, and their self-perceptions related to maths. Further details about the nimble trial design can be found in Appendix D.

Ethics and registration

This evaluation will be conducted in accordance with the NFER Code of Practice. All of NFER's projects abide by its Code of Practice, which is in line with the Codes of Practice from BERA (the British Educational Research Association), MRA (the Market Research Association) and SRA (the Social Research Association), among others. NFER is committed to the highest ethical standards in all of its activities and ethical considerations are embedded in its detailed quality assurance processes. At the start of the trial, a checklist relating to ethics was discussed by the project team to consider if the trial deviates from the Code of Practice. NFER is satisfied that the project meets the robust principles and practices that govern all of NFER's activities, including those that relate to ethical conduct. Therefore, no further external ethical approval is considered necessary.

This trial will be registered at the ISRCTN registry and the trial registration details will be updated in this protocol as soon as it becomes available. The trial registry will also be updated with outcomes at the end of the project.

Each participating school's headteacher will provide their agreement to participate in the trial by signing an Action Tutoring School Partnership Agreement and an evaluation Memorandum of Understanding (MoU) that outlines the responsibilities of all parties involved in the trial.

Action Tutoring will share a parent letter and withdrawal form with schools to be sent to parents/carers of all pupils that schools intend to nominate for participation in the trial. Through the withdrawal form, parents/carers will have the opportunity to withdraw their child from the evaluation and associated data processing at any stage of the trial.

A separate opt-in agreement process will be used for the pupil focus groups in case studies and will only apply to those selected to participate. Since pupils participating in the focus groups are under 16, we cannot assume that all pupils will have the capacity to provide fully informed consent to participate. In addition, as the focus groups involve audio recordings, it is especially important to ensure that parents/carers have the option to specifically agree to their child participating in this evaluation activity. We will, therefore, provide parents/carers with a written information sheet which will contain full details about the focus group and what their child will be asked to do. Parents/carers will then be asked to provide written opt-in agreement for their child to be invited to participate in the focus group, by returning a consent form to the school, who will then pass this information on to the research team.

Pupil participation in the focus groups is voluntary, therefore even if a parent/carer has agreed for their child to participate, their child can still choose not to take part. Age-appropriate information about the focus groups will be provided to pupils at the same time as parents/carers receive information about the focus groups to allow them to discuss participation together. The researchers will also read this information to pupils at the beginning of the focus group to ensure pupils understand it and have the chance to ask any questions. If at any point a pupil decides that they would prefer not to participate, then they will be able to return to their class. Prior to beginning the focus group, the researchers will agree some ground rules for the group with the pupils and have a discussion with them about the types of scenarios in which we would need to break confidentiality, to ensure they fully understand what this means.

Tutors will be informed of their rights to withdraw from the evaluation and data processing via a targeted privacy notice found here.

Nimble Trial

All BIT trials need to have been through BIT's internal research ethics process.

This is a light-touch intervention that is being delivered by Action Tutoring tutors within an existing tutoring context. Importantly, all of the tutors that will be overseeing the intervention will have been subject to screening and undergone appropriate safeguarding training delivered by Action Tutoring.

This trial does not alert participating pupils to the fact that they are taking part in the nimble trial. Parents of participating pupils will be made aware that their children are taking part in the effectiveness trial and the privacy notice for the effectiveness trial, includes reference to their possible involvement in nimble trials. The evaluation activities conducted for the nimble

trial adhere to and are covered by the ethics procedures of the effectiveness trial, as outlined above.

All participating tutors agreed to an initial Privacy Notice covering the Action Tutoring Effectiveness Trial that referenced their possible involvement in nimble trials.

Before launching the trial, BIT will register it at the Open Science Framework (osf.io). We will ensure the trial registry is updated with outcomes at the end of the project.

Data protection

All data gathered during the evaluation will be held in accordance with the Data Protection Act 2018 and General Data Protection Regulation (GDPR) and will be treated in the strictest confidence by NFER, Action Tutoring and the EEF. No school, practitioner or pupil will be named in any report arising from this work, nor will we include any information that might mean that someone else could identify them.

Action Tutoring and NFER are each independent data controllers for purposes of the data covered by this privacy notice. Action Tutoring makes decisions about data collection and processing for the delivery of the programme. NFER makes decisions about what personal data is collected and used for the evaluation and how it is processed. Three months after the publication of the final evaluation report (currently planned for summer 2027), pseudonymised matched pupil-level data will be added to the EEF archive, which is managed by FFT Education on behalf of the EEF and hosted by the Office of National Statistics (ONS). This will enable the EEF and other research teams to use the pseudonymised data as part of subsequent research through the ONS Approved Researcher Scheme. At this point, the EEF will become the data controller and will be responsible for taking decisions about the means and purposes of processing.

The lawful basis for processing personal data is covered by GDPR Article 6 (1) (f): Legitimate interests: the processing is necessary for your legitimate interests or the legitimate interests of a third party, unless there is a good reason to protect the individual's personal data which overrides those legitimate interests.

Legitimate interest assessments have been undertaken separately by Action Tutoring and NFER. It demonstrates that it is within Action Tutoring and NFER's interests to undertake the delivery of the programmes and their evaluation and to collect and analyse data on the effectiveness of implementation and outcomes. The delivery of programmes and the collection of data for evaluation fulfils Action Tutoring's charitable aim of providing high-quality tuition for pupils facing disadvantage, which cannot be undertaken without processing personal data, but any processing does not override the data subject's interests. The evaluation of programmes is part of NFER's core business purposes of undertaking research, evaluation, and information activities. The evaluation has broader societal benefits and will contribute to improving the lives of learners by providing evidence about the impact of tutoring in maths. The research cannot be done without processing personal data, but processing does not override the data subject's interests.

Additionally, Action Tutoring may need to use or share information it holds about pupils or their parents/guardians to comply with a legal obligation, such as to facilitate the investigation of a safeguarding concern with a local authority. In order to facilitate any additional processing of

information beyond which is outlined in this privacy notice, Action Tutoring will seek consent from the relevant individuals in order to do so.

NFER and Action Tutoring have signed a data sharing agreement that will govern the collection and sharing of personal data for this trial. This agreement includes a description of the nature of the data being collected, by whom, and how it will be shared, stored, protected and reported by each party.

In addition, Action Tutoring will provide schools with a Partnership Agreement which sets out the terms of the delivery arrangement, including data collection and processing obligations.

Schools will also be provided with a Memorandum of Understanding (MOU) relating to the evaluation, which explains how data will be collected and processed. Privacy notices for all relevant parties can be found here.

The following personal data will be collected for the purpose of this evaluation:

School staff:

- the names and contact details (school name and address, contact email address, telephone number and job role/title) of the school's key evaluation contact; Headteacher; Head of Maths; Business Manager; and link teacher nominated for each year group
- staff perceptions of the implementation and outcomes of the tutoring evaluation.

Action Tutoring will collect staff data via the Partnership Agreement and the Memorandum of Understanding (MoU) when schools sign up to participate in the project. NFER will collect staff perceptions about the programme and evaluation directly using online surveys. NFER will collect data from school staff via online interviews and in-person case studies (which will be audio recorded with the participant's agreement).

Pupils:

- name, date of birth, unique pupil number (UPN), gender, year group, class name, Pupil Premium status, access to private tuition, prior attainment (estimated GCSE grade when selected for programme, or key stage 2 attainment level)
- maths assessment scores for all pupils at the beginning of the programme
- Year 11 pupils' maths GCSE scores, collected by NFER from the schools and shared by NFER with Action Tutoring
- pupil attendance at tutoring sessions (including date of session and mode of tutoring delivery)
- pupil attendance at school in the academic year prior to tutoring and during the tutoring period
- maths assessment scores for pupils in Year 7 and 10 at the end of the programme

- Free School Meal status and Year 7 pupils' key stage 2 maths result from the NPD
- pupils' attitude towards maths via *Maths and Me* attitude survey at the beginning and the end of the programme
- pupils' views of the programme, if pupils are receiving tuition.

Action Tutoring will collect details of participating pupils from their school securely and share these with NFER. Action Tutoring will also share with NFER the data it collects on pupils participating in tutoring, including the tutoring sessions they attend.

Pupil views of tutoring and maths competence will be collected directly from them using online surveys and online maths assessments before and after the programme. Pupil focus groups will be conducted in person in a small number of schools by NFER researchers to gather pupils' perspectives on tutoring.

Tutors:

- full name and contact details
- qualifications
- tutor-level attendance at training and tutoring sessions

tutor perceptions of the implementation and impact of the programme.

Personal data will be collected directly from tutors by the Action Tutoring as part of the delivery of tutoring and shared with NFER. NFER will also collect tutor perceptions of the tutoring programme directly from the tutors.

Nimble Trial

BIT is a data processor for the nimble trial impact evaluation.The IPE is being designed and implemented by NFER (with input from BIT on the design) and is covered by the text above.

BIT is minimising the processing of personal data, or not processing personal data at all, wherever possible in this project.

- We are processing data for the impact evaluation against anonymised pupil and tutor IDs rather than names. We have performed a risk assessment analysis and concluded that we do not consider these data to be personal.
- We will be performing the randomisation of tutors using tutor ID numbers rather than names. NFER will share anonymised tutor IDs for all eligible tutors participating in the nimble trial with BIT. BIT will conduct the randomisation using anonymised tutor IDs and share the outcome with NFER. NFER will then match the anonymised tutors IDs (which are pseudo-anonymised for NFER but anonymised for BIT) with the tutor names and share the tutor-level allocation outcomes (two lists of tutor names, one for tutors in the intervention group and one for tutors in the control group) with Action Tutoring. Programme Coordinators will be responsible for ensuring that the appropriate materials and instructions are shared with tutors in the correct condition (intervention or control), so BIT will not need contact details for this purpose.

- We will be processing data for the impact analysis from NFER against pupil IDs and tutor IDs rather than names. Ahead of this data transfer, Action Tutoring will share with NFER each tutor's anonymised tutor ID, and their nimble trial randomisation assignment, linked to tutor names and other data. NFER will integrate these data into their relational database, and share with BIT the data we need for our impact analysis, against newly-generated tutor and pupil ID numbers rather than names. Both the pupil and tutor tables will contain the tutor's ID number, and BIT trial randomisation assignment.
- Action Tutoring will collect and share with NFER a small amount of personal data from pupils to enable BIT to measure pupil compliance and conduct a CACE analysis. The data collected will include:

    - Pupil name
    - Name of school attended by pupil
    - Pupil's tutor name
    - Pupil responses to activity
        - Collected via completion of the online activity on Smart Survey by Action Tutoring for activities completed by pupils receiving virtual tutoring. BIT will handover the online activity to Action Tutoring prior to the intervention start date, so that BIT does not receive personal data unnecessarily. Action Tutoring will share anonymised pupil responses with BIT.
        - Collected on paper by Action Tutoring PCs, who will take photos of the completed activity and share these with NFER, for activities completed in-school.

    NFER will anonymise the data and add it to the anonymised dataset that NFER shares with BIT for analysis. This will enable BIT to conduct a CACE analysis without receiving pupils' personal data.
- The data sharing activities between NFER and BIT are permitted as per the terms of the project evaluation agreement.
- BIT will collect and process a small amount of personal data from former Action Tutoring pupils (age 16+) participating in interviews to generate the intervention message content.

    This will include:
    - Name
    - Name of school attended by pupil
    - Contact email address and / or telephone number
    - Interview responses, which will be used to generate messages
    - Interviewee photograph. This will be included in the intervention activity alongside the message pupil name and audio recording (below), with consent.
    - Audio recording of the message. This will be included in the intervention activity alongside the written message, pupil name and photograph, with consent.

BIT is collecting and processing personal data solely for the purposes of proper delivery of the project. All personal data collected to generate content for the embedded nimble trial will be treated with the strictest confidence (except in the circumstances mentioned here) by BIT

and processed only in accordance with the requirements of the GDPR and the Data Protection Act 2018. Some data, including first name, photograph and an audio recording of the message may appear in the intervention materials shared with participating tutors and pupils. This will only be done with prior informed opt-in consent from the individuals who provide this content. BIT will not use the names of any school, practitioner or pupil, or any information that could lead to their identification in any report arising from this project.

Our lawful basis for processing personal data to generate the intervention content is consent. Participants will give clear consent for BIT to process their personal data for a specific purpose, which is outlined in an information sheet and privacy notice. The privacy notice contains contact details for the data protection officer and informs the reader of their legal rights, including the right to make a complaint at any time to the Information Commissioner's Office (ICO), the UK supervisory authority for data protection issues (www.ico.org.uk).

We take reasonable steps to protect personal information and follow procedures designed to minimise unauthorised access, alteration, loss or disclosure of personal information.

Taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, we implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk of processing.

We ensure that those who have permanent or regular access to personal data, or that are involved in the processing of personal data, are trained and informed of their rights and responsibilities when processing personal data. We provide such access on a need-to-know basis, and have measures in place which are designed to remove that access once it is no longer required.

Physical personal devices used by BIT are encrypted to protect personal data.

We have put in place procedures to deal with any suspected personal data breach. In the event of a data breach, BIT will notify participants and, where legally required, any applicable regulator.

The personal data that BIT collects will be accessed by a limited number of researchers and advisors in BIT's team working on this project.

Data archiving and deletion

Three months after the publication of the final evaluation report (currently planned for summer 2027), pseudonymised pupil-level data will be added to the EEF data archive. At this point, the EEF becomes the data controller and is responsible for taking decisions about the means and purposes of processing. The EEF archive is managed by FFT Education on behalf of the EEF and hosted by the Office of National Statistics (ONS). Further information is available in the privacy notice for the EEF data archive.

The NFER will delete any personal data within one year of publication of the final report, which is scheduled for summer 2027. At the latest, all personal data will be deleted by summer 2028.

BIT will delete any personal data within six months of publication of the final report, which is scheduled for summer 2027. At the latest, all personal data will be deleted by spring 2028.

Personnel

Table 6 Personnel

Name	Organisation	Roles and responsibilities
Stephen Welbourne	NFER	Project Director and impact evaluation lead – responsible for overall design and delivery of the trial
Sarah Lynch	NFER	Trial manager and IPE lead – responsible for the day-to-day management of the trial, and design and delivery of the IPE
Eleanor Bradley	NFER	IPE researcher
Ruth Staunton	NFER	Trial statistician – responsible for leading quantitative analysis for the main trial
Sophie Ainsby	NFER	Research Operations Lead – responsible for overall data collection and communication with settings
Jishi Jose	NFER	Operations manager – responsible for day-today operations, including coordinating data collection and serving as evaluation contact for settings
Gabi Cumming	Action Tutoring	School Partnership Lead — responsible for managing school communication during the recruitment period, including explaining trial requirements, collecting MoU signatures, and introducing school staff to the Action Tutoring Programme Department (who will oversee delivery)
Charlie D'Cruz	Action Tutoring	Head of Impact and Quality — overall project lead for the evaluation within Action

		Tutoring, acting as main point of contact for the evaluation team
Jen Fox	Action Tutoring	Chief Executive Officer — providing overall strategic leadership for delivery, including informing Action Tutoring Trustees about the evaluation
Lal Chadeesingh	BIT	Nimble Trial Project Director and Nimble Trial Intervention Design Lead - responsible for overall intervention design, delivery and day to day management of the nimble trial
Dr. Patrick Taylor	BIT	Principal Investigator (Nimble Trial) - responsible for nimble trial evaluation design and delivery
Callum O'Mahony	BIT	Policy Advisor - responsible for day to day operations, supporting intervention design and creating material for the nimble trial intervention
Niall Daly	BIT	Research Advisor - supporting nimble trial evaluation design and delivery
Lily Margaroli	BIT	Policy Advisor - supporting the creation of material for the nimble trial intervention

Risks

Table 7 Risks

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies
		Likelihood	Impact	
1	Insufficient schools recruited	Low	High	NFER will provide input into recruitment documentation. NFER can assist Action Tutoring with recruitment, if required, through a separate grant agreement. Pupil-level randomisation ensures all schools will participate in the intervention, making the evaluation more attractive.

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies
		Likelihood	Impact	
2	School/pupil attrition	Low	High	Clear communication with schools and parents explaining principles and expectations. Schools sign MoU with clear identification of requirements. Suggest Action Tutoring implement an 'Are you sure?' phone call after sign-up. One key contact per school. Termly keep-in-touch correspondence with schools. Schools will receive incentives payment for provision of evaluation data. Design ensures all schools will participate in the intervention making biased attrition impossible. Parent letter asks for parental support in encouraging their child to attend tutoring. Action Tutoring invests in a range of strategies to support strong pupil attendance and mitigate

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies
		Likelihood	Impact	
				pupils dropping out of programmes e.g. Programme Coordinators are trained to build rapport with pupils, encouraging school reward systems to motivate pupils, and regular communication between Programme Coordinators and link teachers to discuss attendance expectations.
3	Intervention is not implemented well	Low	Moderate	Clear information provided to schools explaining principles of the trial and expectations. Good communication with delivery

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies
		Likelihood	Impact	
				team to provide strong implementation. Process evaluation will monitor implementation.
4	Action Tutoring MI/analytics data incomplete	Moderate	Low	Existing relationships with Action Tutoring suggest data is thorough and complete. NFER will work with AT to specify the analytics/MI data required.
5	Action Tutoring baseline assessment data is incomplete	Moderate	Moderate	Discussions with Action Tutoring about the importance of data collection for overall trial. Pupil randomisation will not occur until we have this data.
6	Difficulty in securing response rates for IPE	Moderate	Moderate	NFER's operations department specialises in survey administration and maximising response rates. Ongoing communication with schools and reminders. Flexibility in

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies
		Likelihood	Impact	
				timing of data collection. Incentives for case-study schools.
7	Some schools unable to provide GCSE raw scores	Low	High	NFER is trialling this process on another large evaluation prior to this evaluation. We will have the option to use NPD to obtain GCSE grades for any schools unable to supply this data. This would affect timelines for final reporting so we would take this decision in consultation with EEF.

Timeline

Table 8 Timeline

Dates	Activity	Staff responsible/ leading
Nov '24	IDEA workshop; Project set-up meeting 1	Stephen Welbourne, Sarah Lynch, Sophie Ainsby
Dec '24	Project set-up meeting 2	Stephen Welbourne, Sarah Lynch, Sophie Ainsby

Dates	Activity	Staff responsible/ leading
Jan '25-March '25	Recruitment documents/privacy notices	Sophie Ainsby, Jishi Jose, Sarah Lynch, Action Tutoring
	Study protocol draft	Stephen Welbourne, Ruth Staunton, Sarah Lynch
Feb '25-Jul '25	Recruitment of schools / selection of pupils	Action Tutoring
	Design of IPE instruments	Sarah Lynch
Sep '25-Oct '25	Collection of Year 10/11 pupil data – share with NFER	Action Tutoring
	Baseline assessments and Maths and Me survey including two questions on sense of belonging for Year 10/11	Action Tutoring
	Randomisation for Year 10/11	Ruth Staunton
	IPE delivery team interviews	Sarah Lynch
	IPE link teacher survey Year 10/11	Sophie Ainsby, Jishi Jose
	Commence collection of MI data from Action Tutoring	Sophie Ainsby, Jishi Jose, Action Tutoring
Nov '25	Commence tutoring for Years 10/11	Action Tutoring
Dec '25	Collection of Year 7 pupil data – share with NFER	Action Tutoring
Jan '26	Year 7 baseline Maths and Me survey	Sophie Ainsby, Jishi Jose, schools
	IPE link teacher survey for Year 7	Sophie Ainsby, Jishi Jose
Feb '26	Year 7 randomisation	Ruth Staunton
	Year 10/11 pupil drop out survey	Sophie Ainsby, Jishi Jose
March '26	Commence tutoring for Year 7 15-weeks	Action Tutoring

Dates	Activity	Staff responsible/ leading
	IPE case-study selection	Sarah Lynch
	Design case-study instruments	Sarah Lynch
April '26	Commence tutoring for Year 7 10-weeks	Action Tutoring
	End-point Maths and Me survey including two questions on sense of belonging for Year 11	Sophie Ainsby, Jishi Jose, schools
	Commence case studies (to include Year 11s)	Sarah Lynch
April '26-May '26	End-point Access Maths assessment and Maths and Me survey for Year 10	Sophie Ainsby, NFER test administrators
May '26-Jun '26	IPE delivery team interviews, focus groups with Programme Coordinators and completion of case studies	Sarah Lynch
Jun '26-Jul '26	End-point Access Maths assessment and Maths and Me survey for Year 7	Sophie Ainsby, NFER test administrators
Aug '26	GCSE raw scores collected from schools for Year 11	Sophie Ainsby, Jishi Jose
Sep '26-Dec '26	Impact analysis	Ruth Staunton, Stephen Welbourne
	IPE analysis	Sarah Lynch, Eleanor Bradley
Jan '27-Feb '27	Report drafting – first draft end of Feb	Sarah Lynch, Eleanor Bradley, Ruth Staunton, Stephen Welbourne
March '27-Aug '27	Peer review and revisions to report prior to publication	Sarah Lynch, Eleanor Bradley, Ruth Staunton, Stephen Welbourne
Sep '27	Data archiving	Ruth Staunton

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Appendix A Action Tutoring Assessment

ACTION TUTORING
infinite potential

Secondary Maths Baseline

Name: _____

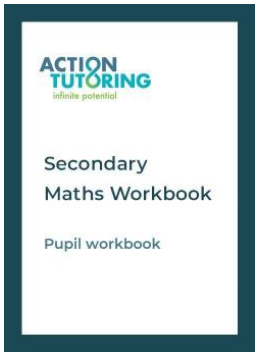
Action Tutoring introduction

We provide pupils with knowledgeable volunteers to tutor them for their GCSE exams in maths and/or English.

Your teachers feel that you are the right pupils to take advantage of the opportunity to work with a tutor and have some extra support. They believe that by doing an extra hour a week of focused work on maths you have the potential to achieve a higher grade in your GCSEs.

You are in this room because your teacher knows that you can achieve.

We provide you with workbooks, which are in line with the new GCSE structure. Our workbooks have recently been updated to ensure they contain questions similar to those that you will see in the exam.



Your tutors have a lot of knowledge in the subject you are working – use this knowledge by asking questions, attempting different tasks and not being afraid to get things wrong.

Your tutors are not your teachers and this is not a lesson – it is a chance to tackle questions you might not have had time to ask in class.

The sessions will be every week and someone from Action Tutoring will be at most sessions. The more sessions you attend, the better chance you have of achieving a higher grade at the end of Year 11.

There is one more part to the session today:

- Some baseline questions

These questions are designed to highlight your strengths and topics you might need more help with.

Everyone will finish and leave together at the end of the session, so please do not rush through the questions.

Secondary Maths Baseline

Time allowed: 45 minutes

All questions are non-calculator

First name: _____

Last name: _____

School: _____

These questions are an opportunity for you to demonstrate to us topics in maths that you have already mastered. We will look at the questions you found more challenging and these are the topic areas your tutor will focus on with you.

If you don't complete all of the questions or struggle with a question, don't worry! These are areas that your tutor can help you get better in.

If you're not sure, have a go – we won't share the information with the rest of your class; it's to help us understand the types of questions your tutor can support you with.

If you get to the end of the questions and have some time left, go back and check your answers or have a go at any questions you missed out the first time round.

Please don't copy anyone else's work. We want to know what you can do not what you can do with your friend. You can only do your best and that's enough!

1) -8 x 4

1)

2) Round 15.874 to 1 decimal place.

2)

(1 mark)

3) Find the missing number.

$$\frac{5}{9} = \frac{?}{45}$$

1) mark)

4) Convert 76% to a decimal.

(1 mark)

5) Convert $\frac{3}{8}$ to a percentage.

(2 marks)

6) Ali and Grace share £35 in the ratio 4:3. What fraction of the total amount does Ali have? Circle your answer.

A) $\frac{3}{7}$ B) $\frac{4}{3}$ C) $\frac{4}{7}$ D) $\frac{3}{4}$

7) Jess and Will share a profit in the ratio 5:2. Jess gets £135 more than Will.

How much profit did they make altogether?

(2 marks)

8) Find 30% of 150.

(2 marks)

9) £3000 is invested in a bank account for 7 years at a rate of 4 compound interest. Circle the number for the calculation below which would correctly calculate the total amount of the investment after 7 years.

£3000 x _____

A) 1.04 B) 1.04 x 7 C) 1.4^7 D)1.04^7

2) marks)

10) What is the value of this expression when c = 5, w = 3 and y = 6?

cw - y

(1 mark)

11) What is the value of this expression when x = -2?

$$\frac{2x - 2}{x + 1}$$

(2 marks)

12) Find the value of x when $8 = x + 5$

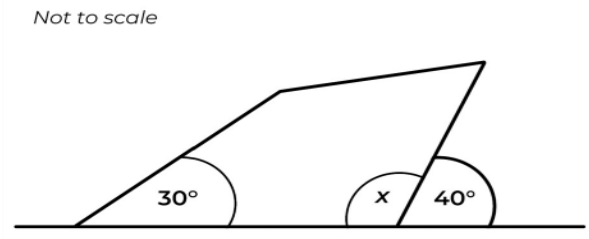
(1 mark)

13) Solve $5x + 1 = 2x - 11$

1)

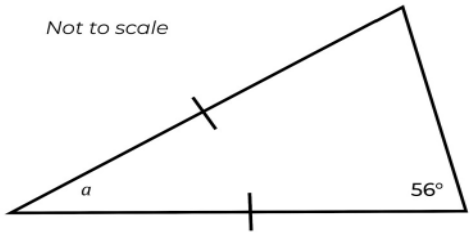
2) marks)

14) Find the value of the angle x.



(1 mark)

15) What is the value of the angle marked a?



2) marks)

16)Four cupcakes cost £2.80. How much does 1 cupcake cost in pence (p)?

17) If 5 pizzas cost £35.00, then how much do 8 pizzas cost?

1)

2) marks)

18) Expand and simplify $3(2x + 1) + 5(4x + 3)$

1) mark)

19)Expand and simplify this expression fully: $(3x + 4)(5 - 2x)$.

Circle your answer.

A) $15x - 8x$

B) $-6x^2 + 7x + 20$

C) $6x^2 + 23x + 20$

A) $-6x^2 + 15x + 20$

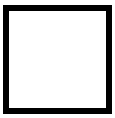
A)

(1 mark)

20) Factorise this expression fully: $6a^2 + 18a$. Circle your answer.

A) $6a(a + 3)$

A) $3a(2a + 6)$



C) $3(2a + 6)$

D) $a(6a + 18)$

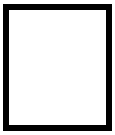
(1 mark)

21) Factorise this expression fully: $2x^2 + 5x - 3$. Circle your answer.

A) $(2x - 1)(x - 3)$

A) $(2x + 1)(x + 3)$

B) $(2x - 1)(x - 3)$



D) $(2x - 1)(x + 3)$

(2 marks)

22) Calculate the circumference of the circle below in terms of pi (π). Circle your answer.

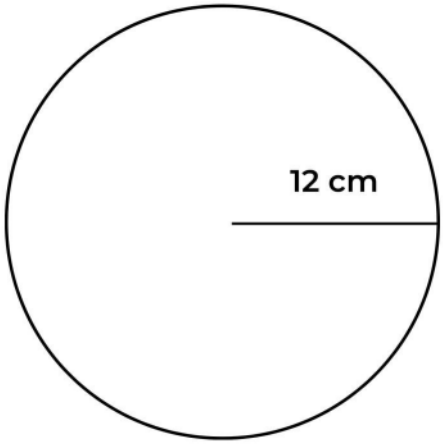
A)

A) 12TT

B) 6TT

C) 24TT

D) 144TT



(1 mark)

23) Calculate the area of the shape below in terms of pi (π). Circle your answer.

A) 2π

B) 4π

C) 16π

D) 8π

(1 mark)

24) What is the gradient of the line with the equation $2y = 6x + 10$

A)

(1 mark)

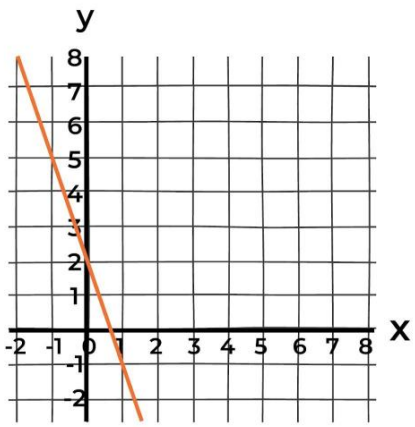
25) What is the equation of the line in the graph below? Circle your answer.

A) $y = -3x + 2$

B) $y = 2x + 2$

C) $y = 3x + 2$

D) $y = -2x + 2$



(2 marks)

26) Choose the correct way to simplify $m^3 \times m^9$. Circle your answer.

A) m^{27}

B) m^{12}

C) m^{39}

D) m^6

(1 mark)

27) What is the value of $64^{\frac{1}{2}}$? Circle your answer.

A) 32

B) 8

C) 132

D) 4

(2 marks)

28) Complete this statement:

30,000 mm = _____m

(1 mark)

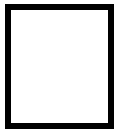
29) Using 5 mph = 8 km/h, what is 45 mph in km/h?

30) Choose the correct way to write 60 as a product of its prime factors.

Circle your answer.

A) 4 x 15

B) 2 x 5 x 6



C) 2 x 2 x 15

D) 2 x 2 x 3 x 5

(1 mark)

31) Calculate the highest common factor of 60 and 24.

(2 marks)

That was the last question. Thank you for attempting these questions. Your answers will help your tutor to understand how they can best support you.

Now, go back to the start and check your working and answers.

Appendix B: Maths and Me baseline survey

INTRODUCTION
Action Tutoring Effectiveness Trial Maths and Me ©Jill L. Adelson, 2006
How you feel about maths The National Foundation for Educational Research (NFER) is carrying out some research about how young people feel about maths. It is voluntary for you to complete this questionnaire, but your views are really important in understanding how to support young people in maths. Your answers will not be shared with your teachers or anyone else outside of the research team. There are no right or wrong answers, we are interested in what you think, so please answer honestly. This survey will take about 5 minutes to complete. If you have any questions, please visit the project website Thank you very much for your help with this survey. Please use the buttons at the bottom of the page to move through the survey, please do not use your browser's forward and back buttons.
Please note that if the survey is left inactive for over 20 minutes you will be timed out. Please use the original link again to return to the survey. If you exit the survey before the end, any answers that you have given may still be analysed.

Q1 – Ask All, SR, Mandatory				
1	Confirmation Details			
1.1	Please confirm this is the school you attend: [insert name of school/college from MI data]?	Yes (1)	No (2)	If 1.1 = No (2) then the survey should be closed – please see close screen below.

Q1 – Ask All, SR, Mandatory				
1	Confirmation Details			
1.2	Please confirm that you are [Insert Student name].	Yes (1)	No (2)	If 1.2 = No (2) then the survey should be closed – please see close screen below.

CLOSE SCREEN = 1.1 = No (2)
We have now closed this survey. Please let your teacher or tutor know that you received an incorrect survey link and they can contact ATevaluation@nfer.ac.uk to let us know.

Ask all, SR per row, Mandatory						
HOW YOU FEEL ABOUT MATHS						
	How much do you agree or disagree with these statements about how you feel about maths?	Please select one answer in each row				
		1	2	3	4	5
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
	Statement	How I feel				
1	I am really good at maths					
2	I love maths					
3	I understand maths					
4	Maths is boring					
5	I can solve difficult maths problems					
6	I enjoy doing maths puzzles					
7	Maths is very hard for me					
8	I do maths problems on					

	my own 'just for fun'					
9	Maths is confusing to me					
10	Maths is fun					
11	I look forward to learning new maths					
12	Maths comes easily to me					
13	I hate maths					
14	I enjoy playing maths games					
15	I can tell if my answers in maths make sense					
16	I enjoy studying maths					
17	Doing maths is easy for me					
18	Solving maths problems is fun					

The eight questions 1, 3, 5, 7, 9, 12, 15, and 17 make up the 'Mathematical self-perceptions' subscale, while the other 10 questions (2, 4, 6, 8, 10, 11, 13, 14, 16, 18) relate to enjoyment of maths and make up the 'Enjoyment of mathematics' subscale.

	Ask all. SR per row. Mandatory						
	How you feel in lessons.						
Thank you for answering the questions about maths. We would now like to ask you two final questions about how you feel in lessons overall. Please note, the response options for these questions are different to the previous questions. Please select one response per row.		1. Strongly disagree	2. Disagree	3. Slightly disagree	4. Slightly agree	5. Agree	6. Strongly agree
19.	I feel comfortable in lessons in my school						

20.	When things are difficult in my lessons, I feel that maybe I’m an outsider there						

SUBMIT PAGE
Thank you very much for answering our questions. Please click 'Submit' to send your response. Once submitted, you will not be able to go back and change any of your answers.

FINAL PAGE
Thank you for your help with this important research. You may now close this window.

Appendix C: Sense of Belonging nimble trial

Intervention

Why (rationale/theory)

Understanding Sense of Belonging and Belonging Uncertainty

Belonging uncertainty and feelings of non-belonging are common in education settings, particularly among minority and negatively stereotyped groups. Research has shown that just 63% of pupils in England feel like they belong in schools (Ingram et al, 2023).

Sense of belonging refers to an individual's perception of their relationship with their community context (e.g., their school). It involves more than just strong peer relationships, it is about feeling 'accepted, included, respected, and contributing to the environment' (Walton & Brady, 2021).

Belonging uncertainty is when an individual is unsure if they fully belong, or will ever fully belong in an environment. When people experience belonging uncertainty, they interpret everyday adversity as a consequence of their lack of belonging, rather than a common challenge to be overcome.

Belonging uncertainty differs from a general sense of belonging. Someone can generally feel like they belong somewhere (sense of belonging), but still be unsure about this belonging (belonging uncertainty). For example, a pupil may think that they belong but if they answer too many questions incorrectly in lessons they will begin to feel as though they do not belong. Belonging uncertainty is often related to awareness of 'negative stereotypes and underrepresentation' (Walton & Brady, 2021).

Impact on Educational Outcomes

There is a breadth of evidence that feelings of not belonging and belonging uncertainty can cause and exacerbate inequalities in education, by negatively impacting affected pupils' attainment, enrolment and persistence (Allen et al, 2022; Steele, 1997).

Disadvantaged and negatively stereotyped pupils are more likely to be impacted by feelings of non-belonging than their peers. When facing everyday challenges, particularly during periods of transition, these pupils are more likely to reach the conclusion that this means they do not belong (Walton & Cohen, 2007).

How Social Belonging Interventions Help

Social belonging interventions have been shown to reduce belonging uncertainty and increase sense of belonging in academic settings by offering pupils an alternative way of understanding adversities and how they can be overcome (Walton & Brady, 2021). This protects pupils' sense of belonging, so when they do face adversities, they recognise these as normal and faced by all pupils, rather than a result of their own lack of belonging in the setting. This understanding helps pupils continue to engage in positive academic practices

(i.e. regular attendance, building positive relationships with their peers and teachers, and seeking support when needed).

Belonging interventions are presented as an effort to learn about transitions (e.g. beginning tutoring) from the experiences of others, and to support future pupils in their transition.

Interventions typically follow a similar format, with recipients reviewing testimonials from older students who have previously experienced the transition. The testimonials describe early challenges as common and something which eases over time. Recipients are then asked to reflect on their own experiences and to create a testimonial of their own to help future recipients through the transition. The process of creating their own message produces a 'saying is believing' effect, which helps intervention recipients to internalise the key themes of the testimonial.

Most interventions are brief and last 30-60 minutes but evidence has shown they can have outsized and lasting impacts for recipients, as they help recipients interpret future experiences and adversity in more productive ways (Walton and Brady 2021).

Evidence for Effectiveness

Social belonging interventions have been evaluated in several randomised controlled trials across educational contexts and there is strong evidence for their effectiveness in improving outcomes such as enrollment, attendance, attainment and behaviour, particularly for minority groups and those likely to be negatively stereotyped (Walton and Brady 2021).

Research in US colleges found a single 30-minute social-belonging activity increased students from historically underperforming groups' completion of the first year at college by 4.1% (Walton et al, 2023).

A 2011 study asked first year undergraduates to read testimonials from former students, framing social adversity in college as common and temporary, and write a short message of their own. The intervention raised the Grade Point Average of African American students over 3 years, halving the racial achievement gap and improving health and wellbeing (Walton and Cohen, 2011).

Belonging interventions have also been effective in supporting pupils in schools. A 2019 study found that a belonging intervention reduced disciplinary incidents by 34%, increased attendance by 12% and reduced failing grades by 18% for 11-12 year olds transitioning to middle school (Yeager et al, 2019).

In another study, which focussed on supporting students transitioning to high school in the US, a belonging intervention led to an 82% reduction in disciplinary incidents for racially minoritised students (Williams et al, 2020).

The Intervention

The intervention will consist of a 15-minute activity completed by Year 10 and 11 pupils in the third or fourth tutoring session in the Action Tutoring programme. The activity will replace the usual warm-up activity. Pupils will (1) read social-stories, framed as messages from previous Action Tutoring pupils, (2) reflect on their own experiences and feelings, and then (3) write a short message to help future Action Tutoring pupils who might be worried about starting the programme. It is important that during the intervention pupils are not framed as recipients of a targeted intervention, instead they are framed as being benefactors of an activity aiming to help others. This framing serves two purposes:

1. It helps pupils to feel empowered rather than negatively stereotyped during the activity (Walton and Brady 2021)

2. It also helps pupils connect the meaning of the messages from previous pupils to their own lives and internalise it, which in turn increases the impact of the intervention (Murphy et al, 2020; Walton et al, 2023).

Who (recipients)

Pupils who have been selected to be part of the Action Tutoring trial in the intervention group at participating schools.

Pupils will be in Year 10 and 11 at state-maintained, mainstream secondary schools in England with a school-wide Pupil Premium eligibility rate of at least 18%, and be at risk of not achieving a grade 4 in GCSE maths (as determined by their teacher(s)).

At least 65% of pupils selected by the school to take part in the trial must be eligible for the Pupil Premium grant. All pupils will meet the following maths attainment criteria:

1. Year 11 pupils must start the year working at GCSE grades 3–5

2. Year 10 pupils must start the year working at GCSE grades 2–5

What (materials)

The activity materials will be provided to Action Tutoring tutors and Programme Coordinators. There will be versions for both in-person and online delivery. The in-person material will be a worksheet, the online material will be a web-based click-through interactive activity. The content of the materials will be consistent across both forms.

Tutors will be provided with:

1. Instructions for delivering the activity (sent by Programme Coordinators via email).
2. For online tutors, a slideshow which will guide tutors and pupils through the activity during their online tutoring session.
3. For in-person tutors, a printed worksheet which will guide tutors and pupils through the activity during their in-person tutoring session.
4. A document hosted on the Action Tutoring website containing all background information on the activity and a list of FAQs (linked in the emails sent to Tutors by Programme Coordinators).

The information provided to tutors will emphasise:

1. When the activity should be delivered.
2. How the activity should be delivered, including suggested language to use when introducing the activity.
3. The importance of effective implementation.
4. The theory and evidence behind the intervention.
5. FAQs - standard responses to questions we expect pupils may have.

What (procedures)

The activity has four parts:

1. An introduction to the activity and why pupils are being asked to complete it.

2. Pupils are asked to read three messages from former Action Tutoring pupils. The messages detail pupils' experiences of initial challenges in tutoring and how these improved with time and effort.
3. Pupils are asked to reflect on their own experiences with a series of prompts. This includes a time when they felt like they didn't belong.
4. Pupils are asked to write a short message to future Action Tutoring pupils who may be concerned about starting the programme.

To mitigate the risk of pupils' having difficulty with the activity and this negatively impacting their sense of belonging, tutor instructions include explicit guidance on how to support pupils through each stage of the activity, including drafting a message for future pupils.

Who (implementers)

The intervention is designed to be delivered by Action Tutoring tutors (for more information about tutors see *Intervention - who?* in the effectiveness trial protocol). In the event of tutor absence, the intervention may also be delivered by Action Tutoring's Programme Coordinators.

How (mode of delivery)

The intervention will be delivered by the tutor in Week 3 or 4 of the Action Tutoring programme. Pupils attend Action Tutoring sessions in-school, with the tutor either delivering in person or remotely (via video call).

Depending on access to technology within the tutoring session, pupils will either complete the activity online via Smart Survey, or via a hard copy provided by the Action Tutoring Programme Coordinator.

Action Tutoring will manually read pupils' messages and follow the agreed safeguarding policy / process if any disclosure / sensitive information is found. BIT will not receive pupils' responses.

Ownership of the belonging activity Smart Survey account will be transferred to Action Tutoring before the nimble trial begins. BIT will not have access to it after this point. Action Tutoring will share the online messages (one text box, not names and schools) with BIT. To minimise the burden on Action Tutoring's resources, BIT will manually read the responses and raise any safeguarding concerns with Action Tutoring. Action Tutoring will then follow the agreed safeguarding policy / process, as with the paper versions.

Where (setting)

Action Tutoring sessions are delivered in school, either in person (the tutor visits the school) or remotely (via video call).

Sessions are delivered in one space within the school (classrooms, the library, the IT suites).

When and how much (dosage)

The social-belonging intervention activity will take approximately 15 minutes and be delivered once in Week 3 of the Action Tutoring programme. If the intervention isn't delivered as the warm-up in Week 3 as planned, tutors (or Programme Coordinators) will be asked to deliver it as the warm-up in Week 4 instead. Programme Coordinators will confirm

whether, when (week 3 or 4) and by whom (tutor or Programme Coordinator) the intervention is delivered.

Pupils who are absent when the intervention is delivered will not complete it at a later time (i.e. if the intervention is delivered by the tutor in Week 3 but some pupils were absent, they will not receive the intervention in Week 4).

For social belonging interventions, timing is more important than dosage (Walton & Wilson, 2018). The research on social belonging interventions emphasises the importance of early delivery, before pupils' beliefs about whether or not they belong have fully formed. By weeks 3 and 4 pupils will have had some exposure to tutoring and may have encountered early worries or challenges. This provides an opportunity for the intervention to reframe those experiences as common and temporary, rather than signs that pupils don't belong. After intervention delivery, pupils will still have 7 or 6 weeks of tutoring remaining, in which to benefit from the potential impacts of the intervention.

Tailoring

This is a manualised intervention and has been developed to be appropriate for all pupils in Year 10 and Year 11, participating in the Action Tutoring programme.

The intervention will use simple language which has been reviewed using a digital reading accessibility checker tool. This will ensure the language in the intervention is age-appropriate and accessible for a broad range of pupils. The intervention handbook will also advise tutors on how to provide support to pupils with limited reading and language abilities where needed.

The importance of treatment fidelity - delivering the intervention as outlined in the tutor guidance in Week 3 (or Week 4 if it's not possible to deliver the activity in week 3) - will be emphasised in tutor guidance material. However, tutors will be able to make surface level changes to how they deliver the intervention. For example, they will be able to adapt the language they use to explain it.

How well (planned)

To maximise implementation effectiveness tutors will be provided with training materials and guidance on delivering the intervention. A link to the full guidance hosted on Action Tutoring's website will be emailed to tutors and tutors will be asked to read these materials before delivering the activity.

The materials provided to support the delivery of the intervention will be behaviourally-informed to ensure they are engaging and easy for tutors to use.

The BIT team will be available for technical support and troubleshooting.

The intervention is delivered using materials tailored to both in-person and online tutoring formats:

- In-person sessions use a printed worksheet that guides pupils through the activity.
- Online sessions use an interactive version hosted on SmartSurvey, accessed via a tutor-shared link during the session.
- Instructions for tutors via email.

The worksheet and online activity materials are included in Appendix D. N.B. the messages from former pupils currently in the intervention materials are illustrative and will be replaced

by real messages in advance of implementation. The instructions for tutors are included in Appendix E.

Business as Usual

Tutors in the control condition will continue with their usual approach to tutoring.

Tutors in the control group will not deliver the belonging intervention. They will instead deliver either the standard warm-up activities provided by Action Tutoring (which do not contain belonging aspects), or another activity of their own choosing (it's possible that tutors may choose to use warm-up time to recap previous learning or practice a particular area of maths).

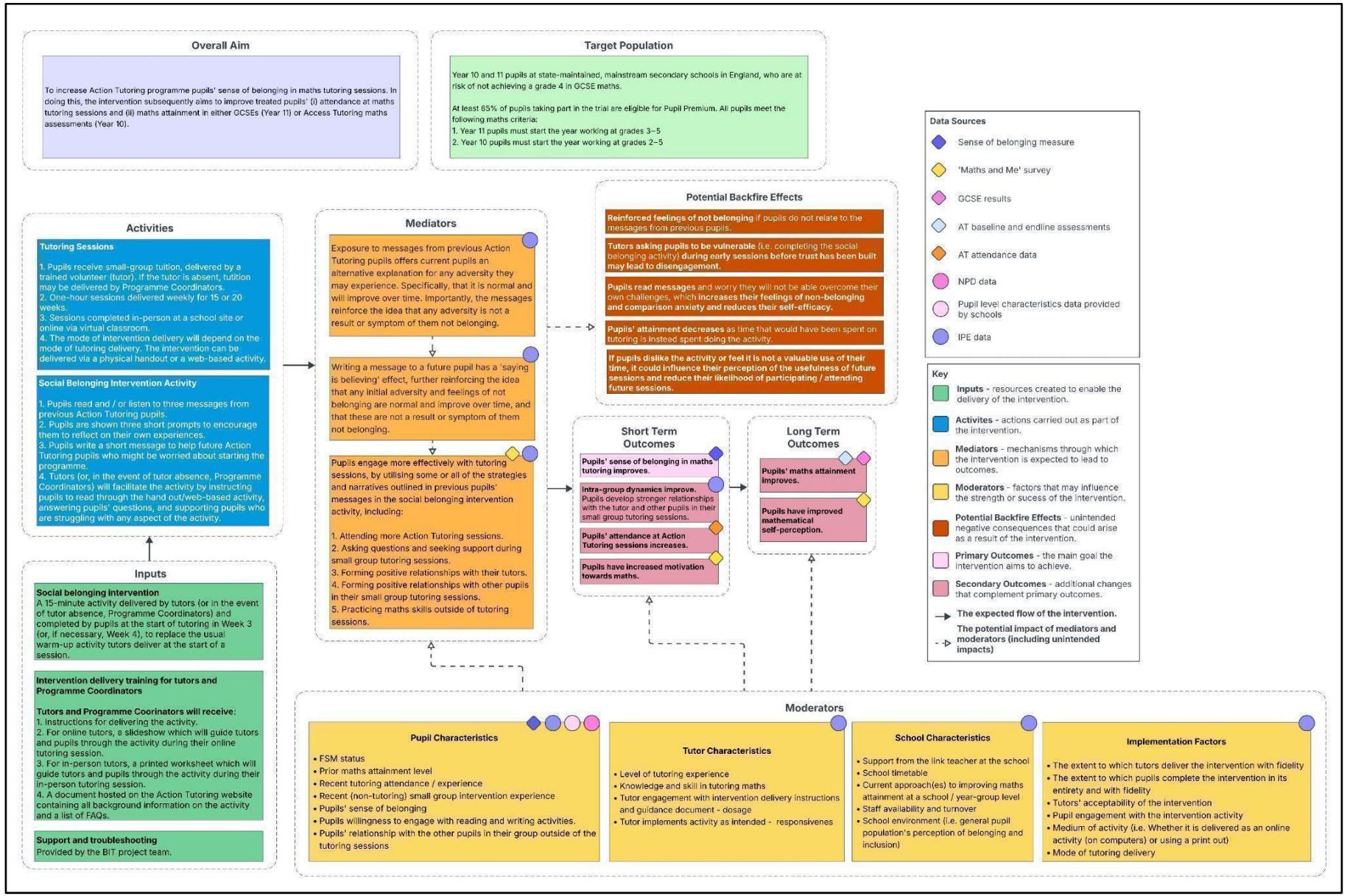
Action Tutoring's standard warm-up activities are sets of maths questions that either cover a range of topics or one specific topic. Tutors are able to pick which set of questions they complete as a warm-up activity.

To support compliance and further minimise contamination risk:

- Tutors in the control condition will not receive the belonging activity material or any related materials.
- Programme Coordinators will manage tutor communications using segmented group mailing lists to ensure intervention and control group tutors receive only the materials relevant to their allocation.
- Tutors will be reminded not to share session materials or discuss intervention content with colleagues or pupils outside their group.

We expect the risk of tutors sharing interventions to be low. Regular communication between tutors outside of sessions is rare and interaction is usually limited to the following:

1. Short optional debriefs after each tutoring session, facilitated by a Programme Coordinator. According to Action Tutoring, not all tutors regularly attend these meetings.
2. Optional WhatsApp groups to receive logistic updates about the programme.


Overall Aim
To increase Action Tutoring programme pupils' sense of belonging in maths tutoring sessions. In doing this, the intervention subsequently aims to improve treated pupils' (i) attendance at maths tutoring sessions and (ii) maths attainment in either GCSEs (Year 11) or Access Tutoring maths assessments (Year 10).
Target Population
Year 10 and 11 pupils at state-maintained, mainstream secondary schools in England, who are at risk of not achieving a grade 4 in GCSE maths.
At least 65% of pupils taking part in the trial are eligible for Pupil Premium. All pupils meet the following maths criteria:
1. Year 11 pupils must start the year working at grades 3–5
2. Year 10 pupils must start the year working at grades 2–5
Data Sources
Sense of belonging measure
'Maths and Me' survey
GCSE results
AT baseline and endline assessments
AT attendance data
NPD data
Pupil level characteristics data provided by schools
IPE data
Activities
Tutoring Sessions
1. Pupils receive small-group tuition, delivered by a trained volunteer (tutor). If the tutor is absent, tuition may be delivered by Programme Coordinators.
2. One-hour sessions delivered weekly for 15 or 20 weeks.
3. Sessions completed in-person at a school site or online via virtual classroom.
4. The mode of intervention delivery will depend on the mode of tutoring delivery. The intervention can be delivered via a physical handout or a web-based activity.
Social Belonging Intervention Activity
1. Pupils read and / or listen to three messages from previous Action Tutoring pupils.
2. Pupils are shown three short prompts to encourage them to reflect on their own experiences.
3. Pupils write a short message to help future Action Tutoring pupils who might be worried about starting the programme.
4. Tutors (or, in the event of tutor absence, Programme Coordinators) will facilitate the activity by instructing pupils to read through the hand out/web-based activity, answering pupils' questions, and supporting pupils who are struggling with any aspect of the activity.
Mediators
Exposure to messages from previous Action Tutoring pupils offers current pupils an alternative explanation for any adversity they may experience. Specifically, that it is normal and will improve over time. Importantly, the messages reinforce the idea that any adversity is not a result or symptom of them not belonging.
Writing a message to a future pupil has a 'saying is believing' effect, further reinforcing the idea that any initial adversity and feelings of not belonging are normal and improve over time, and that these are not a result or symptom of them not belonging.
Pupils engage more effectively with tutoring sessions, by utilising some or all of the strategies and narratives outlined in previous pupils' messages in the social belonging intervention activity, including:
1. Attending more Action Tutoring sessions.
2. Asking questions and seeking support during small group tutoring sessions.
3. Forming positive relationships with their tutors.
4. Forming positive relationships with other pupils in their small group tutoring sessions.
5. Practicing maths skills outside of tutoring sessions.
Potential Backfire Effects
Reinforced feelings of not belonging if pupils do not relate to the messages from previous pupils.
Tutors asking pupils to be vulnerable (i.e. completing the social belonging activity) during early sessions before trust has been built may lead to disengagement.
Pupils read messages and worry they will not be able overcome their own challenges, which increases their feelings of non-belonging and comparison anxiety and reduces their self-efficacy.
Pupils' attainment decreases as time that would have been spent on tutoring is instead spent doing the activity.
If pupils dislike the activity or feel it is not a valuable use of their time, it could influence their perception of the usefulness of future sessions and reduce their likelihood of participating / attending future sessions.
Short Term Outcomes
Pupils' sense of belonging in maths tutoring improves.
Intra-group dynamics improve. Pupils develop stronger relationships with the tutor and other pupils in their small group tutoring sessions.
Pupils' attendance at Action Tutoring sessions increases.
Pupils have increased motivation towards maths.
Long Term Outcomes
Pupils' maths attainment improves.
Pupils have improved mathematical self-perception.
Key
Inputs - resources created to enable the delivery of the intervention.
Activites - actions carried out as part of the intervention.
Mediators - mechanisms through which the intervention is expected to lead to outcomes.
Moderators - factors that may influence the strength or sucess of the intervention.
Potential Backfire Effects - unintended negative consequences that could arise as a result of the intervention.
Primary Outcomes - the main goal the intervention aims to achieve.
Secondary Outcomes - additional changes that complement primary outcomes.
The expected flow of the intervention.
The potential impact of mediators and moderators (including unintended impacts)
Inputs
Social belonging intervention
A 15-minute activity delivered by tutors (or in the event of tutor absence, Programme Coordinators) and completed by pupils at the start of tutoring in Week 3 (or, if necessary, Week 4), to replace the usual warm-up activity tutors deliver at the start of a session.
Intervention delivery training for tutors and Programme Coordinators
Tutors and Programme Coorinators will receive:
1. Instructions for delivering the activity.
2. For online tutors, a slideshow which will guide tutors and pupils through the activity during their online tutoring session.
3. For in-person tutors, a printed worksheet which will guide tutors and pupils through the activity during their in-person tutoring session.
4. A document hosted on the Action Tutoring website containing all background information on the activity and a list of FAQs.
Support and troubleshooting
Provided by the BIT project team.
Moderators
Pupil Characteristics
• FSM status
• Prior maths attainment level
• Recent tutoring attendance / experience
• Recent (non-tutoring) small group intervention experience
• Pupils' sense of belonging
• Pupils willingness to engage with reading and writing activities.
• Pupils' relationship with the other pupils in their group outside of the tutoring sessions
Tutor Characteristics
• Level of tutoring experience
• Knowledge and skill in tutoring maths
• Tutor engagement with intervention delivery instructions and guidance document - dosage
• Tutor implements activity as intended - responsivenes
School Characteristics
• Support from the link teacher at the school
• School timetable
• Current approach(es) to improving maths attainment at a school / year-group level
• Staff availability and turnover
• School environment (i.e. general pupil population's perception of belonging and inclusion)
Implementation Factors
• The extent to which tutors deliver the intervention with fidelity
• The extent to which pupils complete the intervention in its entirety and with fidelity
• Tutors' acceptability of the intervention
• Pupil engagement with the intervention activity
• Medium of activity (i.e. Whether it is delivered as an online activity (on computers) or using a print out)
• Mode of tutoring delivery

The Theory of Change relies on the following key mechanisms and key assumptions:

Assumptions

1. **Tutors review and prepare to deliver the intervention**
   Tutors are expected to read the guidance sent by Programme Coordinators and understand how to deliver the activity effectively.

2. **Tutors deliver the activity as planned**
   The intervention is delivered during Week 3 (or Week 4) instead of the usual warm-up. Delivery is assumed to follow the guidance with minimal deviation.

3. **Pupils engage with and complete the activity.**
   Pupils are assumed to read the peer messages, reflect on their own experiences, and write their own message, engaging meaningfully with the content.

Mechanisms

1. **The activity increases pupils' sense of belonging**
   By highlighting that initial challenges are normal and a shared experience, the activity is expected to reduce belonging uncertainty and strengthen pupils' sense of belonging.

2. **Increased belonging improves motivation and engagement**
   Pupils who feel they belong are more likely to attend sessions regularly, participate actively, and feel confident asking for help - behaviours that support learning.

Impact evaluation design

Research questions

The nimble trial is designed to assess the effectiveness of a short social-belonging activity delivered within Action Tutoring sessions for Year 10 and Year 11 pupils. The primary outcome measure is sense of belonging, with additional secondary outcomes related to attainment, attendance, and motivation.

Primary Research Question

RQ1. How effective is a belonging activity at promoting a sense of belonging in tutoring sessions among Y10 and Y11 pupils?

Secondary Research Questions

RQ2. How effective is a belonging activity at promoting maths attainment among Y10 and Y11 pupils?

Exploratory Research Questions[1]

RQ3. How effective is a belonging activity at promoting a sense of belonging among disadvantaged pupils in Y10 and Y11?

RQ4. How effective is a belonging activity at promoting attendance at AT tutoring sessions among Y10 and Y11 pupils?

RQ5. How effective is a belonging activity at improving pupil mathematical self-perception in Y10 and Y11?

Design

Table 1: Trial design

Trial design, including number of arms		Two-arm, cluster randomised controlled trial
Unit of randomisation		Tutor
Stratification variables (if applicable)		School (expected n = 56, after 10% attrition from original n = 62)
Control condition		Tutors deliver Action Tutoring's business-as-usual warm-up activity (that does not include a belonging element) in Weeks 3 and 4.
Primary outcome	**Variable**	Sense of belonging
	Measure (instrument, scale, source)	Instrument: Two survey items added to the Maths and Me survey administered at endpoint. The items, created by BIT researchers, are adapted from validated belonging scales (including Walton and Cohen's (2007) Belonging uncertainty scale, PISA's (2022) Computer-based student questionnaire). Scale: Two individual 6-point Likert scale questions, whose responses will be combined (by taking the mean score of both responses) to form a composite sense of belonging score

[1] To ensure the most reliable and interpretable results given our anticipated sample size, this trial focuses on one primary and one secondary research question, each with a single, dedicated outcome measure. While other aspects of the intervention's effect are of interest, designating additional questions as 'exploratory' (rather than 'secondary') helps to avoid an increased risk of false discoveries that can arise from testing too many outcomes simultaneously without adequate statistical adjustment (e.g. Benjamini-Hochberg correction for multiple comparisons). Significant findings from exploratory research questions should be presented and considered as opportunities for future, more focused research.

Baseline for primary outcome	**Variable**	Sense of belonging
	Measure (instrument, scale, source)	Instrument: Two survey items added to the Maths and Me survey administered at baseline. The items, created by BIT researchers, are adapted from validated belonging scales (including Walton and Cohen's (2007) Belonging uncertainty scale, PISA's (2022) Computer-based student questionnaire) Because pupils have not started tutoring at baseline, the items relate to sense of belonging in school, not tutoring. Scale: Two individual 6-point Likert scale questions, whose responses will be combined (by taking the mean score of both responses) to form a composite sense of belonging score
Secondary outcome	**Variable**	1. Maths attainment
	Measure (instrument, scale, source)	1. GCSE maths z-score (Y11); Access Maths test z-score (Y10)
Exploratory outcomes	**Variables**	1. Tutoring attendance 2. Mathematical self-perception
	Measures (instrument, scale, source)	1. Attendance data from Action Tutoring 2. Mathematical self-perception scale in "Maths and Me" survey
Baseline for secondary outcome	**Variable**	1. Maths attainment
	Measure (instrument, scale, source)	1. Action Tutoring baseline assessments (Y10 and Y11)
Baseline for exploratory outcomes	Variables	1. Attendance at Maths tutoring sessions 2. Mathematical self-perception
	Measures (instrument, scale, source)	1. Attendance before Week 3 (i.e. in weeks 1 and 2) 2. Self-perception items in "Maths and Me" survey

Participant selection

The nimble trial participants include:

1. Year 10 and Year 11 pupils receiving maths tutoring in the intervention group in schools participating in the Action Tutoring effectiveness trial.

Pupils must:

- Be in Year 10 or 11.
- Be receiving tutoring from Action Tutoring. The pupils may be receiving a 15 week programme or a 20 week programme.
- Meet Action Tutoring's eligibility for maths support (working at grades 2–5 in Year 10 or 3–5 in Year 11).
- Schools are asked to ensure that 65% of participating pupils are eligible for Pupil Premium.

Tutors must:

- Be providing tutoring with Action Tutoring as part of the Action Tutoring effectiveness trial.

Schools must:

- Be state-maintained, mainstream secondary schools in England
- Have a school-wide Pupil Premium eligibility rate of at least 18%
- Have not have partnered with Action Tutoring or any other external tutoring provider in 2024–25
- Not be taking part in another maths-focused EEF trial for the same year groups in 2025–26
- Be participating in the Action Tutoring effectiveness trial.

The unit of randomisation for the nimble trial is the **tutor**, with an estimated **523 to 784 tutors** delivering the intervention across participating schools (once expected school attrition of 10% is accounted for).[2] These tutors will be drawn from those already recruited for the intervention arm of the main Action Tutoring effectiveness trial.

Recruitment of tutors and schools follows the main trial procedures (see *Participant Selection* in the effectiveness trial protocol). The only additional element for the nimble trial is that **intervention group tutors** will be asked to deliver a one-off 15-minute social belonging activity during Week 3 (or Week 4) of the tutoring programme. No separate recruitment is required for the nimble trial.

Randomisation will occur at the **tutor level**, as tutors work with small groups of pupils, making pupil-level randomisation impractical. All pupils taught by a given tutor will receive the same condition. Tutor-level randomisation also reduces the risk of contamination, as tutors in the control group will not be exposed to the intervention materials.

Outcome measures

Baseline measures

[2] This is based on the assumed sample (1,568 pupils after school attrition of 10% (from 62 schools to 56 schools)), with a tutor per every 2 or 3 pupils (i.e. between 784 tutors and 523 tutors).

Primary outcome

While we are not collecting any baseline data for the primary outcome directly (as the pupils will not have started the Action Tutoring programme by the time they receive baseline survey questions), we have designed a baseline measure to approximate belonging in tutoring sessions. Specifically, we have adapted the endpoint questions on belonging (*"I feel comfortable in my tutoring sessions*" and *"When things are difficult in my tutoring sessions, I feel that maybe I'm an outsider there*") to instead reference the pupil's school (i.e. "*I feel comfortable in lessons in my school"* and *"When things are difficult in my lessons, I feel that maybe I'm an outsider there"*). This is a reasonable approximation for belonging in tutoring sessions, and will improve our analysis and allow us more scope to detect statistical effects than would be the case otherwise.[3]

Secondary and Exploratory outcomes

Baseline data will be collected prior to the belonging intervention to assess equivalence and enable pre-post comparisons for secondary and exploratory outcomes. These include:

- **Maths Attainment**: Collected using Action Tutoring's standard baseline maths assessments for Year 10 and Year 11 pupils, administered as part of the wider effectiveness trial.

- **Mathematical Self-Perception**: Collected through the "Maths and Me" online survey administered by NFER. This survey includes items to capture students' self-perception in maths.

- **Attendance**: Attendance before week 3 (i.e. in weeks 1 and 2) will be used as a baseline measure of attendance (which will be compared to attendance after week 4, see 'Exploratory Outcomes' below).

Primary Outcome Measures

The primary outcome is **Sense of Belonging in Tutoring Sessions**.

This captures pupils' perceptions of inclusion, acceptance, and connectedness within their tutoring group, as well as "belonging uncertainty"- the feeling that one may not fully belong or that belonging is conditional. This outcome is central to the Theory of Change: the social-belonging intervention aims to improve pupils' engagement in tutoring by increasing their sense of belonging and reducing belonging uncertainty. Enhanced belonging is expected to lead to better academic behaviours, such as attendance and seeking help.

- **Measurement Tool**: Two Likert-scale survey items administered at endpoint via the "Maths and Me" survey. The items are adapted from established scales, including:
    - Walton & Cohen's (2007) Belonging Uncertainty Scale

[3] A student's overall sense of belonging to their school is likely to be a foundational element influencing their sense of belonging within smaller, nested groups within that school, such as a tutoring group. Korpershoek et al. (2019) find in a meta-analysis that the correlation between a sense of belonging in school and several measures related to belonging (such as motivational outcomes, perceived learning environment, and educational aspirations/attitudes) ranges from 0.29 to 0.39. We have therefore assumed a pre-post correlation of 0.29 between belonging at school (baseline) and belonging in tutoring sessions (endpoint) in our calculations of statistical power (see Table 2 below).

    - PISA's (2022) Student Questionnaire

  Adaptations ensure age-appropriate language and contextual relevance to tutoring. The belonging survey items are not publicly available in their final form as they are bespoke adaptations. A full list of the questions will be included as an appendix to the protocol once finalised prior to submission.
- The survey items for measuring belonging:
    - *"I feel comfortable in my tutoring sessions*" (6-point Likert scale)
    - *"When things are difficult in my tutoring sessions, I feel that maybe I'm an outsider there"* (6-point Likert scale)
- **Scoring**:
    - The items will be combined (by taking the mean score of both responses) to form a composite sense of belonging score[4]
    - Response options for both questions will use a six-point Likert scale - Strongly Disagree [1], Disagree [2], Slightly Disagree [3], Slightly Agree [4], Agree [5], Strongly Agree [6].
- **Instrument Adaptation**: We have consulted two field experts; Greg Walton[5] and Andreas Schleicher[6], and taken their advice on adapting sense of belonging and belonging uncertainty instruments to the tutoring context. The items are tailored to the tutoring context using simplified, age-appropriate language and have undergone readability checks. Informal cognitive testing of the items has been undertaken with 10 pupils aged 16-17 and using Large Language Models as 'simulated respondents'. The interviews with 16–17-year-olds were 15 minutes long and used a structured topic guide which followed a five-step process. For the simulated respondents. We prompted Chat GPT 5 Thinking and Gemini 2.5 Pro to assume 12 personas intended to replicate a wide range of pupils. These personas varied in attainment levels, reading comprehension, and EAL, and included challenges such as social anxiety or behavioural difficulties. We used a structured prompt that followed a five-step cognitive interview process to cognitively test the survey items with each persona, to understand how pupils would interpret, process and answer the survey items intended to measure the primary outcome. The interviews with simulated responses enabled us to simulate responses from a wider group of pupils than we were able to reach in the cognitive interviews. However, greater weight was given to the responses from 16–17-year-old interview respondents when analysing findings and finalising survey items. We did not need to make any changes to the instruments in response to the cognitive testing.

- **Timing**: The primary outcome will be measured via the "Maths and Me" survey at the following times:

[4] N.B. Due to the different directional framings of the two questions that make up the composite belonging outcome, responses to the second question ("When things are difficult in my tutoring sessions, I feel that maybe I'm an outsider there") will be inverted before the mean (composite) score of the two questions is calculated. In essence, scores for this second question will be inverted using the rule [Y = 7 − X], where X is the original score on the 6-point scale and Y is the new inverted score to be used in calculating the composite score for belonging.

[5] Greg Walton is a professor of psychology at Stanford University and an expert in the design and evaluation of belonging interventions.

[6] Andreas Schleicher is Director for Education and Skills at the Organisation for Economic Co-operation and Development (OECD). He initiated and oversees the Programme for International Student Assessment (PISA), which measures pupil outcomes (including belonging) in countries around the world.

    - Year 11: Concurrently with tutoring weeks 19 and 20, or in the week immediately following (to avoid the exam period).
    - Year 10:
        - 4 weeks following the end of the programme for pupils receiving 20 sessions
        - 9 weeks following the programme for pupils receiving 15 sessions

  All outcome data will be collected once. There are no additional follow-up points in this trial.
- **Administration**: The endpoint Maths and Me survey will be administered online by NFER Test Administrator for Year 10 pupils (after their end assessment) or by school staff for Year 11 pupils. Survey responses will be anonymised and stored securely. To reduce bias, tutors will not be involved in administering or scoring the survey and will not see the results.

Secondary Outcome

Outcome: Maths Attainment:

The secondary outcome is maths attainment, which measures pupils' maths skills and knowledge. Our logic model suggests that:

1. Feeling like they belong will lead to increased engagement with tutoring sessions which will positively impact pupils' learning and attainment.
2. Pupils may engage more effectively with tutoring sessions as a result of the intervention, by utilising some or all of the strategies outlined in previous pupils' messages, including:
    a. Attending more Action Tutoring sessions.
    b. Asking questions and seeking support during small group tutoring sessions.
    c. Forming positive relationships with their tutors.
    d. Forming positive relationships with other pupils in their small group tutoring sessions.
    e. Practicing maths skills outside of tutoring sessions.

   This may, in turn, positively impact the attainment of pupils who implement the strategies presented in the messages.

- Year 10: Endpoint Access Maths assessments administered by trained NFER test administrators under exam-style conditions. The Access Maths assessment is a commercial instrument and cannot be reproduced in the appendix.
- Year 11: GCSE raw scores collected from schools by NFER.
- Scores will be standardised by BIT to enable pooled analysis. Specifically, BIT will transform both scales (Endpoint Access Maths assessments and GCSE raw scores) into z-scores, which allow for a pooled analysis of attainment across both year groups.

Exploratory Outcomes

1. **Outcome: Tutoring Attendance**

- Measures how often pupils attend their Action Tutoring maths sessions. Our logic model suggests that the intervention will increase pupils' sense of belonging and their understanding that challenges are normal and not a sign they do not belong. Pupils will then utilise strategies outlined in the previous pupil messages including attending more Action Tutoring tutoring sessions. Increased attendance may in turn be a contributing factor in increasing pupil attainment.
- Collected via Action Tutoring's internal attendance records and shared securely with the evaluation teams (BIT and NFER).
- Attendance data will capture the number and proportion of sessions attended by each pupil. As this is administrative data, no scoring is required.
- Attendance will be analysed as a bounded fraction variable (e.g. proportion of sessions attended after week 4), to account for the fact that there are different lengths of model delivery in Year 10 (15-week programme and 20-week programme).[7]

2. **Outcome: Mathematical Self-Perception**
    - Measures a student's personal beliefs about their own mathematical aptitude. This construct is distinct from a student's emotional feelings about the subject. It includes items that probe a student's sense of confidence, their ability to understand concepts, and their perceived facility with problem-solving. The logic model suggests that reframing adversity and reinforcing belonging will improve pupils' confidence and reduce anxiety around maths. Better self-perception is expected to lead to greater engagement and practice in maths.
    - Assessed using the relevant eight items in the "Maths and Me" survey.[8] At baseline, the Maths and Me survey will be administered online before tutoring commences by Action Tutoring Programme Coordinators and then scored/analysed by an NFER analyst. The endpoint Maths and Me survey will be administered online by NFER Test Administrator for Year 10 pupils (after their end assessment) or by school staff for Year 11 pupils. These include Likert-scale questions on pupils' confidence and attitudes toward maths. Survey responses will be anonymised and stored securely. Tutors will not be involved in survey administration, maintaining blindness. Endpoint surveys will be administered by school staff (Year 11) or NFER Test Administrators (Year 10).

[7] We have chosen week 4 as the benchmark here, as we expect all treatment group pupils to have received the intervention by week 4.

[8] 8 of the 18 Maths and Me survey questions relate to self-efficacy and make up the 'Mathematical self-perceptions' subscale, while the other 10 questions relate to enjoyment of maths and make up the 'Enjoyment of mathematics' subscale. The eight questions are questions 1, 3, 5, 7, 9, 12, 15, and 17. Each of these question statements directly asks the pupil to make a judgment about their own skills or comprehension. For example, the statement "I am really good at math" is a quintessential measure of self-perceived competence, as is the statement "I can solve difficult math problems". Conversely, the items "Maths is very hard for me" and "Maths is confusing to me" are reverse-scored, meaning that agreement with these statements indicates a lower level of self-perception. Each question is scored on a 1-5 Likert scale with answer options: Strongly disagree (1); Disagree (2); Neither agree nor disagree (3); Agree (4); and Strongly agree (5). See Appendix B of the overall Trial Protocol for the 'Maths and Me' baseline survey questions.

The exploratory outcomes map to the short-term and medium-term changes anticipated by the logic model (see Figure 1 above) and draw from literature on belonging interventions (Walton & Cohen, 2007; York, 2016).

This trial will not use NPD data for outcome measurement. However, the variable *EVERFSM_6_P* from the NPD will be used for subgroup analysis to assess differential effects for pupils eligible for Free School Meals (FSM). This will be linked using pupil identifiers collected during the effectiveness trial and matched by NFER following standard data protection procedures.

Sample size

Table 2: Sample size calculations

Intracluster correlations (ICCs) at the tutor group level		0.30		**0.40 (main scenario)**		**0.50**	
		Overall	**FSM**	**Overall**	**FSM**	**Overall**	**FSM**
Minimum Detectable Effect Size (MDES) - with 10% school attrition only		0.17	0.19	**0.18**	**0.20**	0.19	0.21
Minimum Detectable Effect Size (MDES) - with **both** 10% school attrition and (expected) 25% pupil-level attrition		0.21	0.24	**0.22**	**0.25**	0.23	0.26
Pre-correlation		0.29					
Alpha		0.05					
Power		0.8					
One-sided or two-sided?		Two-sided					
Average cluster size		2.5					
Number of clusters (tutor groups)	Intervention	314 tutors					
					Assumed # FSM pupils = ~510		
	Control	314 tutors					
					Assumed # FSM pupils = ~510		
	Total	**628** tutors					
					Assumed # FSM pupils = ~1,020		

We perform and present our power calculations based on our primary outcome only. The sample size was determined using power calculations in Stata 16.0 statistical software, to calculate a range of Minimum Detectable Effect Size (MDES) given the assumed sample (1,568 pupils after school attrition of 10%), average cluster (tutor group size) of 2.5, proportion of the full sample that is eligible for FSM (65%), expected pupil attrition (25%), and intra-cluster correlation coefficient (ICC) as a range of 0.3 - 0.5. Please note that the total available sample size is restricted by the sample from the main evaluation. Note also that the ICC range is based on the nimble trials of three behavioural interventions designed to increase attendance at tutoring sessions delivered during the first year of the National Tutoring Programme (NTP). The NTP nimble trials used similar design to the present trial (i.e. two-arm clustered randomised controlled trial with clustering at the tutor level) for which the ICC for attendance was 0.37.[9]

Separate MDES figures are provided for the full sample and for the subgroup eligible for FSM respectively. Given there are very few studies that are perfectly comparable in terms of intervention, context and outcome measures, it is challenging to compare these MDES figures to established effect sizes in the relevant literature. However, the closest comparable study we have identified (Murphy et al., 2020) shows for a similar belonging intervention (measured by a randomised controlled trial in the US) positive effects ranging from d = 0.2 to 0.3 on outcomes that are likely at least equally as challenging to impact upon as belonging in a tutoring group (e.g. university persistence, grade point average). Given the MDES of 0.18 - 0.25 in our main scenario (0.18 - 0.22 for the anticipated full sample, 0.20 - 0.25 for the expected subsample of FSM-eligible pupils), we believe that the evaluation is powered based on a plausible and meaningful effect (while acknowledging that there is no guarantee this is the case).

Randomisation

BIT will conduct the randomisation, which will occur at the tutor level.

NFER will share pseudo-anonymised tutor IDs for all eligible tutors participating in the nimble trial with BIT. BIT will conduct the randomisation using pseudo-anonymised tutor IDs and share the outcome with NFER.

NFER will then match the pseudo-anonymised tutors IDs with the tutor names and share the tutor-level allocation outcomes (two lists of tutor names, one for tutors in the intervention group and one for tutors in the control group) with Action Tutoring. Programme Coordinators will be responsible for ensuring that the appropriate materials and instructions are shared with tutors in the correct condition (intervention or control). Programme Coordinators are likely to be responsible for intervention group tutors and control group tutors working within the same school. To mitigate the risk of contamination, Programme Coordinators will be made aware of the randomisation outcome and will communicate with tutors using separate email groups lists, segmented by tutors' randomisation outcome.

The randomisation code will be independently quality assured (QAed) by another researcher at BIT.

BIT will use statistical software (e.g. R or Stata) to conduct the random allocation. **Stratification is planned at the level of the school**, to ensure that each school has an even

[9] See Xu et al. (2021) and Chadeesingh et al. (2022).

balance of treatment and control pupils, thereby preventing accidental imbalances in school-level characteristics that could confound the treatment effect (and leading to greater school acceptability of randomisation). Stratification at further levels (e.g. year group, or programme length in Year 10) is not possible due to the available sample size, with an increased amount of stratification leading to a larger number of strata such that each stratum becomes too small to guarantee meaningful representation or reliable statistical analysis within each subgroup.

The randomisation process will follow these steps:

- Load tutor data into R or Stata
- Set a new random seed
- Assign each tutor a random number drawn from a uniform distribution (0–1)
- Sort tutors by random number (ascending)
- Assign the first half within each school to the **intervention** group, and the second half within each school to **control**
- If the total number of tutors is odd, assign the final tutor to whichever group has fewer participants; if tied, assign based on a second random number (T if <0.5, C otherwise)

Each condition will include an approximately equal number of tutors (±1%).

All randomisation-related data, code, and documentation will be archived by BIT. The primary analyst will not be blinded to group allocation. However, a secondary analyst will replicate the analysis while blinded, as part of BIT's internal quality assurance process. Results will be further checked by a senior member of the research team.

Statistical analysis

All analyses will be conducted by an analyst who will not be blind to group allocation. All analyses will be conducted on an Intention-to-Treat ("ITT") basis with complete cases.

Primary analysis

The primary outcome measure, Sense of Belonging in Tutoring Sessions (a composite score derived from two 6-point Likert items), will be analysed using a linear multilevel model, adjusting for available baseline scores (see *Table 1: Trial design* for a specific overview). The model will include the intervention arm as a primary predictor. To account for the hierarchical structure of the data, the model will include random intercepts at the tutor group and school levels, appropriately clustering pupils. If it emerges that some tutors have signed up across more than one school, we will use a cross-classified multilevel model, accounting for tutor- and school-effects.

Secondary analysis

The secondary outcome, Maths Attainment, will be analysed using a linear multilevel model. Maths attainment will be measured using standardised scores from NFER's Endpoint Access Maths assessments for Year 10 pupils and GCSE raw scores for Year 11 pupils. As per the 'Outcome' section above, scores for both measures will be standardised using z-scores. The model will include the randomly assigned intervention arm as a primary predictor and will adjust for available baseline maths attainment scores. To account for the hierarchical structure of the data, the model will include random intercepts at the tutor group and school levels, appropriately clustering pupils.

Exploratory analysis

Exploratory outcome 1: **Tutoring Attendance**

- Tutoring Attendance, drawn from Action Tutoring's internal records, will be examined as an exploratory outcome. It will be analysed as a continuous proportion of sessions attended using a linear multilevel model, adjusting for available baseline scores (see *Table 1: Trial design* for a specific overview). The model will include the intervention arm as a predictor and account for clustering at the tutor group and school levels.

Exploratory outcome 2: **Mathematical Self-Perception**

- **Mathematical Self-Perception**, assessed using relevant Likert-scale items from the NFER "Maths and Me" survey, will also be investigated as an exploratory outcome. A linear multilevel model will assess the intervention's impact, adjusting for available baseline scores (see *Table 1: Trial design* for a specific overview), and incorporating random intercepts at the tutor group and school levels.

Subgroup analysis

We will repeat the analysis of the primary outcome (**Sense of Belonging in Tutoring Sessions**) for those pupils who are FSM-eligible only, which we anticipate being approximately 65% of the randomised sample. This analysis will use the same measurement tool, wording, scoring, instrument adaptation, timing, and administration as the primary analysis. The variable EVERFSM_6_P from the NPD will be used for subgroup analysis to assess differential effects for pupils eligible for Free School Meals (FSM). This will be linked using pupil identifiers collected during the effectiveness trial and matched by NFER following standard data protection procedures.

Repeating the primary analysis for the subset of FSM-eligible pupils, despite likely not being as well powered to detect statistical effects, provides crucial exploratory insights into potential heterogeneity of treatment effects and can highlight whether the intervention is particularly effective for, or requires adaptation for, this educationally disadvantaged group, thereby informing future research or targeted policy / practice.

Estimation of effect sizes

For all continuous outcomes (Sense of Belonging, Maths Attainment, Mathematical Self-Perception, and the continuous measure of Tutoring Attendance), effect sizes will be calculated as Hedges' g. These will be estimated using the residual standard deviation from the respective multilevel model, which accounts for both baseline covariates and the hierarchical structure of the data (pupil, tutor group, and school levels). For the binary measure of Tutoring Attendance, both absolute differences in proportions (percentage points) and Cohen's h will be reported. For all estimated effect sizes (Hedges' g and Cohen's h) and the absolute differences in proportions, 95% confidence intervals will be computed to measure the uncertainty around the estimate.

Analysis in the presence of non-compliance

Compliance with the intervention will be measured at three distinct levels, with specific variables used to estimate compliance with the below pre-specified requirements, and collected as follows:

- Engagement with intervention delivery training materials (Tutor-level): Measured by whether tutors are sent and read intervention delivery instructions via email ahead of Week 3.
    - Variable type: Binary 1 = Compliant, 0 = Non-compliant
    - Expected level of compliance: 95% in the intervention arm and 100% in the control arm
- Intervention delivery (Tutor-level): Measured by whether the intervention is delivered by the tutor in Week 3 (or Week 4).
    - Variable type: Binary 1 = Compliant, 0 = Non-compliant
    - Expected level of compliance: ~90% in the intervention arm and 100% in the control arm
- Intervention completion (Pupil-level): Defined as completion of the belonging activity, measured by either activity completion (recorded online via submitted SmartSurvey forms or in-person via completed worksheets) and/or by recorded attendance at the session in which the intervention was delivered. This pupil-level measure will be used for the Complier Average Causal Effect (CACE) analysis.
    - Variable type: Binary 1 = Compliant, 0 = Non-compliant. A derived pupil-level compliance indicator can be constructed based on the tutor they were assigned to.
    - Expected level of compliance: ~70% in intervention arm (closely aligns with attendance) and 95% in the control arm.

Data for tutor-level compliance will be collected via Google analytics data for engagement with intervention delivery training materials. The guidance will be hosted on Action Tutoring's website as a PDF and the link will be shared with tutors. Data for tutor-level compliance will be collected through programme coordinator confirmation, for intervention delivery. Programme coordinators will record whether intervention group tutors complete the activity in week 3 or 4.

Pupil-level compliance will be assessed via activity completion (online via submitted SmartSurvey forms or in-person via completed worksheets) or attendance records. The primary approach to estimating the intervention effect will be an Intention-to-Treat (ITT) analysis for all outcomes, which includes all randomised participants with complete data regardless of their compliance status. In addition, a Complier Average Causal Effect (CACE) analysis will be undertaken for the primary outcome, Sense of Belonging in Tutoring Sessions. This CACE analysis will use the randomised assignment to the intervention arm as an instrumental variable for actual treatment receipt (i.e., pupil-level intervention completion). This approach assumes that randomised assignment influences the outcome only through its effect on actual intervention completion, and that there are no unmeasured common causes of compliance and the outcome. The feasibility of this CACE analysis is contingent on the availability of pupil-level compliance data (completed worksheets and/or SmartSurvey data).

While tutor-level compliance (engagement with intervention delivery guidance and intervention delivery) will not be used for the CACE analysis, it will improve our reporting on other levels of compliance. In the event of non-compliance at the tutor level, this will help us understand where overall compliance breaks down.

Additional analyses and robustness checks

We do not plan to conduct any other analyses or robustness checks in addition to the analyses described above.

Missing data will be systematically explored and addressed following EEF guidelines. The extent of missingness for the primary outcome (Sense of Belonging) and key secondary outcome (Maths Attainment) will be reported by detailing the number and proportion of pupils with missing data. Any known reasons for missingness and their prevalence will also be reported. If the proportion of missing data for either of these outcomes is 5% or less, no further analysis will be conducted. If the proportion of missing data exceeds 5% for the primary outcome, we will investigate the predictors of missingness and consider multiple imputation following EEF guidelines.

Implementation and process evaluation (IPE) design

Research questions

The Implementation and Process Evaluation (IPE) will explore the implementation, mechanisms, and contextual factors influencing the effectiveness of the intervention, complementing the Impact Evaluation (IE) by providing crucial insights into *how* and *why* observed effects occur, or indeed, why they don't occur. These research questions directly relate to the trial's logic model by investigating the pathways from intervention delivery to pupil outcomes, particularly focusing on the development of a sense of belonging and attainment. The IPE research questions are grouped by key dimensions:

1. Fidelity

- **RQ1.1 (Adherence):** Was the intervention delivered as intended?
- **RQ1.2 (Adaptations):** Were any adaptations made during its implementation?
- **RQ1.3 (Quality):** How well was the intervention delivered?.

2. Factors Influencing Effectiveness

1. **RQ2.1 (Mechanisms):** How did the intervention work to foster a sense of belonging among pupils?
    - *This question directly investigates the hypothesised causal pathway in the logic model, linking intervention activities to intermediate outcomes (e.g., increased engagement) and ultimately to the primary outcome of sense of belonging and secondary outcome maths attainment.*
2. **RQ2.2 (Moderating factors):** What factors affected the effectiveness of the intervention, particularly for disadvantaged pupils?
    - *This includes understanding specific facilitators and barriers to uptake and engagement with the programme for disadvantaged pupils, which is crucial given the trial's focus on this sub-group and secondary outcome maths attainment.*

3. Pupil Engagement and Impact

- **RQ3.1 (Pupil responsiveness):** Did pupils enjoy the intervention, what did they like/dislike about it, and what were their responses to receiving the interventions?

    - *This directly assesses engagement and initial reactions, providing qualitative depth to the quantitative outcomes.*
- **RQ3.2 (Perceived impact):** What difference did staff and pupils think the intervention made to pupils' sense of belonging, attainment, attendance, engagement and overall experience?
    - *This complements the quantitative impact evaluation by capturing subjective perceptions of change.*

4. Business as Usual (Programme Differentiation)

- **RQ4.1 (Programme differentiation):** What (if any) similar interventions or activities were delivered in the intervention and control tutor groups that might have influenced the observed outcomes?
    - *This question helps contextualise the findings by understanding the counterfactual and potential contamination or co-interventions in the control arm.*

Research methods

The Implementation and Process Evaluation (IPE) for the Nimble Trial will sit within the larger IPE for the full trial, such that the IPE questions for the Nimble Trial will be added to the overall trial's existing research activities. The IPE for the Nimble Trial will use a mixed-methods approach to collect data in Spring/Summer 2026, addressing IPE research questions and complementing the Impact Evaluation.

Qualitative data will include interviews and focus groups with stakeholders. Two online focus groups with 6-8 Programme Coordinators (PCs) in Spring/Summer 2026 will explore their role, fidelity, enablers/barriers, and nimble IPE topics like instruction sharing and sentiment. Any sampling criteria to be used for these PC focus groups have yet to be finalised. Two group interviews with the delivery team in Summer 2026 will cover implementation, fidelity, and perceived impact. Any sampling criteria for the group interviews have yet to be finalised.

Additionally, eight one-day school case study visits (Spring/Summer 2026) will involve interviews with the 'link teacher' and up to 2 volunteer tutors, plus up to 8 student focus groups with up to 6 students per group across Y10 and 11). Pupils will be selected by school staff, but they will be guided by NFER to select based on certain criteria e.g. background characteristics, different levels of attendance and engagement, and different starting points in terms of maths attainment. Focus groups will be set up by a staff member in schools. Pupil focus groups will include pupils in both intervention and control tutor groups but pupils in the nimble trial intervention tutor groups will comprise two-thirds of the sample. See Table 3 below for a summary of these activities.

These methods address all IPE RQs, focusing on factors influencing effectiveness (RQ2), pupil engagement (RQ3), and contextual factors. Quantitative IPE data will be collected via an online tutor survey of all tutors in Summer 2026. The survey will be administered by NFER, including a number of reminders to maximise response and will explore views on training, implementation, curriculum, and perceived outcomes, covering nimble IPE topics like compliance, acceptability, barriers/enablers, and perceived impact. Business-as-usual in control tutor groups and usual practice in intervention tutor groups (RQ4.1), alongside contextual information, will be captured through PC interviews (exploring school relationships and barriers/enablers) and case study visits (focusing on contextual factors and mechanisms).

The survey will be administered by NFER, including a number of reminders to maximise response.

For further details on the IPE research methods and analysis in the context of the overall trial, please see the section "**Implementation and process evaluation (IPE) design**" in the main trial document, in particular "**Table 5: IPE methods overview**".

Table 3: IPE methods overview

IPE dimension	RQ addressed	Research methods	Data collection methods	Sample size and sampling criteria	Data analysis methods
Fidelity	RQ1.1 (Adherence): Was the intervention delivered as intended?	Interviews	Online focus groups with Programme Coordinators (PCs)	Two online focus groups with 6-8 PCs Any sampling criteria to be use for these PC focus groups have yet to be finalised.	Thematic analysis of interview/focus group transcripts.
		Survey	Online Tutor Survey	Between 523 and 868 tutors across each of the evaluation schools (868 being the maximum with no school-level attrition (i.e. 62 schools rather than 56) and two pupils per tutor, 523 being the minimum with 10% school-level attrition (56 schools post attrition) and three pupils per tutor).	Descriptive statistics on compliance metrics.
	RQ1.2 (Quality): How well was the intervention delivered? Were any adaptations made?	Interviews	Online focus groups with PCs / Group interviews with delivery team	Two online focus groups with 6-8 PCs; Two group interviews with delivery team (various roles) (number of participants not specified) Any sampling criteria to be used for these PC focus groups and delivery team interviews have yet to be finalised.	Thematic analysis of interview transcripts.
		Survey	Online tutor survey	Between 523 and 868 tutors across each of the evaluation schools (868 being the maximum with no school-level attrition (i.e. 62 schools rather than 56) and two pupils per tutor, 523 being the minimum with 10% school-level attrition (56 schools post attrition) and three pupils per tutor).	Descriptive statistics on perceived quality and adaptations.
		Case Study Visits	Interviews (link teachers, maths teachers, volunteer tutors)	8 schools; Interviews with 1 link teacher, up to 2 maths teachers, up to 2 volunteer tutors per school	Thematic analysis of interview transcripts.
Factors influencing effectiveness	RQ2.1 (Mechanisms): How did the intervention work?	Interviews	Online focus groups with PCs / Case Study Interviews/Focus Groups	Two online focus groups with 6-8 PCs; Case Study Visits (interviews with volunteer tutors; focus groups with	Thematic analysis to identify perceived mechanisms.

				Y10/Y11 students). Any sampling criteria to be use for these PC focus groups and tutor interviews have yet to be finalised.	
		Survey	Online tutor survey	Between 523 and 868 tutors across each of the evaluation schools (868 being the maximum with no school-level attrition (i.e. 62 schools rather than 56) and two pupils per tutor, 523 being the minimum with 10% school-level attrition (56 schools post attrition) and three pupils per tutor).	Descriptive statistics on acceptability; thematic analysis of open-ended responses.
	RQ2.2 (Moderating factors): What factors affected the effectiveness of the intervention?	Interviews	Online focus groups with PCs / Case Study Interviews/Focus Groups	Two online focus groups with 6-8 PCs; Case Study Visits (interviews with link teachers, maths teachers, volunteer tutors; student focus groups) Any sampling criteria to be use for these PC focus groups or interviews with teachers or tutors have yet to be finalised. For student focus groups, pupils will be selected by school staff, but they will be guided by NFER to select based on certain criteria e.g. background characteristics, different levels of attendance and engagement, and different starting points in terms of maths attainment. Focus groups will be set up by a staff member in schools.	Thematic analysis to identify perceived facilitators, barriers, and contextual moderating factors.
		Survey	Online tutor survey	Between 523 and 868 tutors across each of the evaluation schools (868 being the maximum with no school-level attrition (i.e. 62 schools rather than 56) and two pupils per tutor, 523 being the minimum with 10% school-level attrition (56 schools post attrition) and three pupils per tutor).	Descriptive statistics on barriers and enablers.

Pupil engagement and impact	RQ3.1 (Pupil responsiveness): Did pupils enjoy the intervention? What did they like/dislike? What answers did they come up with?	Case Study Visits	Student focus groups (Y7, Y10, Y11)	Up to 16 focus groups (two per school, up to 6 students per group) across 8 schools Pupils will be selected by school staff, but they will be guided by NFER to select based on certain criteria e.g. background characteristics, different levels of attendance and engagement, and different starting points in terms of maths attainment. Focus groups will be set up by a staff member in schools.	Thematic analysis of student focus group transcripts.
	RQ3.2 (Perceived impact): What difference did staff, volunteer tutors and pupils think the intervention made?	Interviews	Online focus groups with PCs / Group interviews with delivery team	Two online focus groups with 6-8 PCs; Two group interviews with delivery team (various roles) (number of participants not specified) Any sampling criteria to be use for these PC focus groups have yet to be finalised.	Thematic analysis of perceived impact.
		Survey	Online tutor survey	Between 523 and 868 tutors across each of the evaluation schools (868 being the maximum with no school-level attrition (i.e. 62 schools rather than 56) and two pupils per tutor, 523 being the minimum with 10% school-level attrition (56 schools post attrition) and three pupils per tutor).	Descriptive statistics on perceived outcomes for themselves and pupils.
Business as usual	RQ4.1 (Programme differentiation): What (if any) similar interventions were delivered (in the control group?)?	Interviews	Online focus groups with PCs / Case Study Interviews	Two online focus groups with 6-8 PCs; Case Study Interviews (link teachers, maths teachers) in 8 schools Any sampling criteria to be use for these PC focus groups have yet to be finalised.	Thematic analysis of perceptions of similar activities in control schools and usual practice.

Ethics and registration

See *ethics and registration* in the effectiveness Trial Protocol

Safeguarding

The nimble trial has been designed to mitigate potential risks to the wellbeing of both participants (pupils, tutors, and school staff) and researchers. Note that all IPE data will be collected by NFER researchers as part of the overall IPE for the full trial - **no BIT staff will be involved in IPE data collection**. While the intervention itself is considered low-risk, the following potential issues have been identified and mitigated:

- **For Pupils (Nimble trial intervention):** The primary risk is that the social belonging activity (i.e. the intervention in the nimble trial) could backfire. If a pupil does not relate to the peer messages, it could reinforce feelings of not belonging or lead to disengagement. This risk is mitigated by framing the activity not as a personal intervention but as an activity to help future pupils, which shifts the focus away from the pupil's own potential shortcomings. The materials have also been tailored with simple, age-appropriate language and reviewed by experts to ensure they are accessible and sensitive. The voluntary nature of the activity is also emphasised at the time of intervention, so pupils can choose not to participate if they wish.
- **For Pupils (focus groups):** The primary risk to pupils in focus groups is emotional harm from discussing sensitive topics like sense of belonging or mathematical self-perception. To prevent this, participation is voluntary with a separate opt-in consent process for pupils and parents. The groups are conducted in a safe, semi-public space with a staff member present, and pupils are told they can withdraw at any time. Prior to beginning the focus group, the researchers will agree some ground rules for the group with the pupils and have a discussion with them about the types of scenarios in which we would need to break confidentiality, to ensure they fully understand what this means.
- **For Tutors:** For tutors, the main risk in the research activities (surveys) is a feeling of obligation or coercion to participate. To mitigate this, their involvement is explicitly described as voluntary, and they are informed of their right to withdraw from the evaluation at any time. The online tutor survey is designed and administered by NFER, not Action Tutoring, to ensure tutors feel they can be honest without fear of negative consequence.
- **For Programme Coordinators:** Programme Coordinators may feel pressure to present the program in a positive light, creating a risk of inaccurate reporting. The online focus groups with Programme Coordinators are moderated by a third party (NFER) to create a safe space for candid feedback on implementation successes and barriers.
- **For Researchers:** Researchers, particularly those conducting interviews or focus groups for the IPE, might encounter sensitive topics or difficult conversations. While the trial is not focused on highly sensitive topics like abuse, discussions about a pupil's sense of belonging, confidence, or struggles with learning could still be emotionally challenging for both the pupil and the researcher. All IPE data will be collected by NFER researchers as part of the overall IPE for the full trial - **no BIT staff will be involved in IPE data collection.** NFER's safeguarding and escalation

processes have been approved by EEF for the purposes of the overall Action Tutoring evaluation.

We have also considered the possibility that pupils may disclose information in their responses submitted as part of the activity, which raises safeguarding concerns not relating to the intervention. While we would not expect many instances of sensitive information / disclosure given the design and content of the activity, we have taken the following steps to ensure these are identified and appropriately addressed:

For activity responses submitted via paper worksheets.

1. Action Tutoring will collect and manually read these.
2. BIT will not receive them.
3. Action Tutoring will follow their approved safeguarding policy / processes if any disclosure / sensitive information is found.

For activity responses submitted via online versions.

1. Ownership of the belonging activity survey account will be transferred to Action Tutoring before the nimble trial begins. BIT will not have access to it after this point.
2. Action Tutoring will share the activity responses (excluding names and schools) with BIT for BIT to manually read the responses.
3. The rationale for this is to minimise the burden on Action Tutoring's resources.
4. BIT will manually read all responses and raise any safeguarding concerns with Action Tutoring.
5. Action Tutoring will then follow their approved safeguarding policy / processes, as with the paper worksheets.

Evaluation

1. Responses where there is a disclosure will be removed from the evaluation.
2. Action Tutoring will contact NFER in relation to these instances.
3. NFER would then remove those pupils from the dataset shared with BIT.

Data protection

See *Data Protection* in the effectiveness Trial Protocol

Personnel

See *Personnel* in the Effectiveness Trial Protocol

Risks

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies	Adjusted risk	
		Likelihood	Impact		Likelihood	Impact
1	Randomisation error or contamination	Low	High	BIT will carry out and monitor tutor-level randomisation. PCs will implement allocation and communicate separately with treatment and control tutors. Distinct segmented group mailing lists will be used to avoid contamination.	Low	High
2	Tutors fail to deliver the intervention as planned (e.g. skip or replace the activity, deliver it incorrectly, or at the wrong time)	Medium	High	PCs will send clear instructions and reminders. Delivery tracked via coordinator confirmation. PCs will step in to deliver if the tutor is absent. Tutors will receive behaviourally-informed materials and guidance to support correct delivery.	Low	High
4	Low pupil completion rate of the activity (refusal)	Medium	Medium	Tutors' guidance tells them to encourage and support pupil completion. The activity is short (15 mins), done at the start of the session, and designed to be engaging. Submission (online) or worksheet collection (in person) will be monitored to assess completion.	Low	Medium
5	Measurement tool limitations for primary outcome	Medium	Medium	Questions have been adapted from validated instruments (PISA, Walton & Cohen). Reading level checked. Greg Walton and Andreas Schleicher consulted, with their advice incorporated into question design.	Low	Medium
6	Risk of tutor or pupil group switch post-randomisati	Low	Medium	Action Tutoring central delivery team to ask PCs to monitor pupil switches post-Week 3. While it will not be possible to limit pupil	Low	Medium

	on			switches, we will know pupil groups as of weeks 3 (and 4), when the activity is delivered.		
7	Spillover risk between pupils in same school	Low	Low	Each pupil is assigned to a single tutor group, preventing them from receiving both the intervention and control conditions. This significantly reduces the risk of spillover between groups.	Low	Low
8	Implementation variation across delivery modes (in-person vs online)	Medium	Low	Intervention materials have been tailored for both online and in person formats but are identical in content.	Low	Low
9	Low (perceived) applicability of findings	Low	High	Ensure tested strategy is of interest to many tutoring providers by carefully communicating results and highlighting application in various contexts - the tested strategy can replace warm-up activities that we know many tutoring providers have. The time commitment is low and light-touch, which would make widespread adoption from other tutoring providers easier in the event of a positive result.	Low	High

Timeline

See *Timeline* in the effectiveness Trial Protocol

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Appendix D: Nimble Trial worksheet and online activity materials

Warm-up activity

What is the name of your school?

What is your name?

Welcome to your warm-up activity!

We know that some pupils can have concerns about starting tutoring.

To help future Action Tutoring pupils we want to put together messages with **advice from pupils like you** who are receiving tutoring this year.

Your advice and experience could make a real difference for future pupils. This activity is designed to help you create your message. The message you create at the end of the activity doesn't have to be perfect - just be **honest and kind**.

What's this all about?

First, you're going to read some short messages from pupils who have had tutoring with us. They speak honestly about what it felt like at the beginning and how things changed for them over time.

As you read the messages, think about what feelings or experiences sound familiar to you.

1. Read the following messages from previous Action Tutoring pupils:

These are real messages from former Action Tutoring pupils. We asked their permission to use their words, names and photos.

A message from Olivia, 17

"To begin with, I felt really out of place in tutoring. I felt like everyone else was better than me at maths and I was being left behind. Things got better with time, especially when I started asking questions when I was stuck. My tutor was really understanding and explained things clearly. Over time, things just started to click. I felt my confidence grow and, eventually, I passed my GCSE, which I never thought would happen. The key was sticking with it."

A message from Amir, 17

"At first, I felt a bit anxious coming to tutoring as I was really struggling in maths. Whenever a teacher asked me a question in class, my brain would just go blank and I would get so embarrassed. I thought tutoring would be the same but it was completely different. When I didn't understand something, I could actually stop and ask for help. We were all there for the same reason, so nobody judged anyone. I realised I wasn't bad at maths, I just needed some help. In the end, I got a 4 in my GCSE which I was so proud of!"

A message from Sara, 17

"At first, I didn't really think I needed tutoring. I was close to getting a 4 but I found some topics really hard and I never said anything because I didn't want people to think I was stupid. What helped was just turning up each week. I got to know my tutor and I realised I could ask questions - they were literally just there to help. We worked on the topics I found hard and I practised between sessions. I actually got a 5 in my GCSE and it felt amazing to see my hard work pay off!"

2. Think about your own experiences.

It's normal to find things difficult when you are just starting them. Take two minutes to think about:

- A time when you weren't sure if you fit in at first, but things got better over time.
- Why you felt that way.
- What helped things to change or improve for you.

3. Write a message to next year's Action Tutoring pupils.

Next year, a new group of Action Tutoring pupils will be about to start tutoring. Some of them will be nervous and won't know what to expect.

To help them, **please write a short message** (about three to six sentences) to a future pupil who's just starting out with tutoring, like you once did. Think about your experience of tutoring so far and what you expect the rest of tutoring to feel like. This should take around five minutes.

This is your chance to **pass on what you've learned**, and help future Action Tutoring pupils.

Your message ***won't*** be shared with teachers or classmates. If it's shared with another pupil, your name won't be included.

Your message doesn't have to be perfect – just be honest and kind.

We will never use your name or message without your permission. If we did want to share your message with future pupils, we would ask your permission first – and you can always say no.

Are you happy for us to contact you if we'd like to share your message with future pupils?

- ☐ Yes
- ☐ No

Appendix E: Nimble Trial instructions for tutors

Warm-up activity

The social-belonging activity
Step-by-step guide for face-to-face tutors

You will need:

A printed worksheet for each pupil (provided by your Programme Coordinator). You can also download the pdf here.

Before the activity:

Read through the activity in advance so you're familiar with what your pupils will see. Your PC will:

- Email the PDF worksheet to you before the session.
- Print copies for your pupils and bring these to your session.

During the activity:

Step one **Introduce the activity. You can use the following wording:**

"Today's warm-up is going to be a bit different.

We want to learn from your experiences to help pupils that are starting tutoring next year.

You're going to hear about how previous pupils found tutoring and then create a message to encourage next year's tutoring pupils.

You're going to be completing the activity individually and we've got 15 minutes.

Let me know if you have any questions or need help with anything! Your message doesn't need to be perfect, just be honest and kind!"

For the activity to work, it's really important that **pupils feel like they are offering advice to support others**, not receiving an intervention. Similarly, do not refer to the activity as a belonging activity. Just call it "***today's warm-up activity.***"

Step two **Pupils begin the activity.**
Share the activity worksheet with pupils and tell them to begin.

The activity is designed for pupils to be able to complete it independently. However, you should support pupils with any questions they may have.

- While pupils are working, check they're making progress and offer support.
- Avoid group discussions unless several pupils are struggling with the same issue - in that case, address it briefly, clarify instructions, and ask pupils to continue individually.
- Let pupils know when there are 10 minutes left.

Step three **Check in on pupils' progress and offer support.**
Pupils must finish completing the activity within 15 minutes.

Let the pupils know when they have five minutes left and encourage them to start writing their message if they haven't already.

This is where pupils are most likely to need support. If pupils are struggling, try the following sentence stems to help them start their message.

- *When I first started tutoring I felt...*
- *I felt this way because....*
- *Now I feel...*
- *I feel this way because...*
- *What changed for me was...*
- *If you're worried about tutoring, it can help if you... and....*

After the activity:

Your Programme Coordinator will collect the worksheets after 15 minutes.

Tell pupils that if they have any concerns about tutoring they can speak to their tutors, their teachers, or their Action Tutoring Programme Coordinator.

Warm-up activity

The social-belonging activity
Step-by-step guide for online tutors

You will need:

The online activity link: https://surveys.bi.team/s/1BYISU/

*If there are any technical issues you can print and use copies of the PDF version of the activity: Download it **here**.*

Before the activity:

- Read through the activity in advance so you're familiar with what your pupils will see.
- Upload the 'warm-up activity overview' slide to Vedamo.

During the activity

Step one **Introduce the activity. You can use this wording:**

"Today's warm-up is going to be a bit different.

We want to learn from your experiences to help pupils that are starting tutoring next year.

You're going to hear about how previous pupils found tutoring and then create a message to encourage next year's tutoring pupils.

You're going to be completing the activity individually and we've got 15 minutes.

Let me know if you have any questions or need help with anything! Your message doesn't need to be perfect, just be honest and kind!"

For the activity to work, it's really important that **pupils feel like they are offering advice to support others**, not receiving an intervention. Similarly, do not refer to the activity as a belonging activity. Just call it "***today's warm-up activity.***"

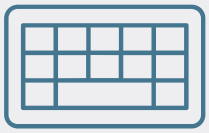
Step two **Pupils begin the activity. Share the link with them.**
https://surveys.bi.team/s/1BYISU/

The activity is designed for pupils to be able to complete it independently. However, you should support pupils with any questions they may have.

- While pupils are working, check they're making progress and offer support.
- Avoid group discussions unless several pupils are struggling with the same issue - in that case, address it briefly, clarify instructions, and ask pupils to continue individually.
- Let pupils know when there are 10 minutes left.

Step three **Check in on pupils' progress and offer support.**
Pupils must finish completing the activity within 15 minutes.

Let the pupils know when they have five minutes left and encourage them to start writing their message if they haven't already.



This is where pupils are most likely to need support. If pupils are struggling, try the following sentence stems to help them start their message.

- *When I first started tutoring I felt...*
- *I felt this way because....*
- *Now I feel...*
- *I feel this way because...*
- *What changed for me was...*
- *If you're worried about tutoring, it can help if you... and....*

After the activity:

Ask pupils to ensure they have clicked 'submit'. No further action is needed. Pupils' responses are collected automatically when they click submit.

Tell pupils that if they have any concerns about tutoring they can speak to their tutors, their teachers, or their Action Tutoring Programme Coordinator.

Social-belonging activity

Background information

Action Tutoring and the Behavioural Insights Team (BIT) are trialling a promising method for improving pupil engagement in tutoring sessions.

The approach that will be tested is a **social-belonging activity**; a short warm-up activity to be completed in pupils' third or fourth tutoring session, which aims to help improve pupils' sense of belonging.

What's in this guide?

What is the activity?

This **social-belonging activity** is designed to help pupils feel like they belong and can thrive in the Action Tutoring programme.

It is a short, one-off 15 minute activity to replace the usual warm-up activity in session three or session four with Year 10 and 11 pupils.

Pupils will:

1. **Read three messages** from previous Action Tutoring pupils,
2. **Reflect on their own experiences and feelings of tutoring so far**, and,
3. **Write a short message to help future Action Tutoring pupils** who might be worried about starting the programme.

Why does it matter?

Evidence shows that feelings of non-belonging are common in education settings, especially around 'transitions', like starting a new school or tutor group.

Starting tutoring can be nerve-racking and when things feel difficult, pupils who feel like they don't belong may assume it's a sign they don't belong and can't succeed, rather than a normal challenge that everyone goes through.

Reading messages from past pupils who have experienced and overcome similar challenges, helps pupils see that these feelings are normal, they lessen over time, and that they can succeed too.

Writing advice to future pupils helps them to internalise this message and makes it more likely that they will engage in positive behaviours that can help them thrive in tutoring.

Research has shown that these types of short activities can reduce belonging uncertainty and improve academic attainment, especially for disadvantaged pupils.

The research behind the belonging activity

Pupils' sense of belonging is their perception of their relationship with a community they're part of, like their school. It's more than just having good relationships with their peers, it's about **feeling accepted, included, respected, and able to contribute.**[1]

Belonging uncertainty is when an individual is unsure if they fully belong, or will ever fully belong in an environment. **When people experience belonging uncertainty, they interpret everyday adversity as a consequence of their lack of belonging, rather than a common challenge to be overcome.**

There is a breadth of evidence that shows that **feelings of not belonging can cause and exacerbate inequalities in education** by negatively impacting affected pupils' attainment, enrolment and persistence.[2]

Disadvantaged and negatively stereotyped pupils are more likely to be impacted by feelings of non-belonging than their peers. When facing everyday challenges, particularly during periods of transition (like starting a tutoring programme), these pupils are more likely to reach the conclusion that they do not belong.[3]

Social-belonging activities have been shown to increase pupils' sense of belonging in academic settings by offering pupils an alternative way of understanding adversities and how they can be overcome.[4]

This protects pupils' sense of belonging, helping them recognise adversities as normal and faced by all pupils, rather than a result of their own lack of belonging in the setting. **This understanding helps pupils continue to engage in positive academic practices (i.e. regular attendance, building positive relationships with their peers, teachers, and tutors, and seeking support when needed)**. Previous interventions have helped significantly increase disadvantaged groups' participation and attainment in education.[5]

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[1] Walton, G. M., & Brady, S. T. (2021). The social-belonging intervention. In G. M. Walton & A. J. Crum (Eds.), Handbook of wise interventions: How social-psychological insights can help solve real-world problems (pp. 36–62). The Guilford Press.
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[4] Walton, G. M., & Brady, S. T. (2021). The social-belonging intervention.
[5] Walton, G. M., et al. (2023). Where and with whom does a brief social-belonging intervention promote progress in college?. Science, 380(6644), 499-505. https://doi.org/10.1126/science.ade4420

Support and frequently asked questions

If you can't find an answer below then please get in touch with us: callum.omahony@bi.team.

A pupils' message has raised a safeguarding concern, what should I do?

You should follow the safeguarding procedures set out in Action Tutoring's safeguarding policies: actiontutoring.org.uk/for-schools/safeguarding/

What if we run out of time to complete the activity?

It is really important that pupils **read/listen to the messages from previous pupils** and **write their own message to future pupils**. Remind pupils that their messages don't need to be long or perfect - they should just try to be honest and kind!

Can I change the introduction script to suit my pupils?

Yes - just make sure you **keep the key idea: that they're helping others by sharing their honest experience**.

What should I say to a pupil who asks who will read their message and why they will read them?

Reassure them that their message won't be shared with teachers or classmates, and it will only be shared with another pupil in the future with their explicit permission.

How much should I help pupils with the reading or writing sections?

Support pupils as you would in any other part of the sessions. You can explain words, read aloud, or help them get started with their message if they're stuck. Your Programme Coordinator will share a worksheet with you before the session, which will guide you with pointers on how to support pupils.

What if some pupils are absent from the session - should I repeat the activity in a later session?

No—the activity has been specifically designed for session three or four. So please only deliver it to pupils who are present in the week you are instructed to complete the activity by your Programme Coordinator.

What if pupils find the messages from past pupils unrelatable or unhelpful?

They might not connect with everything - you could ask them to look for just one part that feels familiar to them.

Remind them that this is their chance to write the kind of message they'd find helpful if they were starting tutoring for the first time - one that might really help a future pupil who feels the same way they do now.