



Department  
for Education

# **Methodological annex for 2023 to 2024 PGITT target calculations**

**April 2023**

# Contents

Introduction	3
Expiry or review date	3
Who is this publication for?	3
Section 1. Scope of the calculations – the state-funded schools sector	4
Section 2. Key terms	5
Section 3. How are secondary teachers assigned to individual subjects?	6
Section 4. Estimating future demand at phase level	7
Section 5. Estimating future secondary demand at subject level	8
Section 6. Estimating future supply, and adjustments relating to under-recruitment impacts	9
Section 7. Estimating future returner and new to state-funded sector (NTSF) entrant numbers	11
Section 8. Estimating future newly qualified entrant (NQE) numbers	12
Section 9. Estimating future leaver numbers, and the flows-stock adjustment	14
Section 10. Estimating future entrant need	16
Section 11. Estimating NQE need and postgraduate ITT trained NQE need	17
Section 12. Converting 2024/25 postgraduate ITT trained NQE need into the number of 2023/24 postgraduate ITT trainees required	18

## Introduction

This document provides technical details and information to accompany the ‘calculation of 2023/24 postgraduate initial teacher training (ITT) targets’ Excel workbook. This includes the scope of the calculations, key terms, the calculation processes, and the assumptions used.

Further information on the 2023/24 targets themselves and the drivers behind them may be found on the related [Explore Education Statistics \(EES\) webpage](#).

## Expiry or review date

This guidance will be reviewed in advance of the publication of 2024/25 postgraduate initial teacher training (ITT) targets.

## Who is this publication for?

This guidance is for:

- Any users of the ‘calculation of 2023/24 postgraduate initial teacher training targets’ Excel workbook.

## **Section 1. Scope of the calculations – the state-funded schools sector**

All calculations have been made on the basis of meeting the future demand for teachers in state-funded primary and secondary schools in England. This includes post-16 provision within state-funded secondary schools. All calculations are at a national level.

Whilst special schools, pupil referral units, independent schools, supply teachers, Welsh schools, and Scottish schools are considered as being out of scope, these calculations do account for the needs of such institutions indirectly.

For example, these calculations assume that some teachers will leave service in state-funded primary or secondary schools in England to teach in independent schools (or other types of school that are out of scope of the ITT targets). Similarly, they assume that some newly qualified entrants that completed their training in England will enter service within schools that are considered as being out of scope for the targets. Therefore, the postgraduate ITT targets indirectly account for some of the demand for teachers in sectors that are considered as out of scope.

These calculations also account for the fact that some teachers move in the opposite direction, and that teachers move to state-funded primary and secondary schools from other sectors. For example, some teachers may enter service in state-funded primary and secondary schools in England from Wales, Scotland, and the other school sectors in England.

As the calculations cover state-funded primary and secondary schools in England, some data within these calculations may differ with Official Statistics, such as pupil projections and school workforce census data, due to coverage differences. The data within these calculations is not intended to supplement other publications, it has been provided for separate purposes relating to improving transparency.

## Section 2. Key terms

ITT – initial teacher training.

QTS – qualified teacher status.

AO – assessment only. Teachers who have gained qualified teacher status by the assessment only route to QTS rather than by ITT.

SWC - school workforce census – an annual census of the state-funded schools teaching workforce in England taken each November. The census records the characteristics of teachers, including whether they have qualified teacher status, and the subjects that individual secondary teachers teach. The latest census was taken in November 2021 and is assumed to cover the 2021/22 academic year.

NQE - newly qualified entrant – a teacher who has entered service in a state-funded primary or secondary school in England as recorded in the school workforce census in the months immediately after they completed ITT.

NTSF - new to state-funded sector entrant – a teacher who has entered service in a state-funded primary or secondary school in England having not been employed as a regular teacher in the sector previously (as recorded in the school workforce census). This group will include some NQEs that deferred their entry into service by 4-16 months.

Returner – a teacher who has entered service in a state-funded primary or secondary school in England having been employed as a regular teacher in the sector previously (as recorded in the school workforce census).

PTR – pupil teacher ratio, the ratio of pupils to teachers (both in FTE terms).

FTE – full-time equivalent. A teacher who is employed full-time is considered as being 1.0 FTE. By contrast, part-time teachers will have an FTE value of less than 1.0. Although teacher numbers are in FTE format, ITT targets are in the format of headcount as one trainee is equivalent to one individual person.

PSHE – personal, social, health, and economic education.

## Section 3. How are secondary teachers assigned to individual subjects?

For a sample of secondary schools, the school workforce census collects information on the curriculum taught by individual teachers to pupils in years 7-13 respectively. The curriculum data is only collected from secondary schools that use electronic timetabling software that can produce data in the format required. This means that the number of schools that provide data can change from year to year.

As curriculum information is sourced from a subset of schools in England, the data are weighted and grossed so that the resulting totals provide a consistently representative, national picture over time.

The census does not state that an individual teacher is a 'mathematics teacher' or an 'English teacher' etc, it merely records which subjects a teacher teaches and the extent to which they do so in a typical week (usually census week).

To avoid double counting of individual teachers and to reflect that teachers may teach multiple subjects, individual teachers are assigned to the subjects they teach pro rata.

For example, take a full-time teacher who teaches: 12 hours of mathematics, 4 hours of physics, 2 hours of general studies and 1 hour of PSHE (personal, social, health, and economic education) in a typical week.

For the purpose of the ITT targets, both general studies and PSHE are out of scope, and so are excluded from the calculation. In this example, this teacher is counted as 0.75 FTE of a mathematics teacher (12 hours out of 16) and 0.25 FTE of a physics teacher (4 hours out of 16).

Teaching of 'science' and 'general science' is assigned pro rata to biology, chemistry, and physics respectively to reflect that targets for postgraduate ITT are not set for general science. Similarly, teaching of 'humanities' is assigned pro rata to geography and history.

This methodology is applied to the assigning of secondary teachers to individual subjects for historical stock, entrants, and leavers data.

Other publications may count individual teachers multiple times, counting them against each subject that they teach.

A list of the subject classifications used, e.g. those subjects classed as being part of the group called 'others' may be found on the 'overview' tab of the calculations Excel workbook.

## Section 4. Estimating future demand at phase level

The starting assumption for these calculations is that the number of teachers as reported in the most recent School Workforce Census and the associated PTR were sufficient to meet teacher demand at that time. This assumption uses the best available, most comprehensive, and most recent evidence on schools' deployment of the teaching workforce. This is supported by the well-established evidence on the relationship between pupil numbers and PTRs.

Firstly, there is limited evidence around an optimum PTR that the sector could adopt. Secondly, there has been a long-established relationship between pupil numbers and PTRs over many decades; and both pupil and teacher numbers change on a year-on-year basis. As a consequence, the Department updates the demand trajectory on an annual basis to reflect this.

Historically, PTRs have increased as pupil numbers have grown, and fallen when pupil numbers decreased. In other words, schools meet increased demand for teachers by both increasing teacher numbers, and by allowing PTRs and class sizes to grow. The Department assumes that as future pupil numbers grow, future PTRs will grow in line with historical increases. If pupil numbers are to fall in future, the Department assumes that future PTRs will fall in line with historical falls.

Using official pupil projection data, the Department for Education estimates the rate and direction that PTRs will change in future as pupil numbers change for primary and secondary respectively. Using these estimated future PTRs and official pupil projections, the Department estimates the number of teachers needed to meet these future PTRs in each future year. This provides the estimated future demand for teachers in state-funded primary and secondary schools respectively in England.

The estimate of overall teacher demand for primary includes both qualified and unqualified teachers. By assuming that the percentage of primary teachers that are unqualified will remain constant, and in steady state at the current level, the qualified teacher demand for primary is calculated. As with all assumptions, this assumption on future unqualified teacher rates is reviewed on an annual basis.

Next, the overall secondary demand needs to be broken down by subject, see section 5.

## Section 5. Estimating future secondary demand at subject level

The percentage of teaching hours currently dedicated to each subject at a national level is calculated using school workforce census data. It is currently assumed that these percentages will be maintained in future years as the curriculum is broadly stable over time. The teaching of subjects like general studies and PSHE are excluded, as to do otherwise would assume that a substantial number of general studies and PSHE trainees would be required each year.

If there are policies that might impact upon the future demand for specific subjects, an adjustment can be applied to these percentages. Relevant policies might include a new, expanded GCSE qualification for example. Currently, no such policies have been included within the Department's demand estimates. Policies are only included once they have been fully developed and ready for implementation.

It is assumed that the total number of future secondary teaching hours will grow/shrink, from the current school workforce census level, in line with future pupil numbers. This reflects recent trends as recorded in the SWC. This provides an estimate of the total future number of secondary teaching hours for future years.

This number is broken down into the number of secondary teaching hours dedicated to each individual secondary subject by applying the current percentages calculated from the latest school workforce census. This provides an estimate of teaching hours dedicated to each subject in the coming years.

Using these estimates, the year-on-year change rate in the number of hours forecast for each subject is calculated. It is assumed that the total (qualified and unqualified) teacher demand for each secondary subject will change year-on-year (from the current stock size as recorded within the SWC) at that rate. This provides the total teacher demand for each secondary subject in each future year.

Lastly, it is assumed that the percentage of secondary teachers that will be unqualified (lacking QTS) will be in steady state in future years. The current percentage of teachers that are unqualified is calculated for each secondary subject from the school workforce census. This reflects that some subjects have a greater percentage of teachers that are unqualified than others. By applying these percentages to the total teacher demand for each subject that was estimated previously, the unqualified and qualified teacher demand is estimated for each secondary subject for future years.



## Section 6. Estimating future supply, and adjustments relating to under-recruitment impacts

When calculating the 2023/24 postgraduate ITT targets, the calculations use ‘demand met’ and ‘estimated supply’ scenarios respectively to make an adjustment to reflect any under-recruitment from the previous two ITT cycles (2021/22 and 2022/23).

Firstly, 2023/24 postgraduate ITT targets are estimated using 2024/25 teacher demand figures for primary and each secondary subject. This calculation is designed to set a sufficient numbers of trainees to meet demand in 2024/25. The calculations assume that the stock size in 2021/22 (as recorded in the school workforce census) is sufficient to meet demand, and assume that the future demand in 2022/23 and 2023/24 will be met precisely. In other words, when undertaking calculations based on demand, any under- or over-recruitment impacts from the previous two ITT cycles (2021/22 and 2022/23) are ignored. This is the ‘demand met’ scenario.

Secondly, these calculations are concurrently undertaken using a short-term estimate of future teacher supply for the years 2022/23 and 2023/24. Therefore, these supply-based calculations do account for any impacts of under- or over-recruitment from the previous two ITT cycles. This is the ‘estimated supply’ scenario.

For all the calculations, data on the current teacher workforce is derived from the November 2021 school workforce census. This census includes those teachers that completed ITT during 2020/21 and joined the teaching workforce in September 2021 as newly qualified entrants (NQEs).

However, the trainees of 2021/22 were already in training when the analysis to estimate 2023/24 postgraduate ITT targets was undertaken. Furthermore, the recruitment of trainees for 2022/23 was already complete. Neither of these ITT training cohorts featured in the 2021/22 school workforce census as qualified teachers, but the size of those two training cohorts were known. Therefore, the recruitment impacts upon future school workforce censuses from ITT in these two years can be estimated.

The Department estimates future supply in 2022/23 and 2023/24 for primary, and each secondary subject by:

- Taking the current, 2021/22 stock size, as recorded by the school workforce census and:
  - Adding the number of entrants expected in 2022/23 – see more details on estimating entrant numbers in section 7 and 8.
  - Subtracting the number of leavers expected in 2022/23 – see more details on estimating leaver numbers in section 9.
  - The resultant figure is an estimate of the qualified stock size in 2022/23.
- The cycle is repeated for 2023/24; the estimated 2022/23 stock size is taken and:
  - The estimated number of entrants expected in 2023/24 is added.
  - The estimated number of leavers expected in 2023/24 is subtracted.

- The resultant figure is the qualified stock size in 2023/24. This is the 2023/24 supply estimate.

Having calculated the 2023/24 postgraduate ITT targets (see later sections of this document) based upon both the 'demand met' and 'estimated supply' scenarios respectively, a MAX statement is used to choose the larger of the two values. This value is the mainstream 2023/24 postgraduate ITT target, to which the 2023/24 high potential ITT target is added to get the overall 2023/24 postgraduate ITT target.

In those cases where the postgraduate ITT target based upon the 'demand met' scenario has been chosen, the calculations have estimated that supply in 2023/24 will exceed demand. If the target calculated under the 'estimated supply' scenario was chosen instead, this would result in the target being deflated because the estimated supply exceeds demand. In other words, the target would be reduced to account for historic over-recruitment. To avoid this issue, the postgraduate ITT target is calculated based on upon teacher demand being met and not exceeded each year.

By contrast, for those subjects where the postgraduate ITT target based upon the 'estimated supply' scenario is chosen, the calculations have estimated that supply in 2023/24 will not meet demand. Taking this approach results in the 2023/24 postgraduate ITT target being adjusted to counter the under-recruitment impact from the two most recent postgraduate ITT recruitment rounds.

As a consequence, when calculating whether an adjustment relating to under-recruitment impacts should be made, the Department has made a broad assessment of short-term teacher supply, considering both future retention, and recruitment from routes other than ITT. The Department does not assume that a historical target was missed by 'x', and then add 'x' on to future targets; a broader, and more holistic approach to supply and recent recruitment is taken.

For example, when setting the 2022/23 mathematics target last year, the postgraduate ITT recruitment targets for 2020/21 and 2021/22 had been missed. This might suggest that an adjustment to counter this under-recruitment would be necessary. However, the impacts of under-recruitment against those recent postgraduate ITT targets was fully offset by more favourable recruitment via other routes and improvements in short-term retention, making such an adjustment unnecessary.

The scale of the adjustment to counter recent under-recruitment used for the 2023/24 PGITT targets may be estimated by subtracting the postgraduate ITT trainees required calculated under the 'demand met' scenario from that under the 'estimated supply' scenario. This calculation would generate negative figures for those subjects where such an adjustment was not used, i.e. the actual adjustment used was equal to zero.

## **Section 7. Estimating future returner and new to state-funded sector (NTSF) entrant numbers**

The Department estimates future returner and NTSF entrant numbers for primary, and each secondary subject. New to state-funded sector entrants include those teachers who are new to the sector but who are not NQEs (according to the school workforce census), and those NQEs who deferred their entry into the workforce after ITT by between 4 and 16 months.

These estimates consider recent trends as recorded in the SWC, the demographics of those teachers, the relationship with leaver rates (demand for returners falls when teacher retention improves), and broader economic factors. The calculations use FTEs (full time equivalents) to account for those teachers who are not employed in full-time roles.

For example, deferred NQE numbers grew during the pandemic, as they did during the recession of 2008. This suggests that during an economic downturn, permanent employment opportunities for NQEs in the months immediately following ITT are likely to become more limited as the retention rate of existing teachers improves. Trend analysis, comparison to previous recessions, and consideration of broader economic factors was used by the Department to estimate how deferred NQE numbers might change in 2022/23, 2023/24, and 2024/25.

## Section 8. Estimating future newly qualified entrant (NQE) numbers

The number of NQEs entering service in the next 2-3 years must be estimated for two reasons. Firstly, it is used to estimate future supply in 2023/24 (see section 6 for more details). Secondly, the number of NQEs who will enter the state-funded sector via ITT routes other than postgraduate ITT in 2024/25 is required to estimate the number of NQEs required from postgraduate ITT (see section 11).

There are a number of different training routes for NQEs in England including postgraduate ITT, undergraduate ITT, and high potential ITT. The forecast for the number of NQEs trained through such routes who will enter service in the state-funded sector each year are estimated for both primary, and each secondary subject by:

- Taking ITT census recruitment data, or internal ITT recruitment data where census data is unavailable, to estimate the number of trainees on training courses who will end training in a specific year.
- Estimating the number of those trainees who will complete their training (completers). This is achieved by applying subject specific ITT completion rates, derived from data published as part of the ITT performance profiles.
- Estimating the number of 'completers' that will enter service in state-funded mainstream schools in England as an NQE in the first part of the academic year that follows their teacher training. This is accomplished by applying subject specific post-ITT employment rates derived from data published as part of the ITT performance profiles.
- Applying an FTE (full time equivalent) rate for NQEs to reflect that not all NQEs enter service in a full-time role. This rate is derived from the latest school workforce census data.

Note – the ITT completion and post-ITT employment rates data used within these calculations differ to that published in the ITT performance profiles publication. All ITT rates data used are assumed rates rather than the latest published ones because of the following reasons:

- Firstly, for those subjects where there were small cohorts of trainees (or the rates were disproportionately high/low compared to the secondary average, typically more than 10 percentage points difference), a proxy rate may have been used. For example, because the cohort of secondary undergraduate ITT trainees was small, the calculations instead used the completion/employment rates for the much larger primary undergraduate ITT trainee cohort.
- Secondly, the employment rates reflect the state-funded schools sector coverage as defined by the target calculations (e.g. state-funded primary and secondary schools in England). Some NQEs may gain employment in other sectors (e.g. Scotland and the independent sector), and some NQEs may be deferrers and are subsequently picked-up as new to state-funded sector entrants.
- Lastly, because of impacts from the COVID-19 pandemic, it was judged that the most recent historical rates will likely not be representative of what will happen in

future years. Therefore, the assumed rates used in these calculations have been derived using weighted averages from pre-pandemic data.

In addition to those NQEs sourced via ITT in England, some NQEs gain QTS via the 'assessment only route to QTS' each year. Future estimates of NQEs that will be sourced from this route are taken from internal estimates of future AO recruitment that are based on both recent trends and consideration of future provision.

Finally, there are a small number of NQEs that are recorded within the school workforce census who cannot be attributed to either ITT in England or the AO route. For example, a teacher that recently gained QTS in Scotland but has entered service in England instead. The numbers of such NQEs have been estimated using ITT and SWC data and a weighted average of their numbers is applied within these calculations to estimate the future number. This is referred to within these calculations as the 'ITT-NQE adjustment'.

## Section 9. Estimating future leaver numbers, and the flows-stock adjustment

The future number of leavers must be estimated to calculate both future short-term supply (see section 6) and the future demand for postgraduate ITT trainees.

The calculation to estimate the number of leavers in the following year uses two components: an estimation of the leaver rate, and the stock of teachers at the end of the previous academic year. Applying the estimated leaver rate to the previous year's stock of teachers produces an estimate of the number of leavers, and indirectly, the number of teachers who remain in service at the start of the following academic year.

An estimated leaver rate is separately produced for over- and under 55 year old teachers which recognizes that the likelihood of leaving the profession is driven by different factors for older and younger teachers respectively. Separate trajectories are produced for primary, and each individual secondary subject, reflecting differences in teacher retention levels between the teacher cohorts of different subjects.

In 2020/21, there was an unprecedented decrease in the number of teachers leaving service, with leaver rates falling to the lowest level observed since the SWC started being collected in 2010. This fall was likely because of COVID-19.

In 2021/22, the latest year for which data was available, both primary and secondary leaver rates increased slightly but remained below their pre-pandemic levels. This was likely to be a result of continuing effects of the COVID-19 pandemic. As the effects of the pandemic subside, it is expected that future leaver rates will become comparable with pre-pandemic levels.

To develop estimates for future leaver rates, the latest (as of December 2022) economic forecasts from the OBR were accounted for, and any other known factors that might impact on future teacher numbers not yet reflected in the baseline data. For example, an assessment was made of the relative strength of teachers pay compared to pay in the broader economy and the impact this may have on future retention. Similarly, the estimated impact of departmental policies on retention such as the early career framework (ECF) were taken into account.

These calculations also account for existing teachers that stay in service but reduce their working hours between years; the reduction in capacity is expressed in terms of FTE teachers who need to be replaced. To do this, the calculations use a 'flows-stock adjustment' that has been calculated for primary and secondary respectively using data from the three most recent school workforce census collections.

This adjustment was calculated by examining flows and stocks figures. For example, if the stock size (FTE) as recorded in the SWC in a given year (e.g. 2019/20) is taken, and the no. of entrants in the following year is added to this figure, and the no. of leavers

subtracted, the resultant stock size is not equivalent to the stock size in 2020/21. This is because some of the existing stock in 2019/20 reduced their working hours between 2019/20 and 2020/21. Typically, NQEs tend to enter service full-time, and teachers will, on average, reduce their working hours over the course of their careers.

## Section 10. Estimating future entrant need

These calculations estimate future entrant need based upon both the 'demand met' and 'estimated supply' scenarios for primary and each secondary subject for three academic years: 2022/23, 2023/24, and 2024/25. Performing these calculations based upon both scenarios enables entrant need to be estimated that reflects any short-term under- or over-recruitment impacts (see section 6).

There are two elements to the entrant need: accounting for year-on-year changes in demand, and replacing leavers respectively. These two elements are added together, to estimate the overall entrant need. The leaver numbers element is estimated as outlined in section 9.

The second element, accounting for year-on-year changes in demand is estimated as follows, the calculations for 2022/23 entrant need under the 'demand met' scenario are used as an example:

- Firstly, the calculations take the 2022/23 teacher demand and multiply this by the 'flows-stock adjustment' to account for teachers whose hours will reduce year-on-year.
- From this, the 2021/22 teacher stock from the school workforce census, i.e. the starting stock, is subtracted.

In the case of secondary, the residual figure reflects the growth in stock size required year-on-year because of rising pupil numbers and increasing teacher demand.

For primary, the resultant figure reflects that the stock size can fall in size year-on-year because of falling pupil numbers.

Therefore, these calculations assume that entrant need can fall if teacher demand falls, or because the workforce does not need to grow as rapidly year on year. Secondly, the calculations assume that any leavers require replacement.



## **Section 11. Estimating NQE need and postgraduate ITT trained NQE need**

The entrant need that was previously calculated (section 10) covers entrants from all forms of recruitment, not just ITT. Therefore, this must be converted into the number of NQEs needed to meet demand, and then, the number required that would need to be trained via postgraduate ITT.

Firstly, to estimate the total number of NQEs required, the numbers of returners and new to state-funded sector entrants (see section 7) are subtracted from the entrant need. This provides the overall NQE need for future years, including 2024/25.

To estimate the number of NQEs who will need to be trained via mainstream postgraduate ITT: the number of NQEs expected from alternative training routes in the relevant year is subtracted from the overall NQE need. These NQEs include those trained via high potential ITT, undergraduate ITT, and AO in the relevant year (see section 8).

The residual figure is the estimate of the number of NQEs required each year to be trained via mainstream postgraduate ITT. As with the previous step to calculate entrant need, figures are calculated based upon both 'demand met' and 'estimated supply' scenarios respectively.

## **Section 12. Converting 2024/25 postgraduate ITT trained NQE need into the number of 2023/24 postgraduate ITT trainees required**

Finally, the number of NQEs required via postgraduate ITT in 2024/25 needs to be upscaled into the number of mainstream postgraduate ITT trainees required in 2023/24. This step accounts for those trainees who will not complete ITT, and those who will not enter service in state-funded mainstream schools in England as NQEs immediately after ITT. Additionally, the process accounts for those NQEs who enter service as part-time, as opposed to full-time, teachers.

To do this, the number of NQEs required from postgraduate ITT (section 11) is divided by the FTE rate of NQEs, the assumed completion rate of ITT trainees, and the assumed post-ITT employment rate of ITT trainees.

Lastly, a MAX statement is applied, as outlined in section 6, to select the larger of the postgraduate ITT targets calculated under the 'demand met' and 'estimated supply' scenarios respectively. This allows an adjustment to be applied to counteract under-recruitment impacts from the previous two ITT cycles.

As a very final step of the calculations, upon the 'Mainstream PGITT & HPITT Target' tab, mainstream postgraduate ITT targets are collated from all the previous tabs that relate to primary and individual secondary subjects. These mainstream targets are rounded to the nearest 5, and the relevant 2023/24 high potential ITT target is added to calculate the overall 2023/24 postgraduate ITT recruitment target.



Department  
for Education

© Crown copyright 2023

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit [nationalarchives.gov.uk/doc/open-government-licence/version/3](https://nationalarchives.gov.uk/doc/open-government-licence/version/3).

Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

About this publication:

enquiries [www.education.gov.uk/contactus](https://www.education.gov.uk/contactus)

download [www.gov.uk/government/publications](https://www.gov.uk/government/publications)



Follow us on Twitter:  
[@educationgovuk](https://twitter.com/educationgovuk)



Like us on Facebook:  
[facebook.com/educationgovuk](https://facebook.com/educationgovuk)