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

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

Education Endowment Foundation

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)
Principal investigator(s)	Dr Stephen Welbourne
Protocol author(s)	Ruth Staunton, Stephen Welbourne, Sarah Lynch and Eleanor Bradley
Trial design	Three two-armed RCTs with randomisation at pupil-level within school blocks Nimble trial within main trial
Trial type	Effectiveness
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)

Protocol version history

Version	Date	Reason for revision
1.0 [*original*]	30/07/2025	

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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.

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 7.1There is an initial set-up meeting between Action Tutoring and an identified link teacher

[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.

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.

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

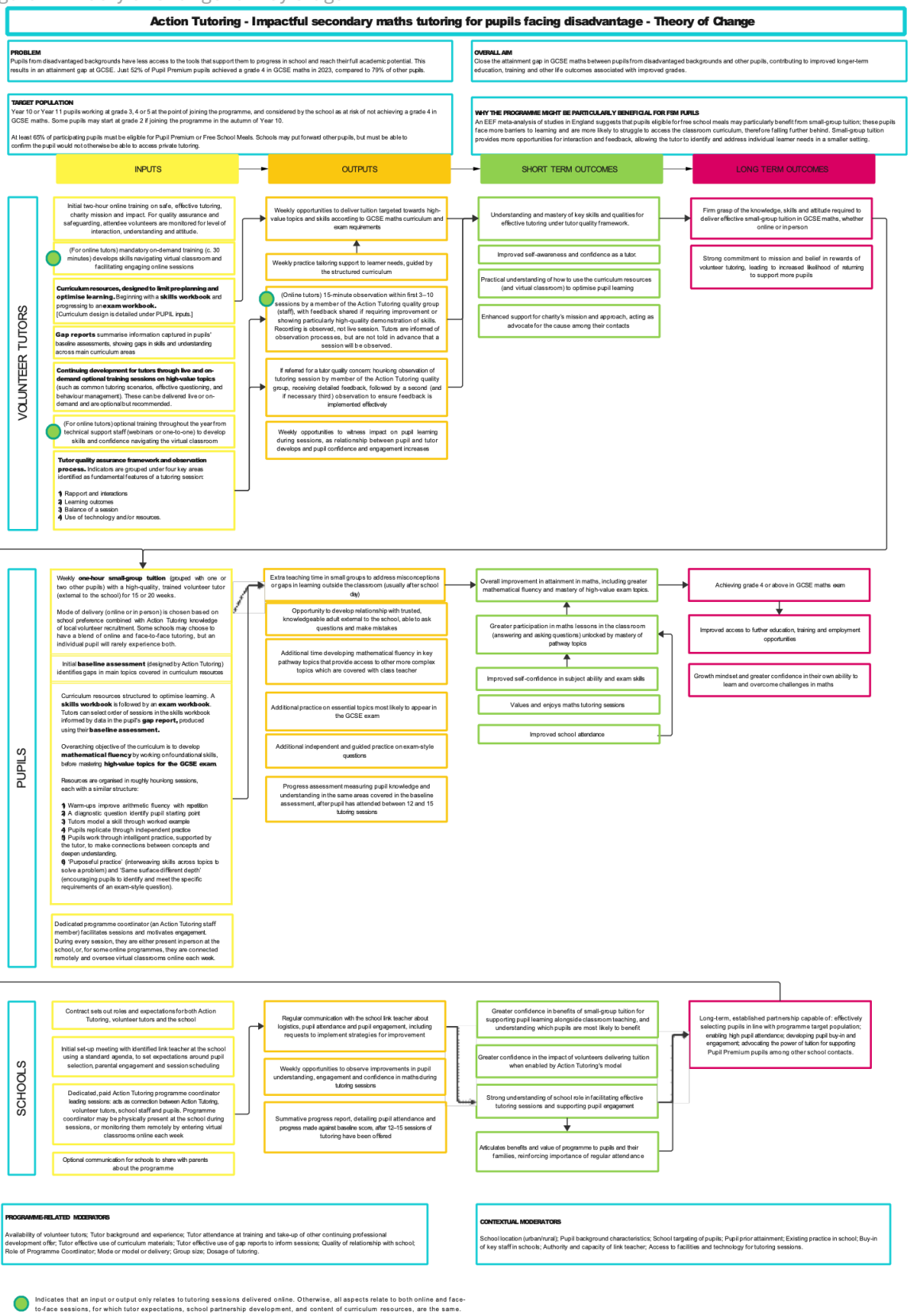
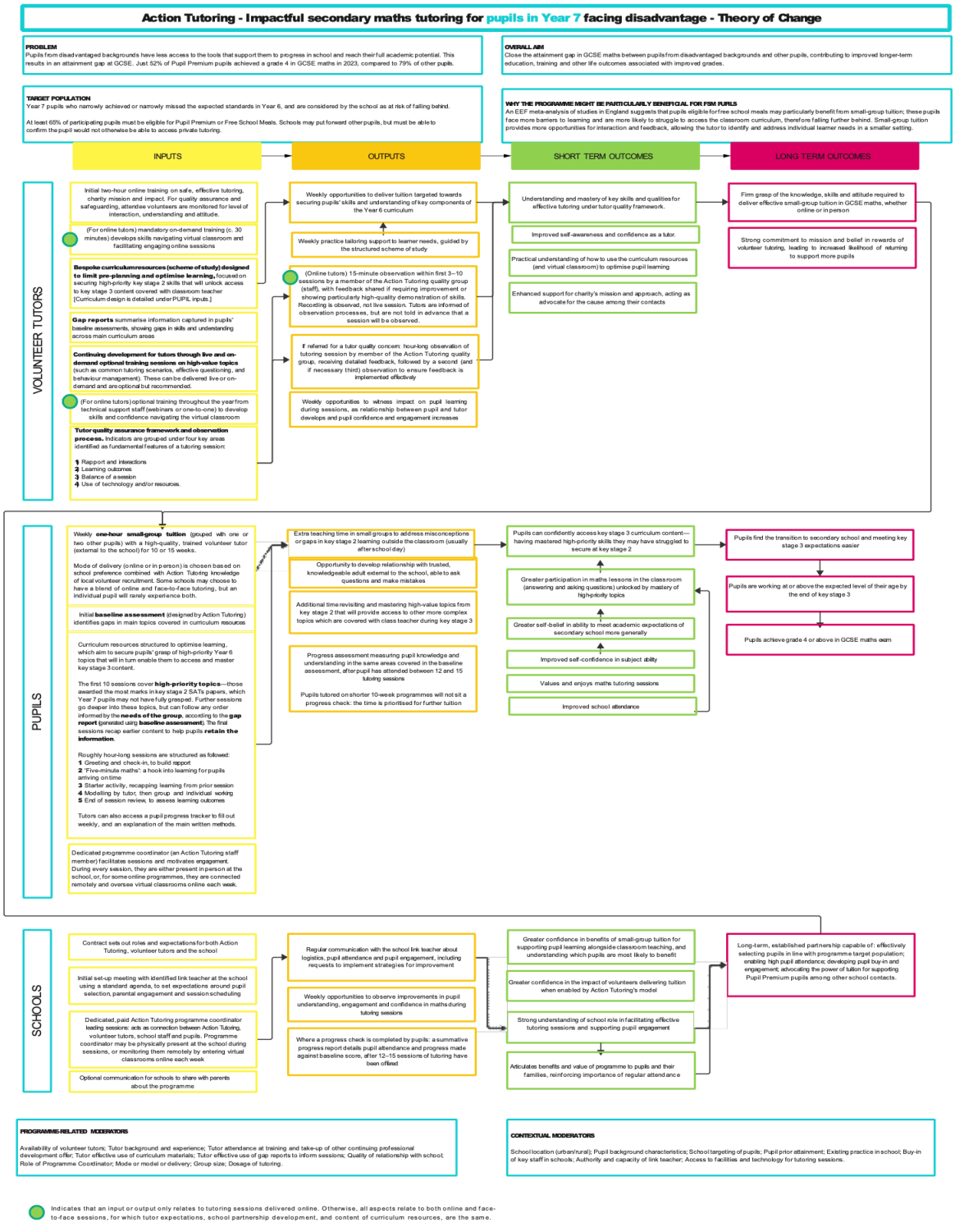


Figure 2: Theory of Change for Year 7



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

[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.

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 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

[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

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

[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

represents the historic correlation between maths GCSE score and their baseline test score. The 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

[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

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.

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.

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

1.2 How were pupils selected? What criteria were used for pupil selection?

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

1.4 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?

1.5 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. Evidence of promise (Y7 only)	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
	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' attendance at tutoring sessions, motivation towards maths, and maths attainment. The design of the nimble trial is still being discussed, and further details about this element of the project will be added to a later version of this protocol.

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.

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.

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.

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

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.
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

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies
		Likelihood	Impact	
				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 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 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

Risk No.	Risk	Risk assessment		Mitigation, counter measures, contingencies
		Likelihood	Impact	
				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 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

Dates	Activity	Staff responsible/ leading
Dec ‘24	Project set-up meeting 2	Stephen Welbourne, Sarah Lynch, Sophie Ainsby
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 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 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: _____

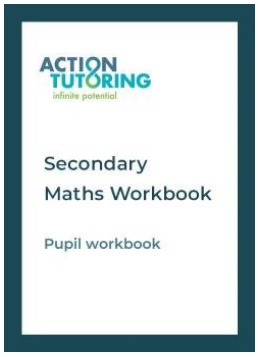
Action Tutoring introduction

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 $8 = x + 5$

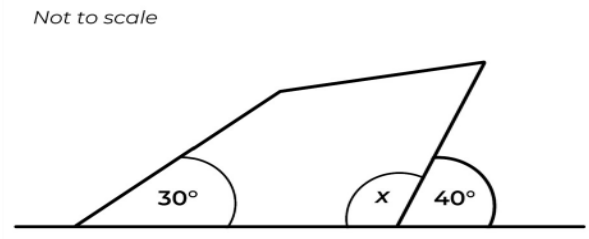
(1 mark)

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

1)

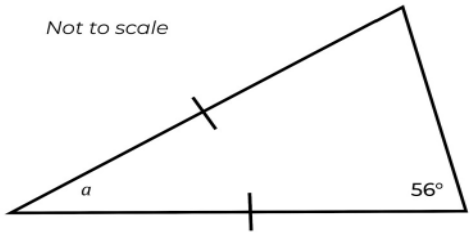
2) marks)

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

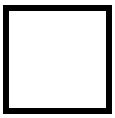
A)

(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) $a(6a + 18)$

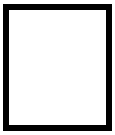
(1 mark)

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.

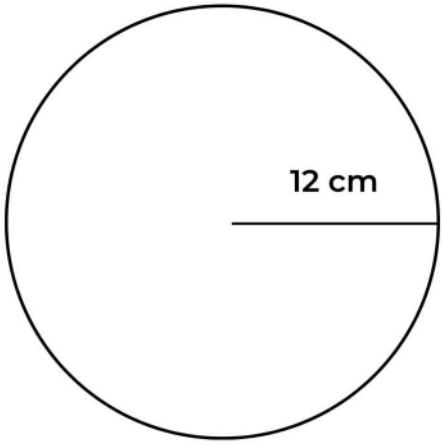
A)

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)

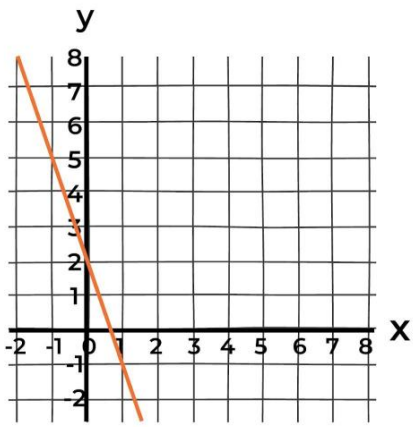
25) What is the equation of the line in the graph below? Circle your answer.

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)

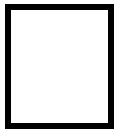
29) Using 5 mph = 8 km/h, what is 45 mph in km/h?

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.